

Bahaaeddin Alareeni
Allam Hamdan *Editors*

Financial Technology (FinTech), Entrepreneurship, and Business Development

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Editors

Financial Technology (FinTech), Entrepreneurship, and Business Development

Proceedings of The International Conference
on Business and Technology (ICBT 2021)

 Springer

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Foreword

I am delighted to write this foreword for The International Conference on Business and Technology (ICBT 2021) proceedings. I deeply believe in the role of such a conference and other similar scientific forums in bringing together leading academicians, scholars, and researchers to share their knowledge and new ideas as well as to discuss current developments in the fields of economics, business, and technology. ICBT 2021 provides a valuable window on the implementation of technologies such as artificial intelligence, IoT, and innovation in business development. For two days, a large number of distinguished researchers and guest speakers discussed many contemporary issues in business and technology around the world. It is a great privilege for the College of Business and Economics at Palestine Technical University-Kadoorie, Palestine, to co-publish this book for the sake of promoting excellent and cutting-edge research by scholars from around the globe. I have a strong faith that this book will be of great benefit for many parties, especially those aspiring to develop buoyant strategies that will lead to positive impact on any future endeavors. Finally, I hope that the ICBT'21 continues as a destination for researchers, postgraduate students, and industrial professionals.

Khalid Sweis

Preface

The present business environment has been tumultuous due to the emerging new challenges resulting from innovative development and disruptive technology. Consumer demands for innovative products and services have urged business fraternity to be responsive and resilience in combating those new requirements.

The Fourth Industrial Revolution is characterized by the combination of physical and digital technologies, such as analytics, artificial intelligence, cognitive computing, machine learnings, and the Internet of Things (IoT). This would certainly impact the company's business direction, the future industries, the customers, the employees, and the society at large. The advancing technologies are bringing about social changes and economic development. As such, organizations are required to adapt to the new environment and strengthen their strategies despite the risk and uncertainty in the environment. New business integration strategies must be leveraged to ensure companies continue to sustain.

To anticipate the rapid change, education is set forth to be more innovative in offering the future ready curriculum. As such, education organizations and scholars are expected to be malleable and creative in designing new curriculum that embrace new technologies, integrating strong entrepreneurship values, fostering positive values and socio-emotional skills throughout the curriculum in order to produce quality and competent future human capitals that are ready to serve the future industries.

The integration between technology and business should be well managed so to provide a wide range of high-quality and competitive products and services in societies and countries. Therefore, the objective of this book proceedings is to conduct a review, examine, analysis, and discussion relating to the fields of business and technologies and their opportunities and challenges. We attempt to address a range of topics in the fields of technology, entrepreneurship, business administration, accounting, economics that can contribute to business development in countries, such as learning machines, artificial intelligence, big data, deep learning, game-based learning, management information system, accounting information system, knowledge management, entrepreneurship and social enterprise, corporate social responsibility and sustainability, business policy and strategic management,

international management and organizations, organizational behavior and HRM, operations management and logistics research, controversial issues in management and organizations, turnaround, corporate entrepreneurship, and innovation, legal issues, business ethics, and firm governance, managerial accounting and firm financial affairs, non-traditional research, and creative methodologies.

This book constitutes the refereed proceedings of the International Conference on Business and Technology (ICBT 2021) organized by EuroMid Academy of Business & Technology (EMABT), held in Istanbul, between 06 and 07 November 2021. The ICBT 2021 partners and supporters were: Universiti Malaysia Kelantan–Malaysia; National University of Life and Environmental Sciences of Ukraine–Ukraine; ARCIF Analytics; E-MAREFA–Jordan; Palestine Technical University–Kadoorie, Palestine; and the Palestinian Community Association For Ph.D. Holders in the Public Service, Palestine.

In response to the call for papers for ICBT 2021, 485 papers were submitted for presentation and inclusion in the proceedings of the conference. After a careful blind-refereeing process, 292 papers were selected for inclusion in the conference proceedings from 40 countries. Each of these chapters was evaluated through an editorial board, and each chapter was passed through a double-blind peer-review process.

These chapters are reflecting quality research contributing theoretical and practical implications, for those who wise to apply the technology within any business sector. It is our hope that the contribution of this book will be of the academic level which even decision-makers in the various economic and executive levels will get to appreciate.

Finally, we express our sincere thanks to the plenary speakers; Prof. Carolyn Strong, Editor in-Chief, Journal of Strategic Marketing from Cardiff University-UK; Prof. Khaled Hussainey, Co-Editor in-Chief, Journal of Financial Reporting and Accounting, from University of Portsmouth-UK; Prof. Timothy Mescon, Executive VP and Chief Officer-Europe, Middle East and Africa at AACSB International AACSB International–USA; Prof. Roselina Ahmad Saufi from Universiti Malaysia Kelantan–Malaysia; Prof. Munira Aminova, Experienced Higher Education management leader with a demonstrated history of working in the research industry, from United Business Institutes-Belgium; Prof. Mohammad Kabir Hassan, Editor in-Chief, International Journal of Islamic and Middle Eastern Finance and Management, University of New Orleans-USA; and Prof. Derar Eleyan, President Assistant of Palestine Technical University Kadoorie-Palestine.

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Allam Hamdan

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Fourth Industrial Revolution and Financial Technology FinTech

4IR and Women Empowerment in India



Anita Rani Chopra  and Harsh Purohit 

Abstract The fourth Industrial Revolution is the ongoing automation of current manufacturing practices and industrial methods using contemporary innovative technology. 4IR has integrated mega-scale machine-to-machine (M2M) communication through the Internet of Things (IoT) targeted for improved communication tools, best automation, self-monitoring. In this fourth industrial revolution, the data support an increase in educated women participation and employment. United Nations has targeted the year 2030 in achieving gender equality goal through Sustainable Development. “Global leaders are committed to achieving targeted goal of total and prolific employment, reasonable and decent work for all women and men, including young and people of determination, equality in pay for equal work, gender parity and enablement of all women and young girls, around the world. However, women and girls have limited access to education, employment opportunities, financial resources, material resources, and violent freedom at home and in society. Further access to IT, and the clean path to socio-political participation, are restricted to women. They recognize the importance of gender equality as per a report by the Int. Labor Organization (ILO), only forty-eight and a half percent of women participate in the labor market, twenty-six and a half percent less than men (Dwivedi 2017). Further, in the Asian and Indian context, women are mostly work in the unorganized sector; further relevant data on their number remains secluded. (Harvard Kennedy School) However, as IMF (International Monetary Fund) better, women’s participation in employment leads to economic and social empowerment at the individual, society, and national level (International Labor Organization 2018). These path-breaking technologies are changing how companies in manufacturing and services are changing the industrial fabric, as per founder and president of the WEF (World Economic Forum), Mr. Klaus Schwab, coined the term 4IR (International Labor Organization 2018). However, with the introduction of nascent technologies, digitization, and computerization, there is also apprehension about women working in low-skilled and low-remunerating jobs may be displaced from their place in the workforce (International Monetary Fund 2018).

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It looks that globally and especially in Asia and the Indian sub-continent, girls and women have low access to education, training, financial, IT, employment opportunities, and physical resources. Further, women are also constrained regarding political participation and family inheritance but are subject to higher family violence. Making women ready through education, skills training, and providing (360°) opportunities can empower women and help India's economic advantage.

Keywords 4IR · Women · Empowerment · Challenges · Opportunities · Ecosystem · Gender equality

1 Introduction

Fourth Industrial Revolution focuses on the landscape of organizational veracities and kinds of skills (problem-solving, people - management, emotional intelligence and, creativity) along with the future of work to provide opportunities for the emergence of gender inclusion at work. Further, it stresses the institution of digital discipline, Technology, Engineering, & Mathematics (STEM) education. One of the recent surveys brought the importance of interaction with industry, NGOs, not-for-profit enterprises, government, skilled advancement interventions, and recipients as key to revitalizing the education ecosystem. Further, it offers strong founding skills to give girls and women career options to bridge gender inequality. In addition, in the context of young girls, occupational training and traineeship opportunities can create a solid connection for technology-related training and consideration of employment options. Relevant stakeholders must focus on resuming skills development programs and promoting women's professional activity, which focuses on changing social sensitivities, breaking gender categorizes on career choices, with new, old techniques and real-life skills. Acquiring skills can get closed to economic and social stability. The emergence of the fourth industrial revolution for women and young girls could lead to significant opportunities or solutions, emphasizing the importance of adopting technology, inventiveness, innovation, and creativity.

The World Bank's studies show that the number of educated and participating women increases in the workforce (Srinivasan and Kumar 2019). However, there are still circumstantial restrictions on gender equality around the world. Achieving gender equality is an essential condition for reflecting the progress of the "United Nations Agenda for Sustainable Development 2030", under which world leaders are with all women, including young people and people of determination. Another important aspect is "pay parity for equal value jobs" (Sustainable Development Goals 8), Achieve Gender Equality, Empower Women, and Girls (Sustainable Development Goals Round 5) (World Economic Forum (2018)). Worldwide, women have lower admittance to education, training, financial, physical material resources, employment opportunities, and domestic and social violence freedom. No access to knowledge and information coupled with technology means of social and political participation is limited to women. SDG Goal five revolves around women who recognize the

importance of gender equality and are emerging as equally invested in the paradigm of development. As per International Monetary Fund (IMF), any effort encouraging women’s participation in the workforce leads to economic and social empowerment at - individual, society, and national levels (World Bank 2018).

From the Indian context, aligning the growth of the Fourth Industrial Revolution in terms of disruptive technology, automation, and digitization with its consistent impact on the future of work by the gender lens is essential in bridging the gender gap among employees. The Fourth Industrial Revolution is transitioning from simple digitization to revolutionary innovation. The third Industrial Revolution is by integrating digital technologies and platforms. These technologies change how companies do business in the manufacturing, service, and agricultural sectors (United Nations). Klaus Swab, founder, and chair of the WEF (World Economic Forum), coined 4IR. He described the revolution as a transformation of the physical, digital and natural world that would change the way people and businesses interact with technology. Disruptive technologies, blockchain, digitization, the Internet of Things, the deployment of big data, business simulations, the nature of talent, and the kind of skills will change the future of work according to need. Principal Skills for the job year 2020 onwards is as shown in Fig. 1

Fourth Industrial Revolution success focuses on people taking advantage of technology through introducing productive yet unique products, goods, and services. These, in turn, can help improve quality, remove disparities and provide a common platform independent of gender bias. The fourth Industrial Revolution can push economies to higher gear through diverse gender independent participation of society. 4IR would enhance preferences, choices, and development through better socio-economic-political systems. It would also introduce novel technologies and business enhancement models, shaping and enhancing talent needed to change the workplace and workforce. The facts with knowledge and their application in terms of talent and skill set will enhance women’s readiness for Fourth Industrial Revolution from the Indian perspective (India Country Report 2018b). From India Context, it is vital to know what skillsets and training are paramount for females to accommodate in ongoing 4IR.

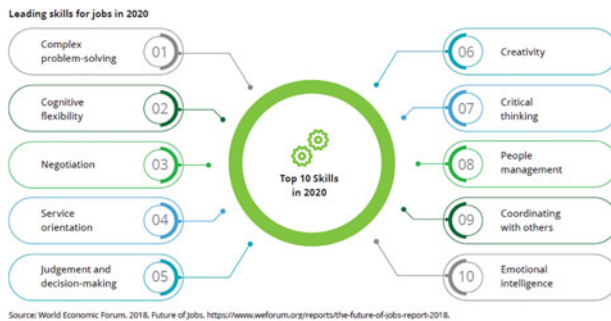


Fig. 1 Principal skills for job year 2022 onwards

2 Literature Review

The Fourth Industrial Revolution (4IR) offers us an incredible opportunity to unite as humans against automation. It is not just that men are losing roles in favor of women or vice versa, but people are losing roles due to automation. However, to unite as a people, we must first address women left behind (Srinivasan and Kumar 2019). Today women are sharing responsibility with men, and inclusion carries shared risks. Globally, the proportion of women using the internet is twelve percent lower than that of men and stands at thirty-three percent in less developed countries (LDCs). This divide symbolizes the more comprehensive digital exclusion of women and girls. As the world embraces 4IR, women's issues are getting worse. We need to fight the toxic standards that hold back women. If women, who usually are half of the world's working-age population, do not reach their full economic potential, the global economy is affected. The main objectives of the 4IR include increasing benefit to all and move the pendulum towards inclusion. Today's students (of all ages) face significant challenges in terms of demographics, population (both increasing and decreasing), global health, literacy, inequality, and climate change, and knowledge proliferation. When students graduate from college today, the world of 4IR will have significantly different demands than before. AI is slowly creeping into every sphere of life, thus changing the fabric of employment for both men and women. What one specializes in does not determine one job or career. It is essential to understand what it is and what one can do with it. 4IR has forced governments across the developing world to look into labor reforms, as, in these countries, labor form a large part of industrial and agriculture output (Report and No 18, 4 2018). Technology-oriented models are considered a threat to human replacement, especially for low-skill, low-paid women laborers. Jobs in construction and manufacturing especially are vulnerable to technology. One can say that technology would have primary to play in for jobs created between the years 2019 through the year 2024. As per one of the International Labor Organization Asian studies, nations may lose around eighty percent of textile, readymade garments, and apparel sectors to Sewbots.

Further, this could result in around loss of ten million jobs by women (Deloitte 2018). Development challenges are similar in Asia, where girls are leaving out of the school system, fewer girls move from education to employment, and chances for girls are five times less likely to make a career related to technology or ICT (International Monetary Fund 2018a). In addition to contributing to digital equality, technology can help break typecasts of society's gender norms—contrary to the positive result of 4IR.

Gender discrimination has exacerbated inequality, limiting women in Asia to low-wage or unpaid jobs, mainly in the informal sector. The same also raises the question of on preparedness of women for 4IR education and skill levels, especially in India. In the context of India, the government has expressed a deep commitment to improving the participation of women employees through the Ministry of Skill Development and Entrepreneurship. However, there are gaps in formal education regarding learning level, dropouts, and quality of education, which pose significant challenges

(International Monetary Fund 2018a). The current LFPR (Labor Force Participation Rate) is - documented at fifty-four percent, and only five percent of Indians are formal - declared eligible. India is currently - ranked 120th out of 131 countries regarding female labor force participation and gender. Identified the violence (World Economic Forum 2018a). Despite accounting for 48% of the population, women's employment is from thirty-five percent in 2005 to twenty-eight percent in 2018 due to lack of access to education, skills development, and employment opportunities for women and girls. It is decreasing to ninety-five percent (195 million) of women are employed in the informal sector, at a lower rate than LFPR men in India (World Economic Forum 2018b).

3 Research Methodology

Writing an exploratory paper that draws data from secondary sources is a challenge. Therefore, the majority contribution for this paper comes from a literature review. The author followed a three-step approach involving journals, various ministries and international organizations involved in women empowerment websites, and published research reports. To name a few were United National Dev. Program, International Monetary Fund, International Labor Organization, 4IR, World Economic Forum, India Country Report, Web Sites of Big 5, State of Haryana web site. On a subsidiary level, data orientation also came from News Channels, newspapers, which prompted the author to refer to various schemes Govt. of India and Haryana introduced regarding Women's Empowerment. The author also contributed to various online seminars, which provided good insight and valuable insight. As many as twelve government schemes and policies were studied, contributing to writing this paper. The studied schemes also helped select and considered the right and quality papers, which provided valuable input. Keeping in mind the evolving nature of subject matter author avoided articles of annotations, articles based on a book review, and working papers. With a focus on quality, only the top journals and book chapters were part of the reference.

Further, to be unique, publications containing keywords like 4IR and women's status in the Indian context were included while writing the literature review. Journals and articles selected had to have 4IR and Women Empowerment in India, Asia, and the world as compulsory inclusion so that right and relevant papers may only be part of the literature. Abstract, keywords, citation transferred to excel sheet for in-depth analysis. Application of open coding content analysis to selected articles resulted from invalid, more profound text, which helped this paper as helpful content.

4 Data Analysis

Because of 4IR, the realities of the future workforce are transforming into a new picture, which includes different learning and talents and is as follows in Fig. 2:

Development challenges in India are no more different from Asia, where girls drop out of schools, fewer girls can convert education to job opportunities or employment, and they are more than five times less likely to have a career in ICT or those allied technology domain information and communication. Technology (Women in India’s Economic Growth 2018a). In addition to promoting digital equality, technology helps break down gender labels in society, which is a positive side of the 4IR outcome. Differences exacerbated by gender discrimination severely restrict women across the Asian sub-continent to low-paid or unpaid jobs, mostly in the informal sector. The question arises - how ready are women for education and skills during 4IR, especially in India?

4.1 Status of Preparedness of Indian Females for Facing

As per a study conducted by Economic Survey 2018, World Bank Group, and Annual Status of Education Report, the Government of India has expressed a deep commitment to improving women’s participation in the labor market. However, significant challenges remain with gaps in formal education regarding learning, early school leavers, and quality of education (Ministry of Women and Child Development 2016). The current labor force participation rate (LFPR) is fifty-four percent, and only five percent of Indians can be considered ready and formally qualified (World Economic Forum 2018b). India ranks 120th out of 131 countries regarding female labor force participation and gender-based violence (Annual Status of Education Report 2018). Although they make up 48% of the population, women and girls lack education and skill development access. Employment opportunities declined in female employment rates from 35% of the labor force in 2005 to 28% in 2018. The female LFPR

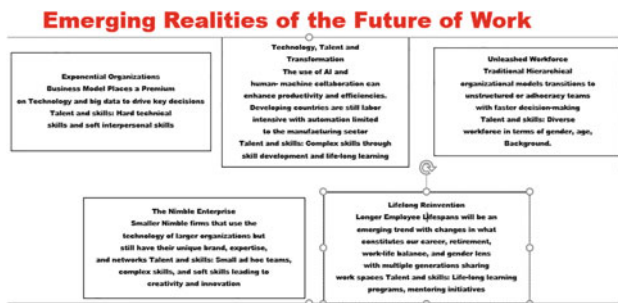


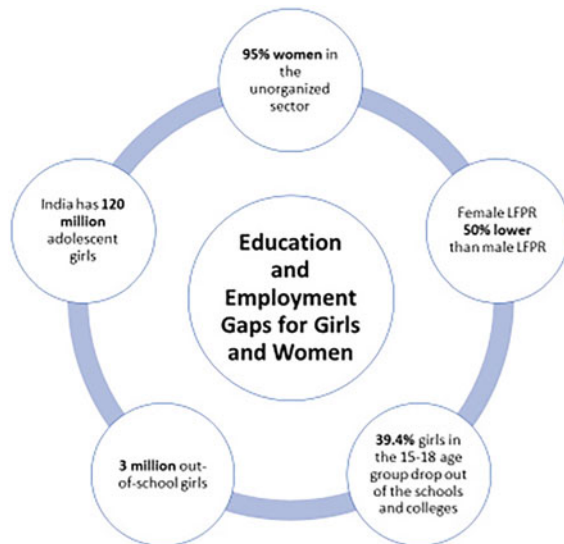
Fig. 2 Emerging realities of the future of work

is currently 50% lower than the male LFPR (World Bank Group) in India and is ninety-five percent of women employed (195 million) in the informal sector.

Gender variation in every sphere, like social, cultural, and economic barriers, has resulted in lower levels of education and employment for women and girls. These inequalities increase with the appearance of the fourth industrial revolution, with a low percentage of women signifying an understanding of digital technologies, mechanization, automation, the IoT, ML, and big data. Currently, only thirty-four percent of women in India have access to mobile technology. A report by ASER (Annual Status of Education Report), which captures the preparedness of girls in the age bracket of year fourteen to eighteen, shows that most girls enter the rural workforce. It is a pity to know that sixty adult children who want higher education cannot read second-grade textbooks. Just forty-three of them were able to solve a simple problem of division. A Cohort of students had limited skills in essential reading and mathematics. Of this cohort, seventy-five percent of girls never used the internet. With this plight, both government and private sector need to join hands together to enhance the skillset for women to take economic advantage as a country. Figure 3 below shows the education and employment gaps for girls and women. 4IR.

“GOI (The Government of India) in the backdrop has launched initiatives like Skill India Mission. Kaushal India, Bet Bachao Beti Padhao, Sukanya Samridhhi Program/Yojna, and as per claim, have already imparted training to more than three and a half million women (Women in India’s Economic Growth 2018b)”. As per the sixth Census of 2011, entrepreneurship is an essential driver of the 4th Industrial Revolution, and less than fifteen percent of women are constituents of entrepreneurship. On the rural front, challenges faced include lack of resources, knowledge, and social mobility.

Fig. 3 Education and employment gaps for girls and women



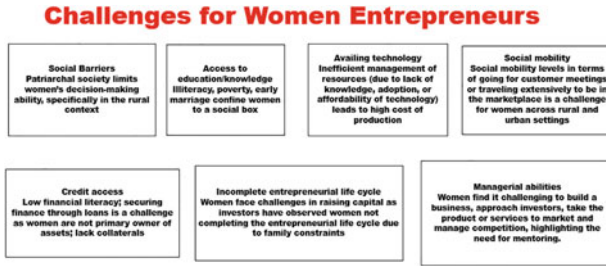


Fig. 4 Challenges for women entrepreneurs

4.2 Challenges for Women Entrepreneurs

“Positively speaking, the balance of labor in India and the inclusion of more than two hundred thirty-five million women workers can contribute to economic steadiness, progression, efficiency, and income stability. As an unexpected result, it can enhance corporate profitability and get to positive outcomes for women and children in health, education, and nourishment (Survey 2018)”. Current comprehension into research by the IMF shows that if women’s participation is as good as their male counterparts, there will increase at least twenty-seven percent of India’s GDP. Furthermore, Fourth Industrial Revolution allows women to build the skills they need to succeed at work. Through the overall championship for Sustainable Development Goals, it calls for greater inclusion for governments, the private sector, and non-profit communities (as these are drivers for potential social change) (Ministry of Skill Development and Entrepreneurship 2018). Challenges for women entrepreneurs are as shown in Fig. 4.

4.3 Survey on Outcome of Relevant Stakeholders on Redirecting Education Eco-System

The recent survey findings suggest that preparing girls for Fourth Industrial Revolution encompasses strengthening the education ecosystem. Such measures would enhance teacher capacity, enhancing classroom practices in government and private schools while making rote learning techniques attractive. This survey also outlines education as a priority investment area since it can generate results, especially for girls regarding preparedness in the 4IRs area. The areas of future education skills are as follows in Fig. 5:

Government school teachers using technology as a key tool to teach children in the classroom is a crucial differentiator. Another initiative, which brings to limelight the role of Central Government of digital techniques education or technology in overwhelming the shortage of more than one and half million teachers by moving to teacher more undersized classrooms in remote or conflict-affected locations, needs loud applaud. Stress also shifted the focus from several schools or

Education Initiatives to Build Skills for the Future

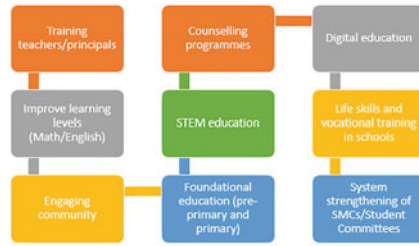


Fig. 5 Education initiatives to build skills for the future

organization development to developing basic proficiency and reading skills in children, especially girls who will contribute to the economy to achieve objectives. As mentioned above, the initiative aims to close a significant skills gap and increase the opportunity for girls to continue their education beyond the primary, middle and secondary levels. The integration of occupational training in school, followed by training opportunities and contacts with the industry, has been recognized as the most critical step to advance girls’ aspirations. These girls can then take part in vocational training courses at Industrial Training Institutes or other private centers. Research indicates three main reasons girls drop out of school are: social pressures, lack of family support, and limited understanding of career opportunities. Educational pro-activeness and initiatives with counseling and mentoring opportunities, life skills training, and career prospects are recommendations for girls to be informed. 4IR requires STEM (Science, Technology, Engineering, and Mathematics) in the education curriculum, teaching methodology, and pedagogy. The focus is on skills, complex problem solving, and creativity which evolves a culture of innovation and inquisitiveness.

4.4 Paradigm Shift in Skill Development

Through Focus group interviews conducted with critical stakeholders, it became evident that to succeed in skill development programs, and it is essential to focus on demand-driven modules and sync with industry requirements. 4IR enablers skill development initiatives specific to gender in the Indian context are as follows in Fig. 6:

The Facilitator of Women Entrepreneurship is as follows in Fig. 7:

Quality of education

Structuring of community and institution-centric education interventions aimed at improving outcomes of education

Teacher training

Training teachers and principals to improve classroom practices and introduce innovative pedagogy



Engaging community

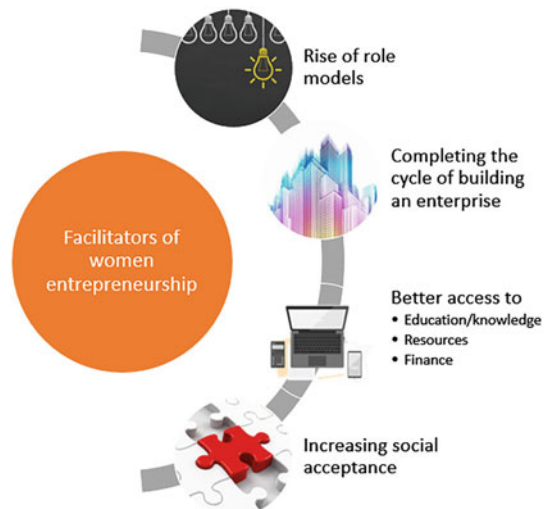
Awareness at the community level on educating the girl child, to achieve shifts in perceptions and behaviour

Career counselling

Providing mentoring and guidance to children on continuing education and understanding career options

Fig. 6 Skill development models

Fig. 7 Facilitator of women entrepreneurship



5 Discussions

According to an IMF report, the labor force participation rate of women in India is one of the lowest in the world, with their labor force participation falling from 35% in 2005 to 27% in 2017. Rigid social norms, archaic gender roles that weigh the burden of home care on women, a lack of information on opportunities, safety concerns, and a lack of adequate skills development all contribute to the fact that women (especially the most disadvantaged) are few in the workforce. The private sector also suffers from a severe shortage of qualified applicants. Although the Indian government has made great efforts to develop the Indian skills ecosystem in recent years, the unorganized sector remains unskilled. Equal participation of women in

the workforce can significantly boost India's economic growth. This change requires connecting women to appropriate opportunities for work and development. Although we are seeing more and more women enrolling in secondary and higher education, this does not translate into their involvement in the workforce. In addition, interventions linking aspiring female candidates to appropriate opportunities in the industry are essential in strengthening the ecosystem of skills for women.

6 Conclusion

According to WEF (World Economic Forum), women may be at a disadvantage as their skills and talent are not being utilized fully because of their non-readiness in many areas of life. In the Indian context, redundancy for women's jobs would be more as automation through digitization, AI, ML, Big Data, Blockchain, and IoT would deprive women with no skills in these areas. On the other hand, India would be advantageous in growth and differentiation if successfully harnessing women's potential tapped appropriately. The industry is changing its strategies to train, recruit and encourage women in the workplace. The industry needs to harness top skills, including teamwork, people management, and emotional intelligence, where women stand to have the edge. Empowering women and girl's child through targeted education and redefining activities, along with moderating social barriers, can potentially accelerate their education and improve their skill set. The focus will allow women to participate equally in employees, households, and communities. Orientation towards STEM education can be a real game-changer for India's growth, poised to grow exponentially. Adaptation of gender equality is a positive step towards women's empowerment. Developing creative and positive PPP (Public-Private Partnership) in women empowerment would like an icing on the cake.

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Financial Technology (FinTech) Innovations and the Future of Financial Institutions (FIs) in Palestine “An Exploratory Study”



Wael Al-Daya, Sedeaq Nassar, and Mohammed Al-Massri

Abstract The aim of this study is to explore opinions and attitudes concerning the emergence of FinTech on the Future of Financial Services Industry in Palestine. In order to achieve the objectives of the study, eleven in-depth interviews have been conducted with a group of managers working in the banking and financial services sectors represented by administrative staff from departments specialized in technical fields, product and software development, information technology, and electronic payments services. In addition, the study conducts a content analysis for the reports and articles provided by the participating institutions. Data collected were analyzed using thematic analysis. Data Findings on such Themes and Patterns were developed and organized using NVivo software. The study finds that there is an important role of the incumbent banking and Financial Institutions, academic bodies, technology companies, and business incubators to create a conducive environment for FinTechs ecosystem in Palestine. In addition, the findings show that FinTech in Palestine face several challenges most prominently rules and regulations, cybersecurity, customers' lack of trust toward digital services, etc.

Keywords Financial technology · Financial institutions · Financial services

1 Introduction

For several decades, traditional financial institutions have dominated the financial services industry (Arner et al. 2015), nowadays FinTech innovations are claimed to have a strong potential to disrupt the financial sector and fundamentally change

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the role of traditional financial service providers. This is done through replacing or supplementing current services (Gomber et al. 2017; Wonglimpiyarat 2017; Zavolokina et al. 2016; Zilgalvis 2014), or by providing completely new services not previously available (Gomber et al. 2017).

Financial technology has been gradually reshaping the financial industry landscape following the Global Financial Crisis and will alter the financial services industry's future. Financial technology enables newly established firms, such as Start-ups and Tech-banks to provide an appealing alternative for the general public in the field of payments, lending and investing. The fallout of the Global Financial Crisis gave rise to the exponential growth of FinTech start-ups and other non-bank competitors.

Nowadays the surge of FinTech seems to be inevitable. According to a report by Accenture (a global management consulting, technology services), FinTech is one of the fastest growing sectors of the economy. Which the value of FinTech investments worldwide increased steadily from 2017 to 2018 of 120%. The total capital invested in 2018 reached a record high of \$111.8 bn. (KPMG, Q4, 2018). PWC (2017) estimate that within the next 3–5 years, cumulative investment in FinTech globally could well exceed \$150 bn (Insights 2017).

The rapid emergence of FinTech over time has led to creates various business models and new customer needs and affecting of how people attain financial services. as well as led to many potential benefits for both providers and users of financial services and numerous incremental innovations such as internet banking, mobile payments, remittances, crowd-funding, asset management, IoT, robo-advisory, peer-to-peer lending, blockchain, innovations, online identification, the banking industry and the financial regulations (Kim et al. 2015).

The Palestinian financial sector is under new challenges at the moment, as there are new regulations and Instructions which affecting the industry. In early 2018, the PMA launch of a national strategy to increase the use of electronic payment methods in local transactions and reduce the reliance on cash in the Palestinian economy (PMA 2018).

The main objective of this study is to understand the opinions and attitudes concerning the emergence of FinTech on the Future of Financial Services Industry in Palestine and explores the future assessment for the FinTech disruptive force and the Palestinian financial Sector readiness toward FinTech implementation; starting from understanding the perceptions about the required framework conditions and success factors to create a conducive environment for FinTech in Palestine. Subsequently described the challenges that impede the Fintech in Palestine, and the opportunities that FinTech solutions will provide the financial institutions. Furthermore, understand the organizations' attitude towards the digital transformation of financial services, and the adaption process and the collaboration between both parties. In this respect, the main research question is: What are the opinions concerning the emergence of FinTech on the Future of Financial Services Industry in Palestine?

This research is divided into 7 sections. Section 2 present the literature review of the study. Section 3 include the research methodology and design. Section 4 explain the research process. Section 5 explore the data analysis. Section 6 contain the findings, and Sect. 7 present the conclusions and recommendations.

2 Literature Review

FinTech, in spite of its fancy name, FinTech is an abbreviation of ‘Financial Technology’ and refers to new technologies used for the creation and delivery of financial services (Arner et al. 2015). (Schueffel 2016) defined FinTech as “a new financial industry that applies technology to improve financial activities”. Nevertheless, (Sweeney 2015) defined FinTech as “products or services in financial service companies that were created on highly innovative and disruptive service technologies”, and Ernst and Young (2016) defined FinTech as “an innovation in financial services where reference to technology-enabled financial solutions is the key enabler”.

2.1 FinTech Conducive Environment - Ecosystem

Moore defines the business ecosystem as “an economic community supported by a group of interacting organizations and individuals include customers, vendors, lead producers, competitors, and other stakeholders” (Moore 1996). Relating to PwC (Global FinTech Report published in 2017); there are four main operators in the FinTech sector: FinTech start-up companies and entrepreneurs, incumbent technology firms (ICT), incumbent’s financial services institutions, and players, which concerned with the infrastructure of the financial services (PwC 2016).

2.2 FinTech Innovations’ Areas/Solutions, and Channels

Significant technological innovations in the financial industry began in the 1960s with the installation of ATM machines and continued with the computerizing of core banking operations (Panourgias and Scott 2005). Based on a literature review of scientific articles published on the FinTech phenomenon, it is possible to develop a comprehensive typology for the Fintech industry. (Gomber et al. 2017) categorize FinTech innovations into six digital finance business areas which the innovations can be claimed to serve; Digital payments, Digital financing, Digital investments, Digital money, Digital insurances and Digital financial advice.

3 Research Methodology and Design

3.1 Research Strategy

Quinlan et al. 2019 describe how qualitative research uses non-numeric data to represent thoughts, perceptions, understandings, and ideas. (Quinlan et al. 2019). Where, Hassnian, Rose, and Muhd (2019) explored the Fintech and its potential impact on Islamic banking and finance and found that a qualitative approach allowed them to analyze participants' behaviors and perceptions related impact of Fintech in both countries Brunei Darussalam and Malaysia. Similarly, (Al-Chalabi and Bahram 2018) used a qualitative approach to examine the Digital Transformation of the Swedish Banking Industry and found that in-depth qualitative interviews were highly effective, as they allowed to explore the interviewee's perspectives on customer experience. Considering the nature of the present research question, which has similarities to the research examples just mentioned, a qualitative research approach was considered to be most appropriate for collecting data.

This study utilizes in-depth interviews alongside with content analysis of each company's official website and conferences and available published reports as methods for data collection. This method serves to capture different data and reveal different insights to provide greater nuances that open a more complex understanding of the issue (Tracy 2010). Additionally, this method also serves to converge data in a way that may demonstrate the validity and strengthens substantiation for the construction of the emerging proposition (Gibbert and Ruigrok 2010) The NVivo 12, Computer-Assisted Qualitative Data Analysis Software is used in this research to analyze and interpret the data. To make a comprehensive analysis of the data, the interviews are coded by NVivo.

4 Research Process

4.1 Data Collection

The collection of data for this study is performed in two subsequent phases each with a different technique in order to ensure a higher level of understanding of the concepts of analysis (Weick et al. 2005), which could contribute to the quality of a qualitative study (Thornhill et al. 2009).

4.2 Interview

In this study using Semi-structured interviews is deemed the most appropriate method, because semi-structured interviews would facilitate an in-depth understanding of the opinions and attitudes concerning the emergence of FinTech on the Future of Financial Services Industry in Palestine. The in-depth interviews are conducted for this purpose.

The method entails asking the same set of questions to all interviewees, using an interview guide. The interview guide was prepared before conducting the interviews. While some questions were asked to all the respondents. Providing a copy of the interview guide can strengthen the dependability of the research (Braun and Clarke 2011). The interview guide can be seen in (Appendix 1).

4.3 Content Analysis

Content analysis is used with both qualitative and quantitative data. But, the common use of content analysis is with qualitative data towards further clarification and direction of the research focus (Elo and Kyngäs 2008). During this study, the researchers had access to documents, annual reports, and press releases from publicly available sources. Those sources were the official websites of the selected participants. On every used website, articles, and research papers were searched for with the subject of the Financial Technology, FinTech, Digital Transformation, Digitalization, Strategy or Services. NVivo 12 software is also used to do summative content analysis to provide an explanation of the content related to Fintech in the selected reports. A complete list of documents for the content analysis with the percentage of the appearance of the term “Financial Technology” or “Fintech” coverage in these documents can see below in Table 1.

4.4 Participants Selection

The target population for this study was all the Palestinian institutions worked in Banking, Microfinance, Money Exchange, and Payment Service sectors; the sample chosen for this study are of manager level in their organizations. They are linked with Innovation, Technology, and Products and Services Development in their institutions. This led to the validity and reliability of their opinions on any topic or issue.

Table 1 List of documents for the content analysis

Name/Type	Case	Coverage
Press released	B1	0.28%
Annual Report	B1	0.05%
Quarterly Report - Q1 2019 Preliminary Financial Results	B1	0.02%
Press released	B2	0.27%
Annual Report	B3	0.04%
Press released	MF1	0.25%
Press released - “The Palestinian Banking Sector in its Arab Environment” Conference is Held in Jordan with Significant and Effective Participation of Palestine Monetary Authority - Palestine Monetary Authority	PMA	1.34%
Press released - Deputy Governor of Palestine Monetary Authority Participates in the “Financial Technology” Session of EXPOTECH Technology Week 2018 - Palestine Monetary Authority	PMA	3.94%
Press released - Palestine Monetary Authority Participates in the 12th Information Technology and Telecommunication Day “Financial Technology” - Palestine Monetary Authority	PMA	2.53%
Press released - Palestine Monetary Authority working on FinTech sandbox _ S&P Global Market Intelligence	PMA	1.66%
Annual Report	PMA	0.79%
Press released - Palestine Monetary Authority Organizes Workshop on Sveriges Riksbank’s Electronic Payments Experience	PMA	0.67%
Press released - Governor of Palestine Monetary Authority in Britain; Meets with British Bankers and Arab and Palestinian Financial Institutions Representatives	PMA	0.47%
		12.32%

All FIs worked in Palestine were contacted by the general e-mail address given on their websites, the email is contained a brief description of the nature and objective of the study and why it was being conducted, and finally, also asking of whether the institutions would be willing to meet with the researchers for an interview. In some cases, the researchers used the phone to contact the institutions directly because they could not send the email due to the institution’s mail server error message.

Eventually, eleven participants have approved to be interviewed, while others did not reply in this regard. There was a total of eleven participants, which 63% of participants from the Gaza strip were contacted by face to face interviews, 37% of participants from West bank were contacted through email and phone. (Table 2) provides an overview of Demographic Details of the eleven participants.

Table 2 Demographic Details of the participants in the interviews

Code	Sector	Gender	Post	Location	Interview tool
B1	Banks	Male	Head of Information Technology Department	Gaza	Face-to-face
B2	Banks	Female	Deputy Head of Information Technology Department	Gaza	Face-to-face
B3	Banks	Male	Head of Business Services Development	West bank	E-mail, Phone
B4	Banks	Female	Head of Software and Product Development Department	West bank	E-mail
MF1	Microfinance Institutions	Male	Head of Information Technology Department	West bank	E-mail, Phone
MF2	Microfinance Institutions	Male	Head of Research and Development Department	West bank	E-mail, Phone
MC1	Money Changers	Male	Manager	Gaza	Face-to-face
MC2	Money Changers	Male	Manager	Gaza	Face-to-face
PS1	Payment Service Companies	Male	Manager	Gaza	Face-to-face
PS2	Payment Service Companies	Male	Manager	Gaza	Face-to-face
PS3	Payment Service Companies	Male	Manager	Gaza	Face-to-face

5 Data Analysis

The most common method for analyzing data in qualitative research is thematic analysis. (Braun and Clarke 2011) describe thematic analysis as “a process of looking for repeated patterns (themes) of meaning across the data”. (Braun and Clarke 2011) mentioned six phases of thematic analysis, as presented in Fig. 1.

Phase One: Familiarization of the Data

The process of thematic analysis started with familiarization of the data. This involved reading over and again the transcripts.

Phase Two: Generating Initial Codes

This phase includes the creation of initial codes for the data, codes are the building blocks of the analysis, since the wall represents the themes and the blocks represent the codes that make up the wall. Coding process is done by reading a section or sentence carefully and then summarizing it with one or two words.

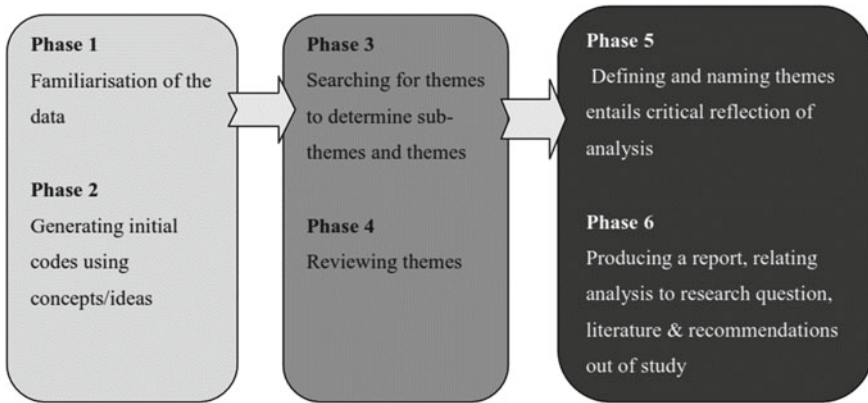


Fig. 1 Six phases of thematic analysis by (Braun and Clarke 2011)

Table 3 An Example of finding initial codes

Case	Data item	Initial codes
PMA	<i>“There are a lot of challenges facing financial service providers in light of acceleration in financial technology and innovation to assess experiences and define necessary steps to invest in and utilize technology in financial and banking services”</i> (Mr. Faris Al-Hindi, PMA)	<ul style="list-style-type: none"> • Challenges • Financial service providers • Financial technology • Innovation • Experiences • Invest and utilize technology • Banking services

In the following Table 3 an example of generating initial codes which coded data is highlighted and the initial codes are listed.

Phase Three: Searching for Themes

At this point, the analysis begins to take shape and take a specific and clear form in which codes turn into themes. The theme “captures something important about the data in relation to the research question, and represents some level of patterned response or meaning within the data set” (Braun and Clarke 2011).

The researchers may meet some codes that cannot be converted to themes, in which case these codes are either included in existing themes in some form or discarded of. In this phase, it is important to keep in mind that data analysis is for answering research questions and not for displaying everything in the data.

Phase Four: Reviewing Themes

This phase involves the process of reviewing the extracted themes with the fully data. This phase is essential in order to confirm the quality of the analysis. It is important to make sure that the theme is related to the data. The researchers may need to ignore

Pattern 1.1: Definition of Fintech

The results show that the participants have different knowledge and explanations on such Fintech. About 81% of the interviewed participants show their significant knowledge on the aspects of Fintech, despite of having 19% of the participant with lower awareness.

As the respondents are from different disciplines, (Banking, Microfinance, Money exchange, and Payment Service Companies) they suggest different definitions of Fintech from different aspect including, online, technology, combination of tech and finance, and transformation. More precisely, B1 and PS3 define Fintech as emerging companies that deploy the technology to give customers to access the financial services online 24 h hourly. MF1 and MC1 define Fintech as the reinvention of Financial Services through technology. Furthermore, PSI defines it as a combination between finance and technology.

In the same context, B2, and MF2 agree that Fintech is all about transformation, and tool that help institution to streamlining their back-office processes (processes that the customers do not see or take part in). Additionally, PS2 defines it as automation process or system.

The suggested definitions by the majority of participants are much related to the main and generic concepts of Fintech and from emerging perspectives. This finding is matched with definition of (Schueffel 2016) as he claims the FinTech is an emerging sector. Furthermore, the above-mentioned definition is connected with the suggested concept of (Dhar and Stein 2017) that Fintech is the reinvention of Financial Services through technology.

We conclude that the respondent limited their definitions of Fintech as a combination of finance and technology and as a tool which overlooked other aspects of Fintech such as (Puschmann 2017) follows financial innovation theory and categorizes FinTech innovations based on what the object of focus for the innovation is (products and services, organizational types, processes, systems or business models), as well as their degree of innovation (incremental or disruptive).

On the other hand, the definitions of Fintech provided by the respondents do not cover the holistic or whole concept of Fintech. They just define the epistemological meaning like Fintech is the combination of Finance and technology and it is merely a tool.

All in all, the definition suggested by respondents is summarized as follows: “Fintech is a new and emerging financial services industry which is harnessing advanced technology to provide innovative and traditional financial services and products to the customers through multi and automated channels”.

Pattern 1.2: FinTech Segment and Channels

The results show that five Participants confirmed the insight claiming that the Payments segment will seeing the greatest adoption in Palestine. In addition, the results show that the lending segment have a potential to be the most growth sector in Palestine as the results of the report by PMA and three of participants mentioned that the lending side or p2p is the most obvious segment of FinTech will be having

an impact in Palestine; while two other Participants recognized that cloud computing has potential and its adoption is a good option for both banking and financial sectors.

Moreover, the results show that majority of the Participants said that the technologies, like Blockchain, Big Data, IoT, and Robo advisors have big potential in the finance industry, but in Palestine, the majority of these participants claimed that there is still a need for understanding of this technology and the challenge after the adoption like data security, cyber-attacks, and legal risk.

Theme Two: Fintech Ecosystem

The results obtained from the analysis of the press released by PMA show that there is an important role of the incumbent banking and FIs, academic institutions, technology companies, and business incubators to create a conducive environment for FinTechs ecosystem in Palestine.

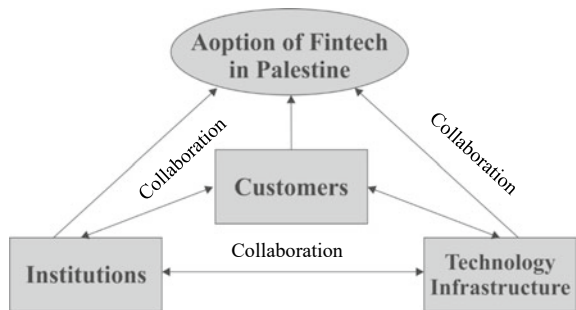
A deeper look at the results of interviewed participants reveal that there are four players enabling a conducive environment for new businesses in Palestine; technology infrastructure, consumers, institutions and collaborative. To visualize the relationship between these players, thematic mind map has been created by Nvivo 12 program. The Figure Map (Fig. 3) presents an overview Framework of key enablers to adopting Fintech in Palestine and how the theme “customer base”, “key Player institutions”, and “technology”, Play a critical role in advancement. the solid two-way lines represent the collaboration (interaction and evolvement) between these factors toward the adoption.

There is some literature support regarding the infrastructure (Sy et al. 2019), regulation (Burns 2018), and collaboration (Chironga et al. 2017). Christensen and co-authors (2019) emphasize that framework conditions evolve with technology adoption, and the opportunity size warrants dealing with lack of infrastructure and inefficient institutions and internalizing essential activities even if they do not core to the business. Indeed, a look at these studies shows that the collaboration between the telecommunication operators, financial institutions, Fintechs, and the government are important success factors to create a conducive environment for FinTechs.

Theme Three: The Opportunities of FinTech

The analysis by NVivo connects the opportunities of FinTech solutions with the following patterns.

Fig. 3 Illustrating the key enablers to adoption FinTech in Palestine



Pattern 3.1 Opportunity for Financial Inclusion

The results from content analysis shows that PMA believes that financial technology has good opportunity to ensure change; it is a key requirement for realizing the objectives of financial inclusion.

Pattern 3.2: Opportunities for Financial Industry

The majority of participants agreed that Fintech solutions will be easier and more flexible, they mentioned that the digitalized services and solutions will be flexible, easy, fast and easily accessible. The results clarify that all the respondents are unanimously agreed on the point that Fintech is an opportunity for the financial industry. These results are also in line with the results of previous surveys and studies. The report provided by (Accenture 2016) shows that banks are now recognizing that Fintech solutions typically pose more of an opportunity than a threat. The same results are also found in a survey conducted by (Finextra and dovetail 2017).

Pattern 3.3: Opportunities for Customers

The results from the official report published by B1 shows that the bank has started leveraging electronic channels, especially among women and youth, toward reducing cost and enhancing revenue, Customer retention will be aided via launches of the Mobile Branch under the retail segment focusing on rural areas and remote areas with targeting the unbanked.

Pattern 3.4: Opportunities for Investment

Nowadays, Banking, Financial Services, and Fintech companies are the beneficiaries that stand to gain tremendously by demonstrating innovation in their business conduct and the services they provide. Investing in Fintech solutions offer new opportunities for organizations by improving the existing business processes, achieve new levels of business efficiency, personalize the customer experience and decrease the overhead expenses in long-term (Schwertner 2017).

According to Rometty (2016) said “there is a moment of opportunity if you want to catch it”, with these technologies offering and providing the potential to reduce costs and improve opportunity spotting and compliance. The winners, according to her, will be those businesses that are able to deploy these technologies effectively. “You will need some new technology to deal with all of the data that is out there in order to gain insights, comply and operate efficiently” (Rometty 2016).

Theme Four: Challenges of Fintech

The analysis by NVivo connects with the following patterns about the Challenges that will delay the adoption of Fintech in the finance industry.

Pattern 4.1: Challenges in Ecosystem

FinTech in Palestine will face several challenges most prominently rules and regulations, cybersecurity, the lack of trust from customers toward the digital services, and the lack of preparedness among certain banks to handle such technology

such as having the infrastructure that would qualify banks to exchange information with the financial technology systems, lack of infrastructure to develop digital identity, relevant effective rules and regulations in Palestine required development including data policies, and enhance cooperation among government agencies and non-governmental organizations to ensure the right environment to develop financial technology (PMA 2018).

The following results obtained from the interviews, have agreed with the aforementioned statements as the majority of Participants argued that there is customer's trust gap regarding the new digital services. They mentioned about the absence of appropriate technological infrastructure that meets the new business demands. While others mentioned that there is challenge of modernizing and integrating the new technology with the Legacy Systems.

Pattern 4.2: Challenges in Political Economic Instability

A deeper look to the analysis of this theme, also reveal that the instability of the Palestinian conditions will challenge Fintech and any business in Palestine, as the most of the participants stated that the instability of the economy, political uncertainty are key challenges that impede the Fintechs in Palestine.

Theme Five: The Reaction Strategies of Fintech

The analysis by NVivo connects with the following patterns about the Organizations' attitude/strategy towards the digital transformation of financial services.

Pattern 5.1: National and Institutional Strategy

Results from the official reports of Palestine Monetary Authority, show that PMA has taken several steps regard financial technology by reviewing the global developments and the steps taken by countries and central banks, to produce a comprehensive national strategy to develop Fintech services in Palestine in line with global trends, especially in payment, and lending sectors.

The same results show that the launch of this strategy comes in conjunction with the National Financial Inclusion Strategy with the aim of developing the specialized payments and lending sectors and improving corporate governance frameworks and governance practices in order to enable it to increase its services and spread and allow it to provide other financial services such as insurance services, remittances, and some other financial services when the appropriate conditions are met. (PMA 2018).

Results from the interviews show that most of the financial companies specially banks in Palestine have an organizational strategy for the digital transformation, which can, in turn, lead to opportunities for them in the form of digital development.

Pattern 5.2: Strategic Investment in Digital Transformation

The same results show that four respondents still no have a clear strategy but they looking forward to invest in digital transformation, they mentioned that they look forward to investing in digital transformation over the next years.

According to these results, financial companies without a digital transformation strategy cannot predefine their opportunities and challenges regarding digital transformation since they do not have an organizational strategy for the transformation. It is also difficult for these companies to measure the successfulness of digital transformation. These results are also in line with (Matt et al. 2015) that digital transformation strategies aim to address the opportunities and challenges of digital transformation and set a plan to measure its successfulness, it is important for organizations to develop a specific digital transformation strategy.

In a survey conducted by (Capgemini 2016) it is highlighted that traditional firms are having and implementing a wide range of strategies in response to Fintech. Survey results show that almost as many are developing their own in-house capabilities (59.2%) as are seeking partnerships with Fintech (60.0%). According to another report provided by PwC (2016), 42% of banks are already engaging in joint partnerships with Fintech companies, this is more than any other financial sector. And this agrees with the findings showed by the participants from the bank sector.

7 Conclusions and Recommendations

7.1 Conclusions

Clearly, Fintech has taken its notable role in the financial sector, as Fintech has grown to be an important player in the sector and the added-value it provides cannot be denied hence Financial institutions, in particular, must respond to this accordingly. The aim of this study is to explore the opinions and attitudes concerning the emergence of FinTech on the Future of Financial Services Industry in Palestine.

The findings show that the participants have different knowledge and explanations on such Fintech. About 81% of the interviewed participants show their significant knowledge on the aspects of Fintech, despite having 19% of the participant with lower awareness. In addition, the same findings show that Payments, lending or p2p, and cloud computing will seeing the greatest adoption in Palestine, the same results show that channels and technologies, like Blockchain, Big Data, IoT, and Robo advisors have big potential in the financial industry, but still need for more understanding about these technologies and the challenges occurred after the adoption like data security, cyber-attacks, and legal risk.

The findings clearly indicate that Fintech has a potential impact on both the banking and financial industry. This impact is in both ways (positive and negative). Positive in the way that FIs can harness and utilize the opportunities offered by digital shift and Fintech. It can change the way of internal operational processes, and allow FIs to introduce new business models, and bring more transparency and efficiency in the products, in addition, able them to provide more personalized and customer-friendly financial products and services. On the other side, negative in the sense that if FIs keep avoiding embracing these innovations and totally leaving this

without adopting any reaction strategy. As a result, FIs can lose their customers, and market share as well. And, the response and reaction of the finance industry towards the emergence of Fintech and its potential impact seem good.

The study has also found the necessity for collaboration between all of the private sector, business incubators, information technology companies, research centers, and universities with each other to reap the benefits of Fintech, in addition, to improve the level of adoption of digital transformation in the Palestinian FIs.

7.2 Recommendations

There are following some recommendations for banking and financial institutions, governments, incubators, regulators, in addition to academic universities especially for the researchers in this area of technology and finance. Banking, FIs, Policy-makers, and Academic bodies, should collaborate to make a better understand of this innovation to produce a comprehensive national strategy to develop Fintech services in Palestine in line with global trends.

Banking, FIs in Palestine should begin to adopt some enabling technologies and channels such as AI, big data, blockchain, and Robo-advisors, etc. Globally, incumbent financial institutions are moving towards the adoption of these enabling technologies. So, this is essential for the Palestinian FI's to invest in digital transformation and show agility in this changing environment. Policymakers, Banking, and FIs in Palestine should think holistically about the risks and challenges which are part of this digital era, such as cybersecurity, privacy, and data sharing, etc., and have to look over these challenges and manage these risks wisely and efficiently.

Banking and FIs in Palestine need suitable parties to drive the digital transformation process. This will be helpful for Banking and FIs to keep them competitive in the existence of Fintech. Regulators and Policymakers should work in cooperation with technical parties to launch sandboxes and issue Issuing regulations and Instructions that facilitate the implementation of FinTech in Palestine. This will improve the level of adoption of digital transformation in FI's in Palestine.

Banking and FIs in Palestine have to focus on customer-centricity and have to understand the behavior and needs of the millennial generation of this digital era. They have to change the way in which they are dealing with the customers. At the same time, it is important to create digital products and services which focus on the user experience in mind instead of the normal approach.

7.3 Limitations

This study is designed to research the potential effect of FinTech in the Future of Palestinian banking and financial industry on a strategical level, the researcher's decision to choose respondents who work on a managing level. By selecting respondents

on such a level, it was harder to find more respondents who can offer their time for the researcher of this study to go into more in-depth details regarding the purpose of this study. In addition, it was difficult to get a face-to-face interview with these participants due to geographic separation and technical difficulties between the Gaza Strip and West Bank. Which 63% of participants from the Gaza strip were contacted by face-to-face interviews, 37% of participants from West bank were contacted through email and phone.

As the banking industry is heavily regulated by national and international laws, mainly PMA laws, there were many limiting factors that were taken into consideration when preparing and designing the study. These legal factors, together with company policies, played a big part in planning the questions for the interviews. The reason for this is that there is much that the banks cannot legally divulge and at least as much they want to keep as a company secret for competition's sake. Not only did it affect the research design, but it also affected the presentation of the results and the discussion around the results.

As the area of research is new, there were difficulties with finding relevant previous research. Some of the theories used in the thesis are not from an academic source and should not be regarded as such. However, these sources give insight to the area, which academic sources do not at the moment.

7.4 Future Studies

FinTech as a research field is still in its infancy, and many possibilities for future research studies exist, particularly in Palestine.

- Future studies must focus on broader range analysis that involves all working banks in the Gaza Strip to generalize these findings in a broader perspective.
- Future studies can explore the start-up and their attitudes and expectations about FinTech.
- A similar study could be executed from the point of view of the Incubators, or Palestine Monetary Authority as well.
- Track the improvements of FinTech in Palestine and make studies on its impact on financial inclusion.
- Future studies could be a customer-orientated survey, instead of exploring FinTech on an organizational level, the main focus would be on financial service customers and users. A study like this could offer Banks and Financial Institutions valuable information about the needs and expectations of consumers about what they look at new financial services.

Appendices

Appendix 1: Interview Guide

Topic: General/Introduction

Purpose: Making the participant at ease and to provide context if needed

Notes:

Assessing knowledge of the interviewee, experience in FinTech etc.

Giving a summary of the themes which are covered in the interview

Explaining the study and research topics

Topic: FinTech innovations

Purpose: Gaining some knowledge about FinTech in general

Questions:

What is your current position?

Please describe the extent to which you are familiar with Financial technology?

Please suggest a definition for the term Financial Technology?

In what FinTech segment/channels do you think will be seeing the greatest adoption & growth in Palestine?

Topic: FinTech Ecosystem

Purpose: Identifying the required framework conditions and success factors to create a conducive environment (ecosystem) for FinTech in Palestine

Questions:

What are the required conditions and success factors to create a conducive environment for FinTechs in Palestine?

What are the incentives that drive your organization towards the digital transformation of Financial Services?

Who are the key partners of FinTech XX?

Topic: Reaction Strategies

Purpose: Exploring the opinions, attitudes and strategies towards the digital transformation of financial services

Questions:

Please describe your organizations' attitude/strategy towards the digital transformation of financial services?

Which are the most likely areas in which your organization will collaborate or invest in FinTechs?

Topic: Challenges

Purpose: Exploring the potential challenges that will delay the adoption of Fintech in Palestine

Questions:

What challenges or gaps do you believe that will delay the adoption of Fintechs in Palestine?

Topic: Opportunities

Purpose: Identifying the opportunities that FinTech solutions will provide to the current Palestinian Financial institutions

Questions:

What are the opportunities that FinTech solutions will provide to your business?

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A Thorough Analysis of the Perceived Risk and Customer Acceptance of Mobile Banking Apps



Mohannad Moufeed Ayyash 

Abstract Mobile banking (M-banking) refers to the advanced method to use various commercial services and perform daily life financial requirements via mobile devices. Yet, M-banking's growth is still less than expected. The study aims at exploring the effect of the dimensions of the perceived risk on customer's intention in using M-banking. To collate the required data, the quantitative approach has been adopted by using the questionnaire survey. The results show that the whole dimensions of the perceived risk, i.e. time risk, security risk, social risk, performance risk, and financial risk have been validated. The results also show that these dimensions have negatively affected the intention of using M-banking. Largely, the dimension of security risk is ranked first in influencing the intentions to use M-banking. Besides, the study gives an insight into the conclusion, limitations, and future research.

Keywords Perceived risk · Mobile banking · Time risk · Security risk · Social risk · Performance risk · Financial risk · Structural equation modelling (SEM) · Palestine

1 Introduction

The use of the smartphone has recently soared globally, necessitating banks to deal with the customers in a more smart and advanced method. M-banking is a pioneering method of using mobile devices to perform financial services (Saxena et al. 2020; Shaikh and Karjaluo 2016). With the use of M-banking, customers are provided full access to avail of appropriate services such as paying various bills such as electricity, phone, and water, managing accounts, and shopping conveniently at all times and places (Ayyash 2015, 2017). Besides, as mobile devices ease communication operations, save time, quicken the internal processes' speed, and decrease business-related travels, they assist users in managing businesses to attain better and more profits (Islam et al. 2018). Conversely, in developing markets and economies, employing

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mobile devices to complete banking dealings and businesses is still at the narrow level (Upadhyay and Jahanyan 2016; Salem et al. 2019; Malaquias and Silva 2020). In early 2020, the total number of mobile connections is 4.33 million at the level of the State of Palestine. All through the period extending from 2019 to 2020, the mobile connections' number has soared, recording an increase totaling up to 36,000 (+0.8%) in Palestine. However, M-banking development is not as it should be. More importantly, little literature has been done to speak of the area of M-banking development in Palestine e.g. (Ayyash 2017; Salem et al. 2019; Alhaleh et al. 2021).

Given the huge scope held by mobile banking in several areas in the digital economy, the factors influencing M-banking's customer acceptance shall be profoundly explored (Saxena et al. 2020; Malaquias and Silva 2020). Various key customers' concerns related to M-banking's use mirror their uncertainty feelings together with their fear of the absence of privacy and security when using the M-banking services (Dwivedi et al. 2014). Perceived risk is regarded as a significant factor impacting the acceptance of the consumer of M-banking applications Khanra, Dhir (2021; Mulia et al. 2020; Alalwan et al. 2017). The importance of the role of trust as a requirement for M-banking has attracted the attention of the vast majority of recent studies (Mulia et al. 2020; Khan et al. 2021; Zyberi and Polo 2021; Geebren and Jabbar 2021; Karjaluoto et al. 2021; Khoa 2020; Rajaobelina et al. 2020; Suariedewi and Suprapti 2020; Lonkani et al. 2020; Thanabordeekij et al. 2020; Hamakhan 2020). On the other hand, the current work explores the trust construct's other side, that is perceived risk, and dives deeper into the construct to explain its dimensions in depth. Accordingly, this study aims to explore the effect of the dimensions of the perceived risk on customer's intention in using M-banking. Simply and importantly put, the use of M-banking services in the Palestinian domain has been ignored by the previous work. The study's contribution lies in theoretically discussing the barriers and challenges of M-banking.

2 Mobile Banking Acceptance in Palestine

The Palestinian Monetary Authority (PMA) currently manages the still-growing banking sector in Palestine. Managerially classified as the central bank of Palestine, the presidential decree of 1994 and the subsequent law issued by the Palestinian Legislative Council have decided to form the Palestinian Monetary Authority (PMA) as an independent institution (Salem et al. 2019). Under this act, the PMA is empowered with complete autonomy and authority to ensure that the Palestinian financial system is fully stable and effective (PMA 2016). As put by PMA (2016), Palestine includes 15 commercial banks, along with 200 delegate offices and branches spreading all over the country. Of these 15 banks in Palestine, 7 are local including 2 Islamic banks) and 8 are foreign banks, i.e. an Egyptian bank and 7 Jordanian banks). The entire banks with their branches operating in Palestine, i.e. Gaza Strip and West Bank areas provide clients with Internet banking and Automatic Teller Machines as half of them offer services of M-banking.

Compared with the broad use of M-banking services in technologically advanced countries, however, M-banking services' use by customers in less technologically advanced countries such as Palestine has a low and slow spread of M-banking services. To the author's knowledge, little literature has been done to speak of the area of M-banking development in Palestine. For example, the factors affecting customers' use of online banking services in Palestine are examined (Salem et al. 2019). The relationship between the satisfaction of the customer and the dimensions of the information quality towards E-banking services has also been explored in the Palestinian banking sector (Ayyash 2017). Besides, the perspective of customers towards the acceptance and application of the newly modeled e-banking system and the effect of e-banking on users intending to use technological banking methods have been diagnosed in Palestine (Alhaleh et al. 2021). The results of the study show that the application of e-banking (task-technology fitness, perceived usefulness, perceived beliefs, and perceived easiness of use) has positively impacted the intention of the customers of the Palestinian Islamic and commercial banks.

3 Theoretical Foundations and Hypotheses Development

M-banking is possibly threatened by several harmful threats such as risky customer behavior, mobile malware, unsecured networks, and third-party applications. Lee (2009) has investigated the perceived risk related to the adoption of internet banking. To give an in-depth insight into the risks' characteristics towards internet banking, Lee has categorized the perceived risk into five dimensions, namely: time risk, security risk, social risk, performance risk, and financial risk. Accordingly, five dimensions drawn from perceived risks for M-banking have been adopted in the current study to examine the dimensions of the perceived risk involved in M-banking (Lee 2009). The research model adopted in this study is shown in Fig. 1. The analysis of the five dimensions drawn from mobile banking's perceived risks (Lee 2009) rests in the following sections.

3.1 Time Risk

It is defined as the time loss in any troublesomeness occurring because of the problems to surf and check the mobile banking or the delays to receive transaction payments (Shuhidan et al. 2017). Concerning the time, the mobile infrastructure caters to the changing section's speed with no lagging (Reavley 2005). However, by hook or by crook, the relations depend on the internet connection's speed adopted by the customer. Forsythe and Shi (2003) showed that the risk of time is ranked as the first and significant obstacle to online shopping. Thus, it is postulated that:

H1: Attitudes to use M-banking are negatively influenced by time risk.

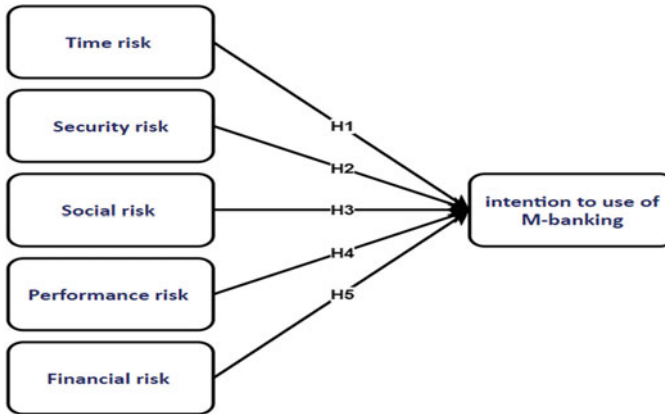


Fig. 1 Research model

3.2 Security Risk

Security risk refers to a certain threat producing abnormal software or hardware problem, event, condition, or circumstance that may create economic hardship to network resources or data. This economic hardship can take several forms such as data modification, disclosure, destruction, service denial, abuse, waste, and fraud (Kalakota and Whinston 1997). In the M-banking domain, security is considered as a key loss due to a hacker or a fraudulent which may compromise the M-banking user's security (Shuhidan et al. 2017). Hackers and abusers may depend on hacking or other illegal methods to use the portable PIN codes placed in the phone, causing potential privacy risks and security risks to the users (Kuisma et al. 2007). Therefore, it is postulated that:

H2: Intentions to use M-banking are negatively influenced by the security risk.

3.3 Social Risk

It is defined as a case where it is not preferable to use the M-banking services due to negative feedback and dissatisfaction from close groups, family members, friends, or even the various social media. The possible loss of status in a social media group is reflected by the social risk due to adopting a certain service or product (Shuhidan et al. 2017). As indicated by Lee (2009), various studies and shreds of literature concerning retail purchases show that consumers' attitude is negatively impacted by social risk (Dowling and Staelin 1994). In light of these studies, it is rationally expected that social risk negatively affects the intention of customers to use M-banking. Therefore, it is postulated that:

H3. Intentions to use M-banking are influenced by the social risk.

3.4 Performance Risk

It is defined as the losses and damages experienced by M-banking's malfunctions and deficiencies. For instance, mobile phones are generally featured with weak battery life and possibly breakable wireless connection that may hinder mobile services' use (Shuhidan et al. 2017). Consumers believe that their bank accounts are no longer secure if systems are broken down or disconnected all of a sudden (Yiu et al. 2007). This is associated with the consumers' ability to use the M-banking services within the appropriate time. Besides, Littler and Melanthiou (2006) have maintained that the willingness of the customers to use online banking services is decreased by malfunctions and technical errors of online banking websites. Consequently, it is rationally expected that performance risk negatively influences the intention of the customers to use M-banking. Accordingly, it is postulated that:

H4. The intention to use M-banking is negatively influenced by performance risk.

3.5 Financial Risk

Financial risk is defined as the possibility to lose monetary values and amounts because of the misuse of bank accounts or transaction errors. Kuisma, Laukkanen (2007) have shown that due to fears related to losing monetary values and amounts, several consumers ignore the use of online banking. Banks, which are off-line, are keen on providing clerical officers to confirm whether the beneficiary's account number and money amount or value to transact is correct. However, these bank-based protections are not often available in M-banking and online banking, and thus creating an atmosphere and feelings of uncertainty and insecurity. Hence, it is postulated that:

H5. The intention to use M-banking is negatively influenced by the financial risk.

4 Research Method

The nature of the study necessitates the use of a quantitative approach. The study aims at exploring the dimensions of the perceived risk, which act as a prevention to accept and use the services of M-banking by the customers. Therefore, the participants selected to participate in this study are non-users who have not used M-banking in Palestine. Mallat, Rossi (2009), Luo, Lee (2012) and Saxena, Gera (2020) have also selected a sample of non-users of M-banking so that the reasons behind the rejection of M-banking are appropriately explored. With the use of stratified random sampling,

the number of individual customers ($n = 220$) is selected as a study sample. Relating to the study sample's number, Structural Equation Modelling (SEM) analysis requires it to be at least 100 (Luthfihadi and Dhewanto 2013). Furthermore, the sample size shall be a minimum of 30–100 cases as required by the smart PLS path modeling (Luthfihadi and Dhewanto 2013). For that reason, 220 respondents are regarded as an appropriate number.

The existing studies and literature has helped in adapting all the items adopted in the study to measure the construct, as some items have been partially amended to fit the context and aims of the research paper. Featherman and Pavlou (2003) has been used to adapt the 20 items for the dimensions of the perceived risk of the current study. Table 1 presented the scale items of the selected constructs. As the Arabic language is the major spoken language in Palestine, the survey has been translated into the Arabic language to enable the respondents to understand the items of the survey and respond suitably. To answer each item, the respondent is required to opt for one of the 5-point Likert-scale ranging from (1) strongly disagree to (5) strongly agree. As the survey has been electronically distributed to 220 respondents, 180 respondents have only completed the questionnaires to analyze the data collated in this study. The SEM approach, along with smart PLS 3 software was used to analyze the data.

5 Data Analysis and Results

The SPSS version 22 and Smart PLS version 3 have been used to analyze the collected data as required in this study. The SPSS was also used to get the study sample's descriptive statistics while the Smart PLS was used to examine the latent variable of the causal structure. The first step is to assess the measurement model to confirm that the constructs have adequate psychometric validity and reliability. The second step is to run the suggested structural model to test the research paper's hypotheses. An insight explaining the detailed results of the statistical analysis is given in the next sub-sections.

5.1 *Evaluation of the Measurement Model*

A measurement model has been done to evaluate the convergent validity, construct reliability, discriminatory validity, and indicator reliability of the reflective constructs' scales. Figure 2 and Table 2 show the measurement model's results in a row. The composite reliability (CR) was used to test the construct reliability. It is found that the results of the CR for the entire constructs are higher than 0.7, showing the constructs' internal consistency and appropriateness (Straub 1989; Henseler et al. 2009). The average variance extracted (AVE) was used to demonstrate the convergent validity. The AVE values of the entire constructs are higher than 0.50, and thus the

Table 1 Scale items of the selected constructs

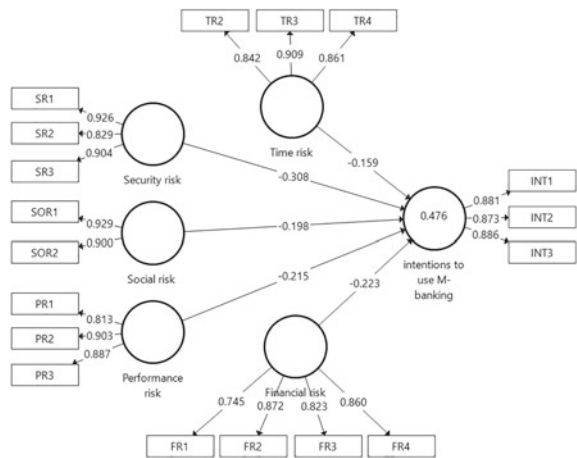
Constructs	References	Items
Time risk	Featherman and Pavlou (2003)	Time loss is caused by connection error and low speed through using M-banking
		It may take too much time to learn how to use M-banking
		Fixing payment errors online requires much time when dealing with M-banking
		It is a waste of time to using M-banking
Security risk	Featherman and Pavlou (2003)	Furnishing personal privacy information through M-banking does not make me feel completely safe
		I feel less relaxed to use M-banking because my account may be accessed by others
		Sending sensitive information through M-banking does not make me feel completely safe
Performance risk	Featherman and Pavlou (2003)	The system of the M-banking payment may be completely or partially broken down
		The work of the M-banking is not as required
		The performance level of the M-banking is less than expected
		The performance of the M-banking service is not equal to its advertised level
Financial risk	Featherman and Pavlou (2003)	Using M-banking can reveal the passwords and capital accounts
		Unreasonable and malicious charging may occur when dealing with M-banking
		An unsystematic step creates unpredicted losses when dealing with M-banking
		Financial risk is caused by using m-banking

(continued)

Table 1 (continued)

Constructs	References	Items
Social risk	Featherman and Pavlou (2003)	I am completely sure that my family members, close friends, and workmates will badly look at me when something goes wrong while using online transactions through M-banking services
		If my bank account is stolen or hacked, I may lose my social status in one of the common social groups and platforms
Intention to use M-banking	Featherman and Pavlou (2003)	I plan to adopt the use of M-banking in the next period
		I think of adopting and using m-banking shortly
		Do you intend to adopt and use m-banking in the upcoming period?

Fig. 2 Measurement model



measurement model’s convergent validity is established (Fornell and Larcker 1981; Hair et al. 2012). Concerning the loading, it shall be higher than 0.7 so that the indicator reliability is suitably achieved (Henseler et al. 2009; Churchill 1979). Table 2 indicates that the whole loadings are higher than 0.7, and as a result, the reliability indicator is considered a satisfying indicator.

To explore the constructs’ discriminant validity, the heterotrait-monotrait ratio (HTMT) and Fornell-Larcker criteria have been suitably used (Henseler et al. 2015). The AVE squared root and correlation between constructs have been also used to assess each construct’s discriminant validity. As indicated in Table 3, each construct’s

Table 2 Measurement model results

Construct	Items	Factor loading	CR	AVE
Financial risk	FR1	0.745	0.896	0.683
	FR2	0.872		
	FR3	0.823		
	FR4	0.860		
Performance risk	PR1	0.813	0.902	0.755
	PR2	0.903		
	PR3	0.887		
	PR4	Deleted		
Security risk	SR1	0.926	0.917	0.788
	SR2	0.829		
	SR3	0.904		
Social risk	SOR1	0.929	0.911	0.836
	SOR2	0.900		
Time risk	TR1	Deleted	0.904	0.759
	TR2	0.842		
	TR3	0.909		
	TR4	0.861		
Intentions to use M-banking	INT1	0.881	0.911	0.774
	INT2	0.873		
	INT3	0.886		

Table 3 Assessment of discriminant validity

	Financial risk	Performance risk	Security risk	Social risk	Time risk	Intentions to use M-banking
Financial risk	0.826					
Performance risk	0.160	0.869				
Security risk	0.122	0.101	0.888			
Social risk	0.273	0.490	0.163	0.914		
Time risk	0.473	0.247	0.163	0.348	0.871	
Intentions to use M-banking	-0.425	-0.419	-0.416	-0.470	-0.437	0.880

Table 4 Assessment of discriminant validity (HTMT)

	Financial risk	Performance risk	Security risk	Social risk	Time risk	Intentions to use M-banking
Financial risk						
Performance risk	0.187					
Security risk	0.145	0.112				
Social risk	0.332	0.600	0.189			
Time risk	0.568	0.294	0.191	0.423		
Intentions to use M-banking	0.498	0.488	0.483	0.562	0.514	

AVE square root (diagonal elements) is higher than the correlations among the constructs. Accordingly, the first criterion related to the constructs' discriminant validity of the constructs is supported (Fornell and Larcker 1981). The discriminant validity's second criterion is based on Table 4, as all the HTMT are lower than the threshold of 0.9. Accordingly, the constructs' discriminant validity is confirmed. The results support the measurement model's construct reliability. Therefore, the constructs were found appropriate to test the structural model.

In light of their parameter estimates and statistical significance, the results related to the six constructs (Financial risk, Performance risk, Security risk, Social risk, Time risk, Intentions to use M-banking) have been considered valid measures of their respective constructs. The whole results show that the measurement model of the study indicated appropriate empirical support for its discriminant validity, convergent validity, and reliability, respectively.

5.2 Structural Model Evaluation

To explore the hypothesized model's statistical significance, the bootstrapping technique, along with the use of 220 cases and 5,000 resamples has been applied (Hair et al. 2017). The results of the PLS analysis have been shown in Fig. 3 and Table 5. The value related to R-squared for the variable of intentions to use M-banking is 0.476. To attain a good model, this value is considered much higher than the proposed R-squared value (0.26), showing that the high percentages of intentions to use M-banking have been explained by the independent variables of financial risk, performance risk, security risk, social risk, and time risk (Cohen 1988). Table 5 shows that the whole findings drawn from the test's direct research hypotheses were acceptable.

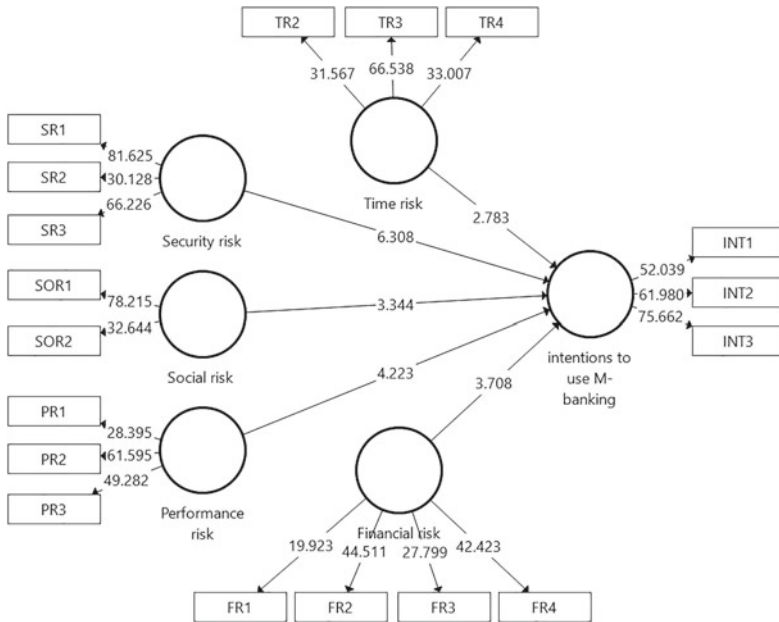


Fig. 3 Structural model

Table 5 Results related to direct effects using path model (bootstrapping results)

H	Hypothesis	Original sample (O)	T Statistics (O /STDEVI)	P values	Results
H1	Time risk → intentions to use M-banking	-0.159	2.783	0.006	Negative and significant
H2	Security risk → intentions to use M-banking	-0.308	6.308	0.000	Negative and significant
H3	Social risk → intentions to use M-banking	-0.198	3.344	0.001	Negative and significant
H4	Performance risk → intentions to use M-banking	-0.215	4.223	0.000	Negative and significant
H5	Financial risk → intentions to use M-banking	-0.223	3.708	0.000	Negative and significant

Accurately speaking, the findings related to the first hypothesis (H1) show that the time risk negatively affects intentions to use M-banking significantly. The previous results are based on shreds of evidence drawn from survey data with the following finding ($\beta = -0.159$, $t = 2.783$, $P\text{-value} = 0.006$). Concerning the second hypothesis (H2), the security risk negative and significant impact on intentions to use M-banking was also confirmed by the findings ($\beta = -0.308$, $t = 6.308$, $P\text{-value} = 0.000$). Similarly, the third hypothesis (H3), the social risk negative and significant impact on intentions to use M-banking was confirmed by the results ($\beta = -0.198$, $t = 3.344$, $P\text{-value} = 0.001$). Relating to the fourth hypothesis (H4), indicating intentions to use M-banking was negatively influenced by performance risk, was supported by the data of used survey with the findings of ($\beta = -0.215$, $t = 4.223$, $P\text{-value} = 0.000$). Finally, the fifth hypothesis (H5), the financial risk negative and significant impact on intentions to use M-banking was confirmed by the following findings of ($\beta = -0.223$, $t = 3.708$, $P\text{-value} = 0.000$) as well.

6 Discussion

Although M-banking has continuously developed, the intention to use it remains precisely unexplored in empirical research especially in developing countries in the Arab world such as Palestine. This research has investigated the perceived risk's role on the acceptance of M-banking from the customers' viewpoint. The findings of PLS analysis have confirmed all the hypotheses of the present study as proposed, thus indicating that a model is a valuable tool to examine the customer's intention to use.

First, the relationship of both intention to use and time risk was supported (H1) ($\beta = -0.159$, $P\text{-value} < 0.01$). This finding is in line with the research papers of Saxena et al. (2020); Lee (2009). The customers believe that time can be lost while using M-banking, as this is a requirement for the banks that if they need to persuade the customers to use and accept the M-banking, they are required to strengthen their technical operations to end these errors which hinder respondents to use and accept M-banking. Second, the relationship of both intention to use and security risk was supported (H2) ($\beta = -0.308$, $P\text{-value} < 0.01$). Security risk in the current study is the most serious risk dimension as it plays a key role in making an obstacle in accepting M-banking. This finding is following the results of Lee (2009). This shows that customers worry and pay attention to their data and accounts if misused by others. The respondents believe that it is insecure to use M-banking as the technology used by banks is not trusted by the respondents, thinking that password protection alone is untrustworthy for the security of personal information. Therefore, it is found that a high degree of security is followed by a high degree of trust in the applications of M-banking, showing that a high amount of security plays a key role in attracting customers to use the applications of M-banking. Third, the relationship of both intention to use and social risk has also been supported (H3) ($\beta = -0.198$, $P\text{-value} < 0.01$).

This indicates that customers pay attention to the social pressure from their family members, close friends, and workmates regarding M-banking. Another important result is that M-banking is still a new domain in Palestine as this result is in line with Lee (2009). Fourth, the relationship of both intention to use and performance risk was supported (H4) ($\beta = -0.215$, P-value < 0.01). This finding is in accordance with the research papers of Saxena et al. (2020) and Lee (2009). Therefore, minimizing the risk of the breakdown of the M-banking applications may increase the customer's intentions to use these applications. Fifth, the relationship of both intention to use and financial risk has been also supported (H5) ($\beta = -0.223$, P-value < 0.01).

The respondents in the current study believe that M-banking is one of the financial risks that may end with unbearable financial losses due to irresponsible technical errors particularly while remitting payments and monies. Other related risks are the hacking of the account information and the occurrence of a breakdown in the system of the M-banking that may lead to unnecessary confusion and uneasiness, elucidating why several Palestinian customers still go against the adoption of M-banking. Therefore, the banks' administrations shall consider this as an indicator to remodel their systems so that they can be securer and assure the safety of the customers' funds to stimulate them to adopt and accepting the use of M-banking in their real-life financial transactions.

7 Conclusion, Future Research, and Limitations

In a nutshell, the study aims at exploring the dimensions of the perceived risk, which act as a prevention to accept and use the services of M-banking by the customers. To achieve the aims of the study, the quantitative approach has been adopted by using the questionnaire survey. The results show that all hypotheses of the current work are supported. The perceived risk is constructed on a 5-dimension model, i.e. time risk, security risk, social risk, performance risk, and financial risk. Generally, the security risk is the most influential dimension based on the discussion of the results. Simply put, practitioners can use the results of this study to examine the interest, concerns, and challenges of the customer associated with the improvement of the M-banking services. It is hoped that the customer and service provider's contribution plays a vital role in improving the required banking services and honing the rate of penetration of M-banking by customers in Palestine. Future work may include exploring the effect of the dimensions of the perceived value on the behavioral intention towards M-banking. Among the study's limitations is that the empirical evidence has been collected from non-users of mobile banking in Palestine. Therefore, future research can develop and increase the size of the study sample to generalize the results. Besides, the current shall compare M-banking services with other competing services such as credit cards to give a deep insight into the behavioral intention to use M-banking. More importantly, this study can be a valuable guide to implement in the strategy preparation process and planning policy area related to the domain of the M-banking services.

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The Impact of Fintech in Entrepreneurship Development: The Moderation Role of Banking During Crisis



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Abstract This research aimed to investigate; the extent to which Fintech affects the development of entrepreneurship and; the moderation role of banking institutions in the relationship between Fintech and entrepreneurship development during the Covid-19 pandemic. A detailed literature review of studies was undertaken to provide an academic and theoretical basis from which fieldwork could be carried out, studying impact of Fintech subtitles on entrepreneurship development; Fintech awareness, fintech data security and trust, ease of use of fintech, quality of fintech services and time spent on fintech. Lastly, conclude that the increased usage of information technology boosts enterprises' capacity to innovate and increase their administrative and marketing processes.

Keywords Financial technology · Entrepreneurship

1 Introduction

Technology development have greatly affected the growth of development and spread of the entrepreneurial community to the point where there is hardly any emerging company in any sector that was developing or innovating that depends entirely on information and communication technology, including industries and traditional businesses such as trade. Information and communication in the business cycle (The best example is E-commerce) (Caliskan 2015). In addition, all sectors have benefited from digital marketing channels that helped them develop their business, grow and spread, including the various TV stations that are considered the traditional competitor. Digital marketing channels, because information and communication technology has provided them with different sources of income (such as voting through letters, contests, etc.) that enabled them to grow, develop and spread (Magnusson 2018).

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Entrepreneurship Development is considered one of the topics with an important impact on the economies of countries and their growth as it is the real engine for social and economic development and it is still the best hope for any country in prosperity (Tidd and John 2014).

Banking systems have existed in Bahrain for decades. The banks have for a long time provided banking services such as saving and lending to their customers and acting as an intermediary between the savers and the borrowers and hence ensuring a continuous flow of finances within their customer community (Visconti 2020). Before the advent of the internet and technology, banks were the main financial institutions in the country, recognized and regulated by the government (Abad-Segura et al. 2020). Most of the methods applied in undertaking transactions were traditional and conventionally similar across financial institutions in the country. For instance, savings meant that one had to physically deposit the money in the bank, while withdrawing the money required the customer to go to the bank physically (Visconti 2020). Besides, borrowing money meant physically filling in application forms with details of guarantors and other payment plans (Visconti 2020). However, the internet revolutionized the banking system in Bahrain, leading to the introduction of Fintech.

Problem Statement

Towards the end of 2019, COVID-19 hit China and soon after spread to parts of the world. The disease has ravaged various countries and led to the death of thousands of people with businesses and daily lives being affected. During the pandemic, various companies had to downsize, while others had to totally shut down causing most people to lose their jobs. Without an employment, the only other option for those affected is to venture into entrepreneurship, that is mobilize capital and resources and provide goods and services. In providing the goods and services, the entrepreneurs can utilize Fintech to ensure they can provide services without customers having to physically present themselves at the premises for payments in line with the social distancing measures. Besides, they can apply Fintech for risk evaluation and management, asset management and even provides avenues for people to use digital cryptocurrencies such as bitcoin to make payment. Thus, Fintech comes in handy for an entrepreneur during the post covid-19 period.

Objectives

The purpose of the study to investigate; the extent to which Fintech affects the development of entrepreneurship and; examine the moderation role of banking institutions in the relationship between Fintech and entrepreneurship development.

2 Literature Review

Positive entrepreneurial trends are important for a country since they promote economic growth and revitalization (Abu Amuna et al. 2019). The government promotes entrepreneurship development through partnerships from the public and

private institutions that invest in the implementation of entrepreneurship ideas. Fintech is one of the organizations that is increasingly investing in entrepreneurship development in different parts of the world (Abu Amuna et al. 2019). It has led to an increase in the number of projects, employment rates, and innovations that have been promoting economic growth. Fintech is connecting entrepreneurs to financial support to implement their projects and the technology solutions they need (Abu Amuna et al. 2019). For instance, Fintech provides integrated technology systems for entrepreneurs to establish and run their businesses in different geographical areas, low costs, and high flexibility (Abu Amuna et al. 2019). It makes it easier for entrepreneurs to implement their development ideas.

The banking system plays a significant role in the moderation of economies during a crisis. Banks have contributed to economic recovery globally by promoting financial stability during the covid-19 pandemic (Mateev et al. 2021). The initiatives taken to safeguard the financial risks have enabled the banks to improve their performance during the covid-19 pandemic by meeting all the capital requirements required in a crisis. For instance, the lending activities by the banks have been regulated during the pandemic to absorb the current credit risks and safeguard the financial credibility of the banks (Mateev et al. 2021). It has enabled the banks to navigate the risks and the environment created by the capital regulating authorities (Mateev et al. 2021). Hence, banking efficiency have promoted customers from possible financial losses during the covid-19 economic crisis.

2.1 Entrepreneurship Development

Entrepreneurship development involves enhancing the entrepreneurs' skills and knowledge to enhance their participation in the development processes (Kraus et al. 2021). The development processes empower entrepreneurs to establish new firms and achieve their business goals. It also involves the financial support given to the entrepreneurs to develop their existing businesses for expansion purposes. It ensures that the entrepreneurs' capacity to develop and manage businesses and risks is improved through the entrepreneurship development initiatives (Kraus et al. 2021). Hence, entrepreneurs make informed choices on how to expand their businesses.

2.2 Fintech

Fintech is a blend of two words; financial and technology. As such, Fintech refers to technology meant to improve financial services (Thakor 2019). These are systems that have brought technology into the traditional ways of doing banking. Technology spread like bushfire within the last two decades, and internet coverage across Bahrain has widely increased. Besides, most people currently have internet-enabled smart devices, unlike at the beginning of the century. With this, companies saw business

opportunities through enabling the customers to remotely access the banking services from their smartphone devices (Haddad and Hornuf 2019; Thakor 2019). It means that customers can freely deposit, withdraw and take loans from the comfort of their internet-enabled devices.

The growth in Fintech in Bahrain can be attributed to many factors. To begin with, Bahrain is ranked among the best destinations for Startups in the Middle East (Mittal 2019). Fintech companies are technology-based startups offering better solutions to traditional banking. With a supportive government, lenient taxation laws, and flexible regulatory approach to startups, companies saw opportunities and invested in the technologies (Mittal 2019). According to (Mittal 2019), most countries in the Middle East chose the Kingdom of Bahrain as a strategic link to other countries within the region in Fintech. This is with the support of already established financial firms such as Singapore's Fintech Consortium (FTC). 2017 saw the launch of the Bahrain Fintech Bay (Razzaque et al. 2020). Its purpose is to encourage Fintech support through innovation labs, encouraging collaboration and providing curation and educational support to both the upcoming and already established Fintech firms.

Fintech Awareness. Entrepreneurs can only benefit from technologies if they are aware of their existence. Awareness serves as a fundamental determinant of acceptance and use of technologies. (Singh et al. 2020) identified awareness as one of the determinant factors. In this manner, technology awareness influence how entrepreneurs accept and use Fintech. This awareness influences the technology's adoption. (Hidayat et al. 2021) provide data, which validates these insights. The authors indicate that as Fintech awareness rises, the number of users increases. These factors illustrate the impact of technology awareness on the adoption of Fintech among entrepreneurs. They have to be aware of limitations of Fintech, a fact that influences their decision on using it or not.

Fintech Data Security and Trust. The technological nature of Fintech implies that data security issues and trust influence its application. (Stewart and Jürjens 2018) contend that security issues complicate the creation and use of Fintech. Considering its technological nature, the possibility of cyberattacks is high. These incidences imply that the impact of security and trust in Fintech influences its application and entrepreneurship development. According to (Stewart and Jürjens 2018), the likelihood of applying Fintech technologies depends on its capacity to ensure the security of user data. For this reason, the level of trust among users on Fintech determines its popularity in entrepreneurship development. Security factors influence the outcomes when utilizing Fintech too. They determine the effectiveness of the technology in fulfilling its roles while protecting the safety of user's information and resources. (Stewart and Jürjens 2018) argue that cyberattacks would harm Fintech. Such security breaches will affect the social and economic grounding of the technology. In turn, the author perceives a massive impact on its users. These findings suggest that data safety and user confidence have a vital impact on the application of Fintech on entrepreneurship development. Apart from affecting consumer.

Fintech is beneficial due to its revolutionary impact on the financial sector. Its attributes make it an excellent addition to the industry. However, its use has several

negative consequences on individuals, society, and even the sector. (Suryono et al. 2020) indicate that the technology can facilitate legal and ethical violations. For example, Bitcoin has allowed money laundering in the past. These factors demonstrate that although Fintech is beneficial, its use comes with potential negative consequences.

Ease of Use of Fintech. Experiences in using technologies influence their perception and adoption across markets. Ease of use is among the factors that determine the attitude of potential Fintech users regarding entrepreneurship management. The ease of use is among the major factors influencing the adoption and outcomes of Fintech. The perception of potential users' perception of how easy it is to use the technology affects their decisions regarding the technology (Setiawan et al. 2019). The authors indicate that ease of use has an indirect impact on potential users. According to (Hidayat et al. 2021), increased adoption of Fintech relies on its ease of use. Such sentiments illustrate the impact of the concept on entrepreneurs' attitudes and adoption. The association suggests that Fintech innovators must emphasize the ease of use and the usefulness of their creation if users are to adopt it for entrepreneurship development. Besides, ease of use is important even after adoption. The outcomes from applying the technology will depend on whether the users can utilize them easily. In this case, ease of use influences outcomes, suggesting that Fintech will be popular and more useful if it requires simple skills to operate.

Quality Services of Fintech. The adoption and outcome of Fintech adoption in entrepreneurship development also rely on its deliverables. In their characterization of the technology, (Hu et al. 2019) contend that the technology aims at improved service quality. Its creation and adoption are meant to improve the running of financial institutions, including consumer experiences. Achievement of these goals demands that the services from the technology are of outstanding quality. For this reason, the quality of Fintech services is a critical determinant of attitudes towards its adoption and the outcomes. According to (Jiang et al. 2019), the quality of Fintech services is associated with adoption outcomes. The authors identified a positive impact related to the quality of Fintech services. These findings indicate that outcomes from Fintech adoption rely on the quality of its services. By extension, the perceived quality of the technology's services influences attitudes among potential users concerning adoption. Therefore, its utilization in entrepreneurship development will focus on the quality of its deliverables. As one would expect, high-quality services will facilitate positive consumer attitudes. In turn, these perspectives these factors are germane in entrepreneurship development, affecting implementation and outcomes from utilizing the technology.

Time Spent on Fintech. The fundamental idea behind technology adoption entails enhancing effectiveness in the delivery of services. Various entities expect technologies to ease the way they do business. In this regard, the adoption of Fintech is expected to bring about effectiveness in financial services. Time is among the factors that determine the efficiency of service delivery in the finance sector. (Dwivedi et al.

2021) characterize the importance of time in the field with examples of financial institutions in the UAE. The authors indicate that the application of Fintech has led to the lowering of the time needed for transactions. This example details the importance of time spent on Fintech on its adoption. The adoption of these technologies must reduce transaction times (Iman 2020) concurs with these notions, alluding that Fintech has the potential to reduce decision-making times among its users. This implies that effectiveness relates to less time spent on Fintech applications. These factors determine the adoption and outcomes in entrepreneurship development concerning financial technologies.

2.3 The Moderation Role of Banking between Fintech and Entrepreneurs during Covid-19 Crisis

The moderation role of the banking system has benefited Fintech and entrepreneurs since it has been supporting collaborations. According to (Sahay et al. 2020), the traditional banking systems did not want to work with Fintech companies, but the evolution of the financial services has led to the increased collaborations during the Covid-19 pandemic. Fintech has become a valuable partner to the banks since it connects entrepreneurs to the source for their funds to grow their businesses. It means that the collaborations between the banks and Fintech have been increasing the clients for the banks during the Covid-19 pandemic. Most of the beneficiaries of the collaborations are entrepreneurs in technology companies. The technology sector is seen as the main contributor to the service industry's growth (Sahay et al. 2020). It means that the banking sector has to support technology companies' growth to improve their services to customers.

The future of the banking systems is dependent on their collaboration with Fintech. According to (Yipeng Liu et al. 2020), entrepreneurs facing financial difficulties have been approaching banks to get advice on how to revive their businesses after they are affected. It means that most entrepreneurs have been seeking the banking sector's help during the Covid-19 crisis to save their businesses. The collaboration of Fintech and the banks has given entrepreneurs the confidence to approach banks to get financial assistance and advice since they trust the new improvements made in the financial sector by the government during the Covid-19 pandemic (Yipeng Liu et al. 2020). The collaboration between Fintech and the banking sector has also allowed the establishment of new tech solutions (Hornuf et al. 2020). It has enabled the banks to improve their financial services since people can get their financial solutions using their technology devices. It means that entrepreneurs do not need to visit banks for financial advice since they can get it from their mobile devices (Hornuf et al. 2020). The technology products are mobile-friendly to the customers, and it has improved the interactions between the entrepreneurs and the banks.

The collaboration of the banks and Fintech has led to the introduction of new products that have benefited the entrepreneurs (Hornuf et al. 2020). The tech solutions

introduced in the banking apps are enabling entrepreneurs to access small business loans. The banks' lending abilities have been improved since Fintech has increased the number of people requesting business loans during the Covid-19 pandemic. Consumers are also using mobile apps to access loans (Hornuf et al. 2020). It means that Fintech has been increasing consumer spending since more people can access loans. New prepaid and debit cards are not being issued to consumers who would not have been approved for banking before the pandemic. Access to banking systems has enabled consumers to save and access funds from the banks to spend during the pandemic (Hornuf et al. 2020). Entrepreneurs are benefiting from the increasing consumer spending, and it has enabled them to save their struggling businesses during the pandemic. Hence, the collaboration between the banks and Fintech protects entrepreneurs from financial losses directly and indirectly.

2.4 Fintech Impact on Modern Entrepreneurship

Crowdfunding is a significant source of funding resources in the internet era and contributes to funding sources to facilitate startup projects such as those in Fintech. Therefore, crowdfunding is a significant opportunity that entrepreneurs should explore. It is an alternative to bank financing that fails to align with small and medium enterprises, especially at its initial stages (Abu Amuna et al. 2019). Crowdfunding relies on the interaction of non-professional investors and entrepreneurs on various internet platforms. World Bank defines crowdfunding as enabling businesses to rely on the internet to accumulate necessary funds, either voluntary or in investment form, from many individuals (Abu Amuna et al. 2019). Generally, crowdfunding includes four components:

1. Equity-based: It helps investors to exchange land rights and income or management opportunities based on an agreement with the projects' owner.
2. Peer to peer-based: Also known as lending-based crowdfunding, this aspect cuts out the mediators to have chance in better interest rates as an investor receive cheaper loans.
3. Reward-based: It is approach of financing that is typical in financing projects still under development. Investors, therefore, get their compensation by having the right to pre-order the products or have the product once complete.
4. Donation-based donation by individuals to the project in this model without going to expect a monetary or percentage return from the owner.

As such, Crowdfunding is a Fintech component that is often used to facilitate innovation or social change by removing traditional finance investment obstacles. (Abu Amuna et al. 2019). The increase in crowdfunding over the last few is the result of the emergence of online apps or mobile services that enable entrepreneurs to communicate with one another to dialogue with crowds to gather ideas, raise funds, and solicit feedback on the service that will be provided (Abu Amuna et al. 2019). This aspect is also a significant source of exponential increases in financing

estimated shortly to be in billions. Furthermore, crowdfunding also finds all elements capable of unleashing concepts such as Fintech. The first wave of Fintech relies on payments and lending solutions based on the emerging internet economy (Sedkaoui 2018). Fintech also makes it easier for startups to emerge who can offer a certain kind of financial service. As such, lenders in the Fintech industry, include equity crowdfunding, or invoice supply chain financing and invoice financing, can challenge the traditional business models in several ways. They will use corporate market competitiveness to achieve efficiencies and competition that reduce online risk while still making SMEs more profitable. (Abu Amuna et al. 2019). Specifically, app-based entrepreneurs everywhere. Fintech can also challenge or disrupt incumbents inclusive of traditional banks by supporting the wide range of financial services that include marketplace lending platforms, equity crowdfunding platforms, insurance services, algorithm-driven advisors, and blockchain-based cryptocurrency (Abu Amuna et al. 2019).

3 Conclusion

Entrepreneurs were faced with significant changes methods of working in a socio-economic setting proven to have fundamental transitions, which forced them to find new approaches to accommodate these innovations and address obstacles. Particularly with the expansion of global economy, which has rendered it a necessity to produce the latest and the better to achieve quality through experience, imagination and innovation. Increasing dependency on information technology has had a significant effect on the enterprise, either on the one hand by the shape and function, or on the other hand from offering a range of strategic alternatives to fix it in order to enhance operational efficiency, and the usage of information technology increases the capacity of programs to innovate and increase its processes of administrative and marketing are successful.

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The Factor Drive Consumer Perceptions Towards Banking 4.0



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Abstract The Industrial Internet of Things (IoT) is associated with the fourth industrial revolution or Industry 4.0 in business settings. The business benefits of the Internet of Things (IoT) differ depending on how it is implemented; typically, agility and efficiency are top priorities. IoT applicable in banking services, namely banking 4.0, but the biggest concern for businesses to apply IoT is security. In the Islamic online banking system, unscrupulous individuals hack online banking services, placing bankers' low-security plans at risk. This study aims to identify fundamental factors that influence community perception in Islamic online banking transactions, such as confidence, protection, ease of use, and frequency. Besides, this study used a quantitative analysis with descriptive research and a questionnaire distributed to 150 communities in the University Malaysia Kelantan (UMK) Pengkalan Chepa. Questionnaires formed by Google Forms were used to collect data for this study. The statistical package for the social sciences (SPSS) version 23.0 was used to analyze respondents' data. Furthermore, this study examines the

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relationships between customers' perceptions of Islamic online banking transactions regarding confidence, protection, ease of use, and frequency in the UMK group.

Keywords Banking 4.0 · Customer perceptions on online banking · Confidence · Protection · Ease of use · Frequency

1 Introduction

IoT technology in a business environment is referred to as the Industrial Internet of Things (IIoT) aligned with the fourth industrial revolution or Industry 4.0 (Mehdiabadi et al. 2020a). The Internet of Things (IIoT) business advantages vary depending on how it's implemented; agility and reliability are generally top priorities. The idea is that companies should have more data regarding their goods and internal processes, enabling them to make more improvements as a result. When IIoT applicable to banking services, namely Banking 4.0 (Mehdiabadi et al. 2020a). However, one of the most severe problems with IIoT is security (Mehdiabadi et al. 2020a; Hassan et al. 2019; Hong et al. 2017). Unscrupulous individuals hack online banking programs in the Islamic online banking system, putting bankers' low-security plans at risk. As a result of the loss, they were forced to shut down the online service system temporarily. Hence, the banking sector could suffer severe damage due to the lack of adequate online fund transfer protection. As a result, the most ardent hope for financial transaction protection among internet banking customers is to protect their money (Jalil et al. 2014). To use this "Old Style Equation" as a "template," select the entire line and cut and paste it into the new spot. It's worth noting that the equation number will change automatically (increment).

To improve operations and cut costs, several Malaysian commercial banks have implemented mobile banking solutions. Banking branches alone are no longer adequate to provide banking services to meet demanding customers' needs (Yu 2014). As a result, providing financial services through mobile banking has become an alternative method of providing bank customers with easy and time-consuming banking services (Yu 2014). Malaysia has a lot of potential for growth in terms of online banking. As a result, it's critical to comprehend bank customers' embrace of online banking and investigate the factors that influence their intentions to use it. This information will help commercial banks, such as Bank Islam Malaysia Berhad (BIMB), develop online banking that their customers want to use, attracting new users to the system (Bakri 2020).

The aim of this study is to determine and examine the UMK community's attitudes toward Islamic online banking transactions. Understanding how customers perceive their online banking system is also important for Islamic banks in Malaysia, such as Bank Islam and Bank Muamalat. It is easy to save deposits accounts in the owner's account using Islamic online banking. The study found that a customer's ability to use e-banking is dependent mainly on the security of online transactions (Malhotra et al. 2020). The factors that affect the community's perception of Islamic online

banking transactions, such as confidence, protection, ease of use, and frequency, should be investigated by the researcher.

2 Literature Review

2.1 E-Banking and Islamic Online Banking

Customers who use electronic banking, also known as e-banking, or banking 4.0 have access to various features and services. Account balances can be inspected, funds can be transferred, and bills can be paid, all of which can help minimize transaction costs and give you more leverage over your bank account (Bakri 2020; Mehdiabadi et al. 2020b). E-banking is often regarded as one of the most innovative innovations, allowing all consumers to more easily access banking facilities while making payments or financial transactions electronically. It also applies to systems that enable bank customers to use personal computers or other smart devices to access their accounts and general information about goods and services. Islamic banking is characterized as implementing banking operations by Islamic teachings (Samsudeen et al. 2020; Ahyani 2020). The prohibition of interest (riba) on all types of transactions that carry on business and trade activities based on equal and legitimate profits is critical for conducting Islamic banking activities (Samsudeen et al. 2020; Ahyani 2020).

2.2 The Benefit of Online Banking

Online banking is allowing a person to carry out several bank-related transactions. It also allows the user to check their bank balance at any time and from anywhere. Furthermore, online banking offers a variety of advantages to its users. Convenience is one of the benefits of using online banking (Bakri 2020; Shankar and Rishi 2020). It can save users time by allowing them to review the transactions that they perform. Using an application or website that provides banking, internet banking can handle personal finance customers more efficiently and effectively. The individual can access their online bank statements, have paychecks directly deposited into the account, set up automatic bill pay, and monitor the account's status in real-time with just a few clicks (Jalil et al. 2014; Bakri 2020). As a result, customers can save time, money, and resources. The third advantage is a quicker move. Transferring funds via online banking is much faster and more convenient than traditional methods. Finally, lower fees are another advantage of online banking (Bakri 2020; Shankar and Rishi 2020). Online banking has significantly lower operating costs than conventional banking, and some of these benefits can be passed on to customers. This means that online bank accounts typically have low to no fees, such as monthly maintenance fees for

security, and don't require a minimum account balance or transaction cost (Bakri 2020; Abbas et al. 2018).

2.3 Customer Perception of Islamic Online Banking

Customers' standards and demands have changed as networking technologies such as the internet have grown in popularity. (Shankar et al. 2019; Mehdiabadi et al. 2020b) characterized quality of service as the belief that a service meets or exceeds one's standards, with the customer evaluating rather than assessing the quality of service. A recent study (Toor et al. 2016) looked into the middle of online service offered by Pakistani banks. According to their findings, the five dimensions of Pakistani banks' e-service efficiency are responsiveness, web interface, web quality, reliability, and connectivity. With a few exceptions, the majority of these inquiries were descriptive. (Mahadin and Akroush 2019) compared the causal relationship between service quality, confidence, satisfaction, and customer word of mouth among Jordan online consumers in cross-cultural analysis. Customers who use Internet banking services have expressed satisfaction with the services because they allow quicker transactions, cost savings and are the cheapest and best option. The respondents are aware of and use internet banking services for various purposes, including fund transfers and tax payments, mini statements, cheque-based inquiries, and balance inquiries.

2.4 Trust in Islamic Online Banking Transaction

All services given in Islamic banking are focused on Islamic law, which is superior to civil law. As a result, trust is so important in customer service that any action taken by the bank must meet Islamic law requirements. This facility ensures that the bank's efforts are focused not just on benefit but also on building confidence in the customer relationship. According to Utami (2015); Hong et al. 2019, trust is an essential factor in shaping a customer's purpose and the development and maintenance of long-term customer relationships. In today's banking, the consumer places a premium on institutions that are responsible for keeping their funds secure. Trust is a beautiful example of a consumer reference to remain with the bank because they believe banks can handle their obligations since trust is a major future challenge for electronic banking (Bakri 2020; Malhotra et al. 2020; Toor et al. 2016). Thus, the hypothesis stated as below:

H1: There is a significant relationship between trust in Islamic online banking transaction on customers' perception to use Islamic online banking.

2.5 *Security in Islamic Online Banking Transaction*

When it comes to online technology adoption, perception is crucial. When consumers believe the risks are low and the facilities are safe, they are more likely to use online banking. When the security of a technology-based distribution channel is questioned, the intention to use and implement it should be reduced. Other researchers argue that security and safety are important (Malhotra et al. 2020; Samsudeen et al. 2020; Osman et al. 2017). Three-factor authentication, which uses a password to determine what one knows, a token (smartcard) to demonstrate what one has, and biometric identification, such as a fingerprint or thumbprint, to determine who one biologically is, is a more reliable process (Zaman et al. 2016). Online banking service providers must be more attentive to security criteria, and there is no question that online banking transactions should be protected from security threats on multiple levels (Zaman et al. 2016). Hence, the hypothesis formed as below:

H2: There is a significant relationship between security in Islamic online banking transaction on customers' perception to use Islamic online banking.

2.6 *Easy to Use*

Another significant consideration for online banking practice is the ease of use (Sikdar and Makkad 2015). This issue can be identified as a driver of UMK customers' interest in using an Islamic online service for transactions. Customers usually prefer the bank because of its services, which help them simplify their marketing. Convenience is a significant factor in the decision as an individual has the capability to control the situation, which is easy to use Islamic banking for online banking services. Sikdar and Makkad (2015), Raza et al. (2017), and Said et al. (2020) acknowledged that for consumers to embrace and implement online banking, the technological innovation "must be easy to use." The bank's facilities must be concerned with the consumer accessing in-consumption online banking with beneficial features. The facilities are essential for users to make various online services to establish relationships with customers. According to Raza et al. (2017), the more friendly and easy-to-use a bank's website is, the more consumers are likely to use e-banking. Because of stiff competition from other banks in attracting new customers and retaining current consumers, existing online services should be reviewed to enhance and deliver outstanding results for banks. Customers can access various functions through online banking, which is not limited to physical services at the bank. As a result, the customer is interested in learning how to conduct online banking transactions without visiting the bank in the future. Thus, the hypothesis stated as below:

H3: There is a significant relationship between easy to use in Islamic online banking transaction on customers' perception to use Islamic online banking.

2.7 Frequency of Islamic Online Banking Transaction

Quality of online banking service as measured by the number of clicks needed to find out what the customer needs, the amount of information given, response time, page speed, and just-in-time service delivery (Kao and Lin 2016). Their study (Shankar et al. 2019) found a clear correlation between age and the use of electronic banking. According to a survey conducted by Sandhu and Arora (2020), the majority of respondents used online banking one to five times per month. However, 63 (15.75%) and 43 (10.75%) of respondents use online banking 6–10 times and more than ten times a month. Hence, hypothesis stated as below:

H4: There is a significant relationship between frequency in Islamic online banking transaction on customers’ perception to use Islamic online banking.

3 Research Framework

See Fig. 1.

4 Methodology

A descriptive survey research cross-sectional analysis was used as the research design tool in this study. The findings of a previous research study looked at people’s attitudes toward Islamic online banking transactions. This is a research-based quantitative study that aims to gather quantifiable data that can be used to analyse the population sample statistically. The survey gathers data in order to examine the study’s research objective. Respondents would respond through surveys or questionnaires if

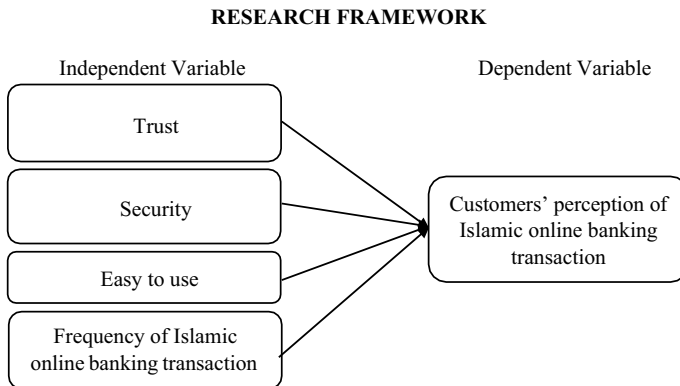


Fig. 1 Research framework

this approach was used. These are popular market research approaches for collecting input from respondents in order to collect valuable data in survey questions with a balanced combination of open-ended and closed-ended questions.

Data collection is the method of collecting and evaluating information on interesting variables in order to address research questions, test theories, and determine outcomes. Students from the Faculty of Entrepreneurship and Business (FKP) and the Faculty of Hospitality, Tourism and Wellness (FHPK), as well as lecturers and staff, are embodied in various courses. There are three parts of the questionnaire: A, B, and C. Section A contains demographic data for the population, such as age, gender, race, religion, social status, occupation, and monthly income. The question related to the independent variable is mentioned in Section B. This refers to the customer's trust in online banking, as well as the perceived ease of use and frequency of Islamic online banking transactions. Section C's query is based on the dependent variable, which is the UMK Pengkalan Chepa community's impressions of Islamic online banking transactions. The questionnaire was written in both English and Malay. The instruments will use a 5-point Likert scale ranging from 1 to 5 to understand customer expectations and the relevance of Islamic online banking at UMK Pengkalan Chepa group.

The respondents were chosen using a convenience sampling approach called non-probability sampling. The respondent, a student in FKP and FHPK, as well as lecturer and administration staff, obtained the sample at random. Convenience sampling is a sampling method in which representatives are selected at random based on their ease of access and ability to meet the respondent. The aim of this study is to assess the research questions and analyse the data using the Statistical Package for Social Sciences (SPSS) 23.0 computer software program. The findings in this study were used to endorse all four assumptions: descriptive analysis, inferential analysis, Pearson correlation coefficient analysis, and multiple linear regression analysis.

5 Result

5.1 *Demographic Characteristic of Respondents*

According to Table 1, the highest proportion is 67.3% for those aged 19–25, followed by 15.3% for those aged 26–35, 14% for those aged 36–45, and 14% for those aged 46 and above (3.3%). In terms of gender, female respondents (57.3%) outnumber male respondents (42.7%). Malays made up the majority of respondents (64.7%), followed by Chinese (20%), and Indians (20%). (15.3%). In this report, occupations are classified into three categories, with students accounting for the highest percentage (66.7%), academic staff (16.7%), and administrative staff (16.7%). The lowest percentage of monthly income is 67.3%, followed by RM2,500–RM5,000 (15.3%), and above RM5,000 (9.3%). Every respondent recommends the Islamic forum they use to their friends and relatives.

Table 1 Demographics characteristic of the respondents

	N	%		N	%
<i>Age</i>			<i>Occupational</i>		
19–25	101	67.3	Academic staff	25	16.7
26–35	23	15.3	Administration staff	25	16.7
36–45	21	14.0	Student	100	66.7
46 and above	5	3.3			
			<i>Monthly income</i>		
<i>Gender</i>			Below RM1,000	101	67.3
Male	64	42.7	RM1,000–RM2,500	12	8.0
Female	86	57.3	RM2,500–RM5,000	23	15.3
			Above RM5,000	14	9.3
<i>Ethnicity</i>					
Malay	97	64.7	<i>Recommend to</i>		
Chinese	30	20.0	<i>friend and family</i>		
Indian	23	15.3	<i>the Islamic</i>		
			<i>Platform</i>		
			Yes	150	100
<i>Marital status</i>					
Single	108	72	No		
Married	42	28			

Table 2 Summary of reliability analysis

Constructs	Cronbach’s Alpha	N
Consumer perception	0.958	5
Trust	0.888	4
Security	0.889	3
Easy to use	0.912	3
Frequency	0.866	3

5.2 Reliability Analysis

The most critical step in data analysis that any researcher must complete is reliability analysis. The main goal of a reliability test is to assess the consistency of the data collected. The reliability test was determined by the coefficient value range, which is explained as a value greater than 0.70 (Sarstedt et al. 2019). This indicates that the questionnaire is accurate and can be used to test the definition being tested.

Table 2 shows the reliability analysis results. The indicated Cronbach’s Alpha value customers’ perception of Islamic online banking transaction among UMK

group, trust, protection, ease of use, and frequency of Islamic online banking transaction is greater than 0.8 which is considered great.

5.3 *Pearson's Correlation Coefficient*

One of the most important measures for determining the linear relationship between two variables is Pearson's Correlation. This test aims to see if the correlation coefficient is statistically important and figure out which hypothesis should be accepted and which should be dismissed.

This study's dependent variable and independent variable have a strong and constructive relationship, as seen in Table 3. It can be concluded that all independent variables, such as trust, security, ease of use, and frequency of Islamic online banking transactions, affect the customer's perception of using Islamic online banking. As a result, all hypothesis tests are approved.

5.4 *Multiple Linear Regression Analysis*

Trust, security, and ease of use have a positive relationship with customers' perception of Islamic online banking, as shown in Table 4. The frequency of Islamic online banking transactions has a negative impact on customers' perceptions of the service. There is a strong linear positive relationship between consumer perception and confidence in Islamic online banking transactions. Customers' perceptions of Islamic online banking transactions among the UMK group are 0.26 units higher for those

Table 3 Summary for Pearson's correlation coefficient analysis

	Hypothesis	p-Value	R-Value	Interpretation
H1	Trust > Consumer perception	0.000	0.701	Accepted
H2	Security > Consumer perception	0.000	0.713	Accepted
H3	Easy to use > Consumer perception	0.000	0.690	Accepted
H4	Frequency to use > Consumer perception	0.000	0.508	Accepted

Table 4 Multiple linear regression analysis

	Hypothesis	p-Value	Beta coefficient	Interpretation
H1	Trust > Consumer perception	0.007	0.26	Accepted
H2	Security > Consumer perception	0.001	0.32	Accepted
H3	Easy to use > Consumer perception	0.000	0.34	Accepted
H4	Frequency to use > Consumer perception	0.430	-0.56	Rejected

who have increased their confidence in Islamic online banking by one unit. Security in Islamic online banking transactions has a significant linear positive relationship with consumer perception.

Customers' perceptions of Islamic online banking transactions among the UMK group are 0.32 unit higher for those who increase security in Islamic online banking by one unit. The ease of use of Islamic online banking transactions and consumer perception has a significant linear positive relationship. Customers' perceptions of Islamic online banking transactions among the UMK group are 0.34 unit higher for those who increase the ease of use of Islamic online banking by one unit. Since the p-value is greater than 0.05, there is no important linear positive association between the level of Islamic online banking transactions and consumer perception. Hence, the most influential factor in this study is easy to use.

6 Discussion

This study examines the relationships between customers' perceptions of Islamic online banking transactions regarding confidence, protection, ease of use, and frequency in the UMK group. According to the finding in this study, trust, security, ease of use, and frequency of Islamic online banking transactions affect the customer's perception of using Islamic online banking. In terms of trust, respondents in this study perceive trust as one of the factors for Islamic online banking services. This aligned with the study from Bakri (2020), Malhotra et al. (2020), and Toor et al. (2016) appended trust is a major future challenge for electronic banking since trust is a lovely example of a consumer reference to stay with the bank because consumers believe banks can handle their obligations. Moreover, security justifies as one as a determinant factor in this study based on the finding from Pearson Correlation among target respondents in this study. This can explain that online banking service providers must pay more attention to security requirements. There is no doubt that online banking transactions should be protected on various levels from security threats, as supported by the study from Zaman et al. (2016).

Regarding ease of use, target respondents in this study highly accepted the Islamic mobile banking services if the system is easy to use and not complicated. Align with research from Sikdar and Makkad (2015) and Raza et al. (2017), consumers to embrace and implement online banking, the technological innovation must be easy to use with features beneficial to them based on friendly and easy-to-use a bank's website. Furthermore, frequency is also justified as one factor influencing perception regarding Islamic mobile banking in this study. The study from Kao and Lin (2016) can support this, the number of clicks required to find out what the customer requires, the amount of information provided, response time, page speed, and just-in-time service delivery are all indicators of the quality of online banking service.

7 Conclusions

To summarise, this study met its goal of examining the relationship between customers' perceptions of Islamic online banking and trust, protection, ease of use, and frequency of transactions among the University Malaysia Kelantan community. Besides, hypothesis testing revealed that customers' perceptions of Islamic online banking transactions are significantly related to trust, protection, and ease of use. Meanwhile, consumers' perceptions of Islamic online banking are unaffected by the pace of Islamic online banking. Aside from that, this study has some sample size limitations due to its target population being too large for this analysis to be conducted. Finally, the researcher made some suggestions for future development, such as adding more variables, increasing the sample size, and designing more appropriate questions in the questionnaire.

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The Potential Application of Augmented Reality (AR) for Conserving the British Pillbox in Kelantan



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Abstract The British pillbox in Kelantan has become an attraction for tourists. The pillbox used to be the defender for the British in Malaysia, considering an attack on the Japanese who come from various angles. The pillbox still exists around the residential area. The passage of time has made the pillbox suffer various damages and deteriorations. This pillbox cannot be conserved physically. There are structural differences such as the number of blocks, size, and height of these monuments which may have certain functions and reasons too. This research aims at two locations of pillbox which is located on Pantai Chap, Bachok and Pulau Kundur, Kota Bharu. This research aims to identify the potential of Augmented Reality for conserving the British pillbox in Kelantan. It is also to determine the appropriate Augmented Reality to use in conserving the British pillbox in Kelantan. Detailed research was carried out to obtain evidence such as photographs, structural details, and pillbox location. The data has been applied to Unite AR, one of Augmented Reality (AR) applications to conserve this British pillboxes' heritage monument. Through this research, the AR was created to expose the real structures of two British pillboxes located in Kg. Pantai Chap and Kg. Pulau Kundur. This research intended to extend the uses of Augmented Reality (AR) in conservation since many museums use this technology to conserve artifacts and monuments and attract people to exhibitions. By using this conservation method, the monuments will remain and new generations will appreciate more about history.

Keywords Augmented reality · British pillbox · Conservation · Kelantan · Unite AR

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1 Introduction

The chronology of World War 2 in Malaysia in 1941 between the British and Japan has created several monuments of historical value as a reminder of the war that broke out. This monument, in the eyes of the people of Kelantan, is a Japanese military pillbox. The British built the pillbox to slow down the advance of the British army and defend essential locations that have the logistics function of the British (Akib 2013).

In Kelantan, there are about 30 pillboxes and many are on the coast (Dolasoh 2015). According to the National Archives of Malaysia, the most robust pillbox structure is around Sabak Beach, Kota Bharu because the Sabak Beach area is considered strategic and a significant attack center, where Sabak Beach is in the north of the peninsular and close to Thailand and Vietnam (Fig. 1) (Ismail 2018). In addition, the British had to maintain the location of the Sultan Ismail Petra airport which used to be a logistics storage place and was of interest to the British (Wrigglesworth 2006).

According to the observations, the structure of the pillbox built by the British with the help of Punjabi soldiers (Akib 2013) in each location had differences in terms of height, the width of the walls, and also the shape of the hole which was believed to be the angle of enemy fire. In addition, the degree of angle for each side of the wall is also different. There are also similarities in the construction of the pillbox among them is the location of the entrance, the longest wall is the 8th wall. The inside of the pillbox is also similar to the presence of a wall at the entrance (Fig. 2) and in the middle of the building, there are pillars (Fig. 3).

There are many destructions, deteriorations, and extinctions of British pillbox in Kelantan by now. Therefore, Augmented Reality was applied to focus on the objective of identifying the potential of Augmented Reality for conserving the British pillbox in Kelantan. It is also to determine the appropriate Augmented Reality to use in conserving the British pillbox in Kelantan. The study's aims focused on two pillboxes located in Pantai Chap, Bachok and Pulau Kundur, Kota Bharu.

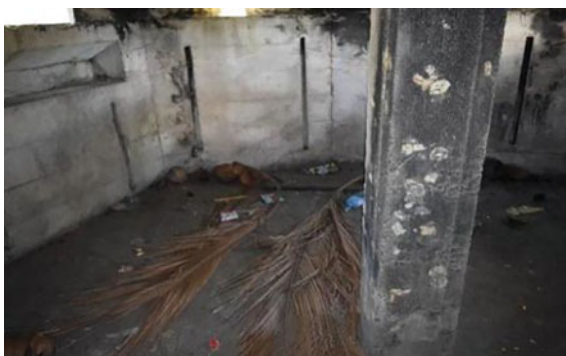
Fig. 1 The destroyed pillbox on Sabak beach sank deep into the sea *Source* Field study



Fig. 2 Wall structure inside
British pillbox in Kelantan
Source Field study



Fig. 3 Building pillar inside
British pillbox in Kelantan
Source Field study



2 Literature Review

2.1 *British Pillbox in Malaysia*

The second world war that took place in Malaysia is said to have started from Thailand and moved to Kedah then conquered the whole of Malaysia (Halid 2016). At that point, the British struggled to set up their stronghold before the advancing Japanese in Malaya. The British Pillbox was built up with bricks, the main base material following the revolution of a builder in Europe for the past decade (Hassan 2017). This technique using the bricks to keep remained the monument for thousands of years (Hassan 2017). As we can see, the example of monuments is Colosseum in Italy and also Parthenon in Greek, both monuments still strong despite natural disaster such as earthquakes. Hence, it is no wonder the architecture of Europe has been used in Malaysia to defend from Japanese attacks in WW2. The development using bricks symbolized the concept of capitalism and monetary economic systems and



Fig. 4 Alice pillbox in Sarawak before and after conservation work *Source* Mai Singgah (2018) (Right) and Tengku Halbert (2018) (Left)

up to today, Malaysian has many monuments that influenced the economic success inherited by roman civilization (Hassan 2017).

In Sarawak, one pillbox called “Alice” (Fig. 4) has been preserved and protected under the national treasury act called National Heritage Act 2005 (Act 645) (Richard 2012). Conservation carried out kept the originality of monuments by combining the conservation, repair, and reconstruction. This conservation work had been done to keep the monument because it is important and contains a significant value in Malaysia that can be used as an attraction in heritage tourism and it also can be education purpose for the young generation (Richard 2012).

To conserve and preserved historic monuments, the British pillbox in Malaysia must implement several factors including architecture, historic value, function, age of monuments, and maintenance support from relevant parties. Based on some past renovation project on monuments, there are framework can be outlined for the conservation practices to ensure that the preserved monument can be done thoroughly and systematically. The pillbox can be a reference center for art design and also a tourism center. Tourism that came to Malaysia can get to know more about the history and affect the emotion of historic relics in the colonial era. For example, the British pillbox is mostly located near the coast, which can be a tourist attraction (Ibrahim 2021) (Fig. 5).

2.2 Conservation Through Augmented Reality Application

Every monument in the world is a symbol of progress among civilizations and the historical story behind it. In Malaysia, there is a pillbox, one of the monuments that can be preserved to retain the historic value and historic story that cannot be forgotten. The pillbox was built by the British to defend from Japanese attack in World War 2 in 1941. The Augmented Reality can be used to conserve the monuments virtually.

Fig. 5 One of pillbox in Kelantan located near the Coast Tok Burung, Bachok
Source Field study

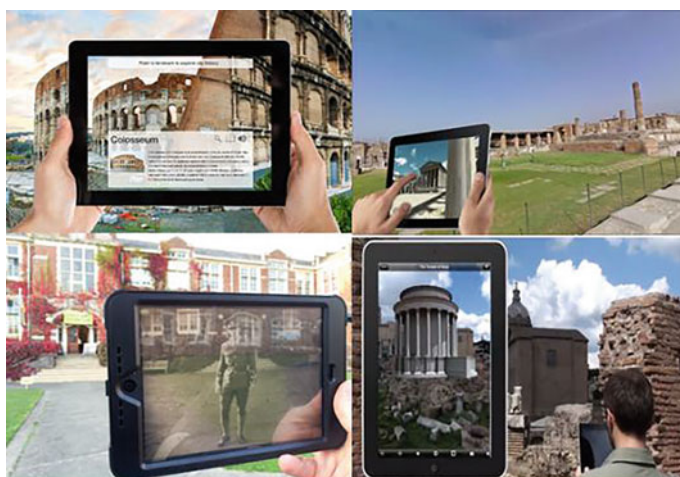


Fig. 6 The AR applied to show monuments from past to present *Source* Saiful Bahari (2020)

Augmented Reality was used to bring back historical monuments and artifacts from the past to the present using AR applications that can be downloaded from mobile apps (Fig. 6).

Public interest in old buildings is declining, possibly due to some factors such as unclear and lack of information. The main solution for this problem is using the Augmented Reality. This technology connects the virtual world and reality. This technology has been applied to Istana Siak Sri Indrapura to attract the public (Fig. 7). The method is using the camera on the smartphone, scan the marker then the 3D object will appear. There are three marker represent Istana Siak, Istana Siak level 1, Istana Siak level 2 (Labellapansa and Asrining Ratri 2017).

Prambanan Temple is one of the buildings left by the ancient Mataram kingdom in Java (Fig. 8). It was a world heritage site from UNESCO one of the famous tourist

Fig. 7 Istana Siak Sri Indrapura Today *Source* Nisya Rifiani (2018)



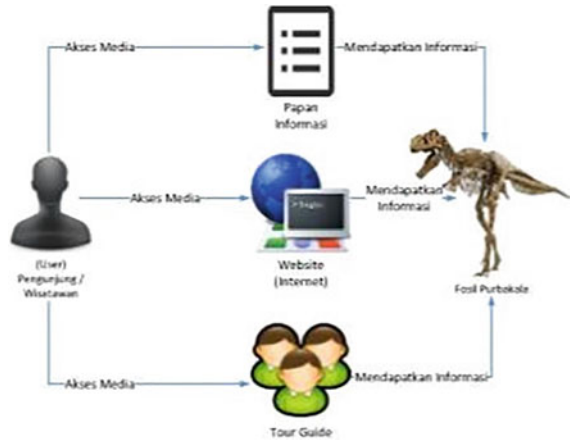
Fig. 8 Prambanan Temple in Yogyakarta *Source* James B. W. (2018)



destinations in the Special Region of Yogyakarta. This structure of the temple has been digitalized into 3D models to create one of the preserved method programs. This method using Augmented Reality (AR) technology from Global Positioning Systems from telephone devices. The main focus of this paper is to present the accuracy values and user responses to position errors of 3D temple digital objects displayed via AR on telephone devices (Helmi and Trias 2020).

The application of Augmented Reality for conservation purposes has been widely used by inventors mostly in the conservation of artifacts, monuments, and wildlife. This statement can be proved according to the journal that written by Yoga Aprillion Saputra, the Augmented Reality has been used in Museum Geology of Bandung on artifacts. By using the technology of Augmented Reality, the visitors can gain more information in real-time. According to that, Augmented Reality gives positive output to both visitors and museum staff. This Augmented Reality can be the new alternative to gain knowledge and more pieces of information about artifacts (Fig. 9).

Fig. 9 AR processing system in Muzeum Geology of Bandung *Source* Yoga Aprillion Saputra (2014)



In Yogyakarta, during the festival Museum Goes To Campus in 2013, the exhibition came with the theme of water transport equipment. They exhibited several types of ancient boats. Refer to the object, they used Augmented Reality to introduce the artifacts. The information contains in Augmented Reality includes texts, videos, and 3D models (Fig. 10). Then, that 3D model was imported into one of the Augmented Reality applications called unity (Yudiantika et al. 2013). They also used an image as a registered marker. Visitors only need to scan the marker (Image that provided) to get the information about the ancient boat (Fig. 11).

Other than artifacts, the Augmented Reality is also used to conserve wildlife. Using the power of technology, they intend to turn real wildlife that going to be extinct into a household name. After that, they digitized their stories and making their conservation more fun and accessible to anyone (Jake Manion 2017). The Internet of Elephant team realizes that in the past 40 years, the extinction of wildlife

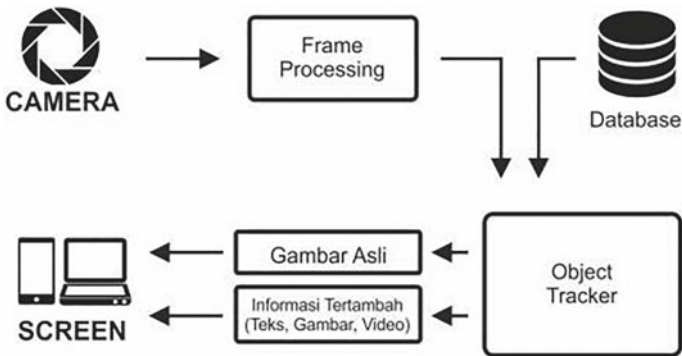


Fig. 10 The process of AR application *Source* Yudiantika et al. (2013)



Fig. 11 The registered marker (image) that used for scan by visitors *Source* Yudiantika et al. (2013)

Fig. 12 AR technology adopted to conserve an elephant by the internet of elephant team *Source* Jake Manion (2017)



increase to 50%. To conserve the wildlife, they adapting the technology by creating digital experiences using AR (Fig. 12).

3 Research Methodology

Several methods have been used to collect evidence and research information, such as initial research through secondary studies through reading materials such as books, journals, articles, and thesis. The observations also focus on the location and structure of the pillbox and the environment of the pillbox found in the districts of Kelantan (Figs. 13 and 14).

In addition, the result of the field study was to take pictures and make measurements of the structure of the pillbox found in several districts in Kelantan (Fig. 15). The collected data were interpreted in drawings and sketches and AutoCAD documentation (Fig. 16).

Fig. 13 The structure of the British pillbox in Kg. Pantai Chap, Bachok *Source* Field study



Fig. 14 The structure of the British pillbox in Kg. Pulau Kundur, Kota Bharu *Source* Field study



3.1 Augmented Reality Method

To create AR for this project, all the data related to British pillbox structure was being collected.

Step 1: Create an album for single British pillbox structure.

Step 2: Select all the picture that provided, then click *create*, choose *video* (Fig. 17).

Step 3: Import all image selected into *SOLOOP* application, edit and choose the best effects for the video, then click *finish* (Fig. 18).

Step 4: After clicking the finish button, the video is ready to generate by clicking the Generate button on the top right in the yellow column (Fig. 19).

Step 5: Wait for a while, then after finish generate, the video ready to use (Fig. 20).

Step 6: By using Canva.com, create marker for AR scanner (Fig. 21).

Step 7: Sign in to Unite AR, upload the image for marker (Fig. 22).

Step 8: Then, choose the video for content (Fig. 23).

Step 9: Browse and upload the video from desktop (Fig. 24).

Step 10: Wait until the video and marker ready to preview (Fig. 25).

Fig. 15 Measuring and collecting data of pillbox structure *Source* Field study



Step 11: Preview the AR with content to make sure the project successful (Fig. 26).

Step 12: Download the QR and image for AR scanner, then save and publish the project (Fig. 27).

Step 13: Download unite AR through the phone to scan the AR QR code.

4 Results and Findings

The construction of a pillbox depends on its function and environment. A strong pillbox structure plays an important role to function properly. The observation is focused on two different pillboxes in Kg. Pantai Chap and a pillbox in Kg. Pulau Kundur which. The walls of the pillboxes studied are labeled with the letters A to J. To approach the clear structure of the pillbox, the user must scan the picture (marker) and the visual information will pop up on the screen.

Fig. 16 Autocad sketch of a British pillbox in Kg. Ger, Bachok *Source* Field study

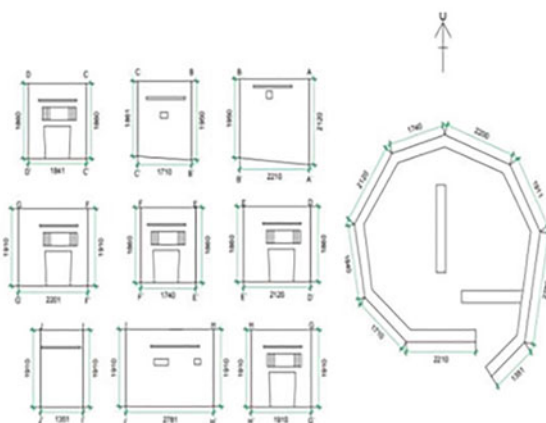


Fig. 17 Picture editing in Soloop application for video creator



Fig. 18 Soloop application for video creator

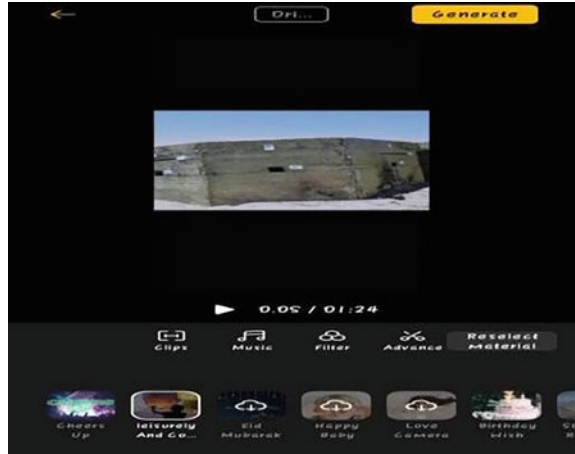


Fig. 19 Finish and saving the video in Soloop application



Fig. 20 Marker made with Canva.Com page

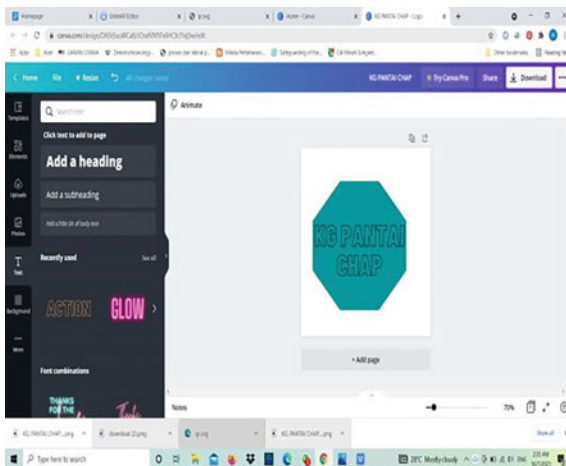


Fig. 21 Marker creation for AR scanner

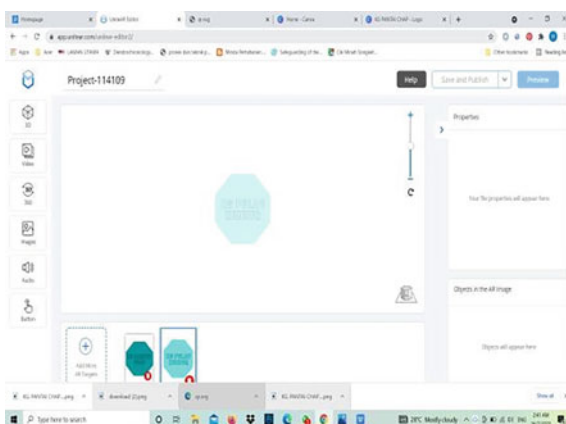


Fig. 22 Uploading video into Unite AR page

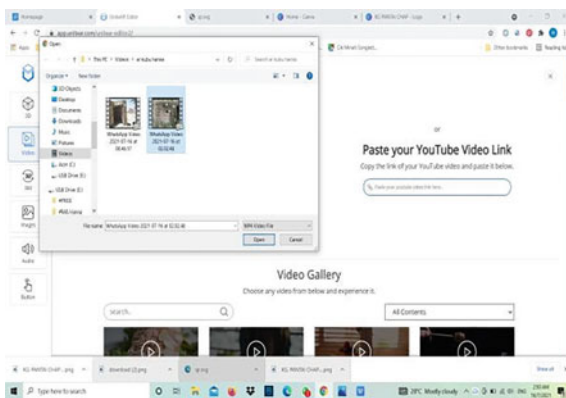


Fig. 23 Processing video into Unite AR page

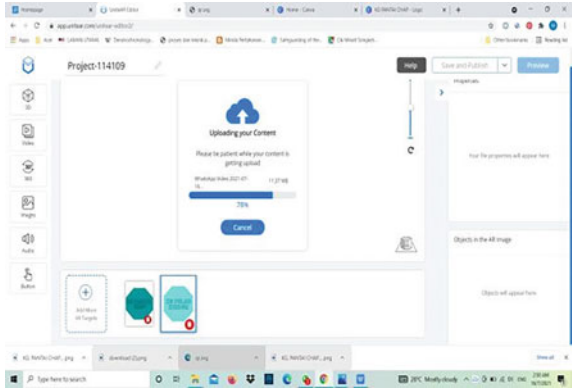


Fig. 24 Setting the video in Unite AR page

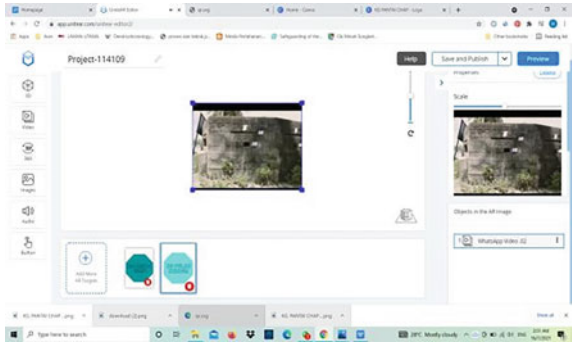


Fig. 25 Marker scanner for video preview in Unite AR page

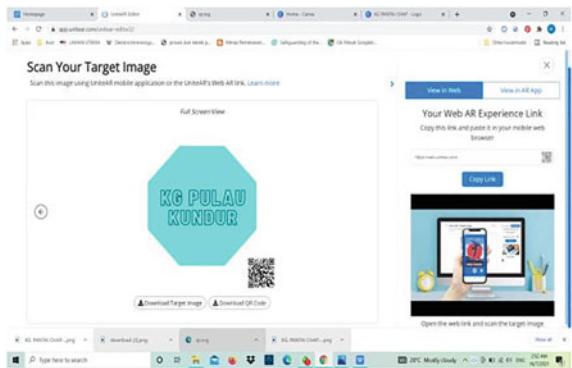


Fig. 26 Unite AR was ready to publish

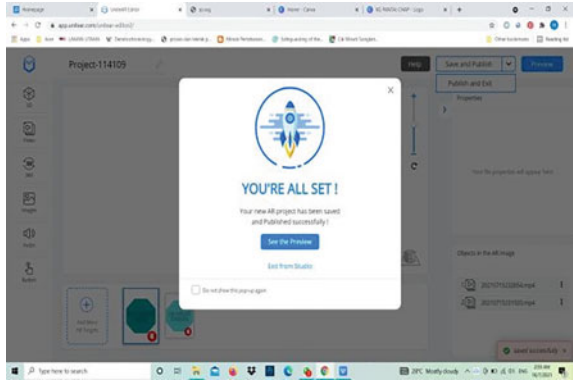


Fig. 27 AR marker



4.1 Structure of Two British Pillboxes

4.1.1 Kg. Pantai Chap

The pillbox (Fig. 28) is located on Kg. Pantai Chap near the coast and chalets. The pillbox also has nine different walls. There is an elongated rectangular hole for walls A-B, followed by a small rectangular hole below it, which is said to serve as a place to fire shots of the enemy. Wall B-C has only one rectangular hole. While walls C-D are the same as walls A-B. Next, the walls D-E and E-F are also similar to a wide and narrow window on the inside. For the wall of the pillbox in Kg. Pantai Chap, there are only two blocks that are wide, namely in F-G and G-H and there is a window

above the block that is wide and narrows inwards. There is one wide rectangular hole in the middle of the wall for the H-I wall, followed by two holes on the right and left of the wall. Position the hole slightly to the right. The last wall does not have any holes and windows. This pillbox is also similar to the others because there are two walls inside.

4.1.2 Kg. Pulau Kundur

The pillbox (Fig. 29) is located on Kg. Pulau Kundur is a bit far from the coast and near the villager's house. This pillbox also has nine different sizes of walls. Wall A-B, B-C, C-D, D-E, and E-F has an elongated rectangular hole followed by a small rectangular hole below it. For the wall of the pillbox in Kg. Pulau Kundur, there are only two blocks that are wide on wall F-G and G-H and there is a window above the block that is wide and narrows inwards and also the long one on upper. There is one wide rectangular hole in the middle of the wall for the H-I wall, followed by two holes on the right and left of the wall. The position of the hole is slight to the right.

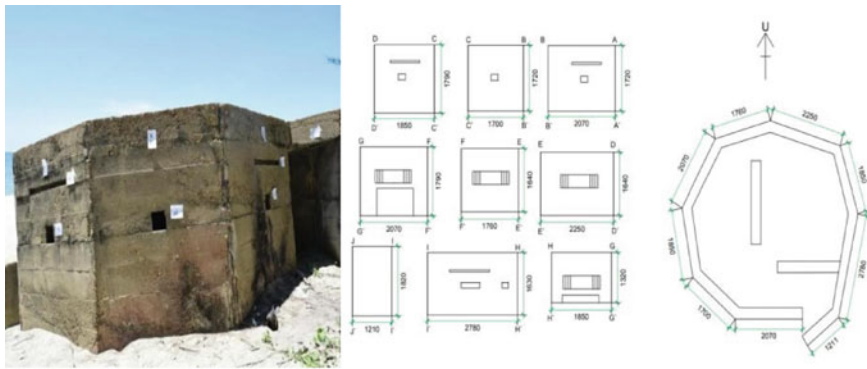


Fig. 28 Structure of pillbox in Kg. Pantai Chap, Kelantan



Fig. 29 Structure of pillbox in Kg. Pulau Kundur, Kota Bharu

The last wall does not have any holes and windows. This pillbox is also similar to the others because there are two walls inside.

4.2 Augmented Reality of British Pillboxes

To conserve the British pillbox in Kelantan, the researcher came with the idea to adopt AR applications and turn the pillbox into digital experiences. The information of the pillbox contains every single wall from A to J, the measurement of the pillbox, and a 2D image. The researcher intends to approach users using simple information and is easy to understand. The application can be download through google play store and Apple AppStore.

4.2.1 Kg. Pantai Chap

To view the AR of British pillbox structure in Kg. Pantai Chap, users are require to scan the registered marker below (Fig. 30).


- Step 1:** User need to download the *Unite AR*  through google play store and apple apps store.
- Step 2:** Focusing the camera on the QR code provided
- Step 3:** The video of British pillbox structure in Kg. Pantai Chap will pop up.




Fig. 30 Image of AR maker and the pop up video content for British pillbox in Kg. Pantai Chap



Fig. 31 Image of AR maker and the pop up video content for British pillbox in Kg. Pulau Kundur

4.2.2 Kg. Pulau Kundur

To view the AR of British pillbox structure in Kg. Pulau Kundur, users are required to scan the registered marker below (Fig. 31).

- Step 1:** User need to download the *Unite AR*  through google play store and apple apps store.
- Step 2:** Focusing the camera on the QR code provided
- Step 3:** The video of British pillbox structure in Kg. Pulau Kundur will pop up.

5 Conclusion

In conclusion, the pillboxes is an important historical relic monument and needs to be preserved. However, some people think that the pillbox is just an ordinary building that has value and does not need to be preserved. The forts located in Kelantan are believed to have more than 30 forts built by the British during the Second World War (Dolasoh 2015). Unfortunately, the fortifications in Kelantan are not well preserved and preserved while they have economic attractiveness in terms of high historical value. These remnant British forts have mostly deteriorated due to coastal erosion and have been partially submerged in seawater.

To preserve this valuable monument, various efforts and proposals need to be strengthened to open the eyes of the community to the importance of the fort as one of the high heritage values. In addition, the community cannot see its importance in terms of the country’s economic development, especially in the tourism sector. The pillbox can be used as a source of attraction for foreign tourists. As in foreign countries, their war strongholds are partly used as toilets and the original shape of the fort is still maintained.

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Systems Thinking, Simulation and Cyber Security

Simulation of Comprehensive Assessments of Personnel Innovation Development Management System



Novykova Innola , Chorni Roman , Chorna Nelia , Bey Roman ,
and Leszczynski Viktor 

Abstract The article examines the influence of factors caused by the COVID-19 package on the activities of modern enterprises. It was established that quarantine measures had been imposed by the state, the main spheres of business were affected, such as respectable and cultural institutions, hotel and restaurant business, tourist services and passenger transportation, etc. A critical analysis of scientific works of scientists covering the problematic state of modern enterprises has been performed. In the works of many scientists, innovative thinking is defined, which is the key to the emergence of enterprises from the crisis. Therefore, the articles reveal one of the significant areas that are created on the new introduction to the development of personnel management. It is established that among the most effective, clear and easy to use in the business management system in modern pandemic conditions are innovative solutions for employee cooperation, rights and responsibilities at all levels of the enterprise hierarchy.

The article proposes a simulation model of the distribution of rights and responsibilities in the management system of innovative development of enterprise personnel. When modeling employee cooperation, rights and responsibilities at all levels, the hierarchy of the enterprise must be appropriate, any theoretical model is a hypothesis. The proposed model was implemented and determined by the results of research, which allowed identifying the main critical factors affecting the internal environment of the enterprise.

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Applying a simulation model of the distribution of rights and responsibilities of staff has led to real positive results. In the study of enterprises at the level of the coefficient of staff stability, there were no changes in this income of enterprises, which have hardly changed. By focusing on the customers and addressing their needs, as well as examining the views of employees on the relationship of duties, rights and responsibilities of all levels of hierarchical enterprises in terms of meeting their needs and expectations, a questionnaire has been developed; the research has determined the effectiveness of simulation models. The proposed innovative personnel development measures make it possible to state that they are effective and can be applied in the activities of enterprises in the context of the COVID-19 pandemic.

Thus, the innovations described and proposed in the article, regardless of their application, can increase the efficiency of management decisions and respond quickly to the preparation of external and internal environments, and hence a large number of ideas for managing enterprises in crisis.

Keywords Innovations · Personnel development · Simulation modulation · Rights · Responsibilities · Personnel management · Pandemics Covid-19

1 Introduction

The situation in Ukraine is quite complicated, caused by the factors of the COVID-19 pandemic. Due to the difficulty of predicting the potential extent of the virus in the country, it is virtually impossible to digitize the potential damage. Thus, according to the Union of Ukrainian Enterprises, Ukrainian business expects a drop in quarterly revenue by an average of 30–35%. Currently, the main areas of business are in crisis, such as entertainment and cultural institutions, hotel and restaurant business, travel services and passenger transportation, and so on. It is in these areas of business that the state imposes direct restrictions in connection with the introduction of quarantine measures. As a result, companies are forced to reorganize their activities, and some even close down altogether. Due to these forced actions, according to the Ministry of Finance, the unemployment rate in 2020 is 9.7%, which has doubled compared to 2019. In addition to these changes, there are another significant changes in the economy of Ukraine.

The COVID-19 pandemic has slowed global economic development, reduced cross-border capital movements, increased government borrowing, increased unemployment worldwide, and increased income inequality among different segments of the population. Today, the world economy is in a state of turbulence due to the possible introduction of long-term and short-term blockades by governments, as well as uncertainty about the duration of the pandemic and the timing of its completion (Vasylieva et al. 2020).

It is this difficult situation in the country and gave rise to the definition of scientific research, namely in the search for alternative solutions during the crisis management of the enterprise. It is an innovative view in the management of a modern enterprise,

a clear division of rights and responsibilities between the workforce in the quarantine environment and is the key to overcoming the crisis.

2 Literature Review

The problems of the current situation in the world are reflected in the scientific works of scientists. Modern works identify the problems of today and therefore pay special attention to innovations in the enterprise management system. The authors think about those innovations that are likely to remain after the COVID-19 pandemic.

Heinonen and Strandwick (2020) analyzed the transformations that have taken place in the service sector. Thus, innovation management, the complexity and changes associated with COVID-19 are explored (George et al. 2020; Abi Younes et al. 2020). Problems of small business and the need for innovative thinking in enterprise management are studied in the works of Leonov et al. (2017).

The study of the causal links between the level of innovative development and the shadow economy is concentrated in work (Inna Tiutiunyk et al. 2020). They provided a model for assessing the country's integrated innovation performance. The work (Liudmila Bovsh et al. 2020) is devoted to modeling customer service in quarantine and compliance issues in the field of service. Gupta (2019) analyzed the advantages and disadvantages of using different models of innovative enterprise management.

That is, the authors noted that it is innovative thinking and innovative ideas, which in difficult crisis conditions can provide an opportunity for companies to emerge from the crisis. We can agree with these issues of the author's opinion, but consideration of these issues requires research of the internal environment of the enterprise.

The works of Alla P. Grechan et al. (2020); Mazaraki et al. (2020) are devoted to the issues of enterprise management in modern conditions.

Mazaraki AA, Boyko MG and others (2020) identify the problems of integration management of enterprises, which in their opinion is the basis for the management of virtual interaction of economic entities. They argue that this approach will provide information support for management decisions and will enable companies to emerge from the crisis. Grechan AP, Bezugly AO and others (2020) support the opinion of previous authors and determine that information technology and communication are becoming more pervasive and when integrating them into the field of enterprise management will provide opportunities to reduce costs.

Varnaliy ZS and others (2020) identified problems in the budget policy of Ukraine, which is one of the negative factors in the quality system of enterprise management in modern conditions.

A critical analysis of the work on the internal component of enterprise management, which is based on staff, gives grounds to state that the authors become relevant to this issue. Thus, Tovmasyan and Minasyan (2020) revealed the impact of motivational levers on enterprise personnel management during the crisis. Delanoy and Kasztelnik (2020) identified that the tool of management innovation is to improve

employee productivity. Dykan N., Borisenko I. (2018) studied the willingness of people to make maximum efforts to achieve organizational goals, which is due to the ability of these efforts to meet a particular individual need. In the work of Lopez and Alcaide, (2020) a control system using blockchain technology was considered. Mocherny S. (2010) defined the rights and responsibilities of staff as a conscious and purposeful motivation of the employee to work, by a stable impact on his needs. Formation of components of personnel motivation in the conditions of innovative changes of the enterprises is highlighted in works of Gonchar et al. (2020).

In a position of constant instability of enterprises, the issue of systems management where each staff is an important key that plays an important role in business processes plays an important role, and there is a way out of the crisis with the least losses, according to scientists. Coordinated work of each team member to perform all functions in the specified parameters of business processes of the enterprise where each subordinate knows their rights, responsibilities and responsibilities. Such a scientific reflection can be traced in many works of the above mentioned authors, but each differently defines the issue of innovative transformation in the management system of the enterprise in modern pandemic conditions. The only main scientific idea for all authors is to determine the basic parameters of innovative development of enterprise management.

That is, at present, the most important transformation for the management system is the simulation of the distribution of rights and responsibilities of all participants in the activities of enterprises during the crisis. Determining the innovative development of the company's personnel under the influence of factors caused by the covid-19 pandemic is an actual and important issue. Thus, innovations, regardless of their areas of application, can increase the effectiveness of management decisions and respond quickly to outrage in the external and internal environment, and hence a large number of ideas.

3 Methodology

Based on the critical analysis, it is established that the purpose of the article is a theoretical analysis of innovative staff development and the formation of a model of rights and responsibilities in the management system, which determines the improvement of business processes in pandemic risks. The comparative nature of the study of the problem of innovative re-equipment of enterprises contributed to the use of a set of general scientific methods, such as abstraction, analysis and synthesis, modeling, elimination of factors influencing the object of study. The main research methods are: statistical, expert, the method of expert evaluations - to determine the level of staff satisfaction in the performance of their work; matrix method - to build a Pareto diagram and build a matrix of distribution of responsibilities and powers to identify factors that primarily need improvement; simulation method - to predict the optimal set of elements that clearly characterize the duties and responsibilities of both the individual and the unit. The information base of the research is statistical data of the

State Statistics Service and the Ministry of Finance of Ukraine, reporting of enterprises of the studied market, domestic and foreign periodicals, results of marketing research of consulting companies, Internet information and communication sites, materials of domestic and international conferences and seminars. Author as a result of his own research.

4 Results

Analyzing the current state of enterprises, an important issue was about the transformation of the management system and the application of innovative measures. The most important issue is the distribution and clear definition of the rights and responsibilities of each team member, which plays a significant role in the effective operation of the entire enterprise, especially during the quarantine restrictions of Covid-19.

Thus, the simulation model of the distribution of rights and responsibilities is a very effective means of assessing the features and capabilities of any management system. The head of the organization, which uses a simulation model in the first place can assess the quality of work of managers in each department; secondly, to make the right decision to match the qualification level of employees, structural units of the management system, the proposed model reflects the properties of the real system in abstract form and is a tool for generalization and understanding of reality. Simulation modeling of the distribution of rights and responsibilities allows determining in a concentrated form the interaction and interdependence of individual elements of the management system between employees and in general in the management system, where structural units and individual performers can act as interacting elements.

The process of restructuring the organizational structure of management can be represented as the design of combinations of functional blocks, which reflect the individual work to achieve the goals of the enterprise.

The functioning of a separate component of the organizational structure can be represented as: the entrance to the model where the structural unit with specific functions and the necessary information base for solving problems of implementation of the functions of directorates; management operations on given programs is the process itself - management action; the solution is to solve management problems. In general, this can be represented as follows Fig. 1.

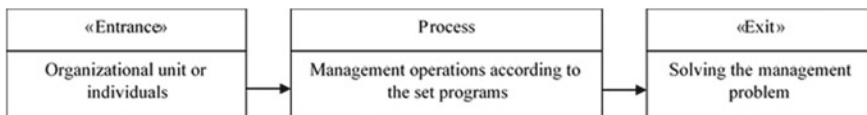


Fig. 1 Functioning of the structural unit

The problem is to clearly define the functions of the structural unit, the tasks that are part of the implementation of these functions, their volume in labor costs, as well as the necessary information base, as well as the time to solve these problems. In the case of structural units, it is usually necessary to clearly define both the number of these structural units and their functions. Management tasks are determined by building a tree of goals, the work program of the structural unit and the decision-making process.

To solve these problems it is necessary to formulate a fairly thorough management structure that covers all management functions. This is not an easy task, but it is real if the head of the organization is sufficiently trained as a manager. Particular attention should be paid to the definition of problems and to which function it should be attributed, and then determine the structural unit to which should be attributed the solution of this functional problem. The block diagram of the algorithm of the model is shown in Fig. 2.

Defining tasks for individual management functions is not so complicated and not so defined. First of all, they are often specific and ambiguous. Therefore, it depends on the head, as well as the size of the organization. The set of management functions makes it possible to present the enterprise as an integrated system. This thought and these innovative measures will allow to systematize the work of all business processes of the enterprise.

Among all the general functions of management during a pandemic condition of the enterprise, special attention should be paid to such functions as forecasting, planning, organization, coordination, information support and control. The tasks included in these functions are generally variant, so they are not typical for operational management, except for information support and control. All others relate to the definition of the standard with which it is necessary to further compare the implementation of actions. The close relationship of management functions determines the nature and effectiveness of management.

Particular attention should be paid to such a function as control. As you know, control can be when there are established forms of rationing, operation, evaluation of tasks, the ability to correct deviations. During the crisis of the pandemic situation of enterprises, the control function must be applied in real and daily mode. This should be defined in block 4 of Fig. 2. Without going into a detailed consideration of other management functions and their content by tasks, it should be borne in mind that all tasks are measured at different times. Some have a promising nature, others are calendar and purely accounting and regulatory are operational, usually based on this there are tasks that require software and there are tasks of a purely accounting nature.

It should be kept in mind that the list of tasks depends on the structuring of management objectives. In addition, for simplification, tasks should be classified by type of activity: production, logistics, innovation, only management. All tasks are performed by executors or structural units. If it is a question of staffing of the decision of problems on functions then blocks 12, 13, 14, 15, 16 concern them. Without going into a detailed consideration of these blocks, we note that managers have decided whether professionally responsible personnel who implement the tasks of these functions. Of course, this can be a score, a qualitative or quantitative assessment,

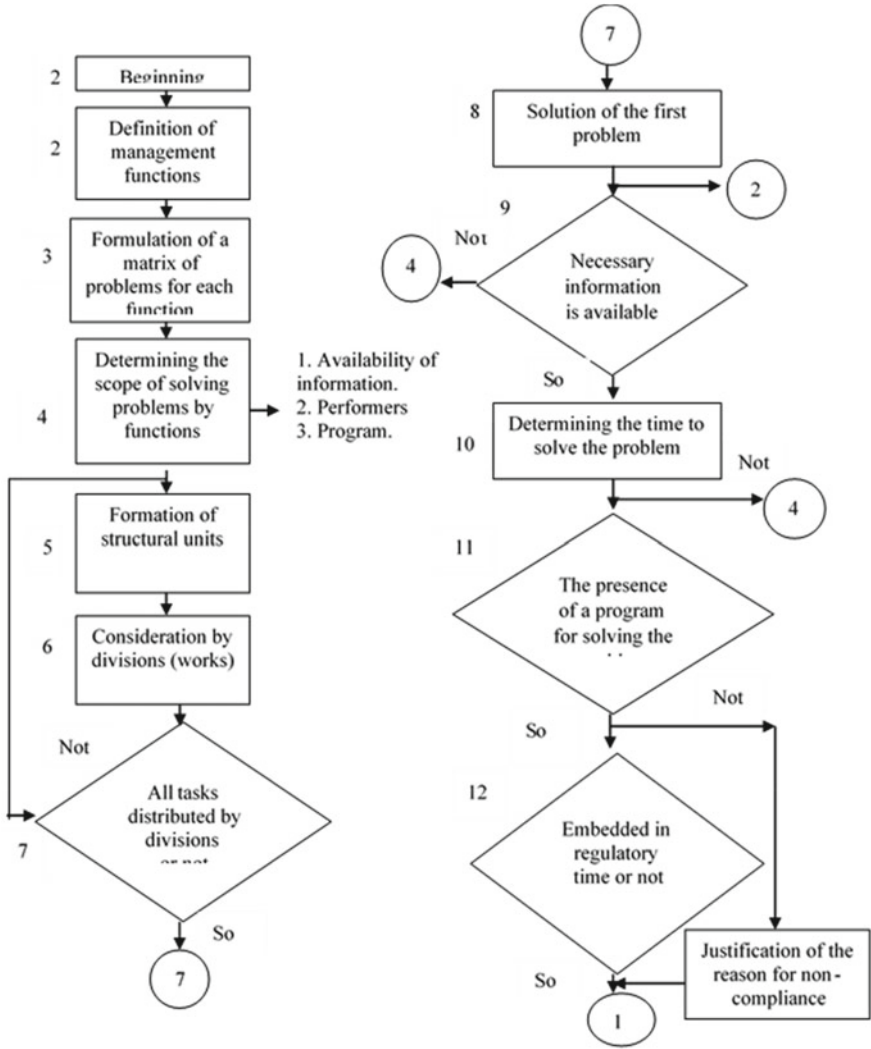


Fig. 2 Block diagram of the algorithm about the model of distribution of rights and responsibilities in management systems

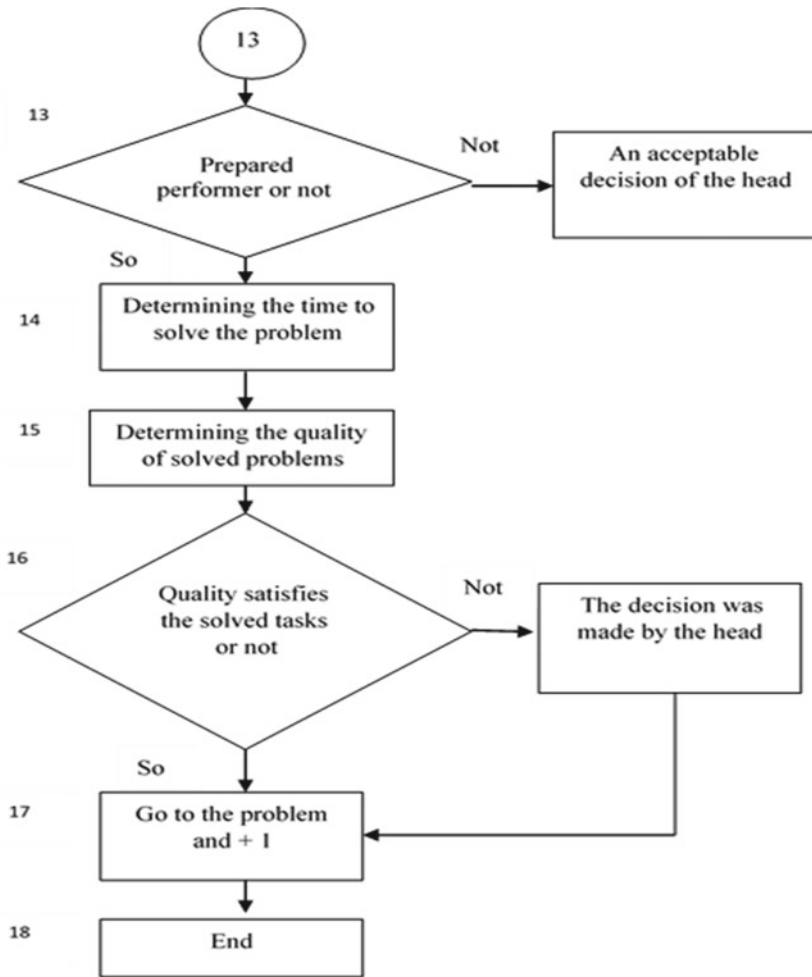


Fig. 2 (continued)

but it clearly defines the duties and responsibilities of both the individual and the unit. The right balance of duties, rights and responsibilities at all levels of the hierarchy is a necessary and sufficient element of the effectiveness of any enterprise.

The implementation of the simulation model is reflected in the activities of enterprises in a state of pandemic crisis. When analyzing the effectiveness of the model, a questionnaire method was used to identify staff satisfaction in the introduced innovative measures of staff development and a point expert assessment of the factors influencing the decisions of workers.

When modeling the relationship of duties, rights and responsibilities at all levels of the enterprise hierarchy, it should be borne in mind that any theoretical model is a hypothesis. If the hypothesis itself and the situation it describes are quite simple, then

it is practically advisable to apply information models. The purpose of describing the object, in this case, is to identify the essential elements and compare a number of relationships of business processes between them, which would be quite simple and would allow obtaining important results.

Identify and explain all the indicators that are subject to numerical determination in the simulation of the ratio of duties, rights and responsibilities at all levels of the hierarchy of the enterprise, the following abbreviations and notations are used:

N - general set of questionnaires;

n is the number of questionnaires in the sample (sample size);

i - serial number of the questionnaire question;

j - assessment of a factor in points ($j = 0$ if the respondent did not decide on the assessment of the factor);

x_j - frequency of the event;

x_i - is the average value of the marks calculated for each question.

Input must be specified separately for the two criteria. Separately for the criterion "Importance of a factor" and separately for the criterion "Satisfaction with the performance of a factor".

The importance of one or another factor.

$$N = i = 1 \dots 12. \quad 0 \leq x_j \leq 12, \quad (1)$$

where $n = \dots 0 \leq j \leq 6$.

Satisfaction with the performance of a factor

$$N = \dots \text{ and } = 1 \dots 12. \quad 0 \leq x_j \leq 12, \quad (2)$$

where $n = \dots 0 \leq j \leq 12$.

The calculation of the average value of estimates for each factor of the questionnaire is carried out according to the formulas:

– for the criterion "Importance of a factor" (Table 1):

$$X_i = 1/n \sum_{j=1}^7 (j \cdot x_j). \quad (3)$$

– for the criterion "Satisfaction with the performance of a factor":

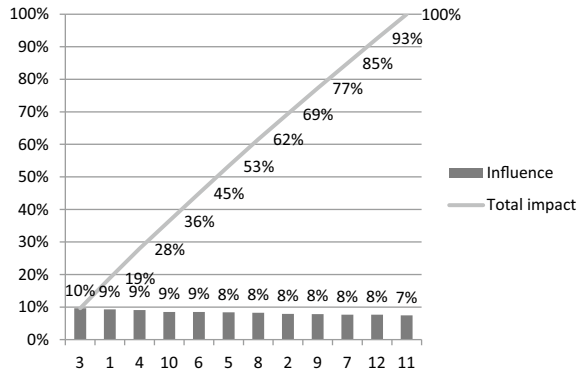
$$X_i = 1/n \sum_{j=1}^{13} (j \cdot x_j). \quad (4)$$

A Pareto diagram was constructed to identify and further analyze the most important and most dissatisfying factors for staff, as well as to set goals for increasing staff satisfaction with the most important factors. The diagram is constructed to determine the factors that primarily need improvement (Fig. 3).

Table 1 Average values of assessments of the importance of the factor for the ratio of duties, rights and responsibilities at all levels of the hierarchy of the enterprise

Nº i/o	Questionnaire question (factor)	Average value of importance, (score)	Relative importance (B) for staff	Rank (question)	Accumulated value for staff, %
1	Providing regular professional training	4,918	0,085	5	44,95
2	Ability to promote	4,565	0,0789	8	69,44
3	Definition and reward of achievements, including salary	5,565	0,0962	1	9,62
4	Involvement of the employee in setting goals and making decisions	4,412	0,0763	11	92,55
5	Analyzing the needs of the employee by the immediate supervisor	4,847	0,0838	6	53,33
6	Possession of more complete information	4,918	0,085	4	36,45
7	Conditions that stimulate innovation	4,424	0,0765	10	84,92
8	Exchange of suggestions and opinions	4,753	0,0822	7	61,55
9	Assistance in personal affairs	4,529	0,0783	9	77,27
10	Provision of favorable conditions under which the work is performed	5,353	0,0926	2	18,88
11	Fair criticism	4,306	0,0745	12	100
12	Interesting job	5,247	0,0907	3	27,95
	Σ	$\Sigma \bar{x} = 57, 83$	$\Sigma (\bar{x} / \Sigma \bar{x}) =$		
			$\frac{1}{1}$		

Fig. 3 Diagram of setting goals to meet the needs and expectations of staff



The first quadrant (denoted by 1) is characterized by the highest performance of the factor and importance for staff. The estimated value of the factor in this quadrant is optimal.

The second quadrant (denoted by 2) is characterized by a high rate of performance of the factor, but a low rate of importance of the factor for staff. When the assessment of this factor falls into the second quadrant, it can be concluded that the factor performs well, but it is unimportant for staff, ie there are potential reserves for reallocation of resources.

The third quadrant (denoted by 3) is characterized by a low rate of importance for staff and low performance of the factor. When the assessment of this factor falls into the third quadrant, it can be concluded that the factor is irrelevant to staff and the level of satisfaction with its performance is low.

The fourth quadrant (denoted by 4) is characterized by a low level of performance of a factor that is important for staff. When the assessment of this factor falls into the fourth quadrant, it is a signal to reconsider the goals of the level of satisfaction of needs and expectations of staff in order to increase it.

Analysis of the results of the study allows us to draw conclusions:

The most important factors for staff are the following factors: definition and reward of achievements, including salary; provision of favorable conditions under which the work is performed. Interesting work (25% of the total number of assessed factors), which together make up 32% of the total accumulated amount of values of the relative importance of factors for staff.

Fulfillment of factors: conditions that stimulate innovation; possession of more complete information; The exchange of suggestions and opinions (25% of the total number of evaluated factors), which together make up 32% of the total accumulated value of relative dissatisfaction of staff with the factors, causes the greatest dissatisfaction of staff, and therefore when setting goals to increase staff satisfaction should pay attention to factors: conditions that stimulate innovation; possession of more complete information; exchange suggestions and views and a factor in identifying and rewarding achievements, including salaries, which is most important to staff, and take appropriate improvement measures.

Table 2 Matrix of distribution of responsibilities and duties

Marking stages process	Functional units (subdivisions)				
	Description of the stages of the process	Head	Subsection 1	...	Subdivision N
1	2	3	4	...	N
1					
2					
...					
m					

In assessing the current management system of the surveyed enterprises in the ratio of duties, rights and responsibilities at all levels of the hierarchy in today's pandemic environment, an analysis of the compliance of business processes was conducted (Table 2).

The result of such analysis is a matrix of compliance of the management process at all levels with the requirements of the quality management system.

The criterion for compliance of the process with the requirements of the enterprise management system in modern pandemic conditions is to obtain unambiguous answers to the following questions:

- Are the activities carried out in accordance with the specific requirements of regulatory documentation within the process?
- How can this activity be confirmed?
- Who is responsible for carrying out this activity?

Defining the sequence and interaction with the processes of the control system involves:

- determining the sequential flow of events of the management process;
- determination of interaction with other processes of the control system.

5 Discussion

Under the definition of criteria for the functioning of business processes means the establishment of requirements for the characteristics of process indicators, compliance with which should be monitored by monitoring the process, measuring the evaluation of its characteristics indicators and analyzing their results. The selection of criteria sets requirements for the effectiveness of the business process, the duration of the business process, the productivity of the business process, the compliance of the output parameters, the compliance of the input parameters or other criteria at the discretion of the process manager. An individual set of criteria is defined for each process.

After all, the main innovative solution to the exit of enterprises from the crisis is the use of a simulation model of the distribution of rights and responsibilities in the management system. The implementation of which defined the basic elements of the actions of each staff, thus leading to a coordinated joint work of all units.

Practical research is used in practice. Of particular practical importance in the presented results is the formation of a system of relationships between subordinates and managers. That in modern conditions acquires high value for the enterprises and their exit from crisis.

6 Conclusions

It is defined that among the most effective, clear and easy to use in enterprise management systems in modern pandemic conditions of enterprises are innovative solutions to the ratio of duties, rights and responsibilities at all levels of the enterprise hierarchy. The application of a simulation model of the distribution of rights and responsibilities of staff has led to real positive results. The level of staff turnover did not change at the surveyed enterprises. In order to focus on the customers and take into account their needs, as well as to study the views of employees in terms of duties, rights and responsibilities at all levels of the hierarchy of the enterprise how well the organization meets their needs and expectations, a questionnaire was developed. That is, the proposed innovative staff development measures give grounds to claim that they are effective and can be applied in the activities of enterprises in the pandemic environment of Covid-19.

Practical Implications. Practical research is used in practice. Of particular practical importance in the presented results is the formation of a system of relationships between subordinates and managers. That in modern conditions acquires high value for the enterprises and their exit from crisis.

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Educational Supply Chain Management: A Review Paper



Nur Shahida Binti Mat Ishah, Khai Loon Lee, and Gusman Nawansir

Abstract Supply chain management (SCM) is relatively not a newly founded area of research. It is rather the underlying theory that always exists in a society without official recognition. However, the concept of educational supply chain management (EduSCM) is still limited. The purpose of this paper is to review the philosophy of SCM in current higher educational institutions (HEIs) in which is hoped to be the foundation for better ideas that can be put into practice for better management of the HEIs. This paper uses a semi-systematic review approach for the acknowledgement of all related literature throughout time and places. According to an exploratory study conducted by one of the researchers, 87% of SCM studies are done in the industrial context, 13% for the service businesses, and the remaining five per cent for the educational sector. However, there is an increase in research trends in the educational sector, indicating a hopeful improvement in a country's education system. Researchers create a few theories, models and frameworks; in a broad and specific topic to better understand SCM in the educational sector. Each level in the educational supply chain (EduSC) was given a fresh and alternative approach and a new focus. The involvements from a lot of different associates and contributors to an EduSC were considered. There are plenty of opportunities and methods to be studied in the backgrounds and developments of the EduSC, EduSC practices, and attributes related to the EduSC. Failing to address these needs may impede the country's education quality and the quality of the graduates produced.

Keywords Supply chain management · Educational supply chain management · Education · Industry

1 Introduction

Before the 1950s, the military used logistics for their procurement, maintenance, and transportation of military personnel and materials. After the 1950s, because of the

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emerging trend of mass motorization and the massive transformation of the economic sector in Europe, the importance of logistics increased significantly until physical management was recognized as a separate different function. And since the 1980s, the concept of supply chain management (SCM) was first introduced and quickly, it became one of the most popular and the most studied concepts even until now where the evolution of the concept kept on continuing to rise (Habib 2014, 2010a).

Researchers have primarily focused on profiting organizations or agencies for the last couple of decades instead of non-profiting critical sectors such as service industries (Habib and Hasan 2019). Yet, there has been a rise in the studies of the importance of SCM in many different areas of important industries in a country (Habib and Hasan 2019). By the increase of demands for professional, skilled, and qualified working labour in the era of technological advance and big data emergence, many educational institutions have looked back at their educational supply chain (EduSC) as it were the foundation for professional and skilled workers.

According to Basu et al. (2016), establishments can no longer work solely on their own as individuals, but they must work together in teams to survive. Therefore, institutions have to collaborate and cooperate to achieve better and upgraded working forces to produce skilled and qualified workers. This paper aims to bridge the gap between studies in EduSC and highlight what is significant in the EduSC to educational supply chain management (EduSCM).

In the EduSC, institutions should work closely with related stakeholders such as students or graduates, parents, governments, educational institutions staff and schools (Gopalakrishnan 2015). An EduSC is just like a typical supply chain where it is a system that involves a set of resources, product and information flow in different levels that meets the customers' demands or requirements (Mahdiraji et al. 2012) except that the stakeholders involved would be students, parents, government, and educational institutions. Habib and Hasan (2019) stated that one of the main objectives of an EduSC is to improve the welfare of the end customers, in which for this paper's context are the graduates.

A lot of literature studied SCM in manufacturing companies (Ballou 2007; Stevenson and Spring 2007; Oliver 1981; Lummus and Vokurka 1999; Tan 2002; Habib and Jungthirapanich 2009a, 2009b). There are only a few studies on SCM issues in the service industry (Habib and Jungthirapanich 2008, 2009c) and very few focused on EduSCM. Hence, it is crucial that more studies are to be made on EduSCM because it can determine the quality of the decision made from the upper stream of the EduSC, and it can also guarantee the quality of the end customers, which are the graduates, in terms of quality of a person and the rate of employment.

For this paper, in Sect. 2, the analytical method of the semi-systematic literature review is described. Section 3 presents the results of this overview, summarizing the difference and highlights of the reviewed literature. Section 4 will discuss the review for the selected literature and the knowledge gaps between the selected literatures. Section 5 concludes this paper by stating the conclusion and recommendations for future studies that are seemed significant towards EduSCM.

2 Semi-systematic Literature Review

Snyder (2019) listed three approaches to a literature review: systematic, semi-systematic, and integrative. This paper uses a semi-systematic review approach to identify, appreciate and acknowledge potentially all relevant research that impacts the topic or how it developed through time. This is because a semi-systematic review frequently examines how study in a particular field has progressed through time or how a topic has evolved across research traditions (Snyder 2019). It is expected that by taking this approach, the complicated field of EduSCM will become more understandable. This literature review approach allows readers to judge whether the arguments presented in this paper are logical or not, and it is commonly utilized for articles published in business journals (Snyder 2019).

This method considers four important steps throughout the reviewing process: research design, plan, research analysis, and structuring the review (Snyder 2019). When reviewing the literature prior to this paper, five important questions are kept in mind:

(i) what is the definition of EduSCM; (ii) when was the concept of EduSCM created;

(iii) who created the theory of EduSCM; (iv) how is EduSCM applied in researches and real-life situations; and (v) how can EduSCM impact future researches?

The next step for this literature review involves searching and identifying publications that match the studied topic. This research covers a considerable amount of literature from research articles, book chapters, news articles, and grey literature (e.g. reports from governments, public authorities and research institutions). To review the EduSCM related literature thoroughly, search engines such as Google Scholar are used to find as much primary and secondary literature as possible with the keyword of educational supply chain management. Database platforms such as ResearchGate, Scopus, and Emerald Insight are also utilized to find relevant articles. Google search is also used to find news pieces about the topic under discussion.

The initial research was done using the Google Scholar platform by entering the keyword (i.e., educational supply chain management), which resulted in 581,000 related articles. Through vigorous screening by taking in all of the free and available for download articles, 37 articles are selected, and most of them are available in the ResearchGate database. On the second week of March 2021, these selected papers are ranked among the top outcomes in the Google Scholar search engine. These articles can be considered among the most related articles given that it contains all of the keywords entered in the search engine. It is believed that if another keyword was entered into the search engines, other papers should come out as results.

The literature was assessed depending on the differences between the study places, objectives, definition of certain keywords, methodology, and findings. The results were further put into tables for easy understanding and interpretation.

3 Results

In researches conducted throughout Southeast Asia, it was shown that there are few articles published and written under the same theme of “integrated educational supply chain management” over eight years. Table 1 shows that one researcher has written a significant number of works on the topic of EduSCM. The written papers on this topic have been published in various conferences and journals and are heavily cited in other works. Furthermore, several other academicians partnered to learn more about educational supply chain, research supply chain (RSC), and educational management in their own country. For the past 15 years, the focus of papers written on EduSCM has been on integrated educational supply chain management (IESCM) for public or private institutions. Models and frameworks were also developed that upper-level personnel in the EduSC can use as guidance when making decisions that affect the future of students and graduates.

Table 1 Overview of literature in educational supply chain management

Author	Paper	Year	Conference/Journal
Md. Mamun Habib, Chamnong Jungthirapanich	Integrated Educational Supply Chain Management (IESCM) for the Universities	2008	Sixth AIMS International Conference on Management
Md. Mamun Habib, Chamnong Jungthirapanich	Research framework of education supply chain, research supply chain and educational management for the Universities	2009	Special Issue of the International Journal of the Computer, the Internet and Management
Md. Mamun Habib, Chamnong Jungthirapanich	A Research Model of Integrated Educational Supply Chain for the Universities	2009	International Conference on Technology and Business Management
Md. Mamun Habib	Research framework of educational supply chain management for the universities	2009	IEEE International Conference on Engineering Management and Service Sciences EMS, China
Md. Mamun Habib	An Empirical Research of ITESCM (Integrated Tertiary Educational Supply Chain Management) Model	2010	Management and Services Journal
Md. Mamun Habib, Bishwajit Banik Pathik, Musawer Tahsin Chowdhury,	Analysis of Educational Supply Chain Management Model -: A Case Study Approach	2012	Proceedings of the 2012 International Conference on Industrial Engineering and Operations Management
Md Mamun Habib, Govindaraju Basu, John Jeyasingam	Education supply chain management model to achieve sustainability in private Universities in Malaysia: A review	2016	International Journal of Supply Chain Management

Table 2 Overview of literature in supply chain management

Author	Paper	Year	Conference/Journal
Md. Mamun Habib	Supply chain management: theory and its future perspectives	2010	International Journal of Business, Management and Social Sciences
Md. Mamun Habib	Supply Chain Management: Its Future Implications	2014	Open Journal of Social Sciences
Md. Mamun Habib, Ikram Hasan	Supply Chain Management - Is it Value Addition towards Academia?	2019	IOP Conference Series: Materials Science and Engineering

Between 2008 and 2019, the researchers also researched SCM, which was also heavily cited in other works. As shown in Table 2, two articles are written in the context of the future perspective, whereas one article is published in academic value addition. According to Habib and Hasan (2019) research, SCM has value in an EduSC. Exploratory research was conducted, and it was discovered that just 13% of researchers utilized SCM in the service industry and five per cent in the educational sector. Simultaneously, 87% of the researchers conducted SCM in the manufacturing industries. This is hardly surprising given that the international economy was still mainly focused on manufacturing industries, with little attention paid to other factors. However, this does not imply that no one else researches the EduSC or EduSCM.

3.1 Theory

The concept of EduSCM is not the only one that emerges from the SCM paradigm. Other ideas and notions exist to explain the various functions and processes of various activities in society. Supply chain management information system (SCM-IS) is a theory discovered to exist alongside SCM. SCM-IS is a theory in which an information system (IS) is utilized to coordinate communication among supply chain stakeholders (McLaren et al. 2004). Chansamut and Piriya-surawong (2014) desired to incorporate the SCM-IS conceptual framework for curriculum management at Thailand's higher education institutions (HEIs). According to the study's findings, the conceptual framework is appropriate and can be used in HEIs and the working environment.

Another theory connected to EduSCM is the digital supply chain (DSC). It is a customer-oriented platform that utilizes technology, records and maximizes the use of data in a supply chain in real-time (Khan et al. 2019). The study by Khan et al. (2019) highlighted the traditional metrics of the academic supply chain, also known as the EduSC, and the new digital metrics that revolutionized the entire contribution, processes, and products of higher educational institutions through education.

Habib and Jungthirapanich (2008) suggested the integrated educational supply chain management (IESCM) model for universities to connect educational management and general business management. It is a model that depicts a comprehensive picture of the EduSC, including inputs, processes, and outcomes (Habib and Jungthirapanich 2008). IESCM is managed in universities through two functions: education and research, and it aspired to contribute to the human resource and education sectors. The model is also said to provide HEIs with the opportunity to improve scientific and technological transfer efficiency theory and practice (Pham and Pham 2014).

The integrated tertiary educational supply chain management (ITESCM) model, then developed by Habib (2010b) offered supply chain stakeholders appropriate methodologies for analyzing and evaluating their performance toward accomplishing ultimate goals. This model's key parts are the education supply chain, the research supply chain, and educational management. This paper was also deemed the first large-scale empirical study that comprehensively studied the function of educational institutions in the education and research supply chain.

3.2 Impact of SCM on Educational Supply Chain

The impact of SCM practices in private universities in Malaysia appeared to be positive on the performance of the universities when Basu et al. (2017) explored the benefits of SCM practices in the educational sector through empirical and cross-sectional study and multiple regression analysis. According to dos Santos et al. (2012), SCM provides a greater understanding of the structure of the constituent college understudy, which increases competitiveness and application to other courses at the institution. This allows people to gain a better understanding of educational organizations, which will lead to increased participation in educational processes in the future.

Gopalakrishnan (2014) investigate the implementation of academic supply chain management at a Vietnamese university. The paper highlighted the upstream and downstream activities in an EduSC and the direction of SCM operations in an EduSC. The researcher demonstrates that SCM activities may be utilized in educational activities. Everyone involved in the EduSC has a responsibility to ensure that supply chain activities function successfully.

Kurniawan (2018) began to develop a conceptual model of SCM for higher education to provide the crucial variable for integrating SCM in higher education that would lead to value creation for all stakeholders in an EduSC. The paper was done by using an interview approach and purposive sampling methods. This marks the start of recognising the importance of the efforts involved by all stakeholders in an EduSC. Rahman et al. (2019a) reformed the ITESCM model to create an EduSCM model considering that education is a service industry. The researchers attempted to establish a set of criteria for the EduSCM model. Aspects such as cultural, social, and organizational are among the factors found to influence the integration from a traditional learning setting to a more modernized environment.

3.3 *Evolutions of EduSCM Throughout Time and Places*

One of the many differences depicted in the studied literature was in the early 2000s. Studies on the EduSC were mainly done by showing a holistic view of the EduSC's compromising input, process, and outputs. Exploratory studies were conducted to exclusively address the EduSC, research supply chain (RSC), and educational management, and researchers such as Habib (2010b) and Habib and Jungthirapanich (2009c) then established an EduSC conceptual framework known as integrated educational supply chain management (IESCM).

The developed model can later be implied by many other researchers for use in their respective countries, such as Basu et al. (2016) in Malaysia, Gopalakrishnan (2015) in Vietnam, Khan et al. (2014), and Pathik et al. (2012) in Turkey. As a result, the EduSC's input, process, and output were thoroughly defined, and the conceptual models were established. On the other hand, the approach used in those studies mainly was based on the Structural Equation Modeling (SEM) technique.

Lau (2007) was able to identify several supply chains for universities in Hong Kong. As a result, the investigated university successfully categorised and organised various values of the university's end goods. In a study by Fawcett (2009) in the United States (U.S), the importance and efficacy of the existing supply chain educational resources were evaluated. The researcher stated that in between 10 years' timeline, in 1995 and 2005, a faculty became the essential resources in an EduSC. However, the opinions of academicians diverged in 2009.

The design of a supply chain for universities was established in 2009. The model created at the time offers an innovative way for decision-makers at each level of the supply chain (Habib and Jungthirapanich 2009d). The suggested model was also introduced in China's Institute of Electrical and Electronics Engineers (IEEE) International Conference on Engineering Management and Service Sciences (EMS). The model provided a new understanding of ways that EduSCM contributes to the success of the operations in universities.

In India, Kumar and Shankapal (2010) found significant savings in supply chain cost where savings up to 50% can be formed by using the product categorization matrix technique to eliminate legacy procurement system. The researchers have also managed to implement models generally used in the working industries into HEIs to critically and strategically model commodity supply chains using strategic and tactical planning.

In addition, exploratory researches in 2010 showed that EduSC, RSC, and ITESCM model through Multiple Linear Regression (MLR) analysis, SEM, and AMOS. The first practical investigation of ITESCM model was demonstrated by a few researchers in 2012. Meanwhile, Khan et al. (2014) utilized the ITESCM model using an information and communication technologies (ICT) application. ICT resource decision-making was made more transparent for their roles and duties in the EduSC.

The upstream and downstream operations of a university in Vietnam were identified using ITESCM references, resulting in the development of the supply chain

operations references (SCOR) model, which explained the powerfully established supply chain connection for the related university (Gopalakrishnan 2015). Then, in 2016, a review of the development of the ITESCM model on private universities in Malaysia was conducted. The insights of the model's idea were taken into account by private universities in Malaysia to achieve sustainability in higher education (Basu et al. 2016).

3.4 Role of Different Elements in EduSCM

Krishna and Subbiah (2012) and Mahmood (Mahmood 2012) addressed the role of information and technology in the management of the supply chain. (Krishna and Subbiah 2012) produced a research framework that depicts the role of information that can enhance the value of the EduSC. At the same time, Mahmood (2012) analyzed the methodology used in the supply chain technology where the productive chain provided greater competitiveness and applicability and contributed to a good appraisal for the studied educational institutions.

Carter (2015) stated that EduSCM plays a vital role in motivating the career of individuals in the construction sector. The researcher also noted that education is essential for the viability of the construction industry in the long term, and HEIs should take a more proactive approach to develop needed skills for graduates to enhance their career plans. Awareness and comprehension of associated regulations involved in an EduSC can aid in SCM processes (Saudi et al. 2018). Compliance behaviour will increase the positive impact on awareness and knowledge of laws in SCM. As a result, compliance behaviour acts as a mediator to improve the influence of education on EduSCM (Saudi et al. 2018).

In today's educational environment, technology is a primary focus. Students today must be at least technologically savvy to have a greater chance of learning. According to Rahman et al. (2019b), mobile technologies are essential to create a better learning environment practically. Then, improved utilization of technology is believed to result in a higher performance rate for an institute. New parameters such as learning attitudes and successful teaching approaches should change measuring an educational institution's effectiveness.

Marbun et al. (2020) used SEM to conduct a case study on the role of education management in supply chain management. According to the findings of this paper, universities play an essential role in SCM, with education functioning as a mediator. University administration also functioned as a moderating variable, strengthening the association between EduSC and supply chain management. Meanwhile, Idris (2020) studied the role of EduSCM in secondary schools through supervisory performance. The researcher employed Discrepancy Evaluation Models (DEM) for the research methodology because performance was the main focus of this paper. It was discovered that supervisors' roles in evaluating and teaching teachers are significant and can affect the smoothness of the EduSCM process.

3.5 *Attributes of EduSCM*

Pham and Pham (2014) researched educational management aspects in Vietnam's HEIs following the interrelationship between the parts that comprise the EduSCM. As a result, the quality of education and research processes involving social interaction, the relationship between HEIs and job and program participation, and the relationship between organizations in the education and research sectors must be improved to provide educational management with a new dimension in understanding how supply chain management contributes to successful university operations. According to Pham and Pham (2014), large investments from government and organizations and solid relationships between HEIs and colleges or universities are variables that assure the success of EduSCM in the United States (US). Meanwhile, in Singapore, the partnership between universities and businesses centred on the exploitation of research discoveries and the preservation of intellectual property rights is critical to the success of their EduSCM.

In another region of the world, Bell (2014) investigated the factors that influenced the academic success and the value of knowledge in recruiting international students at institutions in the United Kingdom (UK). According to the study's findings, there is a significant positive relationship between knowledge and academic achievement. This demonstrates the importance of knowledge and academic performance to an EduSC and EduSCM because simple interactions between elements in EduSCM cannot be accomplished without basic knowledge and performance quantification.

In India, Abbas and Khan (2017) pinpointed the non-physical traits sought in the job market and prioritized them based on academicians' perspectives. The researchers utilized the Analytical Hierarchy Process (AHP) technique, which discovered that communication skills were the most significant, followed by analytical and decision-making abilities and interpersonal skills. Abbas and Khan (2018) disclosed that one of the critical success factors in an EduSC could be using a business incubator, where the incubator will foster emerging enterprises, assisting them to survive and flourish during the start-up stage when they are most susceptible.

According to a study conducted by Dewi et al. (2018) on the role of education and research suppliers, as well as the mediating role of university management and public policy, there is a notable effect of EduSCM towards private partnerships between education institutions and university management, and public policy had a positive mediating role between private partnerships. The researchers even said that the important aspects in an EduSCM include education and research suppliers, university management, and public policy. Furthermore, according to a study by Dogahe et al. (2019), characteristics such as group spirit, degree of intimacy, and feeling significantly impact educational staff performance in the EduSCM.

Aside from all of the concepts and models associated with EduSCM, Vojtek et al. (2019) released a paper on the supply chain simulation in the educational process. The game is being played using specialized software called Byron, which is often used for educational purposes. The simulation gave practical exercises and calculations on the chosen logistics process to educate users on how to examine every aspect of

realistic problems. The deliverables for this simulation are that players must produce the required number of products or services to customers in the required amount of time and with the required quality. This demonstrates that punctuality is a crucial attribute in EduSCM for achieving students' understanding of logistics.

Feng et al. (2020) developed a recent game to help students better comprehend the SCM process. The game was designed to engage university and industrial partners in cooperation training in SCM. Positive feedback was received from this game when students learned something new and industrial stakeholders discovered new opportunities to recognize available opportunities for new initiatives and research collaborations. It was discovered that problem-solving skills become vital from this game to boost student learning and create a stimulating learning environment for students to employ in real-world situations.

4 Discussion

According to the review for this paper, numerous studies have evolved relevant to the topic EduSCM. In the early 2000s, research was primarily focused on developing a model that can comprehensively explain the perspective of an EduSC in terms of its input, process, and output. There were not many studies on EduSCM at that time yet. This was because SCM principles and operations were primarily used in industrial activities. Other sectors or industries were well-known for employing different types of management concepts and techniques.

Lau (2007) successfully highlighted the notion that educational institutions must integrate SCM activities and practices to deliver valuable assets that can be further polished when those assets are needed. In 2009, each level of the EduSC was given a revolutionary approach in which stakeholders contributed thoughts on the newly established concept. International involvement is particularly important because it contributes to the benefits of this notion, which will hopefully be useful in the future. Since 2010, non-physical intangible traits, characteristics, or elements have been receiving attention as the demand for stakeholders involved in the EduSC has increased. As a result, researchers, policymakers, governments, and organizations may find it difficult to apply the EduSCM concept to education. That is why plenty of specified studies are needed to apply the concept properly at the right time and at the right moment.

Many other theories and models can exist alongside EduSCM, which includes SCM-IS, DSC, and IESCM. This explains why specified studies are needed to address different functions in an EduSC. Moreover, the sustainability of the educational institutions becomes important as stakeholders have started to compare the quality of graduates. Hence, the practices in the concept of EduSCM become vital to the survival of educational institutions. More pull system or customer-demand system was asked for as universities do not produce graduates according to their standard, but graduates were prepared according to the customer demands. The traditional supply chain system relies on the push system where products are made based on

the companies wishes. However, a more modern supply chain system advocates for a pull system where customer demands are obtained before the production. Then, the product will be produced according to the customers' requirements.

More studies are required in the different aspects of the educational sector because education is the key to the nation's development. Without education, a country could never move forward.

5 Conclusion

This paper discusses the difference between studies on EduSCM from the perspectives of theories, objectives, timeline, and the findings from those studies. Many researchers from various countries have written articles that can be considered related to this topic. This is why this paper aims to emphasize the differences and arguments that scholars have to identify and work on the knowledge and limitations for this topic.

There are numerous options for researchers to conduct in-depth research on EduSCM. More analysis, evaluations, and investigations are needed in the manufacturing sector and the service sector, particularly in the educational sector, where children are required to be the human resources that the world can employ to generate a better future. Plenty of theories and aspects can make up an EduSC and EduSCM. It was also discovered that EduSCM has qualities that can be used as a guideline for project development or simply for employment processes.

In addition, this semi-systematic review shows that the model used to study the elements in the EduSC are quite outdated because the commonly used model dated back to 2008. A newly useful, modern, and updated model is required to make better decisions for the EduSC. The identified attributes are also pretty much outdated. New studies on required attributes needed from the EduSC and the ones that can affect EduSCM are required to produce graduates who can live up to the nation's workforce standard.

It is hoped that more research will be conducted in the future on the service and educational sectors, as these are the areas with the greatest potential to help a country develop. According to Nair (2021), despite the economic slowdown caused by the worldwide pandemic, Malaysia's service sector has created more jobs than any other sector over the last ten years. This indicates that, even in a slowing economic situation, the service sector can still contribute to a country's economic growth. According to UNESCO (2021), education in emergencies continues to be severely underfunded, despite the fact that education is a crucial driver of other fundamental rights and freedom and has wide-ranging human, social, health, and economic advantages. Education also lowers poverty, prevents inequality and injustice, and promotes stability and peace. As a result, it is critical that education sector's supply chain receives significant attention.

This paper also concludes that more research should focus on the development of the EduSC, EduSCM practices, and required attributes or intangibles because it can determine the quality of the production from the educational sector.

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Systems Thinking to Investigate the Archetype of Globalization



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Abstract This paper presents mental model of dynamics of globalization using systems thinking approach. The purpose is to investigate the forces of globalization and their interdependence among each other. The behaviour generated is the result of positive and negative influencers which either may speed up the evolutionary and revolutionary element of globalization or dampen the surge of globalization spreading the wave of antagonistic and dissonant behaviour. A global approach towards quality management highlights the need for constructing a new body of knowledge that views the field of global quality from a systems perspective. The current article presents the results of an ongoing research based on quantitative and qualitative studies. The qualitative study used Grounded Theory as its theoretical and methodological framework. The subjects of this study were experts in systems thinking, including project managers and engineers who were interviewed in depth about their work in global organizations in a business environment characterized by complex and dynamic challenges. In addition, several qualitative and quantitative tools were applied in a field

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study of 18 multinational companies. In view of the requirement for developing new global quality management terminology, this article presents several new key concepts in this field, which have resulted from the ongoing research, with emphasis on a systems-oriented rationale and perspective. As such, the article is an important stage in building this new body of knowledge, and towards the conceptualization of key variables used in global quality management, from a systems approach that interacts with the fields of international management and strategic management.

Keywords Globalization · Emergency democratic behaviour · Systems thinking · Organizations · Economics growth · Policy · Globalized businesses · International organizations · Systems theory · Global quality system

1 Introduction

This paper examines the historical development of globalization within the context of several perspectives including national and international entities and theory-based views mentioned in the literature. The research has proposed the number of individual loops that lead to formulation of mental model using the feedback notion with positive and negative loops to grab the key elements of globalization.

The proposed model is the blend of authors own experience working with national and international firms operating in Pakistan along with in-depth study of literature. The mental model based on systems thinking provides a foundation to formulate the System Dynamics Model and design the rational policies to reduce the gap between have and have not and peace for every developed and developing nations. The policies proposed are on the basis of literature insight and experiential wisdom of the dynamic variables so far.

2 Literature Review

The term «globalization» is a multi-meaning word that has many connotations. Some view it as a vehicle in economic development which aims at economic growth; some view it as a continuation of the international trade, others see it as colonial domination and empire building by the great powers (Roukis 2006). Few take an intelligent few where globalization is as a social and cultural process linked with economic development and cross border trade wherever cultural similarities exist. Many, on the other hand, had opinion that globalization is a knowledge producing process in which the social, cultural and political aspects combine at particular geographic locations and times in unique ways. It transforms the power-knowledge nexus in its relation to other knowledge: such as colonialism, transnational capitalism and traditional ecological knowledge. Whatever the colour of lens used, globalization will

take on the meanings related to integration, interdependence, internationalization, inter-disciplinary complexities etc. Different global minds define globalization in many ways: (1) «Globalization is a conceptualization of the international political economy which suggests and believes that economic activity whether local, regional or national must be conducted within a perspective and attitude that constantly is global and worldwide in its scope. (2) «Globalization is a course or discourse». (3) «Globalization is a myth and does not exist as a single world market with free trade». (4) «Globalization, the ongoing process of greater interdependence among countries and their citizens, is complex and multifaceted». (5) One conception relates to globalization «..... understood as the phenomenon by which markets and production in different countries are becoming increasingly interdependent due to the dynamics of trade in goods and services and the flows of capital and technology». The definition proposed by OEC is more market-oriented, which appear conceptually, however, it does not go far enough to include the social and cultural variables impacted by the globalization process. It as well conceals the dynamics of structural transformation which have taken place over time in the evolution of what we might be called a global economy (Brinkman and Brinkman 2002). Survival of the many organizations and economies depends upon the globalization; encouraging cross-border trade in goods, services, equipments, machinery and information across the globe out of the geographical and territorial boundaries of the countries resulting increasing volumes of labour and international financial flows. In business schools, globalization means production and distribution of the products and services of a homogenous type and quality on a worldwide basis.

3 Methodology

In terms of people daily lives, globalization means that the residents of one country are more likely to consume the products of another country, to invest in another country, to earn income from other countries, to talk on a telephone or mobile to other country, to share ideas to other country to use equipment of other country, to sell services to other country, to visit other country and to know that they are being affected by economics developments, political instability and military aggressions in other countries.

Sr. No	Definitions	Authors
1	Globalization, the ongoing process of greater interdependence among countries and their citizens is complex and multifaceted	Stanley Fisher (2003)

Materials and Methods. Reasons for Globalization

- a) Economics growth
- b) Poverty alleviation
- c) Efficient and effective utilization of the scare resources
- d) Share the best practices for benchmarking
- e) Encouraging the competitive advantages
- f) Break down market barriers (Srinivas 1995)
- g) Emergence of negotiated trade blocks as in Europe, North America (Srinivas 1995)
- h) Deregulation of the domestic markets or political up heals as in SA, Germany and communist regimes
- i) Rise in intra industry trade Supporting factors for Globalization
- j) Policy framework form the government of developed Countries (Fisher 2003)
- k) Intellectual climate (Fisher 2003)
- l) Global mindset
- m) Global managers
- n) Integration into global economy

Merits and demerits

Sr. No	Merits	Demerits
1	Financial Flows and Enhances job opportunity	Inequality in income distribution
2	Economic growth	Widening gap between have and have nots
3	Technological Development	Instability in the Global Financial System
4	Product Development	Local industry in danger (5)
5	Emergence of New Markets	Increasing international and intra-national conflicts

To gain the insight of the globalization process, lot of knowledge of multiple disciplines is required in order to enable us to handle the complex integrated societal issues. The globalization is multi-facet in nature, blend of interdependencies, internationalization and inter-disciplinary complexities. Economics activities, revenue and corporate growth is coming from the Resource base theory whereas System Dynamics is the only methodology which seems to be more appropriate to address this challenge amicably. To formulate the loops which arrest the issue of dynamics of globalization we must understand what the system dynamics is.

System Thinking is widely considered essential in the effective management of complex dynamic systems at the core of the problems. (Sweeney and Sterman 2007) «System Dynamics is a methodology that starts with important problems comes to understand structures that produce undesirable symptoms, and moves on to finding changes in structure and policy that will make a system better behaved» (Forrester 1968). System thinking, in practice, is a continuum of activities which range from the conceptual to the technical». This comprehensive definition of Barry Richmond describes the steps of modeling process.

The model building process involves the following phases highlighted in the paper (Rabia and Yusuf 2007).

Sr. No	Description	Type
Phase 1	Problem Definition Reference Mode Dynamic Hypothesis	Conceptual
Phase 2	System Understanding System Conceptualization Causal Loop Diagram Influence Diagram	Conceptual
Phase 3	Model Representation Structure Diagram Block Diagram Stock and Flow Diagram*	Conceptual
Phase 4	Model Behaviour Equation Writing**	Technical
Phase 5	Model Evaluation and model validity with different tests Computer Simulation Curves	Technical
Phase 6	Policy Design and Policy Analysis Policy Design on the basis of Structural changes Policy Design on the basis of Parametric changes	Technical

***Note:** Stock-Flow diagram is developed on the basis of the software used either DYNAMO, STELLA, VENSIM, ITHINK or POWERSIM

****Note:** Equation writing is only required in DYNAMO

The conceptual phase comprises problem definition, system conceptualization and model representation where as technical phase comprises model behaviour, model evaluation and policy analysis. The modeling process uses two important schemes to highlight the dynamics of system i.e. thinking about how the quantities vary through time and thinking about whether a substantial feedback relationship exists (Richardson 1981).

A causal loop that characteristically tends to reinforce or amplify a change in any one of its elements is called a positive loop. A positive loop is often defined by the fact that an initial change in any variable eventually brings self-change in the original direction.

A causal loop that characteristically tends to diminish or counteract a change in any one of its elements is called a negative loop. Causal loop diagrams are the powerful tool to capture the problem statement and conceive the problem properly. Causal loop is a closed sequence of causes and effects, a closed path of action and information.

A decision is based on the observed state of the system. The decision produces action which alters the state of system and new state gives rise to new information as the input to further decisions. Behavior of the system is the result of interaction of positive and negative feedback control loops. The polarity of a circular causal loop reflects the loop's tendency either to reinforce or to counteract a change in any one of its elements. By strengthening polarity through inducing table functions during simulation process may help to design plausible and sustainable policies. Most often system dynamics is applied to dynamic complex problems of strategic importance (Strohhecker 2005). In addition, this proves to be valuable and capable of supporting decisions on even short-term scenarios and measures (Strohhecker 2005). Dynamics of the Globalization is captured using system dynamics methodology and formed positive and negative loops to gain the insight of the problem that ultimately leads to formulate the simulation model for policy design.

4 Results

Explanation and Interpretation of the Loops.

Figure 1 indicates that economic activity of any entity (a firm, company, MNC, MNE or a country) generates the revenue. More revenue means more budget allocated for research and development activities of the entity; consequently, there is growth in technological development as a result there are new products which exert the pressure on the top management to find the new business markets to sell globally and explore the new business avenues for cross border trade. That results in globalization and helps to expand the businesses outside the geographical boundaries. The overall polarity of the loop is positive. This is the evolutionary and revolutionary phenomena. It must be encouraged to spread the wave of research and development (R & D) and technological advancements.

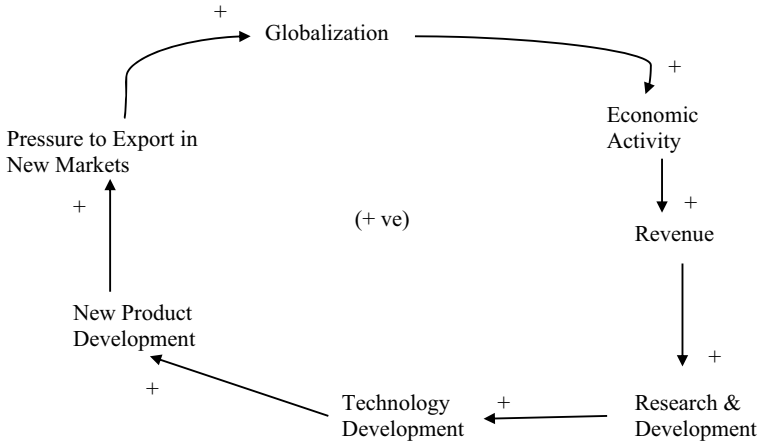


Fig. 1 Globalization and R & D Loop

Cause	Effect	Link Polarity	Theory
Economic Activity	Revenue	Direct	Resource Base View
Revenue	Research & Development (R& D)	Direct	Resource Base View
Research & Development (R & D)	Technology Development	Direct	Scientific Management Theory
Technology Development	New Product Development	Direct	Resource Base View
New Product Development	Pressure to Export in New Markets/Outside country boundaries	Direct	Resource Base View
Pressure to Export in New Markets/Outside country boundaries	Globalization	Direct	Resource Base View
Globalization	Economic Activity	Direct	Resource Base View

Note: Direct link means increase in one variable brings increase in another variable (arrow sign is positive) and indirect link means increase in one variable brings decrease in corresponding variable (arrow sign is negative)

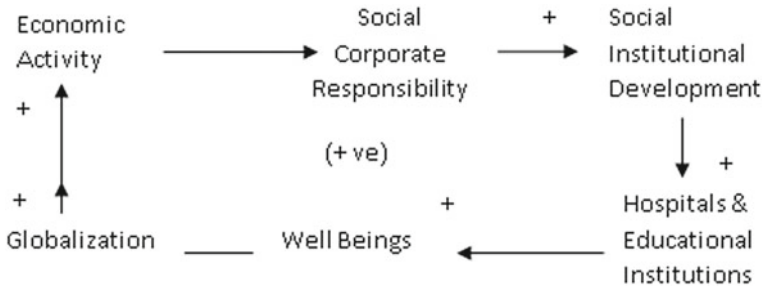


Fig. 2 Globalization and social institutional development loop

Cause	Effect	Link Polarity	Theory
Economic Activity	Institutional Development	Direct	Social Network Theory
Institutional Development	Hospitals and Educational	Direct	Institutional Theory
Hospitals and Educational	Well Beings	Direct	Social Network Theory
Well Beings	Globalization	Direct	Social Network Theory

Figure 2 shows that economic activity of any entity (a firm, company, MNC, MNE or a country) encourages that the organization must go for Social Corporate Responsibility that leads the social institutional development like building new hospitals, health care centres, schools, colleges and universities. With better medical facilities and educational gadgets like multimedia, internet, computers etc. more wellbeing among the masses is appreciated that boosts the globalization. The overall polarity of the loop is positive ensuring the reinforcement of the growth dynamics of globalization.

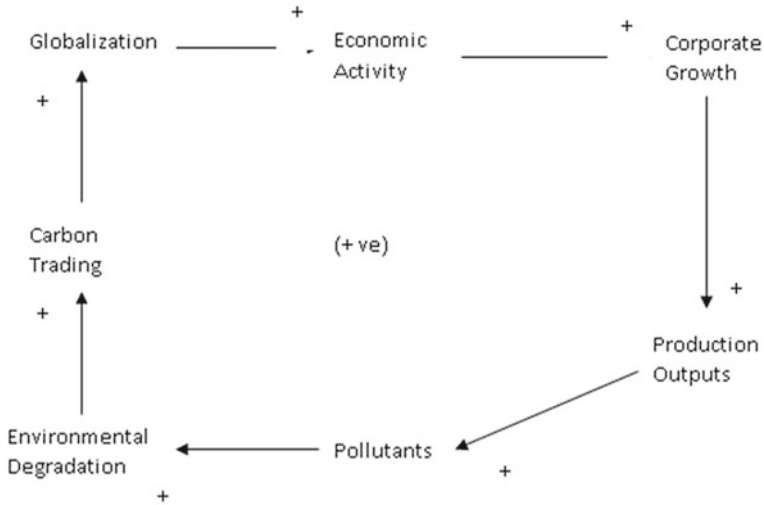


Fig. 3 Globalization and eco cycle/waste loop

Cause	Effect	Link Polarity	Theory
Economic Activity	Corporate Growth	Direct	Institutional Theory
Corporate Growth	Production Output	Direct	Transaction Cost Theory
Production Output	Pollutants	Direct	Transaction Cost Theory
Pollutants	Environmental Degradation	Direct	Stakeholder Theory
Environmental Degradation	Carbon Trading	Direct	Stakeholder Theory
Carbon Trading	Globalization	Direct	Stakeholder Theory

Figure 3 indicates one of the global issues identified by the developed and developing countries. Economic activity brings more economic and corporate growth having higher level of production and output (manufacturing). More output means more pollutants (Solid waste, Effluents/Chemical/Liquids wastes, air emissions like Nitrogen Oxide (NOx), Volatile Organic Compounds (VOCx), carbon dioxide, carbon mono oxide etc.) which cause the environmental degrading (global warming) that encourage companies to go for carbon trading. For Carbon trading of developed countries give pressure to companies to go for globalization. The overall polarity of the loop is positive.

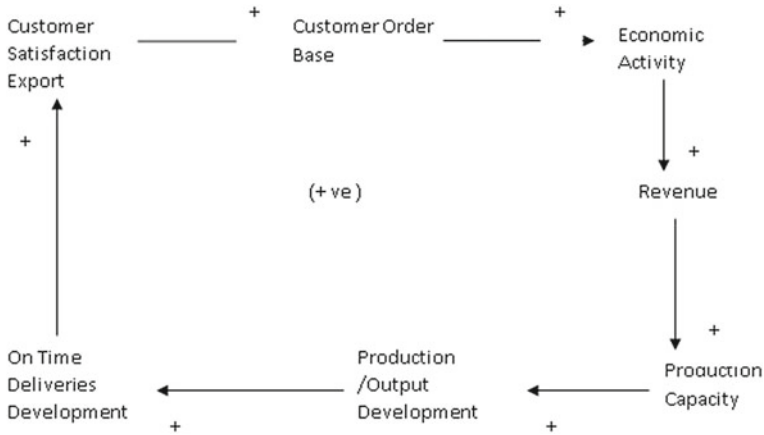


Fig. 4 Customer satisfaction loop

Cause	Effect	Link Polarity	Theory
Revenue	Production Capacity	Direct	Transaction Cost Theory
Production Capacity	Production Output	Direct	Transaction Cost Theory
Production Output	On time deliveries	Direct	Scientific Management Theory
On time deliveries	Customer Satisfaction	Direct	Scientific Management Theory
Customer Satisfaction	Customer Order Base	Direct	Scientific Management Theory
Customer Order Base	Economic Activity	Direct	Scientific Management Theory

Figure 4 indicates customer satisfaction loop; economic activity generates lot of revenue that encourage management to invest for new machinery and more production capacity. More capacity ultimately leads to more production and marketing and sales staff can sell on time to increase the fill rate. On time deliveries enhance the customer satisfaction, consequently the customer order base will increase. The overall polarity of the loop is positive.

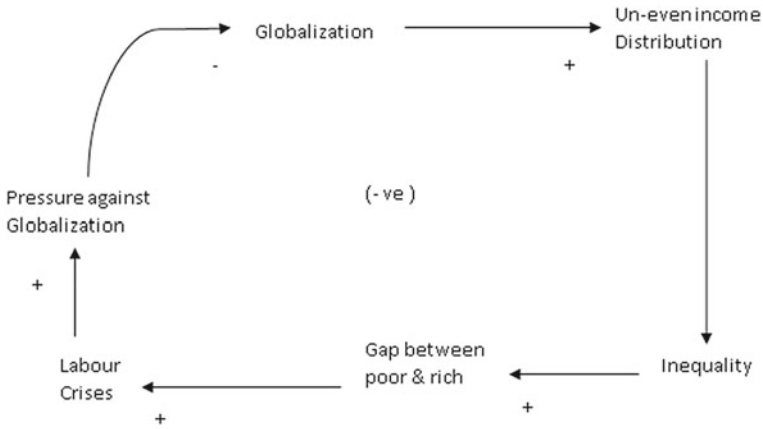


Fig. 5 Globalization and labor crises loop

Cause	Effect	Link Polarity	Theory
Globalization	Un even income distribution	Direct	Scientific Management Theory
Un even income distribution	Inequality	Direct	Stakeholder Theory
Inequality	Gap between poor and rich	Direct	Stakeholder Theory
Gap between poor and rich	Labour Crises	Direct	Stakeholder Theory
Labour Crises	Pressure against Globalization	Direct	Stakeholder Theory
Pressure against Globalization	Globalization	In direct	Stakeholder Theory

Figure 5 indicates that un-even income distribution is because of globalization resulting inequality and widening the gap between haves and Have not. Widening gap between rich and poor creates labour crises that exert pressure against globalization and globalization decreases. The overall polarity of loop is negative, self-sustaining regulatory loop.

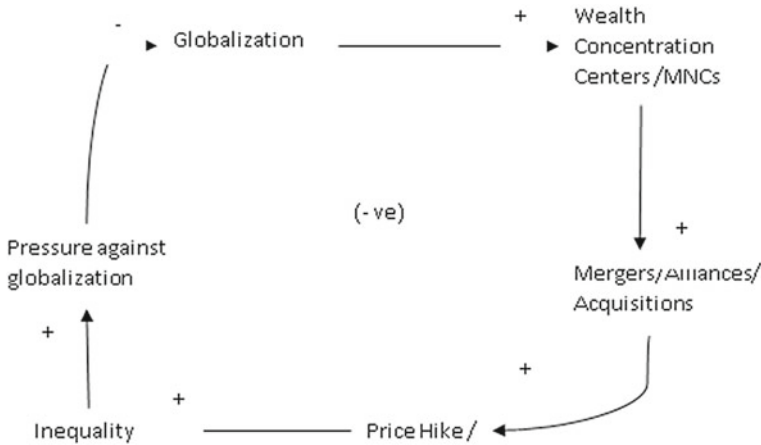


Fig. 6 Globalization and wealth centers loop

Cause	Effect	Link Polarity	Theory
Globalization	Wealth Concentration Centers	Direct	Transaction Cost Theory
Wealth Concentration Centers	Mergers/Alliances/Acquisitions	Direct	Transaction Cost Theory
Mergers/Alliances/Acquisitions	Price Hike	Direct	Scientific Management Theory
Price Hike	Inequality	Direct	Transaction Cost Theory
Inequality	Pressure against globalization	Direct	Stakeholder Theory

Figure 6 indicates that globalization is the source of emergence of wealth centers that encourage MNCs, to go for mergers, alliances and acquisitions. Large companies and groups are acquiring the shape of wealth concentration centers and operate in a monopolistic environment. Consequently, there is a price hike in daily usage products that cause frustration and inequality among masses. Inequality put pressure against globalization. The overall polarity of loop is negative, self-sustaining regulatory loop.

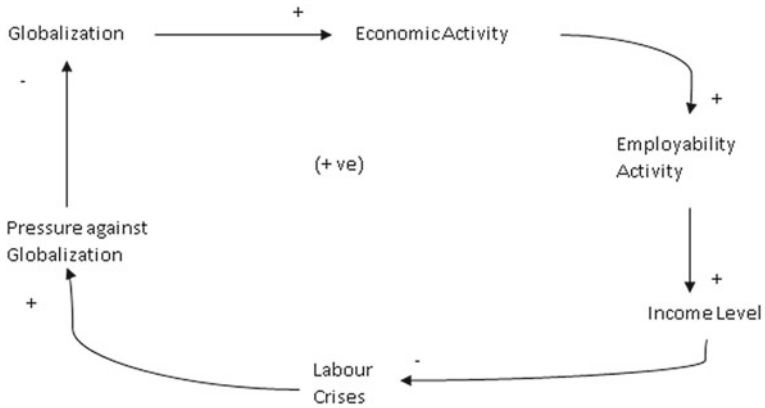


Fig. 7 Globalization and employability loop

Cause	Effect	Link Polarity	Theory
Globalization	Employability	Direct	Resource Base View
Employability	Income Level	Direct	Scientific Management Theory
Income Level	Labour Crises	Indirect	Scientific Management Theory
Labour Crises	Pressure against Globalization	In direct	Stakeholder Theory

Figure 7 shows that globalization creates job opportunities increasing employability. Employability raises the income level and economic growth and helps to reduce the labour crises which further lessen the pressure against globalization. The overall polarity of the loop is positive.

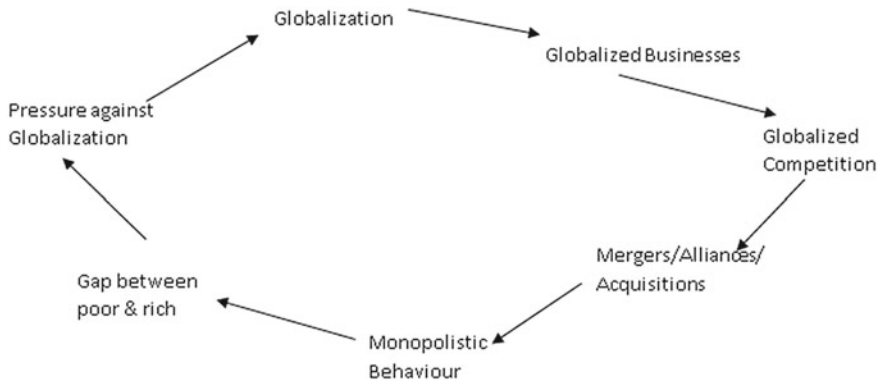


Fig. 8 Globalization and globalized businesses loop

Cause	Effect	Link Polarity	Theory
Globalization	Globalized Business	Direct	Resource Base View
Globalized Business	Globalized Competition	Direct	Scientific Management Theory
Globalized Competition	Mergers/Alliances/Acquisitions	Indirect	Scientific Management Theory
Mergers/Alliances/Acquisitions	Monopolistic Power	Direct	Stakeholder Theory
Monopolistic Power	Gap between Have and Have not	Direct	Stakeholder Theory

Figure 8 presents spread of globalization spur the globalized businesses creating the business competition; consequently, there are mergers, alliances and acquisitions to create the monopolistic behaviour for more profit as the prices are dictated as per their own requirements. Monopolistic behaviour widens the gap between have and have not. As a result, there is more pressure against globalization. The overall loop polarity is positive.

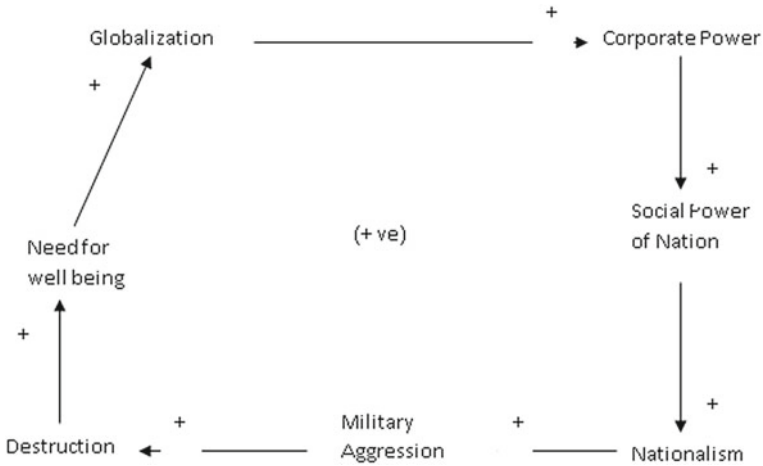


Fig. 9 Globalization and military aggression loop

Cause	Effect	Link Polarity	Theory
Globalization	Corporate Power	Direct	Resource Base View
Corporate Power	Social Power of Nation	Direct	Scientific Management Theory
Social Power of Nation	Nationalism	Direct	Scientific Management Theory
Nationalism	Military Aggression	Direct	Stakeholder Theory
Military Aggression	Destruction	Direct	Stakeholder Theory
Destruction	Need for Well Being	Direct	

Figure 9 indicates the very interesting scenario; corporate globalization multiplies the corporate power that further increases social power of nation. Social power of the nation strengthens the people belief and creates nationalism among them that invites military aggression against neighborhood causing destruction. Destruction initiates the need of well-being and ultimately there is an economic activity strengthening the need of globalization. The overall polarity of this loop is positive.

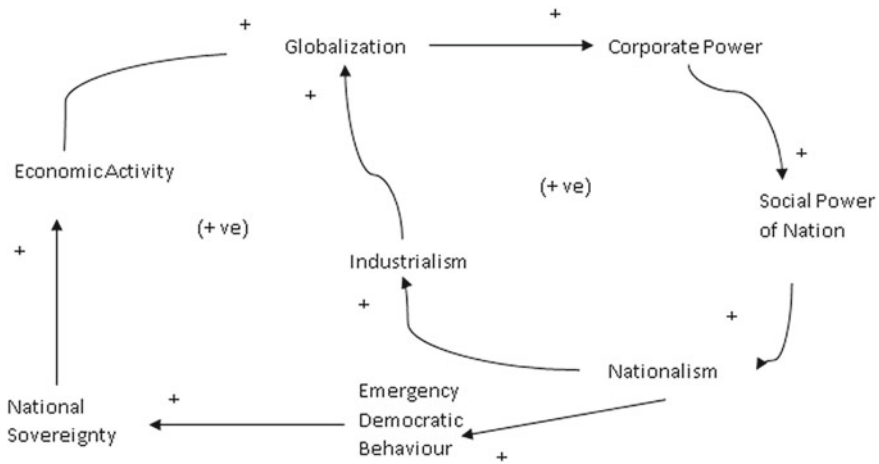


Fig. 10 Globalization and national sovereignty loop

Cause	Effect	Link Polarity	Theory
Nationalism	Emergency Democratic Behaviour	Direct	Resource Base View
Emergency Democratic Behaviour	National Sovereignty	Direct	Scientific Management Theory
National Sovereignty	Economic Activity	Direct	Scientific Management Theory
Nationalism	Industrialism	Direct	Stakeholder Theory
Industrialism	Globalization	Direct	Stakeholder Theory

Figure 10 shows the interesting situation; corporate globalization multiplies the corporate power that further increases social power of nation. Social power of the nation strengthens the people belief and creates nationalism among them that cause emergency democratic power and reinforce the national sovereignty whereas nationalism creates nationalism that as well help to enhance the globalization. The overall polarity of both loops is positive.

On the basis of loops understanding and polarity strengths, following policies are proposed to mitigate the effect of growth away and collapse structure of the reinforcing loop and incorporate the balancing loop or strengthening the polarity of negative loop to bring the stability and the structure that make the system better behaved. Followings are the proposed policies that contribute the spread of globalization and help to address the side effects of globalization with appropriate manner:

- 1) Promote the culture of Research and Development
- 2) Develop the Social Institutional Developments like Hospitals, health care centers and educational institutions etc.

- 3) Create the Environmental Awareness against global warming and pollutants.
- 4) Customer Focus Business Activities can be encouraged to increase the customer order base and increase in market share
- 5) Reduce the Wealth Concentration Centers while discouraging mergers, alliances and acquisitions to minimize the monopolistic behavior for effective price control.
- 6) Create employability while establishing the businesses across the borders. There should not be any discrimination on the basis of gender, race, religion, country.
- 7) Encourage free and open globalized competition to enhance customer satisfaction while meeting on time deliveries.
- 8) Stop military aggressions and create the friendly atmosphere of dialogue and debate.
- 9) Controlled environment of Nationalism to stop the aggression against countries and avoid destruction.
- 10) Encourage social power on the basis of respect, humanity and national sovereignty.

5 Conclusions

Such mental model proposes the policies for based on intuitive power and the wisdom gained over period of time through experience and deep observation while interacting with multinationals and national enterprises. These policies give the momentum to globalization along with mitigating the issues highlighted by the opponents. Cross border trade and internationalization is the need of the day that is evolutionary and revolutionary process cannot be stopped. It may be slow, gradual but the wheel is always in motion that is the hidden dynamics of globalization. For future research, it is suggested to develop the system dynamics model on the bases of loops mentioned above and explore the policies either through parametric changes or structural changes which may be compatible with the policies proposed through mental model. Challenges of globalization may find some solutions while intervening the system dynamics simulated model.

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A Review on Furniture Design Cases Embedded with Chinese Elements



Guo Shuang  and Ahmad Rasdan Bin Ismail 

Abstract Furniture and other products designed with traditional cultural elements are carriers of traditional culture from one generation to another. Chinese elements in furniture design has a long history, into the elements of Chinese traditional culture. However, the loss of furniture designed with Chinese traditional cultural elements and the failure of traditional Chinese furniture to be fully absorbed and applied in modern furniture design and other product design make the situation of Chinese furniture industry not objective. This study will discuss the application of Chinese traditional cultural elements in modern furniture and product design.

Keywords Product design · Furniture design · Chinese traditional cultural elements

1 Introduction

Due to the integration of global cultures, the furniture market also presents a trend of diversified development. In this context, consumers have an increasingly urgent demand for furniture products based on cultural background (Chen 2017b), and more individuals tend to have emotional and aesthetic needs in using products (Wu 2009). For the application of Chinese traditional culture elements in furniture design, about the meaning of some of China's traditional culture elements are very important, home design industry in today's China, for some reason though the design is better, but there was no good inherit excellent traditional Chinese culture, for the Chinese traditional culture is undoubtedly a matter of regret, Therefore, it is very worthwhile

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to promote national culture and let excellent culture go to the world. Therefore, my topic is centered on Chinese traditional culture, and I hope to apply the elements of Chinese traditional culture into furniture design by means of research, extraction and recombination, so that furniture design has strong Chinese traditional cultural elements to show.

Design permeates and interacts with people in society over a long period of time. Different designs are used to express the cultural essence, national spirit and social values of a particular social system. Chinese traditional cultural elements have a long history in furniture design, and classic furniture with Chinese traditional and cultural elements has been established. Any material product is based on culture. Furniture is not only a living appliance or industrial product, but also a cultural work of art (Hu and Dai). Furniture products are one of the items that consumers come into contact with most frequently. After a long history of changes, furniture products to today, no matter in the material, structure, technology and design have made great progress (Wu 2009). Furniture is a very important means to create the atmosphere of personal life. Examining Chinese culture and history, furniture has always been regarded as the best carrier of this culture throughout history, and different cultural elements can always be expressed through different product designs. Due to the strong sense of national cultural identity, in most societies, especially in China, the expression of traditional culture and elements in furniture design is always inevitable.

Design, as a very important means of expression, not only reflects and expresses social culture, but also plays an important role in determining factors of cultural integration and future social development and prosperity. The daily production of different furniture designs not only affects individuals' lives, but also their social values and ways of thinking. Design and art are part and process of cultural development, design is an agent of change, therefore, furniture designers should be able to know the different ways of supporting and destroying ancient cultural systems. For example, ming-style furniture is recognized as the most common furniture style worldwide. Therefore, the integration of social aesthetic values into furniture design can enhance the local identity of the society and improve the cultural diversity of the society. China has a wide range of traditional culture, which has more or less influence on modern society. Traditional culture is the expression of the original source. After thousands of years of baptism, the essence and characteristics of Chinese traditional culture have been preserved, including creation ideas, handicrafts, creation art, ware patterns, traditional architecture and so on (Lu and Yang 2015).

In terms of creation thoughts, China has extensive and profound Confucian thoughts and Taoist thoughts, which have created a rich and colorful material civilization, leaving ancient literature on creation thoughts and techniques such as Kaogongji, Tiangongkaiwu and Six Methods of Craftsmanship. There are many contents of traditional Chinese thought of creation that can be used in modern design. For example, the core part of Taoist thought "man laws earth, earth laws heaven, heaven laws Tao, tao laws nature" has been integrated into modern design, which advocates returning to nature and following the harmonious coexistence between man and nature (Xi 2012).

With the design of Chinese traditional handicraft, Chinese traditional handicraft plays an important role in the development of Chinese history and culture, which is the material and spiritual cultural heritage left over from folk cultural activities. The “expressing meaning by form” of the object image element points out the theme and purpose of modern furniture design, and the traditional creation thought and philosophy thought rooted in the Eastern nation bring the soul and guidance to modern furniture design. Modern furniture inherits traditional Chinese cultural concepts and pursues natural and aesthetic interests in philosophical concepts (Georges et al. 2019).

For example, rattan weaving technology has a variety of wonderful weaving techniques, which can produce a variety of geometric patterns. This design, which integrates the characteristics of materials and the skills of the knitter, has become an inexhaustible source of design creativity for modern furniture design and material technology. Chinese traditional patterns mainly include: primitive society patterns, classical patterns, folk and folk patterns, minority patterns. If the traditional cultural elements can take product design as the carrier, it will not only carry Chinese traditional culture, so that it can be inherited and developed, but also open up a broad design space for Chinese furniture design (Liu 1997).

On the one hand, the traditional cultural elements are completely changed in the design, and their original appearance is lost; on the other hand, the elements are copied “unchanging”, which is only the simple application of traditional symbols and one-sided inheritance of traditional culture, and the essence of cultural elements is weakly reflected (Cao and Yang 2015). Modern furniture design makes traditional cultural symbols inheritable, so it is necessary to think about the problem with the concept of sustainable design, try to extract the symbolic features of traditional Chinese culture, and carry out artistic reprocessing of the extracted symbolic elements (Chen et al. 2007).

2 Methodology

The general scope review method was used to search and identify papers, journals and articles related to major topics. The database mainly refers to the cnKI paper database and the university library of Kelantan. The keywords used in the search were “furniture”, “traditional culture”, “Chinese elements” and so on. The method of qualitative analysis and quantitative analysis was adopted. Data collection methods that use qualitative and quantitative methods to obtain data and analyze, combination of theoretical analysis and historical analysis, combination of comparative analysis and inductive analysis, group and online survey, literature review, etc.

3 Results

Several questions are included: What influences does ancient Chinese culture have on furniture design in modern society; How does modern Chinese society inherit and carry forward their ancient culture in today's product design; What is the influence of the change of international product style and current lifestyle on Chinese furniture design incorporating traditional Chinese cultural elements?

“Since ancient times, the vast and rich Chinese land began to leave traces of the Chinese nation's ancestors hard work, they not afraid of difficult ups and downs, go forward, began the dawn of five thousand years of Chinese civilization. Later, with the Chinese people of all nationalities. The range of activities of China has increased, the territory has been broadened, the exchanges between various ethnic groups have become deeper and the scope of integration has become wider. The traditional culture has gradually become a rich and extensive organic whole, which includes not only the culture of the Han nationality, but also the minorities Ethnic culture, including both the ancient culture, including modern modern culture (1995).” Gropius once said that “true tradition is the product of continuous progress” (Zhang and Cheng 2017). Due to globalization and the rapid progress of science and technology, it is imperative to explore the differences between modern design and traditional product design. Since it is impossible to fully absorb social culture, it is necessary to inherit the evaluation and analysis of social culture objectively. Traditional elements represent the essence of national traditional culture and reflect the national image.

Images, symbols or customs that are recognized by the masses of their own nationalities (Chi 2017). Kenzai Hara, the art director of Muji and the international graphic design master of Japan during the Mesozoic era, once said that “culture can be accepted only when it is original and local. The essence of design theory of local language lies in the possibility of communication and dialogue it inspires (Fang 2012; Lu 2016)”.

First, issues in the field of research

China's traditional culture has a long history, with various forms and rich connotations. In recent years, there has been a retro frenzy in Chinese furniture design. More and more designers hope to bring more novel and diversified products to furniture design and improve the comprehensive strength of Chinese furniture in the international competition by drawing on and innovating the classical elements in traditional culture. However, despite such an excellent production base, China's export furniture is still at the low end of the international industrial chain (Wang 2011). However, in the actual application process, designers must see the existing problems and disadvantages. In order to highlight national characteristics in furniture design, some designers mechanically apply traditional cultural elements without scientific selection and subtraction. The case that this kind absorbs completely did not promote the grade of furniture product and grade not only, too mix up instead, without characteristic. From the perspective of creation thought, there was no systematic theory of creation thought in ancient China, but it was more the summative content obtained through long-term practice, and its internal logic was often expressed in the form of

philosophy (2011). Blind copying and imitation is not a means to highlight national characteristics. Designers should make scientific use of the treasures left by ancestors, use innovative thinking, integrate and coexist the common points of traditional cultural elements and furniture design, and design and produce modern furniture products with national characteristics and fashion at the same time. This is the way to change the present situation of Chinese furniture design, and also the new trend of Chinese furniture design in the future (Wang 2017a). In the current furniture market, some brands have taken the design of traditional cultural elements as the selling point. How to use traditional elements in the design? What are the ways to express traditional elements? Which design expressions are more acceptable to consumers? These are all questions worth thinking about (Li 2016).

Second, there are solutions

In modern furniture design, traditional cultural elements mainly form new content and form by simplifying decomposition and reconstructing combination. The modern furniture that designs through these procedures is shown mostly concise, diversification and the characteristic that nationality changes.

Simplicity: The development of modern furniture has clear characteristics of The Times, modern furniture is the most closely with modern people's life, the most modern characteristics (Liu and Ji 2018). As the pattern elements in traditional culture are too complex, direct reproduction cannot satisfy people's aesthetic taste, and is not suitable for industrial production, so it is refined and simplified to a certain extent to make the pattern more concise, which has become the most common and effective method in modern furniture design. Change design concisely to be able to add national breath for modern furniture not only, still can make ancient traditional design has times sex, obtain better development thereby (Wang 2017b).

Diversity: The rich and diverse traditional cultural elements, and the form language that does not stick to one pattern, promote the diversified development of modern furniture design. With the help of the unique deep connotation of traditional cultural elements, modern furniture design has more materialized forms, which not only sublimates the quality and connotation of furniture works, but also does not lose national characteristics. In the design and use of products, the graphic information reflected on the product surface is not only the embodiment of designers' design consciousness, but also one of the reasons for consumers to choose the product (Li 2007).

Characterization: Because the traditional cultural elements have condensed the cultural deposits of the Chinese nation for thousands of years, the nationality is its most prominent feature. In modern furniture design, designers should reasonably draw lessons from China's traditional cultural elements, and carry out the collision and integration of traditional culture and modern civilization, and the furniture products produced in this process are not simple plagiarism and imitation, and should coexist with the novel and traditional, so as to make them have strong national customs. "People-oriented", the value of people themselves is highly respected in traditional culture, in the traditional furniture design has always put people in the core position, this idea should continue to carry forward and innovate in the new Chinese furniture design (Chen 2017a) The traditional Oriental image elements refine and

polish the modern furniture design form in the aspects of inspiration source, material selection, method application and design style (2012). For example, compared with other objects and image elements, ink and wash elements are changeable and flexible, which can be static and movable. The overall emphasis is on “vivid qi and charm, and god is written in form”. Through the adjustment of water flow, rich levels and constantly changing density effect are displayed White blending reflects the style and charm of Chinese ink painting (2019). Patterns, for example, in the traditional Chinese clothes clothing, who lived in ages past patterns are different, all these together, is a very rich pattern material resource (Zhang 2018) traditional opera culture elements, for example, can be applied in furniture design, through the figures, clothing modelling design furniture designs and styles. Designers can absorb the essence of traditional furniture shape and pattern, combine it with modern furniture, learn from each other’s strengths and make up for each other’s weaknesses, innovate furniture design, and improve the effect of furniture design to a greater extent (Yang 2019). In terms of furniture design, different positions of furniture placement will produce a certain light and shadow effect, which will affect the indoor moving line. In the design, it is necessary to unify the indoor moving line and realize the optimal design of the moving line (Li et al. 2018). China is an important furniture production base in the world. The whole furniture industry has nearly ten thousand designers, the total value of the world’s first. However, despite such an excellent production base, China’s exported furniture is still at the low end of the international industrial chain (Wang 2011). At present, most domestic furniture enterprises generally copy the designs of other enterprises and ignore innovative design, while only a few of them attach importance to innovative design and have independent research and development capability (Li 2015). Home design industry in today’s China, for some reason though the design is better, but there was no good inherit excellent traditional Chinese culture, for the Chinese traditional culture is undoubtedly a matter of regret, “the national culture is an important force in the national independence and symbol, is an important performance of a nation’s prosperity, it is an important driving force and foundation for a nation’s development (Liu 2009).” Traditional history and culture gave birth to colorful traditional Chinese decorative art, which is also the essence and artistic treasure of culture (Hou 2017). Therefore, it is very worthwhile to promote national culture and let excellent culture go to the world.

4 Research Conclusions

Chinese furniture design is influenced by the internationally recognized standard style, resulting in the loss of most of the furniture designed with traditional Chinese cultural elements. In the context of technological progress and globalization, the existing differences between modern and traditional product design need to be analyzed. However, inherits some traditional culture, as they cannot be fully absorbed and applied to modern furniture design and other product design, will help to keep Chinese traditional culture in line with competitive world stage design standards.

Therefore, my topic is centered on Chinese traditional culture, and I hope to apply the elements of Chinese traditional culture into furniture design by means of research, extraction and recombination, so that furniture design has strong Chinese traditional cultural elements to show.

However, in the actual application process, we must see the existing problems and disadvantages. In order to highlight national characteristics in furniture design, some designers mechanically apply traditional cultural elements without scientific selection and subtraction. The case that this kind absorbs completely did not promote the grade of furniture product and grade not only, too mix up instead, without characteristic. Blind copying and imitation is not a means to highlight national characteristics. Designers should make scientific use of the treasures left by ancestors, use innovative thinking, integrate and coexist the common points of traditional cultural elements and furniture design, and design and produce modern furniture products with national characteristics and fashion at the same time. In the future, design elements will be used to design a series of furniture products.

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The Challenges of Measuring the Quality of Information Systems in the Private vs Public Sector



Frank Febiri and Miloslav Hub

Abstract Information systems (IS) are designed to deliver useful information in support of business operations such as corporate strategy, general operations, management analysis and decision making process. Regardless of the state of the economic market, the investments in implementing and maintaining information systems must enable an organisation to fulfil their business demands in a more efficient manner. However, there are very few options available to decision makers that provide guarantees on the effectiveness of information systems. Therefore, decision makers and managers that are responsible for adopting or retaining information systems must rely primarily on conceptual or theoretical models for measuring the quality of information systems which increases the margin of error or inaccuracies. This overarching issue of measuring the quality of information systems means that the effectiveness and cost benefits of implementing information systems may not be realised until a considerable amount of time has passed since the initial investments. This issue, amongst many other that will be identified throughout this paper, is applicable to both the private and public sector. However, the measuring of information systems effectiveness in the public sector raises some unique and significant additional challenges that the private sector is often immune to. This paper highlights some of the novel challenges identified in the public sector in order to invoke additional studies or models of measuring the success of information systems that are designed specifically for the public sector that do not rely upon profit-based outcomes and measurables.

Keywords Information systems · System quality · Public sector · Private sector · System analysis

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1 Introduction

As the successful and competitive functioning of public and private organizations is increasingly determined by the reliance upon the quality of information systems, there is an increasing appetite for these organizations to seek out effective mechanisms that measure the quality of those systems (Guimaraes 2009). It is important to have access to effective mechanisms that measure the quality of information systems as this is the method that allows these organizations to implement improvements and dedicate resources towards. However, there exist numerous challenges to achieving the optimal mechanism for measuring the quality of information systems. These challenges are ultimately caused by the different systems that are used by various organizations as it has been determined that a singular universal mechanism for measuring the quality of information systems is not easily achieved. However, the most prevalent challenge in producing coherent results from models that measure the quality of information systems relates heavily to the subjective nature in which the data is collected. Furthermore, as most organizations have numerous stakeholders with conflicting objectives, the measure of the quality of organizational outputs that rely on information systems vary depending on the stakeholder. Ultimately, information system effectiveness is a multi-dimensional construct which means there is very rarely a single universal mechanism for measuring quality (Pitt et al. 1995).

A study conducted by Petter et al. (2008) identified that many organizations are opting for less traditional methods for measuring the quality of information systems such as balanced scorecards (Kappelman et al. 2016) and benchmarking (Anderson et al. 2006). The exclusive measuring of financial outputs to determine the quality of information systems is not necessarily the best way to measure whether an information system is effective as there exist many other alternative factors that are likely to impact the financial performance of an organisation. Furthermore, there are additional methods for measuring quality that have been developed by researchers that emphasize the requirement to utilize more consistent success metrics other than just financial ones. Nevertheless, in the private sector, the financial impacts of implementing an information system are likely to remain the most preferred option. The public sector is not a profit-based organisation and therefore, measuring financial performance is not a tangible solution to measuring the quality of information systems.

2 Literature Review

Keen (1980) describes the overall objective of an information system as ‘the effective design, delivery, use and impact of information technologies in organizations and society’. Keen emphasizes the importance of the term ‘effective’ as without this effectiveness the value of an information system is severely degraded. Therefore, it is vital that prior to the decision being made to implement or retain an information system that the effectiveness of that system is properly understood. In order to

understand the effectiveness of an information system, there have been a variety of models proposed that are designed to measure the quality of an information system.

The most important model that is typically relied upon when measuring the quality of information systems is the one proposed by DeLone and McLean (2003), known as the DeLone and McLean Information System (IS) Success Model. This D&M IS Success Model systems quality measures technical success, information quality measures semantic success, and use, user satisfaction and individual impacts measure effectiveness success (DeLone and McLean 2003). DeLone and McLean suggest that these six measurables are interrelated rather than independent which has been identified as a pivotal observation when considering the measuring of the quality of information systems. For example, if an information system produces a high level of system or information quality then it is likely that same system will lead to higher user satisfaction. However, a large number of researches have proposed nuanced approaches that either adapt or expand upon the D&M IS Success Model. Grover et al. (1996) introduced an alternative model that utilizes a theoretically based approach or theory of organizational effectiveness. This model proposes six information system effectiveness categories that are organizational impacts (included in the D&M IS Success model); market measures; economic measures; usage measures; perceptual measures (i.e. user satisfaction); and productivity measures. This model suggests that system quality and information quality are precursory measurables whilst the D&M IS Success Model considers them to be attributes that must be utilized to measure the success of an information system. The Grover et al. model inspired DeLone and McLean to expand upon their original model by including additional measurables that include the impacts of the market or industry. Furthermore, Smithson and Hirschheim (1998) proposed an additional model that utilized a conceptual framework that considers the issue sometimes caused by the increasing appetite for outsourcing information systems. This additional model has been identified by DeLone and McLean as a key source for identifying and developing information system evaluation measures as opposed to the potentially limiting single frameworks of success and their interrelationships. Despite many perceived benefits of the Smithson and Hirschheim model, it has been suggested that this model may be challenging to implement in practice considering that it fails to specify tangible success constructs with their related measures.

There are very few studies that have been conducted in this field that exclusively focus upon the perspective of the public sector. Therefore, this paper will rely upon widely accepted assumptions about the operations of the public sector when compared to the private sector.

In order to fulfil the requirements of this paper, the existing studies on the measurement of information systems was relied upon heavily to gain a well-rounded understanding of the available approaches. The most commonly referenced study was relied upon for the baseline understanding of the most effective tool for measuring information systems, however, the nuances between the different approaches were considered throughout. There are very limited studies that have been conducted that focus exclusively on the measurement of information systems in the public sector and therefore, the common perceptions of what challenges the public sector might

be confronted with were relied upon in the analysis. Given the limitations of this paper, it was not possible to collect quantitative data from surveying representatives of the public sector, however, future studies that focus on this same problem would almost certainly benefit from conducting such surveys.

3 Challenges with Existing Quality Measures

The aspects of a typical information system that must be measured to determine the quality or success rate of the system are widely disputed across the field of study. As highlighted in the literature review, many researchers disagree on what the important measurables are and how to approach the quality measuring of an information system altogether. However, the model proposed and updated by DeLone and McLean (1992, 2003) is almost always referred to by alternative studies and therefore, this paper will rely upon the mechanisms proposed by the D&M IS Success Model. However, it is essential that this model is understood in more detail before it is analyzed in the perspective of the public sector.

The D&M IS Success Model proposes six main aspects that must be measured which are, information quality; system quality; service quality; use; user satisfaction; and net benefits of use (Delone and Mclean 2003). This paper will explore each of these aspects from the perspective of private and public institutions. It will also compare these two perspectives in order to identify the core challenges of measuring information systems in the public sector.

3.1 Measure of Information Quality

The measure of information quality can be identified as the most desirable characteristics of the information system output that are commonly observed as items such as management reports and webpages (Petter et al. 2008). Some of the approaches to measuring information quality in this manner can be identified as characteristics such as the relevance, understandability, accuracy, timeliness and usability. One of the primary issues with measuring the information quality through these characteristics is that these can be very subjective attributes. This is relevant for all the attributes mentioned above but would be particularly relevant to those such as understandability and usability. The subjective nature of this approach means that the measurement will often rely upon the opinion of the end-users. Unfortunately, this reliance upon collecting data from the opinion of end-users means that two organizations using the same systems for the same purposes may produce very different results as they rely upon additional contributing factors such as quality of training or how much experience the end-user has using the system. Nevertheless, information systems in the public sector should be developed and deployed in a manner that leads to a better experience by the end-user, but this approach would require the bespoke development

of information systems that are tailored to the demands of each and every customer. In the absence of a highly customizable information system, this approach would not likely align with the business demands of the system providers and therefore, would likely not be financially viable. Furthermore, as the services provided by the public sector are predominately focused on the needs and demands of the general public, the quality of the information provided by public sector information systems will be measured by two different perspectives. First, the perspective of the public and secondly, the perspective of the public sector employees. This is in comparison to the results produced in a for-profit private organisation that are predominately produced from increasing profit margins that can be observed with or without opinions gathered from internal or external stakeholders.

3.2 Measure of System Quality

The same subjective issues can be applied to the measuring of the system quality. The system quality is understood to be the desirable characteristics of the information system itself as opposed to those of the system outputs. Some of the approaches to measuring system quality can be identified as characteristics such as, flexibility, system reliability, ease of learning and response times (Petter et al. 2008). Again, the most effective approach to measuring these attributes would be through collecting data from end-user experiences. Petter et al. (2008) produced a highly effective model that measures eight system quality factors across 40 items. The most prominent features of this model measure attributes such as portability, user friendliness, understandability, maintainability, economy, and verifiability. Nevertheless, the subjectivity of these attributes still remains a challenging obstacle for the public sector to measure their information system's quality. If the attribute, ease of learning, is taken as an example to demonstrate the differences between the private and public sector, then it is likely that the results of using the same information system in these two entities would produce very different results. For an information system to be considered as 'easy to learn', there are many additional factors that must also be included in the process. If a highly complex information system is required to fulfil the requirements of a highly complex issue, then it is likely that the end-users of this system must also receive credible training (Boell and Cecez-Kecmanovic 2015; Kappelman et al. 2016; Matende and Ogao 2013). This training may be conducted by external bodies that do not necessarily maintain any responsibility in the development of an information system. Therefore, the quality of an information system then relies upon the quality of the training that is received by the end-users. When this logic is applied to the private/public sector dichotomy, there is a risk that those private sector end-users will receive the better training (or have the relevant experience) due to the increased availability of funding. However, this argument can also be reversed as many public sector departments are likely to have access to higher quality training. It can be realistically concluded that measuring the quality of information

systems based on characteristics such as ease of learning will differ greatly between the private and public sector and therefore, a universal model cannot be applied here.

3.3 Measure of Service Quality

The service quality can be explained as the quality of the support that system users receive from the information system or IT support teams (Petter et al. 2008). It has been identified that this attribute is the most common measurable in this field of study, however, it has received widespread criticism. This criticism is driven by the increasing appetite for outsourcing the development and support of information systems as the data collated to measure the quality of information systems derives from external providers whom may often possess a totally different set of requirements. As the public sector begins to transition towards more outsourcing due to the increasingly complex nature of information systems, this issue may become even more prevalent for governments.

3.4 Measure of System Use

The attribute referred to as system use can be identified as the degree and manner in which the staff and customers utilize the information systems. This can be quite easily characterized by factors such as, amount of use, frequency of use, nature of use, and extent of use (Petter et al. 2008). Measuring the quality of information systems through the studying of system use is a much less subjective approach as the results gained are not reliant upon end-user opinions. It has been identified that the wide range of measurables that relate to system use are likely to lead to conflicting results which delegitimizes the models of measuring information quality altogether. As Petter et al. (2008) observed, the end-users that utilize information systems more frequently have been found to underestimate system use whilst the opposite is true of those end-users that utilize systems less frequently. This highlights the issue of self-reporting. It is likely that a model that utilizes both internal and external measurables would produce much more accurate results. However, this approach relies upon the presence of reliable external stakeholders. Additionally, those external stakeholders must also contribute to the measurement of information system success through the perspective of the internal stakeholders in order to produce results that are reflective of the organizations overall objectives.

3.5 Measure of Frequency of Use

Furthermore, frequency of use has been identified as a relatively weak approach to measuring overall quality of information systems as more use of a system does not necessarily mean that that information system is of better quality Dhillon et al. (2009). It is likely that lack of funding for upgrading or developing new information systems will be a significant factor in how frequent a system is used. It may be that an information system is used for an extended period of time as it is considered as a highly effective system or it may be due to the fact that that organisation does not have the financial capability to invest more into a new system. Considering the constant advancement rates of modern technologies as well as the increasing demand from the general public or customers (depending on whether it is the public or private sector being observed), it is likely that if an organisation has been using a system for an extended period of time, then that system will be out of date Anderson et al. (2006). This is if it is assumed that those systems have not been routinely updated by the provider. Unfortunately, in order for an organisation to understand whether increased investments in an information system would be a viable option to further enhance its operations and outputs, it would need to have access to an accurate model to measure the quality of information systems. This highlights an issue with a feedback loop that may be difficult to break out of.

3.6 Measure of User Satisfaction

User satisfaction literally refers to the satisfaction rates of the end-users. Therefore, this attribute may be the most subjective measurable attribute. Petter et al. (2008) provides the most widely adopted model for measuring user satisfaction in terms of information systems. It has been identified that the measuring of information quality is strongly correlated with the measuring of user satisfaction (Cherkas 2020; Dhillon et al. 2009). Subsequently, information quality may not be measured as a standalone attribute which can lead to additional issues for overall information system studies. Despite the challenges caused by subjective measurables, the user satisfaction is undeniably a very important aspect of measuring the quality of information systems. The most widely adopted models for measuring user satisfaction are those models proposed by Gorla et al. (2010), EndUser Computing Support (EUCS) and Petter et al. (2008), User Information Satisfaction (UIS). These models also include attributes that can be found within the other attributes such as system quality, information quality, and service quality. Therefore, the most commonly adopted models for measuring user satisfaction do not exclusively measure user satisfaction at all. It is likely that this is largely due to the fact that measuring the quality of information systems through subjective attributes is not a reliable enough approach to producing coherent results. The recurring issue that relates to the public sector refers to the fact that the satisfaction of the end-user should not be a standalone measurable as it does not consider the

satisfaction rates of the general public. Arguably, the satisfaction rates of the general public who are the main customers of the public sector should be as important, if not, more important than the satisfaction rates of the users. If the satisfaction rate is high for the public sector end-users, but the public satisfaction rate is low, then the information system should not be considered of high quality.

3.7 Measure of Net Benefits

The net benefits of an information system can be identified as the extent to which the information systems directly contribute towards the overall success of the organisation. The net benefits of an information system may be identified through the improved decision-making process, the improvement of productivity, increased sales, cost reduction, increased profit margins, and economic development (Petter et al. 2008). This attribute may be the most challenging to measure in the public sector whilst being the simplest to measure in the private sector, most notably those for-profit organizations. As highlighted above, most of the factors that can be attributed to net benefits are heavily focused on financial factors. This provides the for-profit private sectors with a wide range of highly tangible measurables. However, the public sector is not a for-profit organisation and therefore, the overall net benefits of an information system can only really be measured through other channels. Furthermore, the net benefits found in the public sector will likely fall within one or a selection of the previous attributes already discussed in this paper which have been identified as almost always highly subjective. When attempting to measure the overall net benefits of a system that is designed to improve public services, there are some objective factors that can be utilized. However, this model, and most of the models proposed, do not consider this nuance with the public sector.

Although it is essential that institutions are able to measure the effectiveness of the information systems already integrated into their operations, it is also just as important to be able to assess the potential impact upon operations that new information systems will have prior to their implementation (Araszkiewicz and Rodríguez-Doncel 2019; Petter et al. 2008; Staples et al. 2002). In the private sector, the responsibility of the success or failure of the introduction of a new information system will almost always remain with internal decision makers. Although this is probably true within the public sector, there is an added level of accountability when the financial obligations are from public monies. Therefore, it is likely there is an element of apprehension when public sector departments are exploring new information systems which is likely to limit the number of new systems that are introduced. This apprehension is also likely to contribute towards extending the already relatively slow moving bureaucratic systems found across a plethora of public bodies.

Gorla et al. (2010) suggested that the construct ‘use of the system’ should be removed from the models that measure the success of information systems. This is due to the fact that, within the public sector, it has been identified that there is little benefit of this construct when being applied to mandatory systems. Ultimately, when

a system is mandatory, there is little to be gained from measuring its use as there is no alternative option. The only aspect of this construct that could potentially offer a beneficial measure of success is the presence or absence of a mandatory system. For example, if an information system is required for a specific public service but it has not been implemented yet. However, this would not be measuring the quality of any information system but rather this would be the measure the efficiency of government spending. Furthermore, Gorla et al. (2010) suggest that ‘user satisfaction’ is also a redundant aspect to measure as this can be measured through other channels, such as the quality of information and the system quality.

4 Conclusions

As has been highlighted throughout this paper, there are a multitude of challenges to measuring the quality of information systems that are applicable to both the private and public sectors. The most concerning issue for the public sector however, relates to the fact that the most reliable source of measuring the quality of information systems in the private sector is not directly transferable to the public sector. The net benefits of adopting information systems are typically measured through attributes that relate to profits and the public sector is not a for-profit organisation. Additionally, when measuring the quality of information systems in the public sector, results must be gathered from both the perspective of the public and that of the public sector employees—which is likely to produce different results. There are a plethora of challenges in measuring the quality of information systems that have yet to be completely addressed in the current literature. However, the current models appear to be developed with the for-profit private sector as a primary consideration that do not necessarily consider the nuances of conducting the same process in the public sector.

5 Recommendations

As has been highlighted throughout this paper, many of the models proposed do not exclusively focus on the measuring of information systems from the perspective of a specific customer. One of the key challenges that is often referred to in this field of study emanates from the difficulty of proposing a model that is universally applicable. Therefore, it is suggested that more research be conducted on constructing bespoke models that are not only specifically applicable to the public or private sector, but also tailored to a specific industry or government department. It cannot be denied that the requirements of every possible end-user of information systems will vary and therefore, the models that are available must reflect this diversity of needs.

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A Review on the Importance of Safety Leadership Role on Safety Climate and Safety Performance in High Risk Industry



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Abstract Workplace safety becomes a concern for most countries globally, particularly in a high-risk industry like a manufacturing organization. Thus, such organizations call for different safety leadership in the context of the organization. Therefore, this study aims to design a safety leadership to describe and provide empirical support of the relationship between safety leadership, safety climate, and safety performance in the small manufacturing enterprise setting. The paper is centered on the literature review through a rigorous, in-depth analysis; based on the following themes safety leadership, Transformational Leadership, Transactional Leadership, safety climate, safety performance, and safety behaviors. The study's discussions were based on a proposed framework on Leadership's role in safety climate and safety performance. Finally, this paper concludes that small manufacturing enterprises need high-quality safety leadership that influences employees to increase safety performance, which can be a role model and exhibit profound safety concerns.

Keywords Manufacturing · Safety climate · Safety leadership · Safety performance

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1 Background of the Study

Workplace safety becomes a concern for most countries globally, particularly in a high-risk industry like manufacturing (Mirza and Isha 2017; Muchiri et al. 2019; Lun and Wahab 2017; Ali et al. 2020), originating from a genuine concern about safety issues such as the ergonomic and psychosocial risks threatening employees in their workplace (Muchiri et al. 2019) and manufacturing consistently reporting high numbers of worker fatalities and the largest number of compensation claims (Muchiri et al. 2019). In Malaysia, the manufacturing industry has been identified as one of the most hazardous industries due to its unique environment (Chee et al. 2018).

Given the critical issues of safety in manufacturing, organizations are now concentrating on the essential human factors that significantly influence safety behavior improvement. Interestingly, many studies in manufacturing have shown that Leadership plays an essential role among frontline employees in enhancing workplace safety (Mirza and Isha 2017; Çalış and Büyükkakinci 2019; Shi 2020).

Leadership is a unique element in the growth and success of each organization. Organizational performance, including safety performance, is mostly drive-by Leadership. Many review articles indicated that positive safety-related leadership is connected with more excellent safety outcomes (Muchiri et al. 2019; Tao et al. 2020).

Although extensive literature on diverse aspects of safety leadership has been conducted, no quantitative statistical analysis method to provide an overview of extensive publications carry out associate with the safety leadership domain lead to a developing gray area of understanding on this particular domain (Muchiri et al. 2019; Tao et al. 2020) and particularly in the small manufacturing enterprise setting.

As such concern, previous evidence has shown that small and medium enterprises typically have less effective safety management (Stiles et al. 2018). Small and medium enterprises' specific manufacturing sector has many weaknesses, including a lack of leadership (Xue et al. 2020). Many safety studies in a wide range of industries identified that lack of safety leadership (Stiles et al. 2018; Guerin and Toland 2020; Rogers 2019) skills lead to low safety climate (Goldenhar et al. 2019) consequence to poor safety performance. An existing systematic review revealed that various empirical studies stress leadership's role in safety performance (Tao et al. 2020).

A prominent scholar specified causality between safety leadership, safety climate, and safety performance has not been completely validated from a research method view (Wu et al. 2016). Researchers specified that causalities should be validated with panel data and time series, both of which are achieved by longitudinal studies (Wu et al. 2016). Similarly, many researchers indicated that safety measures should develop through recognizing the similarity among employees within an organization to avoid confusion (Buruck et al. 2016) as cited in Widodo et al. (2019). Some researchers have also pointed out that safety measurement refers to safety at a specific time and place, which is unstable and changes with the dynamics of the environment and policies (Buruck et al. 2016).

1.1 Need for the Study

In this light, the purpose of this study is to give particular focus to safety leadership and to design a safety leadership for describing and providing empirical support of the relationship between safety leadership, safety climate, and safety performance in the context of the small manufacturing setting.

1.2 Objective of the Study

Three research objectives are specified:

1. To discover definitions of safety leadership and its dimensions
2. To determine the role of safety leadership on safety climate
3. To determine the relationship between safety leadership and safety performance in a holistic manner and by providing a framework for future theory development.

From a practical and pragmatic perspective, determining the relative contributions of safety leadership dimensions and evidence on the causal relationship between constructs can help practitioners develop better safety climate and safety performance interventions.

2 Methodology

The systematic literature review goes through a rigorous, in-depth analysis of the existing literature concerning published studies representing safety leadership, Transformational Leadership, Transactional Leadership, safety climate, safety performance, and safety behaviors. The literature searched consists of published articles from 2000 until 2021. Further, the review depends on computerized keyword searches in the central management source databases of Emerald, EBSCOhost, Taylor & Francis Group, ProQuest, and ScienceDirect.

Safety Leadership and its dimensions are the subjects of this article. Researchers began exploring the notion of Leadership. Then we read the literature on safety (safety performance, safety climate, safety leadership, leadership behavior, leadership style related to safety) were reviewed in the research underpinning this article, searching, analyzed, synthesis for what they had to discuss Leadership in safety discipline.

3 Results

3.1 *Definition Leadership*

Leadership is a process in which a person inspirations a group of persons or employees to accomplish a mutual goal (Ojuola et al. 2020). Other researchers defined “Leadership is all about people, other people, the people you lead, it is not about you. If you can support your people to help them be the best that they can be and help them achieve their goals and aims. This, to me, is what Leadership is about” (Kerin 2020).

3.2 *Safety Leadership*

The application of Leadership in the safety notion is known as safety leadership. Generally, it is acknowledged that there are many ways of accomplishing positive safety behavioral change. Behavioral safety approaches are thought to aid in increasing safety performance. Many studies agreed there are two extensively used leadership types or theories, namely, transactional leadership and Transformational Leadership in the safety area (Muchiri et al. 2019; Xue et al. 2020; Cheung et al. 2021; Gracia et al. 2019). Safety Leadership is a branch of knowledge of transformational Leadership and Transactional Leadership. Safety leadership demands more transformational leadership approaches than Transactional Leadership approaches.

According to Barling et al. (2002), Transformational Leadership comprises a complex set of inspirational motivation, idealized influence, individualized consideration, and intellectual stimulation. In comparison, Transactional Leadership can be referred to as punishment and rewards to make subordinates comply with safety at work (Cheung et al. 2021). Leaders influence safety in two ways, direct or indirect. Indirectly, safety leadership creates norms linking to safety practices and procedures, creating a specific safety climate in organizational culture. Directly, leaders act as role models for subordinates by engaging in safety-related behaviors, and they encourage subordinates’ safety behaviors by monitoring and praising them.

The early definition of safety leadership and mainly used was introduced by Wu (Mirza and Isha 2017). In safety research, Safety Leadership has been defined as “the process of interaction between leaders and followers, through which leaders could exert their influence on members to achieve organizational safety goals under the circumstances of organizational and individual factors” (Mirza and Isha 2017). There are four other current safety leadership definition are list in Table 1 as follow:

Table 1 Safety leadership definitions

Authors	Definition
Cooper (2019)	Safety leadership, defined as “the process of defining the desired state, setting up the team to succeed, and engaging in the discretionary efforts that drive the safety value”
Cheung et al. (2017)	Safety leadership is generally defined as “leadership behaviors that have positive impact on employees’ safety behaviors”
Donovan et al. (2020)	Safety leadership can be regarded as the ability of leaders to inspire and motivate followers to safety goals
Ojuola et al. (2018)	Safety leadership generally refers to a set of leadership behaviors that influence subordinates’ behaviors to attain particular safety goals. Specifically, safety leadership can affect subordinates’ behaviors on handling safety issues in both direct and indirect ways

3.3 Common Leadership Dimensions in Safety Study

Table 2 outlines the current literature on safety leadership and its dimension presented from the 25 different safety leadership studies. In this section, researchers were provided with the specific name of the leadership styles presented and provided a detailed list of every study’s dimensions. This study was done to review the best of safety leadership and avoid bias in selecting recognizable or appropriate leadership styles for small manufacturing enterprises.

Safety leadership by Wu et al. (2016) derived from the original scale of safety leadership by Wu et al. (2018) with its distinctive factors appears to be a decent tool in assessing the perception and approach of safety leadership in the context of this study. Several researchers emphasized that most employees are commonly deal with passive Leadership rather than a transformational leadership style (Jiang and Probst 2016) even though employees are demand for transformational leadership approach. Thus, Safety leadership measurement in this current study is a combination of transformational and transactional leadership styles.

Safety leadership has gone through various validation in a series of studies by Wu and fellow researchers, and it has been finalized into unidimensional safety leadership. As stated by Smith et al. (2020), safety leadership is usually tested as a justified unidimensional construct, which was validated during its initial safety leadership construct introduced by Barling and fellow researchers (Barling et al. 2002). Additionally, numerous empirical support has been established on unidimensional safety leadership and the positive effect of safety leadership on safety outcome at the manufacturing and petrochemical industries (Çalış and Buğükakinci 2019).

Table 2 Common dimensions of safety leadership

Authors	Construct	Dimension
Mullen et al. (2017)	Safety specific transformational leadership	–
Kim and Kristoffer (2021)	Safety leadership self-efficacy	Safety management Safety motivation Safety incentive
Lun and Wahab (2017)	Safety leadership	Safety caring, safety coaching, safety controlling
Fernández-Muñiz et al. (2017)	Safety leadership	Inspirational appeals Participative management
Ojuola et al. (2020)	Safety leadership	Safety concern Safety motivation Safety policy
Mirza and Isha (2017)	Leadership	Specific transformational leadership Contingent reward leadership Passive leadership
Shi (2020)	Safety-specific transformational leadership	–
Kerin (2020)	Safety leadership	Inspirational Vision Trustworthy Serve others Emphatic Humble
Gracia et al. (2019)	Empowering leadership	Participative decision-making, coaching, explaining, concern/interacting
Smith et al. (2020)	Safety-specific transformational leadership	–
Fransen et al. (2020)	Leadership	–
Muchiri et al. (2019)	Transformational leadership	Idealized Influence Inspirational Motivation Intellectual Stimulation Individualized Consideration
Xue et al. (2020)	Safety leadership	Safety inspiration Safety concern Safety vision Personal character Safety policy Safety awards Punishment

(continued)

Table 2 (continued)

Authors	Construct	Dimension
Cheung et al. (2021)	Safety leadership	Idealized influence Inspirational motivation Intellectual stimulation Individualized consideration Contingent reward
Goldenhar et al. (2020)	Leadership	–
Tao et al. (2020)	Safety leadership	–
Wu et al. (2016)	Safety leadership	Idealized influence, inspirational motivation, intellectual stimulation, individualized consideration
Donovan et al. (2018)	Safety leadership	–
Çalış and Büyükakinci (2019)	Leadership	Safety coaching Safety caring safety controlling
Jiang and Probs (2016)	Transformational Leadership Passive leadership	–
Ali et al. (2020)	Spiritual leadership	Vision, altruistic love, hope/faith
Stiles et al. (2018)	Safety leadership	–
Wu et al. (2016)	Safety leadership	–
Addo and Dartey-Baah (2019)	Safety leadership	Transformational leadership Transactional leadership

3.4 Safety Leadership and Safety Climate

Existing studies have revealed the critical role of Safety Leadership in the work safety discipline. The leadership role received considerable attention in safety research. For instance, a study in Taiwan had explored the effect of Leadership on safety (Çalış and Büyükakinci 2019). A key researcher in safety advised that leadership style and supervisor significantly affect employee safety (Zohar 2002). Indeed, the researcher confirmed that leaders encourage employees to share perceptions of the importance of safety when leaders always prioritize safety at work. Many researchers agreed that supportive Leadership leads to a good relationship between employees and employer enhances employee commitment to safety at work (Oah et al. 2018). The review study results indicated that leadership style could improve specific commitment (Yahaya and Ebrahim 2016).

Similar to previous findings, some researchers revealed that a type of Leadership has a significant effect on employee commitment (Bahkia et al. 2020). As noted, employee commitment is an essential dimension of a safety climate. Empirical evidence on the specific type of Leadership related to improvement in safety climate led to incrementing safety consciousness and high safety behavior (Smith

et al. 2020). Additionally, a comparable finding on safety-specific transformational Leadership and perceptions of safety climate found that the relationship is significant in the context of firefighters and coal mines (Shi 2020).

Besides that, a group of researchers indicated that a bundle of studies in the high-reliability industry has confirmed empowering Leadership to be an essential predictor of employees' attitudes and behaviors (Gracia et al. 2019). A systematic literature review by Fransen et al. (2019) emphasized the role of Leadership as a vigorous antecedent of safety climate. Moreover, these researchers indicated that several studies have found that the relationship between leadership behavior and specific performance is mediated by a safety climate (Fransen et al. 2019; Newman et al. 2017). Fransen et al. (2019) found a bundle of evidence supported that Leadership had a unique contribution in forecasting the numerous outcomes. A study by Fernández-Muñiz et al. (2017) stated that a group of researchers has considered safety leadership and a high management commitment toward safety is a requirement for great employee's safe behavior and better safety performance (Fernández-Muñiz et al. 2017). Management commitment to safety in the workplace is generally accepted as a critical safety climate dimension in safety studies. As the above mentioned, finally, research has recognized that safety leadership to safety climate are related. Thus it went to postulated that:

Hypothesis 1: Safety leadership has a positive and significant effect on safety climate.

3.5 Safety Leadership and Safety Performance

The earlier study highlighted the importance of a specific type of Leadership in improving employees' Safety Performance (Laurent et al. 2020). Many indicated that Safety Performance issues are commonly related to Safety Climate and Safety Leadership (Saedi et al. 2020). Besides that, the existing research suggests that Safety Leadership can be an essential factor in increasing Safety Performance among employees (Huang et al. 2018). Besides, a previous study has found a reverse relationship between specific Leadership and risk perception. Based on that results, researchers suggested that positive Safety Leadership approaches, such as being a part of a group or team, may reduce employee's risk perception (Nielsen and Cleal 2011). Muchiri et al. (2019) in the article review, proposed that Leadership has a relationship with safety performance and enhances workplace safety.

In various industries and operations (e.g., construction enterprises, universities, health care, high-reliability organization, and the petrochemical industry), safety leadership encourages improved safety performance. Several researchers have shown that senior managers' safety leadership positively predicted safety behavior in the Chinese petrochemical industry setting (Xue et al. 2020). On the other hand, a health-care industry study revealed that transformational leadership behavior was negatively associated with unsafe work behavior (Ugwu et al. 2020). Moreover, a specific leadership role has already been presented to be important in understanding and forecasting

team and individual behaviors in high-reliability organizations (Gracia et al. 2019). In addition, researchers stated that a series of studies by Martínez-Corcoles found that the relationship between Leadership and safety performance is significant (Gracia et al. 2019). Besides that, a review of the article shown that increasing numbers of studies support the effect of safety leadership on positive safety performance from the various industrial sector, such as manufacturing (Oah et al. 2018), rail construction (Stiles et al. 2018) and nongovernment organizations or nonprofits (Aga 2016).

A study in the United States has established a relationship between safety knowledge, safety motivation, and safety performance moderated by transformational and passive Leadership related to safety (Jiang and Probst 2016). This study highlight, not all leaders are transformational, and most subordinates are likely to experience passively. Indeed, researchers indicated that safety leadership and safety performance are connected; however, under low transformational Leadership, the safety motivation dimension of safety performance was not established. A study in Vietnam manufacturing found that that spiritual Leadership is positively related to employees' safety performance dimensions, which are safety participation and safety compliance (Ali et al. 2020). Based on the above arguments, the researcher expects that safety leadership directly influences safety performance. Therefore, the hypothesis for this section is:

Hypothesis 2: Safety leadership has a positive and significant effect on safety performance.

3.6 Safety Climate as a Mediation

Notably, the safety climate is known as a crucial predictor of safety performance and safety outcomes. A considerable number of studies have been illustrated that safety climate is the first higher-order factor of safety performance (Shi 2020; Ugwu et al. 2020; Taha et al. 2020; Yang et al. 2020). These are core reasons captured safety climate always becomes a mediator between predictors of safety climate and safety performance, as discussed in the next paragraph.

On the one hand, a study on the linkage of specific leadership style and Safety Performance using a structural equation model revealed that specific Leadership significantly impacts respondents' performance through Safety Climate (Martínez-Córcoles and Stephanou 2017). On the other hand, one study found that Leadership, Safety Climate, and safety culture have contributed 83% of the Safety Performance variance using (Structural Equation Modeling) analysis method (Khasanah 2019). Moreover, several researchers confirmed that leadership safety behaviors are a predictor of Safety Performance (Zhang et al. 2017). Later, a sports study revealed the association between the leader and athletic safety performance mediated by a kind of safety climate (Fransen et al. 2020).

The literature on Leadership, safety climate, and safety outcomes verified that the linkage between specific safety leadership and safety outcomes was mediated by a safety climate, which eventually reduced workplace injuries (Mirza and Isha 2017).

A previous study by key safety leadership researchers in the petrochemical industry also identified that the safety climate mediated the relationship between safety leadership and safety performance (Shi 2020). Additionally, a study in the Chinese petrochemical industry found that safety climate significantly mediated an indirect relationship between senior managers' safety leadership and safety behavior (Xue et al. 2020). Empirical evidence on specific leadership types related to improving safety climate increases safety consciousness and high safety behavior (Smith et al. 2020). A previous study by key safety leadership researchers in the petrochemical industry also identified that the safety climate mediated the relationship between safety leadership and safety performance (Shi 2020). Several researchers indicated that little is known about the mechanisms behind this relationship between Leadership and safety performance. Then, propose a mediation construct between that relationship (Gracia et al. 2019). These previous studies discuss safety climate's role as mediation between antecedent of safety performance and safety performance. Therefore, this study suggesting the following hypothesis is as follows.

Hypothesis 3: Safety climate mediates the relationship between safety leadership and safety performance.

Figure 1 illustrated conceptual framework linking safety leadership, safety climate and safety performance.

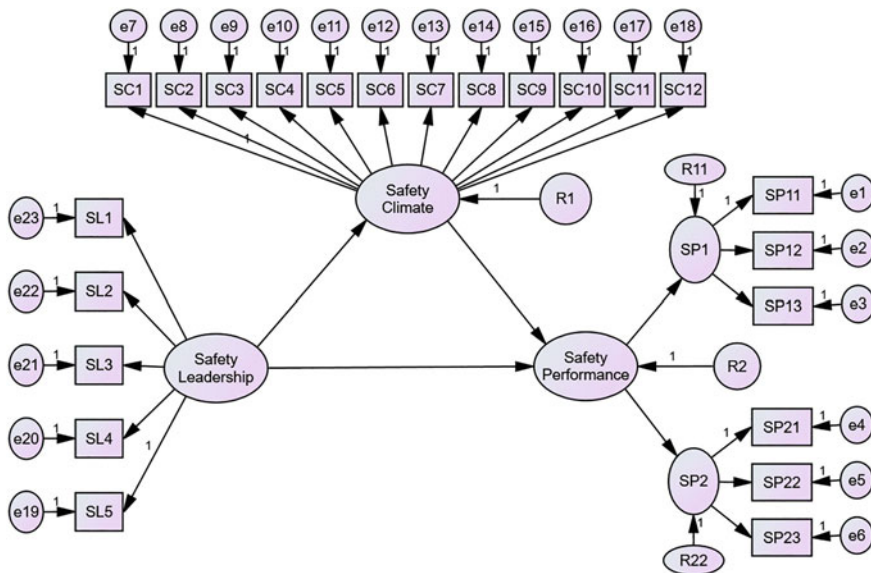


Fig. 1 Conceptual framework linking safety leadership, safety climate and safety performance

4 Conclusion

Leadership is a unique element in the growth and success of each organization. Organizational performance, including safety performance, is mostly drive-by Leadership. Safety leadership is a crucial driver to an established safety management system, and this current study contributes to the knowledge of safety. Given that this is the preliminary safety leadership measurement study in a small manufacturing enterprise context, it may provide a discrete contribution to the theory-building and practice of Leadership and safety performance. Safety leadership can be used to diagnose the quality of safety leaders' levels from employee perception and allows the small manufacturing enterprises to examine the belief, attitude, and behavioral patterns before recruitment and selection of leaders and reaction plan to enhance safety leadership. Understanding the current level of safety leadership self-efficacy can help employers and owners determine the most effective approach to increase safety leadership based on the qualifying scores in each safety leadership dimension. Contextualization of safety leadership, safety climate, and safety performance in a small manufacturing context is the study's novelty. Finally, researchers expect that safety leadership could lead to diverse approaches in small and medium enterprises manufacturing research to expand individual safety leadership and improve safety leadership. This study is a proactive safety performance indicator that brings new insight into innovation to avoid emergency, unexpected disaster management for the small and medium enterprise and provides a significant effect on business survival in the Covid-19 Pandemic (Elali 2021; Aminova and Marchi 2021).

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What Drives Trust on Foodpanda Delivery Service During COVID-19 Pandemic? From the Perspective of Product Information, After Sales Service, and Payment Security



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Abstract The purpose of this study is to identify the key factors that drive the trust of Foodpanda delivery service among customers during the Covid-19 pandemic. We extended the theory of Planned Behaviour which we examined the impact of product information, after sales service and payment security to increase the trust on Foodpanda delivery service. Data were collected from 341 students from faculty of entrepreneurship and business, University Malaysia Kelantan and analyzed using SPSS. The result shows that all three variables are equally important for developing a trust among customers using Foodpanda service and they decided to continue using this mobile application. The result of this study proves that payment security with 68.5% of the respondents indicate that it is the significant variable that influence user's trust on Foodpanda service. The study further provides recommendations for service providers, customers and researchers.

Keywords Trust · Product information · After sales service · Payment security · Online food delivery

1 Introduction

This new pandemic era seems to have changed the way how people are doing business. In most cases businesses had to adopt new strategies to quickly respond to the needs of

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customers rather than allowing themselves to be kicked out of business by the global pandemic. Again, for survival of businesses in a turbulent age like this pandemic, firms need to build up their capacity and introduce new business models to counteract any unforeseeable circumstance happening to them (Elali 2021). This will enable them identify and exploit opportunities due to the new changes. The outbreak of Covid-19 pandemic has increased the demand in the use of online service in majority of the countries. For instance, Delivery Hero brand in South Korea has a sudden increase from 3 to 4% since January 2020. Similar to this company, Grab a Singapore based company showed sudden increase of their sales to 20% during this pandemic in their food delivery service. The total lockdown scenario in many countries made the online food delivery service become main choice for people. The market size of online food delivery in Malaysia showed a significant increase and is expected to grow at a significant rate and to reach the market size of over USD 319.1 million by 2026 (Acumen 2019).

Individuals' daily lives and spending habits have changed as a result of the COVID-19 pandemic's social isolation. Many of them prefer to socially quarantine themselves want to focus on their food consumption and take a special precaution in their choice of food. While some customers started cooking at home, others are more interested in the restaurants' prepared cuisine. Social distancing will help the government to control the virus spread and lower the risk of infection to another person. This lead the individual to rely on online shopping especially buying food through food delivery apps such as food panda (Bliemel and Hassanein (2007), Wang and Emurian (2005) and Gummerus et al. (2004).

This new trend make the customers to also expect the restaurant to have an online delivery which help to place a food order online. Since customers want to buy a clean and hygiene food, online food delivery service is a great choice for many of them. Mobile application such as Foodpanda service offers customer not only detail information about the food but also give review for the food. It helps the customer to measure the quality of the food and delivery. Also, customers are asked to take precautions such as paying for food in advance electronically to avoid personal contact, disinfecting packages and recycling bags, and washing their hands.

Interestingly, many scholars have highlighted the "trust" in their papers. For instance, a prior study by Kedah and Ismail (2015) stated that experiences earned by consumers is part of trust where it could be positive experience or negative experience based on their previous use of product or service. Quality of product information provided on the website or other online platform must be complete, relevant and symmetric to the product itself and has significant effect on consumers online purchasing. Troise et al. (2020) integrated the technology acceptance model (TAM) and TPB to examine the behavioral intention to use online food delivery services. However, very few researchers that explore the trust evaluation of food delivery applications during COVID-19 pandemic which become a major agenda of this paper. Most of the studies ignored the product and company concern and too much focus on customers' perspective. Based on the extended theory of planned behavior, we believe that company or product analysis is important and we currently focused on filling up the gap by understanding the three new variables.

This study review the existing literature on the relationship between variables and the trust development in Foodpanda online service during COVID-19 pandemic. It critically examine the impact of product information, after sales service and payment security and develop model for the success of online food delivery service. Similarly, several scholars have examined the relationship of key determinants that influence the development of trust. For example, Gummerus et al. (2004) which explained the importance key variables that we used in this study for the development of trust in ecommerce platform. Zhao and Bacao (2020) examined the determinants of consumers' continuance intention using a marketing framework to study the consumer behaviour. Yet, there is little or no study from the perspective of product information, after sales service, and payment security in relation to trust on food delivery service.

2 Literature Review

Food delivery online service refer to smartphone-based applications used to contact restaurants, search for foods, order foods for delivery, and provide payments with no physical interaction with restaurant personnel (Alalwan 2020; Okumus and Bilgihan 2014). In developing conceptual framework, we have identified the widely accepted theory called Theory of Planned Behavior by Ajzen (1991) to understand the concept of trust which is rooted for social-psychology studies. This theory mainly focused on a specific behaviour of interest and able to explain the connection between human behaviour and subject of interest. Some studies also previously used this theory to explain the decisions, intention and purchasing power of the customers. For instance, an exploratory study from Italian university highlighted the attitudes, subjective norms and perceived behavioural control significantly affect the consumer intention (Giampietri et al. 2018). TPB is a key theory that explain the function of the intention and behaviour on particular subject. This theory has been created the combination of three factors, attitudes (ATT), subjective norms (SN) and perceived behavioural control (PBC). We have identified three important variables that are associating with the development of trust in foodpanda delivery service namely product information, after sales service and payment security.

2.1 *Trust in Business*

Gefen (2003) define trust as the consumers' willingness to interpret the likelihood of success or failure during the shopping phase, which defines confidence as a kind of behavioural intention. The study of Kedah and Ismail (2015) state that experiences earned by consumers is part of trust where it could be positive experience or negative experience based on their previous use of product or service. On the basis of trust, researchers report that when colleagues or peers share, post pictures or illustrating

pictures or reviews about food products on social media, those who are more easily influenced by others would trust their friends' selection and experiences (Freeman et al. 2014; Tran et al. 2017). Extant literature revealed that consumers feel specific website is reliable and trustworthy when the information and website design in a shopping website or platform is of high quality (Bliemel and Hassanein 2007; Wang and Emurian 2005; Gummerus et al. 2004). According to the studies of Flavian et al. 2006 and Wang and Emurian 2005), adequate information displayed on a product or service is a hallmark for trust on customers patronizing the product or service.

2.2 *Product Information and Trust*

A detail information about in the Foodpanda mobile application has made the mobile apps become famous among customers. Hoque and Lohse (1999), posit that the promise of electronic commerce and online service delivery or shopping largely depend on user information and how people are able to interact with it. Thus, the design of mobile platform that provide a satisfying information is very important, as such interfaces or information provided on a product or service may encourage consumers to return to a particular web site or an online service provider and is thus, a matter of critical importance to online retailers. Several research indicated that the increased availability of information on the web has the potential to result in more knowledgeable consumers, who are then able to make better quality decisions, who will then experience greater satisfaction with any purchases the make (Ballantine 2005). The clear, adequate and reliable product information can make the customers to make a decision quickly and continue relying on that platform. It increases their satisfaction together with their purchase experience (Cook and Coupey 1998; Glazer 1991; Zhao 2019). Similarly, Negash et al. (2003) suggested that providing valuable, valid and usability of information for customers will make them to attract to the product and brand and eventually increase their trust on particular mobile platform (Dang et al. 2018). Several scholars have highlighted the relationship between product information and trust in mobile platform (Glazer 1991; Lynch and Ariely 2000; Ballantine 2005; Yang 2001; Zulkarnain et al. 2015). For instance, Fang (2011) highlights that the quality of product information provided on the website or other online platform must be complete, relevant and symmetric to the product itself and has significant effect on consumers online purchasing. Likewise, Yoon (2002) in her study on mobile application stressed the important of product information in developing trust in a particular product (Park and Kim (2003); Ballantine (2005) also found a positive relationship between website's information attributes and consumer satisfaction (Friedman et al. 2000; Gefen 2000, 2003; Hoffman et al. 1999; Jarvenpaa et al. 2000; Wang et al. 2003; Rathore and Chaudhary 2018). In this study, we therefore posit the hypothesis that;

H1: There is a relationship between trust and product information in online food delivery service.

2.3 After Sale Service and Trust

In general after-sale service is termed as a service provided in response to customer complaint, replace a faulty good or make a full refund in case the customer is not happy with the products or service (Nasir et al. 2014; Slozko and Pelo (2015). As a term, “after-sales services” has been used the most, to describe services that are provided to the customer after the products have been delivered. This is a service it is given to the buyer by the seller after selling the product or service (Murali et al. 2016). This service rendered to customers in a bit to solve their peculiar problems after sale or purchase of a product is a form of customer care and crucial as it affect the propensity to repurchase a product or service. In other words, after sales service is the only way that a company can make constant connections with the customers and brand which influence the trust. It is a source of competitive advantage and business opportunity that change the perspective from product-centric view to customer-centric view (Saccani et al. (2007). A study from Gupta and Lehmann (2007) conclude that offering a high large number of after sales service helps the company to get high profitability. A study by Reibstein (2002) established a strong relationship between trust and customer satisfaction. Kurata and Nam (2010) state that a sustainable relationship with customers is formed and customer satisfaction can be achieved by after sales service. Various researches reveal that, after-sales service is considered a key revenue generator in certain categories, helps maintain long-term relationships with customers, and also enhance revenue generation and a main competitive differentiator that yield high profitability in the delivery of a product or service (Cohen et al. 2006; Cohen and Whang 1997; Gupta and Lehmann 2007; Kurata and Nam 2010; Oney et al. 2017).

H2: There is a relationship between trust and after sale service in online food delivery service.

2.4 Payment Security and Trust

Electronic payment (e-payment) has been frequently use by many companies to facilitate e-commerce transactions between customers and seller. It refers to online payment which is conducted via the internet. It consists of online credit card payment, debit card payment, e-wallet payment and many more. This payment system has made easy for customers to shop on e-commerce sites like foodpanda. Usually, when the customer want to pay from through online, they will requested to perform a digital form where they will asked to check account information including valid check number, bank name and bank account from the platform. This new method seems easier for a customer especially to build trust because mobile platform like Foodpanda connect or link their merchant with various banks. The bank system will validate and authorize the payment to the company. This seems more safer and trustable compare to the offline transactions in traditional stores (Agimo 2004). Szymanski and Hise (2000) found that convenience, site design and financial security or payment security were indicators that explain consumer assessments of online payment system and lead to satisfaction (Hord 2005; Teoh et al. 2013; Teoh et al. 2013; Lim et al. 2006; Sumanjeet 2009). Teoh et al. (2013), state that payment security, trust, and efficiency largely affect online users' decision to use e-payment for online purchase. The study of Oney et al. (2017) indicate that trust and payment security are important to generate a successful transaction. Studies shows that customer trust has also been examined in the area of online service delivery or business transaction as having impact in maintaining sustainable relationship with customers. Quality of information, security/privacy issues, and efficient payment system are based on trust, in online customer services and have significant relationship with satisfaction (Cyr et al. 2008; Liu et al. 2008; Shankar et al. 2003) (Fig. 1).

H3: There is a relationship between trust and payment security in online food delivery service.

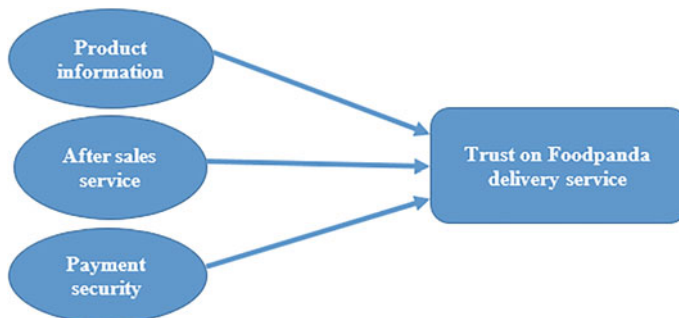


Fig. 1 Study framework (Yeo et al. 2021)

3 Research Methods

In this study, quantitative research method was used to collect information from the respondents to determine user's trust toward online food delivery services. The reason of choosing quantitative method is that it is more towards the collection and analysis of numerical data in statistics. The researcher distributed questionnaire in order to collect quantitative data for this study. Questionnaire is a research tool that consists of a series of questions and enhances the collection of information from respondents. In all, 341 questionnaires were distributed to students of the Faculty of Entrepreneurship Business (FKP) in Universiti Malaysia Kelantan (UMK), Campus Kota Bharu, Kelantan. Besides, researchers also collected data from secondary source which included books, websites, the Internet, annual report, journals and articles to complete the research study. A probability sampling method was used for this study where all the individuals of the sample have equal chances of being selected with emphasis on stratified random sampling technique. With this method, all the students of FKP within the city Campus of Kota Bharu were divided according to their course areas and samples are randomly selected from each subgroup like; SAB, SAE, SAK, SAL and SAR for the study. The questionnaire is divided into 3 sections, consisting of 33 questions. Section A focuses on the demographic data of the respondents meanwhile section B emphasize on users' trust in online food delivery service. Section C dealt with factors that influence users' trust in online food delivery service such as product information quality, after sales service quality and payment security. The 6-point Likert scale was used to design the questionnaire for respondents to indicate how strongly they agree or disagree with the statement of the questions. Pilot test was conducted to ensure the reliability of questionnaire. Descriptive analysis was used to analyse demographic data to discover the relationship among variables whiles Pearson Correlation Analysis was also used to test the degree of linear relationship among dependent variable and independent variables of the study. It also determines the strength of the relationship, with value ranges from -1 to $+1$. Positive or negative correlations is by the positive or negative signs with a zero relationship among two different variables when the value is 0.

4 Analysis of Results

4.1 Reliability Analysis Cronbach's Alpha

4.1.1 Pilot Test

Pilot test was done before distributing the actual set of questionnaires to the respondents. Thirty (30) pilot test samples were chosen to answer the questionnaire to test on Cronbach's Alpha coefficient. The overall reliability for the pilot test was 0.927 which represents excellent. This meant that all the items of each variable were

Table 1 Reliability test result

Variables	Cronbach's alpha	Strength of association
All variables	0.919	Excellent
Trust	0.739	Good
Product information	0.749	Good
After sale service	0.864	Very good
Payment security	0.808	Very good

Table 2 Normality test result

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Trust	0.097	434	0.000	0.953	434	0.000
Product information	0.121	434	0.000	0.970	434	0.000
After sale service	0.125	434	0.000	0.952	434	0.000
Payment security	0.106	434	0.000	0.958	434	0.000

^a *Lilliefors Significance Correction*

understood by the target respondents and an endorsement of the questionnaire for data collection in this study.

4.1.2 Actual Reliability Test

Table 1 presented the reliability test result for this study. Based on the table above, Cronbach's Alpha for all variables is 0.919, indicates excellent. The reliability test for this study is accepted with all the calculated values for each variable recoding more than the threshold level.

4.1.3 Normality Test

Table 2 shows the normality test result. As shown in the table above, the significant value, p-value is 0.000 which is less than 0.05, therefore it is normal distribution.

4.1.4 Frequency Analysis

Table 3 summarises the demographic profile of 434 respondents in terms of frequency as well as percentage. Data was generated from 434 first year to the fourth-year

students of the Faculty of Entrepreneurship and Business management (FKP) in University Malaysia Kelantan, Campus Kota Bharu, Kelantan.

The descriptive statistics show that all the students' patronized online food delivery service with 53% female and 47% male participants in the study. Of the total number of students, about 36% are Chinese students, 33% Malays, 27% Indians and only about 5% represent other students.

Table 3 Summary of demographic profile

Demographic Profile	Frequency	Percentage
<i>Online food delivery service usage</i>		
Yes	434	100.0
No	0	0.0
Total	434	100
<i>Gender</i>		
Male	204	47.0
Female	230	53.0
Total	434	100
<i>Race</i>		
Malay	142	32.7
Chinese	155	35.7
Indian	117	27.0
Others	20	4.6
Total	434	100
<i>Course</i>		
SAB	82	18.9
SAE	53	12.2
SAK	111	25.6
SAL	93	21.4
SAR	95	21.9
Total	434	100
<i>Years of studying</i>		
Year 1	61	14.1
Year 2	107	24.7
Year 3	118	27.2
Year 4	148	34.1
Total	434	100

4.1.5 Descriptive Analysis

Table 4 above shows the summary of descriptive analysis for each independent variable. The descriptive analysis use means to analyse each variable and determine which variable affected the dependent variable the most. The above Table shows the highest and lowest mean of items for each independent variable.

4.2 Pearson Correlation Analysis

Table 5 shows summary of result for Pearson Correlation Analysis. All three hypotheses in this study are accepted. Each independent variable displays different correlation coefficient which are 0.612** for product information, 0.525** for after sale service and 0.685** for payment security with the dependent variable as trust.

5 Discussion, Conclusion and Recommendations

The main objective of this research is to determine how factors like product information, after sale service and payment security influence users' trust in online food

Table 4 Summary of descriptive analysis

Variables	Item	Mean
Product information	Online food company provides clear product information	5.03
	Online food company provides reliable product information	4.68
After sale service	Online food delivery platform provides good customer care service	4.72
	The service advisors provide proper way to solve my problem	4.57
Payment security	Online food delivery company provides a step to verify a payment before the finalization of the actual payment	4.98
	I feel payment system for online food delivery service is not risky	4.78

Table 5 Summary of result for Pearson correlation analysis

Objective	Hypothesis	Result	Decision
Objective 1: To identify the relationship between trust and product information in online food delivery service in Malaysia	H₁: There is a relationship between trust and product information	r = 0.612** p = 0.000 Moderate positive relationship	H₁ Accepted

(continued)

Table 5 (continued)

Objective	Hypothesis	Result	Decision
Objective 2: To identify the relationship between trust and after sale service in online food delivery service in Malaysia	H₂: There is a relationship between trust and after sale service	r = 0.525** p = 0.000 Moderate positive relationship	H₂ Accepted
Objective 3: To identify the relationship between trust and payment security in online food delivery service in Malaysia	H₃: There is a relationship between trust and payment security	r = 0.685** p = 0.000 Moderate positive relationship	H₃ Accepted

delivery service in Malaysia during COVID-19 pandemic. From the result obtained, researchers identified that there is a relationship between trust and product information quality towards online food delivery services thus hypothesis 1 is accepted. Based on Table 5, significant value, p is 0.000 which is less than 0.01 indicates that trust and product information quality has a significant relationship. This finding is in consonance with Reibstein (2012) that there is a strong relationship between trust and customer satisfaction. The result in Pearson Correlation, r for product information quality is 0.612 which indicates a moderate positive relationship. As this research analysed that the detail product information will influence consumers either to buy the product or not. Therefore, product information may influence trust of consumers in online food delivery service. The research concludes that after sales service is one of the factors that influence trust in online food delivery service in Malaysia. Again, the result indicates that there is a relationship between trust and after sales service thus, hypothesis 1 is accepted. Based on Table 5, a significant value, p is 0.000 which is less than 0.01 indicates that trust and after sales service has a significant relationship.

The result in Pearson Correlation, r for after sales service is 0.525 indicates a moderate positive relationship. User’s trust is influence by the after-sale service provided online food delivery company such as responsiveness in dealing customer complaint and efficiency to solve customer requirements. From the result obtained, the research identified that there is a relationship between trust and payment security and hypothesis 1 is accepted. Based on Table 5, significant value, p is 0.000 which is less than 0.01 and indicates a significant relationship.

This finding agree with Oney et al. (2017) view that trust and payment security are important to generate a successful transaction. With the result on Pearson Correlation, the r-value for payment security is 0.685 which indicates a moderate positive relationship. Payment security has the strongest relationship with trust as the r-value is the highest among the other factors. Payment security is important to avoid payment information such as card verification code, bank accounts, and credit card numbers being disclosed. The finding support Oney et al. (2017) who indicated

that trust and payment security are important issues customers consider in embarking upon online purchase so as to generate a successful transaction.

The practical implications are, to improve the product information quality to attract more potential consumers, enhance after sale service and practice different tools in order to protect the private data of consumers. The theoretical implication is that, future researchers can understand this sector deeply throughout this research with the supportive data provided in this study. It also encourages people to make discoveries in this sector since there are limited studies concerning online food delivery service in Malaysia.

5.1 Conclusion and Future Research

In this study, questionnaires are distributed to FKP students of University Malaysia Kelantan, Campus Kota Bharu to identify how product information, after-sales service and payment security influence users' trust in using online food delivery service, specifically Foodpanda. After analysing the data collected, it is proven that all three hypotheses formed in this study are accepted where there is a positive relationship between product information quality, after sales service, payment security and trust.

A new conceptual framework is proposed in this study and researchers have to look into the relationship between each independent and dependent variable. A further discussion on all results and findings has been conducted in this study. Recommendations for each variable are also presented. This study provides future research opportunities of expanding this area and number of respondents, to focus on other age levels as well as venture into other online food delivery platforms.

Based on the data collected, some recommendations emerged from the research on how to enhance trust in users regarding variables like product information quality, after sales service as well as payment security. Excellent customer service provided to customer has a big impact on customer's trust and retention. Delivery companies have to support staff and set a high standard for the speed and quality of service when food is delivering to customers. At the same time, the delivery company can encourage the employees from time to time to think from the perception of customers and work hard to leave a positive impression to customers. This could help to improve trust of customers on the service.

Next is that, the product information consists of product description, price, availability, product photo or video and anything related to the product. In this study, product information provided by the delivery company is insufficient where it is still short of photos and videos. As discussed, the consistency of delivery company website in providing photos for food products is low where only certain food products are provided with an ordinary flat angle photo. Further, the delivery company should consider providing good photographs on their products as this will help customers to know the products in detail. This is also a way to attract potential customers to the site. Consumers review and rating are part of the product information regardless the

reviews and ratings are high or low, good or bad, positive or negative, consumers will take it as a useful information. It is suggested that the delivery company should have review and rating section that allows consumers to give feedback to the company. The delivery company can use this section to gather all the positive or negative feedback by consumers and then make improvement on specific aspects of the product from time to time.

Usually, customers tend to find relevant information of after sales service through digital channel like website or mobile application. Therefore, it is crucial for the delivery company to update and clearly state their after-sales service guide on all platforms for the ease of users. With a clear understanding, customers will look for customer care service employees when they discover a problem and the service advisers should be able to handle each problem as fast as possible. And customers should always endeavor to provide constructive feedback towards improving food delivery services. Likewise, the delivery company should make it fast and convenient for their customers to contact the customer care service employees as most customers expect assistance within minutes. The delivery company should create a set of service standards for the staff to follow and use as a guideline when providing after sales service. A well-trained service adviser would be able to assist and give suggestions professionally. When the staff respond quickly, it can provide proper ways to solve a problem, and help build customer satisfaction since customer satisfaction is integral in business and influence most marketing strategies for business survival in this current Covid-19 crisis and afterwards (Nassar and Battour 2020).

In order to protect the users, delivery companies should follow Payment Card Industry Data Security Standard (PCI DSS) which is an information security standard managed by Payment Card Industry Security Standards Council and authorised to the cardbrands. This standard is assigned to control and protect the personal data of the cardholder by building a secure network for the users. The delivery companies can install SSL Certificates to enhance consumer trust. This tool is used to protect the official website by keeping the private data that is sent across the network. All sensitive financial information such as card numbers, usernames and password are protected from unauthorized third party and ensure only intended receiver including the server can access with the relevant data. Another point worth noting is that food delivery service companies should have laid down strategies towards handling any form of unanticipated situation so as not to be taken by emergency situations like this pandemic and its consequent effect on businesses (Al Kurdi 2021).

From this study, the researchers have identified opportunities for future studies. Firstly, the target respondents in this study are only FKP students from University Malaysia Kelantan in Campus Kota Bharu. Hence, future researchers are advised to conduct a similar research in different universities, different states or even within the whole of Malaysia as it will lead to different result. Also, the number of respondents can be increased for future studies to enhance the quality of data collected. Again, since the research is focused on university students, with respondents mainly at the age of 18 to 25 years, future researchers can conduct a study that focus on other age levels to determine how product information quality, after sales service and payment security influence trust in using online food delivery service. Furthermore,

this research suggest that future researchers should conduct similar research on other online food delivery service platforms such as GrabFood and DeliverEat. This will help to identify users trust towards different online food delivery platforms.

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Review on the Application of Interactive Design in the Design of Modern Furniture Products



Xinghua Xia  and Ahmad Rasdan Ismail 

Abstract Under the background of the digital age, with the development of information technology, the interactive design method is gradually introduced into the field of modern furniture design, which has good applicability and promotion prospects. The interaction design method shows advantages in exploring complex behavior and the relationship between humans, products, and the environment. Furniture interactive design aims to solve the connection and interactive experience of people, furniture and living space, follow the user-centered principle, emphasize the importance of user experience, and pay attention to solving user needs. This study makes a substantive comparison and analysis between furniture design and interaction design, summarizes the main characteristics of interaction design of modern furniture products, briefly classifies and summarizes the existing methods and practices of furniture interaction design, and then analyzes the existing problems, precautions, and development trend of interaction design in combination with the characteristics of the furniture market, It provides a reference for the in-depth practice and effective development of furniture interactive design in the future.

Keywords Furniture · Design · Interaction design

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1 Overview of Furniture Interactive Design

1.1 *The Trend of Furniture Interactive Design Under the Background of the Digital Age*

With the continuous development of social informatization and the continuous progress of process production technology, products are expected to provide more possibilities while having practical performance and practical benefits. Furniture has experienced the changes of handicraft age, industrial age, and information age, and its design elements and methods have also changed accordingly. From the perspective of industrial design, furniture design emphasizes the function and beauty of furniture, focusing on the unity of functionalism and formalism (Johnson and Abraham 2020), Designing comfortable and beautiful furniture products that meet the requirements of ergonomics is the concept of modern design. However, in the current digital era, with the rapid development of science and technology, more and more new technologies and materials are applied to furniture design. High-quality service is no longer the only requirement of modern users for furniture design, and furniture is no longer regarded as an isolated single product limited to the actual use function (Kesdi 2019), Modern furniture design should be integrated with people's living environment. People, as the main body, can obtain an interactive experience of high efficiency, comfort, pleasure, interest, and environmental protection in the living environment through the use of furniture (Seseni and Mbohwa 2021). In short, as the first element, user experience promotes modern furniture design to be user-centered and pays more attention to the interactive experience between users and furniture, which is also a process of interactive design.

Interaction design originates from the field of information. It is the product of the rapid development of computer technology in the 1980s. It is the information exchange process between man and machine (Nowakowski 2021). In recent years, interaction design has gradually developed from interface design to physical products. The expansion of the research scope and concept of interactive design makes the interactive design of furniture possible. Under this background, exploring the application of interactive design methods derived from information products to furniture design and creating efficient and pleasant life experiences for users has become a problem worthy of thinking and discussion.

1.2 *Interactive Design of Furniture Products Based on User Experience*

In the 1990s, the concept of interaction design was proposed by Bill Mogridge, one of the founders of IDEO company, to solve the problem of how to use products to connect people in design practice. Interaction design is essentially a system design, in which

the constituent elements include people, human behavior, product use scenarios, and technologies supporting interaction behavior (Zhao et al. 2016; Blomé 2015).

In the era of the experience economy, people pay more and more attention to the non-material attributes of products, hoping to feel care, mutual movement, and fun from the product itself and the use process (Nakazato et al. 2016). User demand has always been the situation that all designers want to understand, and the demand changes with society, science and technology, humanities, times, and so on (Gribbin et al. 2016). With the rapid development of society, user demand will no longer be “as long as you have it” or “as long as you can use it”, but will put forward requirements for the attributes of the products used. Furniture design and interaction design are consistent in design essence and design objectives, pay attention to people’s life behavior, and form design objectives based on behavior analysis (Hehn et al. 2019). In the process of planning and practice, we should fully consider the interaction process between users and furniture products, take the user’s experience as the starting point, minimize complicated and useless interaction modes and methods, and deeply excavate people’s interaction behavior to achieve the universal applicability of design (Wang et al. 2021). The concept of interaction design focuses on the target user, which directly affects the “design” of the target user. The user demand based on interactive design lies in the safety, fluency, efficiency, and comfort of the interactive process. The structural modeling function of furniture and the products integrated with science and technology has always changed according to the change of human interaction mode. Human needs are different in different times (Akita et al. 2015). Furniture design needs to meet the lifestyle and behavior characteristics of contemporary people, which puts forward new requirements for design methods. The application of the interaction design method also helps to find the potential needs behind the user behavior and create a healthier and better home life experience.

Starting with the analysis of the characteristics of modern furniture product interaction design, this paper summarizes the existing furniture interaction design methods, and puts forward opinions and suggestions for the existing problems in the research of furniture interaction design, to provide a further research direction for furniture interaction design.

2 Interactive Design Features of Modern Furniture Products

2.1 Personalized User Needs

Different social roles and work roles will have different levels of needs. The design should fully consider the needs of users from the aspects of usability, ease of use, experience, and value creation (Honan 2017). Maslow’s hierarchy of needs theory divides human needs into five levels, which are expressed in a pyramid-like way from low to high: physiological, security, social, respect, and self-realization needs.

Because the user's behavior in different scenes is affected by many uncertain conditions such as scene, emotion, human factors, and social factors, it is emphasized that interaction is the ontology of design, and the application of interaction design is based on the process rationality of specific tasks and user feelings (Azevedo 2020). The user needs of furniture interaction design can be divided into sensory, human-computer interaction, interpersonal interaction, social and self needs (Oygun 2017). User needs have strong sociality, and people will present different needs under the reflection of different social forms. With the rapid development of science and technology, economy, and society, people's living rate is faster and faster. On the basis of enjoying the peace and functional convenience brought by furniture, they gradually pay attention to their personalized needs. More and more advanced scientific and technological achievements add more and more experiential bonuses to different zones so that users can feel the high efficiency and fun brought by design while living, which is also the significance of interactive design. After meeting the sensory, human-computer interaction, interpersonal interaction, and social needs, due to individual differences, each user's self needs are also different, and its ultimate goal is to realize self-worth.

2.2 *Cultural Attribute*

Culture is hidden in every piece of furniture, which affects users' judgment on the practicability, safety, and value of furniture products (Kampermann 2021). Culture includes multiple levels of spirit, behavior, and material culture. First of all, furniture is the carrier of material culture. As a material appliance, furniture must form a solid form and use function through specific materials and processing technology (Bekiroglu et al. 2021). Secondly, furniture is the medium of behavior culture. Furniture is closely related to people's life. Furniture design must take the observation and understanding of life behavior as the starting point, and take life as the origin and main driving force of design. Thirdly, furniture is the expression of spiritual culture. As a display art, furniture has imperceptibly cultivated people's aesthetic taste and embodied the philosophical concepts and religious beliefs in a specific cultural situation in the long-term use process of people. The cultural context has a great impact on people's lifestyles. For example, people from different regions have very similar working styles, but the differences in their daily lifestyles are very significant. Furniture products are indispensable supplies in daily life (Liu et al. 2014). It shapes and carries people's life behavior and the unique living culture of all races and nationalities. Therefore, in the process of designing furniture products, we should fully consider the cultural colors and attributes of material culture, behavior, and spirit. Furniture products should adopt specific processing technology and materials to form corresponding use functions and solid modeling, which have significant material and cultural characteristics. Secondly, furniture is closely related to people's social and life behavior, and the cultural characteristics of behavior are very significant. The Interaction Model is mostly Human-computer Intelligent Interaction.

2.3 Most Human–Computer Intelligent Interaction Modes

Human–computer interaction only exists in high-tech furniture, which is also the development trend of the intelligent and multifunctional modern furniture product system (Huang et al. 2020). Many furniture designers have begun to adopt the relevant design concept of operation feedback behavior to provide users with secondary design opportunities in use and make people feel interesting and novel interactive experiences. At the same time, the functions of various modern furniture products are changeable and the sources of materials are rich. A dynamic operation interface is adapted to allow users to fully participate in the design process. Furniture products have personalized colors and can meet the needs of diversified life in various cultural situations.

Now more and more furniture products are integrated into intelligent and interactive design through computer vision, machine learning, speech recognition system, robot technology, and so on. The development of intelligent furniture not only conforms to the trend of the era of industry 4.0 but also conforms to the design principle of people-oriented and user-centered (Gunther et al. 2015). In traditional furniture design, it is necessary to fully express its functional utility, while intelligent interactive furniture focuses on human–computer interaction, which is different from the direct physical operation and operated experience. People are not so much using furniture as having a conscious dialogue with furniture. Adding human–computer intelligent interaction design in furniture design can shorten the distance between people and furniture and facilitate the communication between people and furniture. When furniture is not just a simple functional product, but a comprehensive product that can communicate and interact, the sense of user experience and happiness will be enhanced.

2.4 Diversification of Interaction Design Elements

Interaction design pays attention to the research and analysis of user behavior, and is good at capturing continuous and complex behavior over time; He is good at summarizing individual behaviors into group characteristics and forming a persona model representing the target user group (Robert and Beata 2014). Due to the limitation of use space, the interactive behavior of furniture can be further divided into the interactive behavior between users, furniture and living environment in cooking and dining, living and receiving guests, resting and sleeping, reading and office, cleaning bathroom, fitness and entertainment, and other activities, as shown in Fig. 1. The elements in furniture interactive design can be replaced by user, activity, context, product, UACP. Among them, the user (U) is still in the center position; However, compared with information products, furniture users are more changeable and uncertain, and many users are using the same furniture products together (Hyun et al. 2021). Therefore, in the analysis of user elements in the design, not only the behavior of a

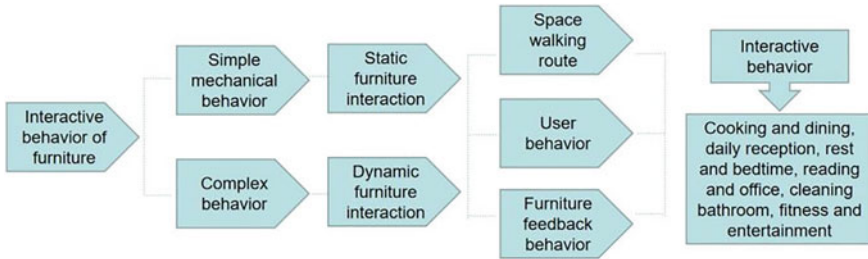


Fig. 1 Interactive behavior among users, furniture and living environment *Source* Tang Lei and Lin Zuoxin and Zhang Yachi (Tang 2014)

single user but also the social relationship between users and users, ethical order, and so on should be considered. In space scene (c), the user behavior is different from the static and dynamic behavior, the production behavior, and the entertainment behavior because of the difference of the spatial function.

3 Interactive Design Method and Practice of Furniture Products

3.1 Traditional Furniture Design Method and Practice

Traditional furniture products emphasize the needs of users from appearance design to structural design and process design. The traditional user experience mainly focuses on the hardware interface and software interface between users and products. When designing products in the interactive design method, we should not only make the products comfortable and easy to use, but also enhance the interactivity of products, and pay attention to the behavior and information interaction between users and products (Macaranas et al. 2015). The design process includes user research, user requirements, product conception, interactive scheme analysis, and design plan confirmation. The interactive scheme analysis stage mainly takes consumers as the reference object to analyze them, modify consumer needs, and provide feedback to the product conception stage. Through multiple iterations, the final design plan is formed. According to the final design plan, production and processing can be carried out. At the 2014 Seattle Design Festival, there was a group of interactive street furniture in the architectural environment design. The inspiration of the project is to create an opportunity for users to enjoy the free collocation and create their own space in the public environment. As shown in Fig. 2, these pieces of furniture are composed of simple movable modules. Through movement and combination, users can create a temporary place for communication, observation, and rest. At the same

Fig. 2 Interactive street furniture in Seattle *Source* www.archdaily.com© Trevor Dykstra



time, these modules were designed as projects suitable for user types. During the two-week Music Festival, these wooden blocks were maximized and successfully created a new interactive space for the public. After the music festival, this interactive furniture is still kept in the streets. By creating an interactive space, designers solve and eliminate the problem of interaction obstacles.

3.2 Design Method and Practice of Intelligent Furniture

Under the background of intelligent trends, furniture is also transforming to intelligent direction. Traditional interaction design processes and methods are based on user experience (Endert et al. 2014). Before planning and designing products, it is necessary to establish user behavior and cognitive models to ensure that the display and operation of products can meet the expectations of users. The interaction between users and products is multi-channel and all-around. For interesting and intelligent furniture, the simple operation may lead to too direct and traditional interaction between users and furniture products, which hinders users from obtaining a rich experience. Furniture is not only a simple functional material product but also can make people produce some aesthetic pleasure and rich associations in the process of contact and use. The interface is the basis of interaction between users and products and a necessary condition for interaction. Intelligent design is to simulate human thinking activities through computers according to modern information technology, so as to improve the intelligence level of computers so that computers can better undertake a variety of complex tasks in the design process, and become an important auxiliary tool for designers. Aesthetic interactive design is a method of designing a product aesthetic experience (Maria 2018). Take the interaction process of the stir kinectic desk as an example, as shown in Fig. 3. This extremely simple intelligent desk has a built-in intelligent system that can analyze the height most suitable for

Fig. 3 Stir kinetic desk
Source www.stirworks.com



users. Then, the function of intelligent height adjustment can be realized by double-clicking the touch screen on the desktop to simplify the user experience. The desk can also display the user's heat consumption level with an intuitive chart, so as to remind the user to stand in time and reduce the sedentary.

4 The Development Direction of Furniture Product Interaction Design

4.1 Differentiated Research on the Diversity of User Experience

The user experience of furniture has obvious uniqueness, which needs more targeted exploration and research (Cockburn et al. 2017). At present, there are the following problems in relevant research fields:

The user groups of furniture products are more diversified and widely distributed from multiple dimensions such as gender, age, and region. Furniture design needs to face the diversified use needs of different target groups (Nassar et al. 2019). The usage and behavior preferences of different user groups for furniture are largely affected by their cultural environment.

Traditional product evaluation pays more attention to the user's early interactive experience (Oblak et al. 2020). However, furniture products mainly focus on service use and emphasize understanding the user's long-term user experience. During the initial use of the product, users usually pay more attention to the usability and ease of use attributes of the product, but after a while, users may reduce their attention to these attributes and increase their attention to other attributes.

In the process of furniture product design, the understanding user model is the most basic design principle. Designers build and design application products based on the interpretation of user needs (Dong et al. 2021), however, many studies point

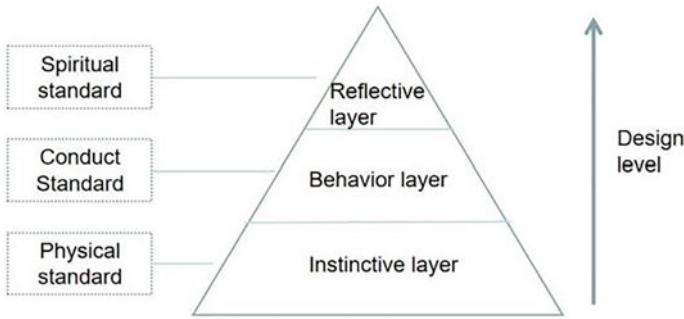


Fig. 4 Furniture design level *Source* YU Ji-hong and FU Tong WU Xiang (Ji-Hong et al. 2019)

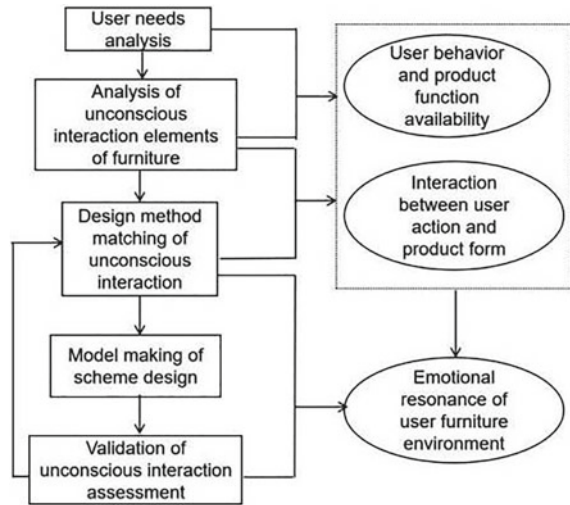
out that designers often can not accurately predict users' needs and preferences, and there are some differences between designer models and user models based on target products. In view of the above problems, we can refine and analyze the model from the three different levels of design, instinct level, behavior level, and reflection level integrate the triple standards of furniture interactive design, shape furniture products rich in function and aesthetic experience, and meet the needs of users' interactive behavior and experience, as shown in Fig. 4. It can study the cognitive differences of different cultural user groups on furniture product design. Based on the user's cognitive model, this paper makes a comparative study on the attention superiority of user groups with different cultural backgrounds. Based on the experience behavior, this paper makes a comparative study on the initial experience and later experience of users using furniture products. We can also study the experience differ based on emotional preference.

4.2 Furniture Unconscious Interaction Design

At present, simple interaction design is "the behavior of redesigning man-made systems, which requires users to operate according to instructions or guidelines". The unconscious interaction design is to mine and reproduce the existing interaction behavior between users and products, not to create new, but to present the old, not to redesign people's behavior, but to show the existing unconscious interaction behavior in an appropriate way (Andrei 2015). Unconscious interaction can reduce the user's thinking and reduce the cognitive burden of user interactive learning. The operation of interactive behavior is like preset in the user's brain. You can skillfully use the operation without redundant guidance, hint, and learning.

Interaction design is moving towards time-saving and labor-saving, and pays more and more attention to users' emotional factors (Bhattacharyya et al. 2019), However, the establishment of emotion takes time, and under the background of rapid renewal, the establishment of human and material emotion is very difficult. Unconscious

Fig. 5 Unconscious interaction design method
 Source Liu Bin and Zhu Jiangang (Liu 2020)



interaction design reduces the emotional establishment process, directly extracts the user's past unconscious emotional memory, and integrates it into the product. At first glance, it may not feel it. Once it is actually operated, it will have physical, spiritual, and emotional resonance. When a single familiar product segment is connected to form the whole warm and harmonious home environment, that atmosphere will really relax and enjoy the busy day outside. Unconscious interaction design is to find out the most primitive contour relationship between environment, product, and human in the whole human product environment. When thinking about the interaction process between users and furniture products, we need to take the user's instinctive response as the starting point, minimize complex interaction modes and methods, find and excavate people's unconscious interaction behavior and achieve the general design of all kinds of users, as shown in Fig. 5.

4.3 Furniture Interactive Design Focusing on User Participation

The traditional furniture design belongs to the rigid design mode. The designer holds the leading power in the design process and puts limited products on the market. This way is difficult to meet the diversified life needs of different consumers. Although mass customization realizes the richness of terminal furniture products with standardized parts, it partially meets the personalized needs of users; however, it is still difficult to adapt to the changing needs of users with time, environment, and family communication. Interactive design advocates a highly participatory design process and provides users with more flexible furniture forms and richer furniture functions through user research, the user "secondary design" and "DIY" assembly

Table 1 Design patterns of different types of furniture products *Source* Tang Lei and Lin Zuoxin and Zhang Yachi (Tang 2014).

Design pattern	Design process
Traditional design	Designer → Popular products → Meet users' basic living needs
Custom design	Designer → Standardized furniture parts → Personalized combination mode → Meet diversified user needs
Interactive design	Designer → User → Furniture prototype → User test → Furniture products → User secondary design → Furniture supplies → Designer

(Ludwig and Welch 2019). Furniture products can change flexibly with the changes of users' life, communication mode, and living environment in the process of use, which is more in line with users' personalized and diversified life needs. As shown in Table 1.

Compared with the traditional furniture design mode, the interactive design of furniture products gives users the leading power of creativity, so that they can reshape the layout, form, and function of furniture according to their understanding of life. Putting products on the market is not the end of furniture design, but the beginning of user re-creation. Users are highly involved in all stages of the design process, and their life behavior, cultural habits, and emotional experience are constantly given to the improvement of products (Barcellini et al. 2015). With the process of use, the emotional connection between the product and users is gradually established. User participation is reflected in all stages of furniture product interactive design. In the concept stage, the designer uses observation, situational interview, and other methods to fully understand the user's life behavior, form the design goal, and make the product prototype on this basis. In the design evaluation stage, I used prototype testing in the laboratory or use situation to understand the problems of users in the use process and modify the product scheme. In the use stage after users purchase the product, they can also adopt the way of "secondary design" to change the function and form of the product, to truly meet the personalized needs of users. By providing feedback information to designers, users can also stimulate the design team to carry out a new round of product improvement, forming a repeated iterative design process.

5 Conclusion

With the development of modern science and technology and the improvement of living standards, people are no longer satisfied with the basic functions of household products but hope that household products can bring a healthy and interesting life (Hooper 2015). Modern furniture interaction design is still in the basic stage of research, and most research methods focus on the intelligent furniture interface interaction design similar to information products. On the basis of scientific search, analysis, and expression of users' life behavior, it is necessary to further explore the cognition and behavior of furniture users from multi-disciplinary fields such as

culture, sociology, psychology, and design According to the differences of behavior and emotional characteristics, personal behavior is summarized as a typical user model, and clear design objectives are formed. Finally, these design objectives are further reflected as the expression form of furniture. Through interaction design, reveal the potential needs behind user behavior, help designers analyze user life behavior and create products that meet the needs of target users. Therefore, the research of furniture interaction design can be further developed in the direction of user diversity, unconscious design, user model evaluation, and so on. However, the complexity of contemporary furniture user interaction behavior and the change of home lifestyle put forward higher requirements for furniture designers. How to use appropriate interaction methods for furniture product interaction design is a big test for design researchers, and will become the focus of future research. In the future, there will be more intersection and integration between interactive design and furniture design, so as to create a more efficient, comfortable, and pleasant living experience for users, and achieve the perfect harmony and unity among people, product, and the environment.

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The Covid-19 Pandemic and the Impact of Technology Applications in Business and Social Life

Combating COVID-19 in Indonesia: Local Government Use of Smart City System Support



Dodik Siswantoro

Abstract This research aimed to analyze the use of smart city system support by local governments in Indonesia to combat COVID-19. The research used web- and device-based systems that provide data to the public and for decision-making. The research compared the smart city systems of selected local governments: Banten, Jakarta, West Java, Central Java, East Java, and Jogjakarta. However, there are six provinces in the Java islands that provide this in Indonesia. The results show that provinces with strict procedures and that make proactive efforts can better mitigate the spread of COVID-19, and data transparency results in people being more aware of COVID-19 and trying to avoid it.

Keywords Smart city · Province · COVID-19 · Web based

1 Introduction

COVID-19, or coronavirus disease, has spread worldwide since the first case appeared in Wuhan, China, in December 2019. Many people predicted that the “Wuhan virus” might not be that dangerous, thinking it would be like the SARS-family virus. However, this virus is more contagious and can be deadly for people with underlying medical conditions.

As of June 14, 2020, 431,726 people have died from this virus (<https://www.worldometers.info/coronavirus/>), with the most deaths occurring in the USA (117,524), Brazil (42,791), the UK (41,662), Italy (34,301), France (29,398), and Spain (27,136). The world’s population increased by 36 billion in 2020. This may be another reason why COVID-19 has not threatened the world’s total population.

If large numbers of COVID-19 cases occur at the same time, this can cause panic and overwhelm medical support. This condition can rapidly worsen, and not receiving medical help is the biggest threat to victims of COVID-19.

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The issue of COVID-19 in Indonesia is unique because the central government has continued to promote tourism and foreign investment. On March 11, 2020, tourist campaigns were still running even though the first COVID-19 victim was identified on March 2, 2020. Other issues that have arisen are the lack of personal protective equipment, testing tools, face shields, masks, ventilators, and medicines. However, at the same time, some local governments anticipated the outbreak of COVID-19. They widely informed people about the dangers of COVID-19 and its ease of transmission. This occurred because local governments directly face the community.

Due to a lack of COVID-19 testing, not all patients can be checked. Therefore, in Indonesia, there are three categories of COVID-19 patients besides having been tested positive for COVID-19. They are Patient Under Supervision [Pasién Dalam Pengawasan] (PDP), Person Under Supervision (Orang Dalam Pengawasan) (ODP), and Asymptomatic Person (Orang Tanpa Gejala) (OTG). PDP and ODP mean they have not been confirmed as COVID-19 positive as there are no test results for them, and OTG means they have been confirmed COVID-19 positive but they have no symptoms. PDP has had close contact with COVID-19, while ODP may have had no contact with COVID-19 patients but have symptoms. This category may be confusing for some people.

According to Act No. 6/2018 regarding quarantine, Indonesia can impose quarantine areas, which other countries call a lockdown; however, the government of Indonesia prefers to use the term “large-scale social restrictions” [Pembatasan Sosial Berskala Besar] (PSBB). The difference is that under PSBB, people can still undertake economic activities, but the government does not supply any food. However, local and central governments supply food to the needy.

Local governments should develop effective strategies to solve these problems and issues, and smart city system support could be a solution because some local governments claim they have implemented smart city management.

The objective of this paper was to analyze the smart city practices of some local governments to mitigate COVID-19. Having introduced the condition and the issues and problems surrounding COVID-19 and local government responses, we present a theory of the usefulness of smart city system support. We then present the research method and analyze current smart city system practices used to mitigate COVID-19 and their impact. Last, we conclude and make some recommendations.

2 Theory

Smart city systems can increase the quality of people’s lives (Platform 2011). They can assist policymakers and governments in choosing effective actions to solve some public issues. However, smart city system support for the mitigation of a pandemic is novel.

In the case of disease mitigation, smart city systems can be used to monitor patients with specific diseases, such as Parkinson’s disease (Alhoussein 2017) and chronic obstructive pulmonary disease (Sarabia-Jacome et al. 2018). Smart city systems are

part of the Internet of Things, which can effectively monitor health (Vaishnavi and Sethukarasi 2019). This is an effective, reliable, and live reporting system.

Big data visualization is used for smart city support (Chinnaswamy et al. 2019). It allows people to choose the data they want to view and presents it in a simple way, which supports common people's understanding of raw data. Smart city technology could be used to trace the movement of people to reduce COVID-19 contagion (Sonn et al. 2020). This is an interesting issue because it could also be used as a tracking tool. In the future, all infected people could be tracked to monitor the spread of COVID-19.

Smart city issues and pandemics have been discussed for limited issues and simulations (Kickbusch and Sakellarides 2006), but there has been no deep analysis for COVID-19 (Sakellarides 2020). Thus, this paper provides novelty for smart city issues and pandemic cases, specifically the management of COVID-19 in Indonesia by local governments.

3 Research Method

The research was based on a qualitative method and used data collected from related websites, Twitter accounts, and the data analytics of Keyhole.co. The data were collected for three months.

The sample size was six provinces that were the first to declare their use of websites and smart city system support to mitigate COVID-19: Jakarta, Banten, West Java, Central Java, East Java, and the Special Autonomy of Jogjakarta.

The analysis was based on content analyses of websites and Twitter accounts. Data analytics were also analyzed by Keyhole.co from governors' responses and related accounts used to combat COVID-19 for each selected province.

4 Analysis

Table 1 presents local government characteristics and their support for smart city systems to mitigate COVID-19. Only Jakarta is proactive and is well-equipped with a smart city support system. A smart city is equipped with social media, which can be accessed by many people worldwide, not only from specific places. So far, contagion has been effectively controlled using PSBB, closing public transport, and active monitoring. However, only Jakarta has reported widespread testing on its website. This may be because the positive report number may not be comparable.

The Indonesian government's response to COVID-19 was slightly different than other governments' because it was preparing for tourism and investment; therefore, there is no proactive action to mitigate the disease. However, local governments are relatively more proactive and take preventive actions for their populations.

Table 1 Characteristic of selected local governments during the COVID-19 pandemic

	Jakarta	Banten	West Java	Central Java	East Java	Jogjakarta
Early response	Yes	No	Moderate	No	No	No
Smart city support	Early	Moderate	Moderate	Moderate	Moderate	Moderate
Social media	Active	Not active	Active	Moderate	Moderate	Not active
Disease impact	Peak	Low to moderate	Low to moderate	Moderate	Peak	Low
Massive test	Yes, explicit	Not informed	Yes	Not informed	Yes	Not informed

One local government (Jakarta) made an early proactive effort on January 7, 2020 to mitigate the issue of COVID-19 by socializing information about it (Fig. 1). They then created a website to communicate COVID-19 information to Jakarta on March 6, 2020.

Other provinces and cities separately decided on their actions without the central government’s permission. Papua initiated the closing of their airport, and the city of



Fig. 1 Flashback of COVID-19 combat response by a local government Source: Twitter @marlina_idha

Table 2 Timeline of local government COVID-19 activity

Date	Description
Jan 7	Jakarta province informs nearby hospitals about COVID-19
Mar 2	First case of COVID-19
Mar 6	Jakarta launches a website about COVID-19
Mar 13	Authorization conflict between central and local government
Mar 25	Tegal city closed
Mar 26	Papua airport closed
Apr 10	Jakarta approves limited activity
Apr 15	Cities around Jakarta approve limited activity
Apr 18	Proposal to close commuter lines rejected
May 7	Open specific public transport
May 30	Requirement for opening is an effective reproduction number (R_t) < 1

Tegal in Central Java was closed to outside access (see Table 2). However, although some local governments followed instructions from the central government (see Fig. 2), some proposals were rejected due to unfulfilled requirements. Each local government applied limited activities at different times (e.g. PSBB).

However, during the PSBB, the central government permitted public transport, like commuter lines, to remain open. This action was in contradiction to local government policies, which limited people's activity (see Table 1); therefore, other local governments tried to restrict people entering their areas.

The characteristics of the smart city systems for the selected provinces that declared having website support to combat the COVID-19 pandemic are presented in Table 3. Only the province of Jakarta had specific smart city system support, including a website, applications, and a separate smart city team.

Jakarta is a good example because it has a system and complete data for providing information about the progress of COVID-19 cases. They were able to provide a case map and detailed information for urban villages (Fig. 3). A chronology map (Fig. 4) showed how infected people had been in contact with other people, which helped prevent other cases in other places, and visualization data indicated the source of the infections (Fig. 5). Tracking infected people is important, especially during a pandemic like COVID-19. This is consistent with previous research (Sonn et al. 2020).

An Android application was used to present additional visualized data. Stakeholders find it easier to read and understand visual data compared to raw data. The visualized smart city data helped people understand the raw data (Chinnaswamy et al. 2019). In addition, exit-entry permits and social aids were also presented by the application (Fig. 6), which assisted the recipients access the data. This supports the opinion that smart city systems can increase people's quality of life (Plateform 2011). This is similar to multidimensional performance measures. (Buallay et al.

Fig. 2 Flashback of COVID-19 combat actions by local governments.


Source: Twitter @NarasiNewsroom



10 Wilayah yang Disetujui untuk PSBB


Provinsi/Kota /Kabupaten	Diajukan	Diberlakukan
DKI Jakarta	1 April 2020	10 April 2020
Kabupaten Bogor	8 April 2020	15 April 2020
Kota Bogor	8 April 2020	15 April 2020
Kota Depok	8 April 2020	15 April 2020
Kabupaten Bekasi	8 April 2020	15 April 2020
Kota Bekasi	8 April 2020	15 April 2020
Kabupaten Tangerang	11 April 2020	18 April 2020
Kota Tangerang	11 April 2020	18 April 2020
Kota Tangerang Selatan	11 April 2020	18 April 2020
Kota Pekanbaru	8 April 2020	Tanggal berlaku belum ditetapkan

#dirumahaja



6 Wilayah yang Ditolak untuk PSBB

Provinsi/Kota /Kabupaten	Diajukan	Ditolak
Kota Tegay	1 April 2020	3 April 2020
Kota Palangka Raya	8 April 2020	12 April 2020
Kabupaten Rote Ndao	6 April 2020	11 April 2020
Kabupaten Fakfak	5 April 2020	7 April 2020
Kabupaten Mimika	5 April 2020	7 April 2020
Kota Sarong	6 April 2020	12 April 2020



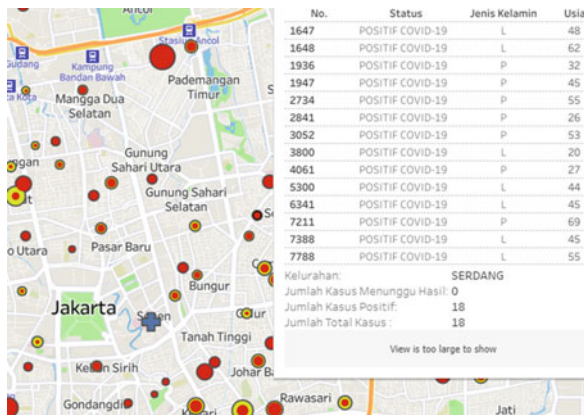
21 Provinsi yang Berlakukan PSBB

Provinsi	Diajukan	Diberlakukan
DKI Jakarta	7 April 2020	10 April 2020
Jawa Barat	12 April 2020	15 April 2020
Riau	12 April 2020	17 April 2020
Banten	12 April 2020	18 April 2020
Sulawesi Selatan	16 April 2020	21 April 2020
Jawa Barat	17 April 2020	22 April 2020
Jawa Tengah	17 April 2020	23 April 2020
Sumatra Barat	17 April 2020	22 April 2020
Kalimantan Selatan	19 April 2020	24 April 2020
Kalimantan Utara	19 April 2020	26 April 2020
Jawa Timur	21 April 2020	28 April 2020
Sulawesi Selatan	22 April 2020	29 April 2020
Gorontalo	28 April 2020	4 Mei 2020
Jawa Barat	1 Mei 2020	6 Mei 2020
Kalimantan Tengah	7 Mei 2020	11 Mei 2020
Sulawesi Tengah	9 Mei 2020	12 Mei 2020
Jawa Timur	11 Mei 2020	17 Mei 2020
Kalimantan Selatan	11 Mei 2020	16 Mei 2020
Riau	12 Mei 2020	15 Mei 2020
Sumatera Selatan	12 Mei 2020	(Belum Diumumkan)

Table 3 Smart city data to combat COVID-19 for selected local governments

	Jakarta	Banten	West Java	Central Java	East Java	Jogjakarta
Smart city support	Yes	No	No	No	No	No
Android application	Yes	No	Yes	No	No	No
Data	Yes	No	Yes	Yes	Limited	Yes
Funeral COVID-19 SOP	Yes	No	No	No	No	No
Daily test results	Yes	No	No	No	No	No
Related diseases	No	No	No	Yes	No	No
Visualized data	Yes	No	No	No	No	No
Case map	Yes	No	Limited	Limited	Limited	More limited
Chronology map	Yes	No	No	No	No	No
Daily data download	Yes	No	No	No	No	No

Fig. 3 Jakarta COVID-19 case map. Source: <https://corona.jakarta.go.id/id>



2021). Technology and smart cities have been used to combat the covid-19 (Zuhdy and Fauzi 2021; Das and Zhang 2021; Jaiswal et al. 2020).

Figure 7 compares COVID-19 infections across Indonesia. It shows that the daily positive results for Jakarta province were lower than those outside Jakarta and for the whole of Indonesia as of June 3, 2020. However, if we take data from the National Agency for Disaster Countermeasure (BNPB) COVID-19 center for the pattern of accumulated positive tests, Jakarta is similar to Indonesia and East Java (Jatim), with lower rates for Central Java and West Java. Moreover, linear relationships for daily positive COVID-19 tests show that the East Java rate was steeper than for Jakarta, with Indonesia having the steepest line.

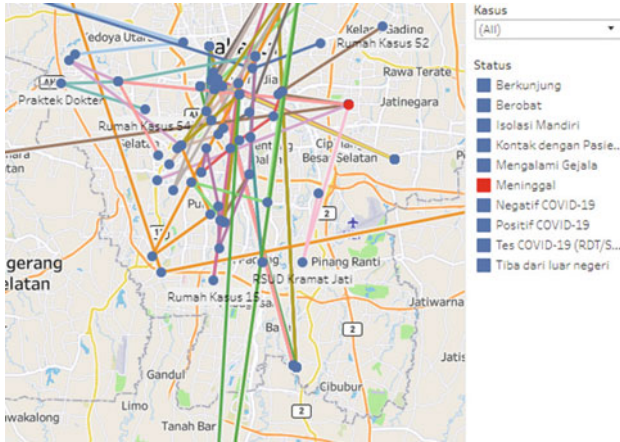


Fig. 4 COVID-19 chronology map for Jakarta. Source: <https://corona.jakarta.go.id/id>

Fig. 5 COVID-19 visualization data for Jakarta. Source: <https://corona.jakarta.go.id/id>

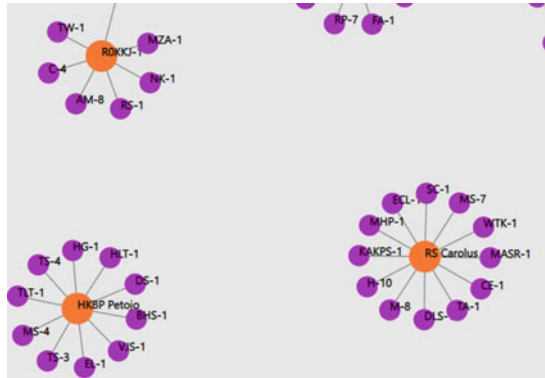
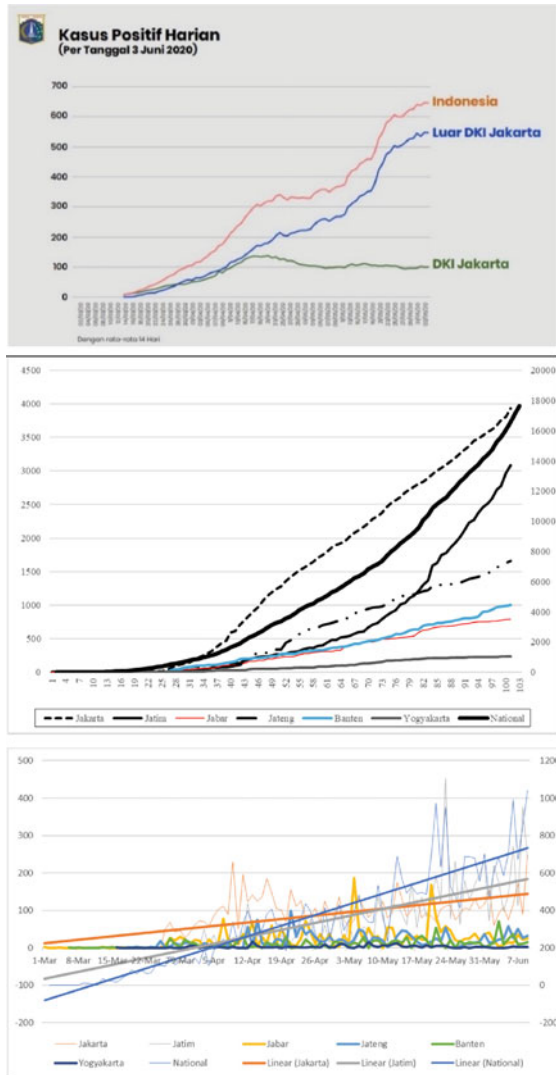


Fig. 6 Other data applications for Jakarta. Source: Jakarta application (JAKI)



Fig. 7 Comparison data for Jakarta and other provinces. Source: [https://corona.jakarta.go.id](https://corona.jakarta.go.id/id) and BNPB



However, this data could be biased because the numbers of tests for each province are not proportional. Figure 8 shows that more tests were undertaken in Jakarta compared with selected other provinces between May 25 and June 7, 2020. However, even though more tests were undertaken in Jakarta, the percentage positivity rate was relatively small compared to Banten, Central Java, and East Java.

Because COVID-19 contagion is increasing, as of early June 2020, the problem of the “new normal” must be addressed. The Indonesian government has used the effective reproduction number (R_t) to monitor how contagious COVID-19 is. An R_t of < 1 indicates low contagion. Under the new normal, areas can be opened up;

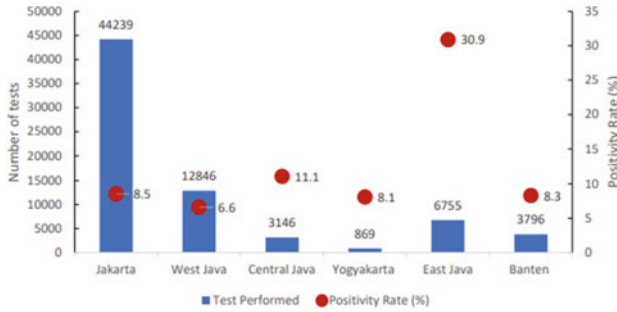


Fig. 8 Numbers of COVID-19 tests for selected Indonesian provinces (May 25 to June 7, 2020). Source: WHO

for example, as of June 3, 2020, the R_t for West Java was 0.68 and 0.99 for Jakarta. However, on June 9, 2020, the R_t numbers increased: East Java (1.32), Jakarta (1.28), Central Java (1.14), Banten (1.02), Jogjakarta (1.01), and West Java (0.95) (see Fig. 9). These results changed again on June 15, 2020: East Java (1.11), Jakarta (1.04), Central Java (1.52), Banten (1.09), Jogjakarta (1.05), and West Java (0.88). West Java is relatively stable. Monitoring R_t data using smart city system support can accelerate decision-making, particularly during a pandemic. This is consistent with previous research (Alhussain 2017; Vaishnavi and Sethukarasi 2019).

This increased R_t number is why Jakarta has not directly permitted public areas, such as malls, to be opened and only 50% of public transport is running (see Fig. 10). In this case, a one-month probation period is required. Other provinces, like West Java, which had the lowest R_t as of June 9, 2020, have 15-day probation periods.

Local governments also inform the public about COVID-19, especially by Twitter, which is easily accessed by the public. The largest engagement is in Jogjakarta province. However, this province does not have specific smart city system support for COVID-19, and the number of Twitter postings has been small compared to other provinces. The lowest engagement is in Banten, which has not mentioned COVID-19, and in West Java, which did not provide a Twitter account on their website for COVID-19 issues. Although Jakarta made the most postings during this period, engagement was not large compared to other provinces (see Table 4).

Jakarta, having smart city system support for COVID-19 mitigation, had high levels of engagement, with the highest levels occurring in March 2020 when the virus first started spreading in Indonesia (see Table 5).

In contrast, the governor of West Java had the largest level of engagement, followed by the governor of Jakarta. However, the governor of Jogjakarta did not have a Twitter account, and the governor of Banten did not post anything about COVID-19 issues (see Table 6).

Fig. 10 Phases for normal opening. Source: Twitter



Table 4 Twitter engagement for selected local governments

Province	Posts	Avg. engagements	Favorites	Retweets
dinkesjkt	97	6	396	140
bnpb_indonesia	59	81	3,116	1,680
dinkesjateng	49	8	270	108
humas_jogya	23	350	4,826	3,216
banten_prov	17	2	31	1
jatimpemprov	11	6	55	10
jabarpemprov	NA			

Source: Twitter

Table 5 Levels of Jakarta smart city Twitter engagement

Jakarta smartcity	Date	Favorites	Retweets	Engagement	Caption
Jslounge	13-03-2020 08:47:11	778	312	1,090	Covid-19
	23-05-2020 08:08:11	660	305	965	Ied at home
	02-04-2020 12:30:46	526	248	774	Report case
	12-03-2020 05:00:00	459	265	724	Self check

Source: Twitter

Table 6 Top engagement by governor

Governor	Date	Favorites	Retweets	Engagement	Caption
ridwankamil	14-05-2020 11:19:09	13,495	6,162	19,657	Rapid test
aniesbaswedan	25-05-2020 08:01:55	7,835	1,294	9,129	Ied at home
khafifahip	19-04-2020 12:49:23	4,104	856	4,960	Funeral covid
ganjarpranowo	10-06-2020 07:54:23	2,372	424	2,796	Protocol
wahidinhalim		0	0	0	
srisulthanhb	NA				

Source: Twitter

5 Conclusion

The use of smart city system support to combat pandemics, like COVID-19, may provide better descriptions for decision-making. However, smart city system support must be supported by other parties because pandemic issues are related to other parties. It would also be more effective if other local governments conducted similar actions, such as widespread testing, limiting activity, and synergized activities for coordination.

Social media, like Twitter, can also assist local governments by widely and quickly spreading information. Some local governments in Indonesia utilize Twitter as a medium for informing the public about COVID-19.

The limitations of this paper are that it only focused on the characteristics of smart city system support, and responses from stakeholders were not included.

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Role of Medical Libraries for Implementing Knowledge Management During Covid-19 Pandemic: An Empirical Study



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Abstract The aim of this study was to examine the state of Knowledge Management (KM) in medical libraries in Bangladesh. It also explores the awareness and viewpoints of the doctors, researchers, students and librarians regarding KM during the pandemic. The questionnaire survey was adopted for this study. The Data gathering procedure was performed through Google forms. The questionnaire was distributed using email and social networking sites. Among 29 public medical colleges, this quantitative research was conducted in three medical college libraries in Bangladesh. The selected medical libraries were: Dhaka medical college library, Chittagong medical college library and Sylhet MAG Osmani medical college library. This study explored the barriers to KM in medical libraries and the possible implementation areas of KM. The study found that participants are aware of the concept of KM. They are also aware of the necessary KM tools and the probable KM implementation areas in the medical libraries. Present paper also revealed that lack of institutional policy, inadequate support from top management, scarcity of resources as barriers towards implementing KM in the medical libraries in Bangladesh. Further studies should be conducted on the same issues in other sectors as present study was limited to three medical libraries. This study is novel, in the sense that it is the first of its kind to examine KM implementation in medical libraries during pandemic situations in Bangladesh.

Keywords KM · Medical libraries · Knowledge · Bangladesh

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1 Introduction

The terms “Information”, “Knowledge” and “Wisdom” are closely connected. Information relates to descriptions, definitions, or perspectives. Knowledge encompasses practice, strategy, approaches or methods while wisdom embodies insight, principles, ethics or norms. It is important to have an explanation of knowledge before addressing the issue of KM. In a simple sense, knowledge can be referred to as the facts, emotions or experiences that an individual or a group of people know (Trivedi 2007). The term “knowledge” is not limited to a specific notion. There is no universal agreement regarding the specific definitions of knowledge. It should be noted that the term “knowledge” creates ambiguity (Qvortrup 2006). According to Merriam-Webster Dictionary (Definition of Knowledge 2021) knowledge has been defined as the fact or condition of knowing something with familiarity gained through association and experience. The Cambridge Dictionary (Knowledge 2021a) defines knowledge as understanding of or information about a subject that someone gets by experience or study, either known by one person or by people generally. Oxford Dictionary (Knowledge 2021b) considered knowledge as facts, information, and skills acquired through experience or education; the theoretical or practical understanding of a subject. The definition of knowledge according to Nonaka and Takeuchi (1995) is that of “justified true belief.” Davenport and Prusak (1998) reported that there were distinctions between data, information and knowledge. According to them knowledge is wider, deeper, and richer than information or data. They defined knowledge as a fluid mix of framed experience, values, contextual information, and an expert perspective that provides a structure for the new evaluation and integration to be evaluated and integrated. It begins and is applied to the thinkers. In organizations, it is often embedded not only in documents or repositories, but also in organizational schedules, procedures, operations and norms. KM is a relatively new scientific field that was formally established at the end of the 1980s. However, KM lacks a universally recognized definition of a multidisciplinary field (Dalkir and Association 2009).

Nevertheless, many scholars have attempted to define KM from their point of view. Davenport and Prusak (1998) reported that KM managed the knowledge of the corporation through a structured and coordinated mechanism to obtain, arrange, preserve, implement, exchange and renew both the explicit and tacit knowledge of employees in order to improve organizational performance and create value. Beckman (1997) stated that KM covers the formulation and access to knowledge, experience and skills that create new abilities, improve performance, enhance consumer value and promote creativity. On the other hand, Bhatt (2001) considered KM as a process of knowledge formation, confirmation, unveiling, transmission and implementation. According to Goswami (2008), the purpose of KM is to receive tacit knowledge of the organization’s various stakeholders and make it explicit so that others may take the benefit from it.

In the present age, the dynamic environments of organizations have made knowledge and KM one of the most vital matters for organizations (Kaffashan Kakhki

et al. 2021). Nowadays, it is not possible to ignore the value of KM and it has become a vital strategic resource. Organizations need knowledge to survive in a rapidly changing world. Knowledge is the source of competitive benefits which is long lasting (Desouza 2002; Shin et al. 2001) and knowledge resources are being developed by organizations to enhance their ability to compete (Centobelli et al. 2017). The spread of this novel coronavirus has created an unprecedented moment. Managing this pandemic has been a complex task in various countries. Managing complex situations requires effective decision making and planning. Such decisions are widely influenced by sharing, collecting, transferring and collaborating with knowledge. In other words, It can be said that an effective KM process will influence the decision making process of an organization (Ammirato et al. 2020; Bdeir 2013; Viner et al. 2020). Covid-19 is a public health crisis. It has mounted serious pressure on healthcare organizations. The lack of timely and effective intervention may be the cause of the collapse of any organization. In crisis moments, KM can help any organization take necessary steps and managerial efforts to survive. It also helps to reduce any damage caused by various moments (Miller et al. 2013; Palos-Sanchez 2019; Wang and Belardo 2009; Wang and Wu 2020).

In this study, the KM activities of medical libraries in Bangladesh during Covid-19 are going to be discussed. It will help us to determine the current state of KM in some prominent medical libraries in Bangladesh. This will also help us find barriers to KM. We hope that our study will help developing countries to find necessary insights. The rest of this study is structured according to the following; Problem statement described in Sect. 2; Literature review discussed in Sect. 3. Section 4 presents aims and objectives of the study. Section 5 stated the hypothesis of the study. Lastly, methodology, data analysis, conclusions, and future research scope are explained in Sects. 6, 7, 8, and 9.

2 Problem Statement

The success of KM in the business sector has prompted many people to apply KM to healthcare systems. The health industry is a knowledge-driven industry in which most activities rely on professional knowledge. Thus, health organizations strive to retain knowledge that is useful in core activities. In the healthcare system, complex decision making is always a crucial thing where multiple factors play vital roles (Morr and Subercaze 2010; Hojabri et al. 2012). In spite of the recognition of the importance of KM in healthcare, there are not enough studies related to the application of KM in medical libraries in Bangladesh. KM research has mainly been familiar to information professionals (Islam et al. 2015). The potentials of the medical libraries in regards to applying KM should be explored. It is also important to include the viewpoints of the users of medical libraries during the pandemic situations.

3 Literature Review

This section reviews the relevant literature on KM aspects published in the national and international journals, conference proceedings and other primary and secondary sources.

3.1 *KM During Crisis*

Crisis management is a widely discussed topic for overcoming organizational challenges. Many management systems and techniques have evolved to overcome various critical challenges. In many cases the role of knowledge in crisis management has been ignored for a long time. However, organizational challenges and the harmful impacts of these challenges can be reduced by aligning crisis management and KM. Initially, KM related studies solely depended on the impact of KM on organizational performance. Conversely, various events such as the London terrorist attack and the 2004 tsunami have created a huge interest in studying the value of KM during crisis response. Many have seen the success of KM in crisis moments through the Information Management System for Hurricane Disasters (IMASH) and Digital Typhoons. Both of these systems have proved effective in responding to hurricane disasters. They gather, filter and edit knowledge according to various needs (Wang and Belardo 2009; Jennex and Raman 2009).

KM has become an important tool during the Covid-19 pandemic. KM can help to make critical decisions during the various phases of the pandemic. Many effective systems have already been built to support health information systems. The KM process has enabled the swift integration of having technology into traditional health information systems. Such systems have also removed language barriers that have upgraded health systems. It has also made it possible to make the right decision at the right moment. Taiwan has been the best example in this case (Wang and Wu 2020). Covid-19 has a tremendous impact on the health and education sector. In the case of these sectors, knowledge driven decisions making is gaining priority over data driven decision making. The application of AI in building a sound KM system will be crucial in the future. In this pandemic, any KM system should include all the sections of society. Government, doctors, mass people, and corporate organizations will benefit tremendously through a robust KM system (Chaturvedi 2020).

3.2 *KM in Libraries*

Librarianship has gone through tremendous changes due to the availability of new technologies. The increasing user expectations have also made possible for the libraries to adopt business models. LIS professionals have admired the potentials of

KM in libraries. They are also now being encouraged to contribute more to this field. Librarians have historically operated as intermediaries between users and people possessing knowledge. The application of KM in various library services has now become a common phenomenon. Some argue that many technologies of KM have been borrowed from librarianship. KM has been regarded as a distinct discipline from library management and information management. KM includes the mixture of knowledge sharing, knowledge capture and the interplay of the individual and community knowledge. But many also argue that KM is librarianship and information management in other names (Davenport, et al. 2004; Koenig 1997; Martin et al. 2006; Sarrafzadeh et al. 2010; Townley 2001; Wilson 2002).

KM is increasing the visibility of libraries. Librarians also view the same. It also has enabled a better integration of all the units of a library. Librarians observe that KM cannot be isolated in only libraries. According to them, KM should be implemented while considering the goals and objectives of the parent organization. Librarians are also regarding improved knowledge access through steps like the creation of institutional repositories. They also emphasize the need for creating wikis for internal knowledge sharing. Librarians generally have healthy awareness regarding the efficiency of KM but many also regard the lack of effort in building a knowledge sharing culture (Sarrafzadeh et al. 2010; Koloniari and Fassoulis 2017).

3.3 Medical Sector and KM

In recent times, the medical sector has grown significantly. It generates a huge amount of knowledge. Physicians and researchers constantly know about new diseases, medications and mechanisms of recovery. To capture this knowledge, the medical sector is systematically looking to adopt KM because people demand better healthcare services. KM is an effective method for changing the existing conventional information exchange system in order to provide a better health service (Hojabri et al. 2012; Karamitri et al. 2017). KM supports the healthcare industry through the acquisition, advancement, maintenance, circulation and use of knowledge related to healthcare (Abidi and Yu-N 2019).

The exercise of KM can greatly boost the efficiency of services for patients. The existence of relevant knowledge accessible to physicians will greatly assist in making the best decisions on patients' care. The developed countries (e.g. UK, USA, and Canada) have become conscious of the value of KM in the medical sector and have stepped forward to the adoption of KM (Guptill 2005; Wickramasinghe et al. 2005).

KM has obviously seen some rapid rise of attention among medical librarians in the UK recently. Many library personnel are now becoming more engaged in the management of organizational knowledge and they are placing themselves as key players in the sector, whether alone or working in collaboration with peers outside the library service. In order to ensure a renewed emphasis on KM in this sector, the knowledge for health care program has helped to understand the increasing role of

enhancing the implementation and use of internal organizational information and knowledge at all levels, as well as externally produced evidence (Hopkins 2017).

The developing countries, however, are falling behind, although some countries such as Iran are trying to adopt KM (Karamat et al. 2018). The successful implementation of KM programs in health care organizations is influenced by various factors. (i.e. ICT, organizational factor, etc.). In order to introduce effective KM programs in the medical field, developing countries should learn from developed countries (Ayatollahi and Zeraatkar 2020).

3.4 KM in Bangladesh

Bangladesh is a South Asian country having more than 16.5 billion people (Population 2021). Bangladesh has greater opportunities to share knowledge and manage resources in the knowledge-oriented organizations of it such as the libraries. Although this country has not yet been able to build a strong ICT infrastructure in all sections, the impact of ICT has led to a significant change in all the operations of libraries. However, Bangladesh is still lagging behind in case of adopting KM. Whereas libraries in developed countries around the world are going to become knowledge centers for the betterment of their users, libraries in this part of the globe are struggling to delivery effective services to their potential users by handling their existing knowledge resources (Islam et al. 2020).

Being a developing country, Bangladesh is still unable to properly understand the idea of KM, let alone gaining advantages from such an effort (Siddike and Munshi 2012). Libraries of this country face multifaceted challenges. They lack sufficient personnel, infrastructural facilities, information resources, financial assistance, government and non-governmental organizations' support, etc. Besides, Users in most libraries are unaware of the inherent and comprehensive impact of KM. As a consequence, they do not respond properly to do this a successful project. In addition, policy makers, government and non-government institutions do not consider information or knowledge as an important asset for Bangladesh's advancement. Consequently, they do not play the appropriate role in making the library a center for KM projects (Ayatollahi and Zeraatkar 2020). A study reveals that many libraries in Bangladesh are not so interested in promoting knowledge exchange and sharing. There is also reluctance in developing knowledge resources for enhancing knowledge level and abilities among employees and users. However, instead of having various obstacles, a few libraries, particularly those which are unique in nature, are playing an important role in the activities of KM through distribution, collaboration, learning and innovation (Munshi and Hoq 2005). LIS professionals in Bangladesh still have a long way to go to better manage their resources with the help of information communication technologies to maximize the impact and usefulness of their library resources. Courses regarding KM can be helpful for the LIS professionals to perform KM activities. For the past few years, the Department of Information Science and Library Management (ISLM) at Dhaka University and Rajshahi University have

been providing courses for the students of LIS on KM to increase their knowledge of KM (Siddike and Munshi 2012).

Literature review indicated that there was a severe gap of literature to the practice of KM in the medical libraries of Bangladesh. It also showed that KM tools and technologies can be used in the medical libraries of Bangladesh which is still unfamiliar.

4 Aim and Objectives

The main aim of this study is to state the role of medical libraries during the pandemic. This study incorporates the following other objectives:

- To know the KM perceptions of medical students, doctors and researchers of medical libraries in Bangladesh.
- To classify the necessary tools required for implementing KM.
- To identify the influential factors and application areas of KM in medical libraries.
- To recognize the barriers of implementing KM in medical libraries in Bangladesh.

4.1 Research Questions

Based on the above objectives, present study combines the following research questions:

- Does the medical library of Bangladesh engage in KM?
- Are the doctors, researchers, health workers and students aware of KM and KM tools?
- To identify the influential factors and application areas of KM in medical libraries.
- What are the barriers to implement KM in Bangladeshi medical libraries?

5 Hypothesis of the Study

The present study tests the following null hypothesis;

H01: There is no relationship between gender and familiarity with the term KM.

H02: There is no relationship between designation and familiarity with the term KM.

6 Methodology

This study was conducted from February 07, 2021, to May 10, 2021, at the selected medical college libraries in Bangladesh. There are 29 public medical colleges in Bangladesh. Among them we selected three medical colleges from three separate divisions for present study. The selected medical libraries were: Dhaka medical college library, Chittagong medical college library and Sylhet MAG Osmani medical college library. In this study, a web-based survey was conducted for the data collection from the following groups.

- Doctors/Researchers/Health workers
- Medical students

The survey questionnaire consisted of four parts. The first part asked about the demographic and some general questions about the participants like, name of the participants, gender, age, etc. The second portion asked about the questions on KM perceptions of participants. The 3rd part asked about the KM implementation areas. The final part asked about the barriers of KM execution in the medical libraries. The items under each of these ideas were measured on a 5-point Likert- scale, from strongly disagree (1) to strongly agree (5) (See Table 1). Simple random sampling was used as a surveying technique. Data gathering procedure was done through Google forms. The questionnaire was distributed through email and social networking sites. The participants were informed that their participation was voluntary and the identities of the participants were kept anonymous. Cronbach's alpha score was obtained to see the reliability of the questionnaire items. Cronbach's α score was 0.873 which was in the range of 0.81–0.93 (See Table 2) after deleting the item KMP5*. This implies a high degree of internal consistency in the responses to the individual measures, as α values above 0.7 are acceptable indicators in this respect. Chi square test was conducted to determine the relationship among gender, designation and familiarity with the term KM. Finally, the data were analyzed using IBM SPSS®.

6.1 Reliability Statistics

The reliability of the questionnaire has been tested by using the Statistical Package for Social Sciences (SPSS) program. Table 2 shows the reliability coefficient of the questionnaire. Cronbach's Alpha score is 0.873 which can be called as reliable as alpha value is greater than 0.05.

Table 1 Variables and items included in the questionnaire

Variables	Coding	Questions
KM perceptions	KMP1	The pandemic has increased the importance of KM
	KMP2	LIS professionals have huge role to play in KM
	KMP3	KM is a separate discipline
	KMP4	Current LIS curriculum is enough to teach km
	KMP5*	KM need extra skills
	KMP6	KM enhance the library services
	KMP7	KM helps to know how to prepare for contingencies
	KMP8	KM helps to work more effectively with changing environment
	KMP9	You perform the best practice of KM
KM awareness	KMA1	Institution have a strategy for implementing KM
	KMA2	Institution have a KM department
	KMA3	Institution appoints KM personnel (e.g. knowledge manager, knowledge workers etc.)
	KMA4	Exploit knowledge effectively and strategically
	KMA5	Institution has a culture that encourages knowledge creation and sharing
	KMA6	KM is playing a significant role during this Covid-19 pandemic
KM implementation areas	KMI1	Reference and information service section
	KMI2	Technical services section
	KMI3	Content management section
	KMI4	Policy making section
	KMI5	Administrative section
	KMI6	Acquisition section

Table 2 Reliability statistics

Cronbach's Alpha	No. of Items
0.873	21

7 Data Analysis of the Study

7.1 Demographic Profile of the Respondents

A total of 56 respondents has participated in this study. Out of them, 32 were doctors/researchers/health workers and 24 were medical students. Among the respondents, 40 of them were male, and 16 of them were female. The data in Table 3 show that more than half of the respondents (29, 51.8%) were from the age group of

Table 3 Demographic profile of the respondent

Demographic/Personal characteristics	Frequency (N = 56)	Percentage (%)
<i>Gender</i>		
Male	40	71.4
Female	16	28.6
<i>Age group</i>		
20- less than 30 years	29	51.8
30- less than 40 years	9	16.1
40- less than 50 years	14	25
Above 50 years	4	7.1
<i>Designation</i>		
Doctor/Researcher/Health worker/Librarians	32	57.1
Medical Student	24	42.9
<i>Familiar with KM</i>		
Yes	41	73.2
No	15	26.8
<i>Does km help in preparing for pandemic?</i>		
Yes	54	96.4
No	02	3.6
<i>Does KM helps in taking effective public health policies?</i>		
Yes	52	92.9
No	04	7.1

20–30 years. One fourth of the respondents (14, 25%), were from the age groups 40–50 years, followed (9; 16.1%) were from the age group of 30–40 years. The smallest group (4; 7.1%) of participants was aged above 50 years. Among the participants 57.1% were Doctor/Researcher/Health worker and the rest 42.9% were medical students in various semesters. In total, 41 (73.2%) out of 56 are familiar with KM. The participants were asked, “Does KM help in preparing for the pandemic and help in taking effective public health policies?” Most of the respondents agreed (54, 96.4%) that KM would help in preparing for the pandemic. Similarly, the majority of the respondents (52, 92.9%) think that KM helps in taking effective public health policies.

Table 4 KM perceptions

KM perceptions	Mean (SD)
The pandemic has increased the importance of KM	4.46(0.538)
LIS professionals have huge role to play in KM	4.21(0.780)
KM is a separate discipline	3.82(0.789)
Current LIS curriculum is enough to teach KM	3.32(1.029)
KM need extra skills	4.02(0.774)
KM enhance the library services	4.12(0.764)
KM helps to know how to prepare for contingencies	4.05(0.585)
KM helps to work more effectively with changing environment	4.23(0.786)
You perform the best practice of KM	3.52(0.953)

7.2 Mean and Standard Deviation (SD) of KM Perceptions Among the Participants

Participants were asked about their perceptions on KM and its impact on pandemic on a 5-point Likert scale. Respondents replied that the pandemic increased the need for KM (Mean = 4.46; SD = 0.538), KM helps to work more effectively with changing environments (Mean = 4.23; SD = 0.786). LIS professionals have a huge role to play in KM (Mean = 4.21; SD = 0.780), KM is playing a significant role in the Covid-19 pandemic, KM enhances the library services (Mean = 4.12; SD = 0.764) etc. (Table 4).

7.3 Mean and Standard Deviation (SD) of KM Awareness

Participants were asked about their awareness of KM on a 5-point scale. They answered that KM was playing a significant role during this Covid-19 pandemic (Mean = 4.27; SD = 0.618). Most of them replied that their institution encouraged knowledge creation and sharing culture (Mean = 4.09; SD = 0.611). Participants also mentioned that they exploited knowledge effectively and strategically (Mean = 3.55; SD = 0.851). They also replied that their institution had a strategy for implementing KM (Mean = 3.48; SD = 1.009) (Table 5).

Table 5 KM awareness

KM awareness	Mean (SD)
Institution have a strategy for implementing KM	3.48(1.009)
Institution have a KM department	3.14(1.212)
Institution appoints KM personnel (e.g. knowledge manager, knowledge workers etc.)	3.16(1.075)
Exploit knowledge effectively and strategically	3.55(0.851)
Institution has a culture that encourages knowledge creation and sharing	4.09(0.611)
KM is playing a significant role during this Covid-19 pandemic	4.27(0.618)

Table 6 Tools required for KM

Tools	Frequency	Percentage
After action reviews	9	16.1%
Communities of practice	22	39.3%
Knowledge harvesting/exchange	38	67.9%
Knowledge banks/repositories	19	33.9%
Peer assist	6	8.9%

7.4 Tools Required for KM

In this part of the questionnaire, respondents were asked about the tools required for KM. The participants responded that knowledge harvesting or knowledge exchange ($n = 38$; 67.9%) and communities of practice ($n = 22$; 39.3%) are the important tools required for KM. Followed by knowledge banks/repositories ($n = 19$; 33.9%) and action reviews ($n = 9$; 16.1%). Peer assist was lowest among them ($n = 6$; 10.7%) (Table 6).

7.5 Influencing Factors of KM in the Libraries

The participants were asked about the influential factors for implementing KM in the medical libraries in Bangladesh. Majority of them replied that giving access to external information ($n = 38$; 67.9%) and using ICT to support knowledge creation ($n = 27$; 48%) are the influencing factors of KM in the Libraries. Followed by developing partnership with other libraries ($n = 21$; 37.5%). Rest of them ($n = 20$; 35.7%) answered that training is another influential factor of KM implementation in the libraries in Bangladesh (Table 7).

Table 7 Influencing factors of KM in the libraries

Influencing factors	Frequency	Percentage (%)
Training	20	35.7%
Giving access to external information	38	67.9%
Using ICT to support knowledge creation	27	48.2%
Developing partnership with other libraries	21	37.5%

Table 8 Implementation areas of KM in the libraries

Implementation areas	Mean (SD)
Reference and information service section	4.32(0.606)
Technical services section	4.16(0.626)
Content management section	4.25(0.611)
Policy making section	4.20(0.553)
Administrative section	4.16(0.682)
Acquisition section	4.02(0.726)

7.6 Mean and Standard Deviation (SD) of Implementation Areas of KM in the Medical Libraries

Respondents opined that KM should be implemented in all the necessary areas like reference and information service section (Mean = 4.32; SD = 0.606), technical services section (Mean = 4.16; SD = 0.626), content management section (Mean = 4.25; SD = 0.611), policy making section (Mean = 4.20; SD = 0.553), administrative section and acquisition section (Mean = 4.16; SD = 0.682) (Table 8).

7.7 Barriers to Implement KM in Medical Libraries

Majority of the respondents identified barriers like lack of strategic planning (n = 40; 71.4%) and lack of support from top level management (n = 33; 58.9%). However, scarcity of resources (n = 28; 50%), lack of teamwork (n = 27; 48.2%), complexity of system (n = 26; 46.4%), cost of KM implementation (n = 23; 41.1%), and reluctance to share information (n = 22; 39.3%) are also indicated as barriers to implement KM in medical libraries (Table 9).

Table 9 Barriers to implement KM in medical libraries

Barriers	Frequency	Percentage
Lack of support from top level of management	33	58.9
Lack of strategic planning	40	71.4
Complexity of system	26	46.4
Cost of KM implementation	23	41.1
Scarcity of resources	28	50.0
Resistance to change	23	41.1
Lack of information quality	20	35.7
Lack of teamwork	27	48.2
Lack of common definition	15	26.8
Reluctance to share information	22	39.3

7.8 Hypothesis Testing

H01: There is no relationship between gender and familiarity with the term KM.

Chi-square test for gender and familiarity with the term KM found that there is a significant relationship between gender and familiarity with the term KM ($\chi^2 = 10.286$ and 12.071 ; $Df = 1$; $p = 0.001$). So, we can reject the null hypothesis (Table 10).

H02: There is no relationship between designation and familiarity with the term KM.

Chi-square test for designations and familiarity with the term KM found that there is a significant relationship between designations and familiarity with the term KM ($\chi^2 = 1.143$ and 12.071 ; $Df = 1$; $p = 0.001$). So, we can reject the null hypothesis (Table 11).

Table 10 Chi-square test for gender and familiarity with KM

	Gender	Familiarity with the term KM
Chi-square	10.286	12.071
Df	1	1
Asymp. Sig	0.001	0.001

Table 11 Chi-square test for designations and familiarity with KM

	Designation	Familiarity with the term KM
Chi-Square	1.143	12.071
Df	1	1
Asymp. Sig	0.285	0.001

8 Conclusions

Libraries like any other organization need innovation to meet the needs of the current age. KM helps libraries to redesign their services according to the demands of the users. KM implementation is not an easy task. It is hindered in many libraries because of misunderstanding of the concept, lack of necessary skills and not realizing the benefits of KM (Roknuzzaman and Umemoto 2009). In this study, the current states of KM in some medical libraries of Bangladesh was investigated. The vast majority of the libraries do not have any KM system. Though, many doctors and medical students are aware of the concept of KM. They are also aware of the necessary KM tools and the probable KM implementation areas. In spite of that, they highlighted significant problems faced by their respective institutions. They pointed out several limitations and barriers. They indicated lack of institutional policy, inadequate support from top management, scarcity of resources as barriers towards implementing KM in their institutions. Ahmed, Sheikh and Akram (2018) also found similar difficulties in the libraries of other countries. In order to reverse the current situation, many steps should be considered. The authorities must consider training programs for librarians and should make every tool available needed to organize institutional knowledge, LIS departments of universities should also come forward to play a role in this regard (Koloniari and Fassoulis 2017). This study is the first study on KM applications in Medical libraries in Bangladesh. The findings of this study have highlighted the importance, necessary tools, applicable areas and problems related to KM activities. This study relied entirely on the viewpoints of medical students, doctors/researchers/health workers who would be the main beneficiaries of a sophisticated KM system.

8.1 Contributions

This study will assist in understanding about the perceptions of KM among medical librarians, students, doctors and researchers in Bangladesh. In addition, present study will assist the medical librarians to know the necessary tools required for implementing KM, the application areas of KM and the key barriers to implementing KM in their libraries. Finally, it can be concluded that the findings of this study could help policymakers, administrators and academics to understand how KM can help medical libraries during pandemics to improve service performance.

9 Limitations and Future Scope of Research

The study is limited to some selected medical libraries in Bangladesh. Ideally, it should have been conducted in all medical libraries and their affiliated colleges and

in all institutions of higher learning in Bangladesh. The study population was limited to librarians and students and did not include top management as the policy makers. The issue on the cost of implementing KM was also not considered.

This study will assist the authorities to craft any KM system in medical libraries. The finding of this study should not be generalized as it was not possible to assess the situation of all the medical libraries of the country due to Covid-19 restrictions. On the other hand, this research can certainly provide some useful insights for future studies. Therefore, further studies may be carried out on the same issues in other sectors after lifting the Covid-19 restrictions. This study will also help the researcher who would like to conduct further research on this topic.

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COVID-19 Informative Tweets Identification Through Word-by-Word Lexicon Replacement Using Pretrained Biomedical Corpus



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Abstract The coronavirus pandemic has contributed toward the prevalence of numerous fake news and misleading information over the social media especially Twitter. Therefore, a task of identifying whether a tweet is informative or uninformative has caught many researchers' attentions. The literature showed high dependency on transformers architectures. Yet, since the task requires more concentration on domain-specific terms, there would be a need for lexicon-based expansion. Hence, this paper proposes a word-by-word lexicon replacement method for the task of informative tweet extraction. A pretrained model of medical word embedding has been utilized to perform the replacement. In addition, multiple replacement conditions have been employed. Consequentially, different feature space representations have been applied upon the new tweet document with replaced terms. Lastly, a Logistic Regression (LR) classifier has been used to classify documents into Informative and Uninformative. Using the benchmark dataset of WNUT-2020 at Task 2, results of applying the proposed replacement method showed better performance than without the replacement by obtaining 0.91 of f1-score. This result emphasizes the importance and usefulness of the proposed replacement method in terms of improving the classification accuracy of informative tweet identification.

Keywords COVID-19 · Informative tweets · Word-by-word replacement · Word embedding · PubMed · LR

1 Introduction

With the current circumstances of COVID-19 pandemic, a dramatic usage of social media has been depicted around the globe (Orso et al. 2020). The reason behind such increasing in social medial usage lies in the lockdown policies implemented by governments which makes millions of people to stay at home. Among all the social media platforms, Twitter has gained many people's attention due to the concentration

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of such a platform on sharing ideas and exchanging news through short messages which known as tweets (Zarocostas et al. 2020). Plenty of tweets have been depicted over the hashtags ‘#Coronavirus’ and ‘Covid_19’ where users exchange information about the disease including symptoms, preventive measures, infected and death cases, and vaccination doses. Among this information, numerous fake news and misleading information are being spread over Twitter. The harm of this information does not limit to disobeying preventive policies but rather it affects people lives directly through misleading assumptions that the coronavirus does not exist or that the vaccine would manipulate human genome (Stephens et al. 2020; Al-Rakhami and Al-Amri et al. 2020).

Hence, the research community of Artificial Intelligence (AI) and Natural Language Processing (NLP) has become more motivated in analyzing and detecting this phenomenon. Fortunately, the existing of API Twitter application has enabled researchers to navigate and collect tweets through a wide range of filters such as date, hashtag, location and the written language. Therefore, several research efforts have been depicted to address the misleading information over Twitter. Some efforts have focused on the spread of fake news and misleading information related to COVID-19 within Twitter (Yang et al. 2004). Other efforts have evaluated the credibility reference of URL and official accounts in Twitter regarding COVID-19 (Gill et al. 2021). Other research efforts have attempted to proposed a credibility framework for tweets (Al-Rakhami and Al-Amri 2020; Zhou et al. 2020).

However, an interesting research effort has been depicted by the classification of tweets into informative and uninformative. This task is intended to utilize the AI and NLP techniques to categorize informative tweets from uninformative tweets. Apparently, informative tweets refer to the tweets that have real and related information to the COVID-19 pandemic, while the uninformative tweets would contain either real information but not related to the pandemic or irrelative and misleading information.

Hettiarachchi and Ranasinghe et al. (2010) proposed an extraction method for the informative tweets using transformers architectures including BERT, XLNet and RoBERTa. Tran et al. (2020) have proposed a COVID-Twitter-BERT (CT-BERT) architecture for extracting informative tweets. Sancheti et al. (2009) have proposed different architectures including BERT, FastText and handcrafted feature space for identifying informative tweets. Møller et al. (2020) showed another COVID-Twitter-BERT architecture that was intended to extract informative tweets. Wadhawan et al. (2010) proposed different architectures such as Recurrent Neural Network (RNN) and Convolutional Neural Network (CNN) for the task of determining informative tweets. Malla and Alphonse et al. (2021) presented different architectures including RoBERTa, BERTweet and CT-BERT for identifying informative tweets.

As depicted from the literature, there is a high dependency on transformers pretrained embedding. In fact, tweets are usually containing non-standard or informal language would require using lexicon-based approaches to expand the text with standard medical terminologies. Yet, such expansion might lead to significant change on the sentence or tweet. Therefore, this study will take the advantage of a domain-specific medical pretrained word embedding model based on PubMed resources to

accommodate a word-by-word replacement method. Then, the traditional text representation will be utilized to represent the tweets after the replacement task. Consequentially, a Logistic Regression (LR) classifier will be used to extract informative tweets.

2 The Proposed Method

The proposed method consists of several components as shown in Fig. 1. The first component is composed of the dataset that has been used in the experiment. Whereas, the second component is composed of the data cleaning tasks such as splitting sentences, word tokenization, and removing stopwords. In particular, the third component represents the core contribution of this study in which a lexicon of medical pretrained word embedding (PubMed) is being used to replace word-by-word to form new sentences. On the other hand, the fourth component is composed of feature space representation where the tweets are being transformed into multiple N-gram representation such as unigram, bigram, trigram, and quadgram. These n-gram models will be represented by either Counter Vector (CV) or Term Frequency Inverse Document Frequency (TFIDF). Lastly, the fifth component is composed of the classification where a Logistic Regression classifier is being used to classify the tweets into Informative and Uninformative.

2.1 *Tweets Dataset*

The dataset used in this study is the WNUT-2020 Task 2 of COVID-19 English Tweets which has been introduced by the study of Nguyen et al. (2010). The data consists of tweets that have been labeled as either 'Informative' or 'Uninformative'. Table 1 shows the statistics of the dataset.

2.2 *Data Cleaning*

Generally speaking, handling textual data requires different cleaning tasks to turn the data into much more suitable form for processing. To this end, the first cleaning task used in this study is the splitting sentences in which the sentences within the tweets are being separately divided. In addition, to handle the individual terms, another task of word tokenization is being applied where every word within the sentences is treated separately. Lastly, the common textual data cleaning task which is the stopword removal will be applied to get rid of terms with insignificant impact.

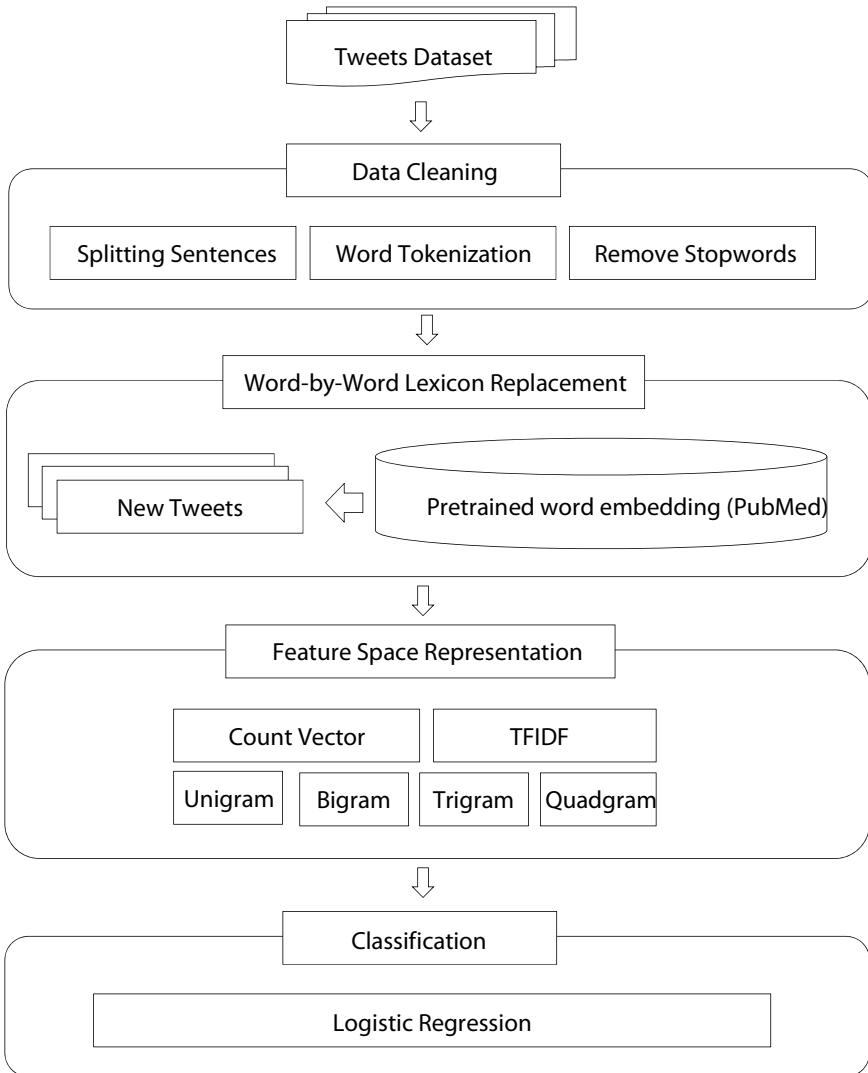


Fig. 1 Proposed method

Table 1 Dataset details

Classes	Training	Validation	Testing	Total
Informative	3303	472	944	4719
Uninformative	3697	528	1056	5281
Total	7000	1000	2000	10,000

2.3 Word-by-Word Lexicon Replacement

In order to gain much more informative terms, this study proposes a word-by-word lexicon replacement method in which the medical terms are replaced with much more informative form. The reason behind such replacement is that the tweets have been written by ordinary people who may use non-formal terms for specific medical concepts. To this end, a medical lexicon is being used to perform such a task. However, unlike the traditional lexicon-based techniques where dictionary or ontology is used to enrich the semantic, a pretrained medical word embedding model is used. The reason behind this is that the traditional lexicons may change the entire sentence which seems out of the scope. Therefore, only a word-by-word method is being used where the medical word embedding model of PubMed is queried.

Such as PubMed model was introduced by Chiu et al. (2016) where two large biomedical corpora have been used to create the word vectors, including Central Open Access subset (PMC) and PubMed. PMC is a large repository for biomedical and biological literature consisting of one million full-text articles. Whereas, PubMed is a large database consisting of more than 25 million publications in the biomedical domain. The two sources have been preprocessed and previously prepared by the study of Sætre et al. (2007) in the form of a biomedical corpus called GENIA. Therefore, the study of Chiu et al. (2016) used the same version. Table 2 shows the statistics of the two corpora.

The input to the PubMed embedding model are the cleaned tweets where each tweet consists of several words $W = \{W_1, W_2, W_3, \dots, W_n\}$. Each word from tweets will be measured based on length of characters, if the word has a length greater than three characters, it will be passed to the PubMed model otherwise, it will be discarded from the replacement process. The aim of such a passing is to query the PubMed model in terms of the closest term to the input word in order to perform the replacement. In this regard, terms such as ‘*cardio*’ might be replaced with much formal and informative concept like ‘*cardiomyopathy*’. This would have the ability to guide the machine learning classifier to configure whether the tweet is informative or uninformative. On the other hand, the reason behind using a threshold of three characters is that shorter words with three or less characters might have no importance, as well as, no matching within the model (Dai and Le et al. 2015). Therefore, the replacement will be discarded for such short length words. Similarly, longer words with more than three characters but have no matching are also discarded from the replacement since there is no better alternative. Furthermore, if a word has passed the two previous conditions (i.e., greater length of 3 characters and has

Table 2 Description of the corpora

Corpus	# Tokens
PubMed	2,721,808,542
PMC	7,959,548,841
Total	10,681,357,383

matching within the model), the Cosine similarity will be addressed in which the most similar term with maximum value of cosine will be retrieved and replaced by the queried word. In this case, if all the retrieved similar terms from the pretrained model have lower than 0.5 threshold of cosine value, no replacement will be accommodated since the value of similarity is low thus, the retrieved terms might be not similar to the original word. Figure 2 shows the process of replacement with the aforementioned conditions.

As an example of replacement in Table 3, the tweet of “*inflammation and cardiomyopathy in critical COVID-19 patients*” will be processed within the pretrained model. Obviously, words such as ‘in’ and ‘and’ will be rejected in terms of replacement within the first condition since they have three characters or less. After that, the word “COVID-19” will be rejected in the second condition since it does not have matching within the model. The other words are matched with terms inside the pre-trained model. These words are passed to the cosine similarity, where the corresponding term is compared with other words inside the model. The values of cosine similarity resulted in the successful replacement of some terms (e.g., ‘cardio’

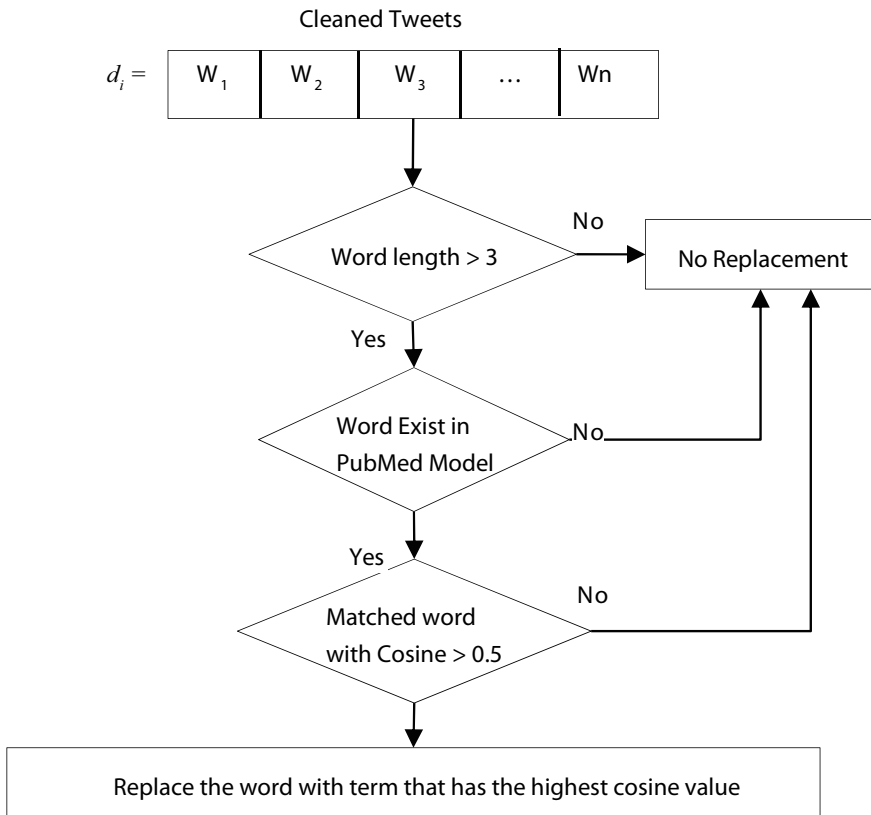


Fig. 2 Replacement conditions

Table 3 Example of replacement

Original Tweet = “ <i>inflammation and cardio in critical COVID-19 patients</i> ”				
Words	Condition 1	Condition 2	Condition 3	Replacement
inflammation				<u>arthritis</u>
and	Rejected (Length = 3)			
cardio				<u>cardiomyopathy</u>
in	Rejected (Length < 3)			
critical			Rejected (Similarity < 0.5)	
COVID-19		Rejected (No match)		
patients			Rejected (Similarity < 0.5)	

New Tweet = “*arthritis and cardiomyopathy in critical COVID-19 patients*”

is replaced with ‘*cardiomyopathy*’). However, some words shown cosine values less than 0.5 and thus have been dismissed from the replacement task (e.g., *critical*). Finally, the replacement tackles a new document with some old terms and newly replaced ones.

2.4 Feature Space Representation

After acquiring the new tweet documents where some terms are being replaced by the retrieval of the pretrained model, this phase will represent the documents using the traditional feature space representation including CV and TFIDF. CV will address the number of occurrences of each term within the document while, TFIDF will add the ratio of occurrence for such a term within all the documents. On the other hand, the documents will be examined in terms of different n-gram models where unigram will represent each term separately, bigram will represent each pair of two terms, trigram will represent three terms, and quadgram will represent four terms.

2.5 Classification

After representing the tweet documents through the aforementioned feature space representation, a Logistic Regression (LR) classifier will be used to classify the document into Informative and Uninformative. The reason behind selecting LR classifier is that it performs well in straightforward fashion in document classification.

3 Results

The evaluation will take place in two paradigms; first LR classification without replacement, and second LR classification with the proposed replacement method. This is to assess the impact of using the word-by-word replacement method through the pretrained model. For both paradigms, the same feature space of CV and TFIDF along with the different n-gram models will be depicted. Table 4 shows the results of LR classification without replacement while, Table 5 shows the results of LR classification with the proposed replacement method.

As shown in Table 4, the results of classification without replacement showed that unigram with CV has the best performance compared to other models where it achieved 0.77, 0.64 and 0.51 of precision, recall and f1-score respectively. The other models of LR without replacement showed the same results of precision, recall and f1-score where they obtained 0.4, 0.63, and 0.49 respectively.

On the other hand, the results of LR classification with the proposed replacement as shown in Table 5, showed better performance for the unigram with CV compared to unigram with TFIDF where it achieved 0.92, 0.92 and 0.91 of precision, recall and f1-score respectively. Similarly, the results of bigram have shown better performance with CV than with TFIDF where it obtained 0.9, 0.89 and 0.89 for precision, recall and f1-score. This has been repeated with results of trigram and quadgram along with CV. The reason behind the outperformance of CV than TFIDF is that LR has optimally took the advantage of integer values produced by CV rather than the continuous values produced by TFIDF. Lastly, the results of unigram have outperformed the other n-gram models whether with CV or TFIDF. This is due to the dependent probability

Table 4 LR classification results without replacement

N-gram/Vector	CV			TFIDF		
	P	R	F1	P	R	F1
Unigram	0.77	0.64	0.51	0.4	0.63	0.49
Bigram	0.4	0.63	0.49	0.4	0.63	0.49
Trigram	0.4	0.63	0.49	0.4	0.63	0.49
Quadgram	0.4	0.63	0.49	0.4	0.63	0.49

Table 5 LR classification results with the proposed replacement

N-gram/Vector	CV			TFIDF		
	P	R	F1	P	R	F1
Unigram	0.92	0.92	0.91	0.89	0.88	0.88
Bigram	0.9	0.89	0.89	0.89	0.88	0.88
Trigram	0.9	0.89	0.89	0.88	0.87	0.86
Quadgram	0.91	0.9	0.89	0.87	0.86	0.85

utilization of LR where sequence of individual unigram will be addressed rather than the actual sequences of bigram, trigram or quadgram.

4 Discussion

As shown earlier, the results of classification with the proposed replacement has shown better performance than the classification without replacement. The reason behind this is that proposed replacement might contribute towards the unification of some words where probably a wide range of terms could be replaced. For example, replacing the terms of '*inflammation*', '*inflamm*' and '*inflames*' with a single term of '*arthritis*' will facilitate the probabilistic models in terms of configuring whether the tweet informative or uninformative.

Generally, speaking the best results of f1-score obtained by the LR was 0.91 which is superior than some state-of-the-art such as (Hettiarachchi and Ranasinghe et al. 2010) who obtained 0.90 of f1-score and (Tran et al. 2020) who obtained 0.90 of f1-score. This proves the efficacy of using the proposed substitution method.

5 Conclusion

This paper proposed word-by-word lexicon replacement method for informative tweet extraction. A pretrained medical word embedding model has been used as a lexicon where different conditions of replacement have took place. Successful replacement of terms would lead to handle new tweet document. Based on the new documents, a classification task has been depicted using LR with multiple feature space representations. Results showed that the replacement has contributed toward enhancing the classification results to reach 0.91 of f1-score. For future direction, handling word vectors with applying replacement embedding vectors rather than terms would yield promising classification results.

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The Impact of the Corona Pandemic on the Performance of Palestinian Commercial Banks Listed on the Palestine Stock Exchange



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Abstract The current study aimed to shed light on the banking sector in the Palestine Stock Exchange before and during the spread of the Corona virus; the researchers had decided to analyze the performance indicators of the first quarter of 2019 as the pre-crisis period and compare them with the performance indicators of the first quarter of 2020 and the period between the third quarter of 2019 and the third quarter of 2020 as the crisis period. The study sample consisted of 6 companies from the banking sector; the independent samples T-test was used in order to test the study hypotheses. The study results showed that in the first quarter of 2019, the percentage of profits (profit after tax) ranged between \$10,784,284 and \$1,062,702. On average it amounted to \$4,201,265. As for the hypotheses of the study, the results did not show any differences. The results of the Mann-Whitney U test showed that the Z-value was 0 for the hypotheses and this is not statistically significant at 1%, and therefore the null hypothesis, which states that there are no statistically significant differences between the first quarter of 2019 compared to the first quarter of 2020 in terms of all variables, is accepted. The same results apply to the third quarter of 2019 and the third quarter of 2020.

Keywords Palestine Stock Exchange · Corona · Palestinian commercial banks · Performance

1 Introduction

In the last era since 2020, the entire world has entered into an economic crisis that is considered the most severe in modern history; it has affected all the facilities in different sectors at the global level, in general, and at the Palestinian level, in specific.

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Sweis and Sabri (2016) have indicated that the percentage of public debt to gross domestic product amounted, on average, by 20%.

The World Health Organization announced on March 11, 2020 that the Corona virus is considered a global pandemic which led to the occurrence of millions of deaths and the injury of hundreds of millions. This crisis also affected all international banks, and thus the Palestinian banks and economic activity were affected tremendously because of the unstable conditions in Palestine that could be attributed to the Israeli occupation. Sabri and Sweis (2016) have shown that the donations have a positive impact which is statistically significant on the returns on assets and equity.

The Palestinian National Authority has taken many measures to contain the Corona pandemic and limit its effects; it stated to prepare and implement some emergency plans to curb the virus by tracing people who could have contacted infected people to seclude and aside them, raising public awareness, and initiating regional coordination with neighboring countries such as Israel and Jordan, closing all institutions and borders, and stopping movement between Palestinian governorates, (The World Bank, Social Protection Emergency Response Project to confront the Corona pandemic in the West Bank and Gaza Strip). A study conducted by Sweis et al. (2018) indicated that the impact factor of the services sector was (41%). The paper includes seventh sections: The second section contains Statement of the Problem the third Objectives of the study the fourth Review of the literature that begin with Karama et al. (2020) and end with a study Bipasha Barau and Suborna Barua (2021). Fifth section is the Data and methodology and contains, study variables, data and hypotheses of the study and the third section contains the results of the study and hypothesis testing, and the Sixth section Statistical analysis, seventh Conclusions. What distinguishes the study from previous studies is: this study attempts to answer Are there statistically significant differences between the first quarter of 2019 compared to the first quarter of 2020 in terms of capital? 2) Are there statistically significant differences between the first quarter of 2019 compared to the first quarter of 2020 in terms of profits? These goals, according to the researcher's knowledge, have not been discussed before, either by Palestinian researchers or in other countries.

2 Statement of the Problem

The World Bank stated that its expectations have indicated an economic downturn of the Palestinian economy by 11.5% during the past year with a large difference from previous years where economic turnaround was only 7% due to the impact of the Corona pandemic and the interruption and cease of clearing funds. The coronavirus pandemic has exposed economic institutions to many supply and demand shocks as well as other financial shocks; this has forced most of the institutions to resort to financial and administrative measures and digital solutions to encounter the effects of the pandemic and overcome its consequences.

This study attempts to study the Palestinian banking sector listed on the Palestine Stock Exchange; the researchers attempt to answer the following questions: 1) Are

there statistically significant differences between the first quarter of 2019 compared to the first quarter of 2020 in terms of capital? 2) Are there statistically significant differences between the first quarter of 2019 compared to the first quarter of 2020 in terms of profits? 3) Are there important statistically significant differences between the first quarter of 2019 compared to the first quarter of 2020 in terms of liquidity? 4) Are there important statistically significant differences between the first quarter of 2019 compared to the first quarter of 2020 in terms of assets? 5) Are there important statistically significant differences between the first quarter of 2019 compared to the first quarter of 2020 in terms of facilities? The same applies to the third quarter of 2019 and the third quarter of 2020.

3 Objectives of the Study

The study aims to:

1. Find out if there are statistically significant differences between the first quarter of 2019 compared to the first quarter of 2020 in terms of capital, or not.
2. Find out if there are statistically significant differences between the first quarter of 2019 compared to the first quarter of 2020 in terms of profits or not.
3. Know if there are there statistically significant differences between the first quarter of 2019 compared to the first quarter of 2020 in terms of liquidity or not.
4. Find out whether there are there statistically significant differences between the first quarter of 2019 compared to the first quarter of 2020 in terms of assets or not.
5. Know whether there are statistically significant differences between the first quarter of 2019 compared to the first quarter of 2020 in terms of facilities or not. The same objectives apply to the third quarter of 2019 and the third quarter of 2020.

4 Review of the Literature

A study conducted by Karama et al. (2020) entitled “The impact of global health crises on the global economy: the impact of the Corona virus on the Algerian economy as a model” aimed to clarify the repercussions of the Corona virus on the global economy in general and on the Algerian economy in particular, and to clarify the seriousness of this virus that has plunged the world into an economic, financial and social crisis whose dire consequences were exacerbated in a very short circumstance, beginning with the real economic sector and then moving to the financial and social sector after that. This crisis has led to a slowdown in economic growth rates and pushed many countries into the cycle of global stagnation due to its impact on the movement of trade, supply chains, prices of asset and primary commodities, as well

as future decisions of investors amid the scarcity of information and future outlook on the development of the spread of this epidemic. The researchers used the historical descriptive method and the analytical method in this study. The study concluded that the Corona virus constituted a global health crisis and affected economic and social conditions at the global level. The study recommended the need to look towards reducing globalization and adopting a less open approach to travel and immigration.

Another study was carried out by Bin Khaira and Tayeb (2020) entitled “The Impact of the Corona Virus Pandemic on the Global Economy”. The study aimed to identify the impact of the Corona virus pandemic on the global economy. To achieve their purposes, the researcher used the descriptive analytical approach, and the results of the study indicated that the Corona pandemic has caused a change in global economic balances, which will accelerate the process of de-globalization, abolishing convergence and redefining production and consumption around the world.

Afaneh (2020) did a study entitled “The impact of the Corona pandemic (Covid 19) on the Saudi banking sector”. The research idea came as a contribution to the work of researchers in the field of Saudi banks, and an explanation of the impact of the Corona epidemic (Covid 19) on the Saudi economy in general and on Saudi banks in particular. The researcher adopted the descriptive analytical approach, and used the financial statements of Saudi banks. The study showed that the net profits of Saudi banks decreased, and that the provision for credit losses increased due to the Corona virus. The study recommended the need to provide logistical support and technical training for Saudi bank employees on remote work techniques.

The study of Abdul Karim (2020) was entitled “The Readiness of the Banking System in the Face of the Corona Crisis: Effectiveness of Measures and Continuity”. This study aimed to review the measures taken by the Palestinian Monetary Authority, through which it sought to stabilize the banking system and protect the rights of depositors. The researcher followed the descriptive approach. The study concluded that the Monetary Authority urged banks to grant loans under certain conditions and directed to a specific category, and to allow check issuers to get back their checks.

Akbulaev et al. (2020) conducted a study entitled “Economic impact of Covid-19” that focus edon the economic impact of Covid-19. It also reviewed recent trends and updates that aimed at further understanding the problem of corona viruses. The first section describes the methods of investigation of this infection; it examined the theory of the epidemic and crisis, how exactly the corona virus affected the economy of countries. The fifth section focused on the impact on the production of various manufacturers’ products; it also as provided examples of the most famous companies affected by Covid-19. What follows is a problem faced by the entire population, namely how the corona virus affected employment. The seventh Chapter reflects the impact on exports, which countries have stopped exporting their products, as well as the production of which has stopped, and the eighth-on imports, which territories have stopped purchasing, previously purchased goods, and for what reason.

Kurt et al. (2020) carried out a study about the “Banking Sector Performance During the COVID-19 Crisis”. The researchers tried to analyze bank stock prices around the world to assess the impact of the COVID-19 pandemic on the banking sector. The researchers also decided to examine the role of financial sector policy

announcements on the performance of bank stocks. The main study results suggested that the crisis and the countercyclical lending role that banks are expected to play have put the various banking systems under significant stress, with bank stocks underperforming their domestic markets and other non-bank financial firms. The effectiveness of policy interventions was proved to be mixed. The measures of liquidity support, borrower assistance, and monetary easing were effective as they moderated the adverse impact of the crisis, but that was not true or applicable for all banks or in all circumstances. For example, borrower assistance and the various prudential measures exacerbated the stress for banks that are already undercapitalized and/or operate in countries with little fiscal space. These gaps will need to be carefully monitored as the pandemic continues to negatively impact the world's economies.

Roy (2020) carried out a study entitled "Economic impact of Covid-19 pandemic". The researcher stated that COVID-19 pandemic was caused when SARS-CoV2 virus spread among people all over the world. The pandemic created a widespread global shock that resulted in a severe economic slowdown. During the pandemic, there has been a slowdown in all economic sectors around the world and more than one third of global population was forced to remain under lock-down. In his paper, the author tried to analyze the economic impact of COVID-19 on a number of sectors, mainly, tourism industry, oil industry, aviation industry, the financial sector and the healthcare sector. The researcher also meant to analyze the economic data from each industry in order to represent the losses in each industry as a result of COVID-19 pandemic graphically so as to give readers a clear understanding of the effect of external macroeconomic shocks on the global economy.

Another study conducted by Ichsan et al. (2020) was entitled "Determinant of Sharia Bank's Financial Performance during the Covid-19 Pandemic". This study aimed at analyzing the financial performance of Islamic Banks during the Covid-19 pandemic, using records of annual financial statements from 2011 to 2020; the researchers used the Multiple Linear Regression testing and linearity testing of the model using Ramsey Test. The researchers stated that financial performance as a measuring instrument is known as a process of implementing financial resources owned by the company. The study results showed that Covid-19 pandemic has impacted the banking sector, resulting in poor financing due to debtors' disbursements as a result of the large number of people losing their jobs and difficulties in financing payments. Furthermore, the results of the t test found that the Capital Adequacy Ratio (CAR), Operating Costs to Operating Income (BOPO), Financing to Deposit Ratio (FDR) had a positive and significant effect on financial performance (ROA) while Not Performing Financing (NPF) had a negative and insignificant effect on financial performance (ROA). Furthermore, simultaneously capital adequacy ratio (CAR), Operating Costs to Operating Income (BOPO), Financing to Deposit Ratio (FDR) and Not Performing Financing (NPF) significantly influenced the financial performance (ROA) of Sharia banks in Indonesia.

Bipasha Barau and Suborna Barua (2021) carried out a study entitled "COVID-19 implications for banks: evidence from an emerging economy". The researchers stated that the COVID-19 pandemic is damaging economies across the world, including financial markets and institutions in all possible dimensions. For banks in specific,

the pandemic results in multifaceted crises, mostly through increasing the default rates. According to the researchers, this is more likely to be observed in developing economies that have poor financial market environments. The study paper takes use of the state of Bangladesh as a case study due to the fact that the economy there is an emerging economy; the researchers meant to examine the possible impacts of the pandemic on the country's banking sector. The Bangladesh banking sector is accredited of having a high level of non-performing loans (NPLs) and the pandemic is likely to make the situation very worse. The study tries to estimate the impacts of the COVID-19 pandemic on three particular dimensions—firm value, capital adequacy, and interest income—under different NPL shock scenarios using a state-designed stress testing model. The main study findings suggest that all banks are likely to encounter a fall in risk-weighted asset values, capital adequacy ratios, as well as interest income at both the individual bank and the sectoral levels. However, estimates show that larger banks are relatively more vulnerable and more likely to be negatively impacted. The researchers also found that the decrease in the three dimensions will increase disproportionately if the non-performing loan (NPL) shocks become larger. Furthermore, the study results show that a 10% non-performing loans (NPL) shock could force capital adequacy of all banks to go below the minimum BASEL-III requirement, while a shock of 13% or more could turn it to zero or negative at the sectoral level. Based on these findings, the researchers recommend that the country should create immediate and innovative policy measures to prevent a large-scale and contagious banking crisis in. The study offers lessons for other developing and emerging economies that are similar to Bangladesh.

5 Data and Methodology

5.1 Data

The study relates to the State of Palestine, specifically, the Palestinian banking sector which is listed on the Palestine Stock Exchange. The study relied on the published data (financial statements) from the website of the Palestine Stock Exchange. The study time span covers the years 2019 and 2020.

5.2 Study Variables

The first variable: the total equity. The absolute figures from the balance sheet of the banks have been relied upon (code: Cap).

The second variable: Profits (profit after tax) has been relied on the absolute numbers from the income statement of the banks (code: Pro).

Table 1 Names of listed bank in the Palestine Stock Exchange

Name of bank
Bank of Palestine
Palestine Islamic Bank
Arab Islamic Bank
Al-Quds Bank
National Bank
Palestine Investment Bank

The third variable: Liquidity (cash and balances with the Monetary Authority + balances with other banks) and the absolute figures from the banks' balance sheet have been relied upon (Code: Cash).

The fourth variable: Assets (total assets) and the absolute numbers from the balance sheet of the banks have been relied upon (code: Ass).

The fifth variable: The facilities (direct credit facilities), and the absolute numbers from the balance sheet of the banks have been relied upon (code: Fas).

5.3 Study Sample

The study sample consisted of Palestinian banks listed on the Palestine Stock Exchange. Table 1 shows the names of these banks.

5.4 Study Hypotheses

The researchers have adopted the null hypothesis to formulate the various study hypotheses which are displayed in Table 2 below.

6 Statistical Analysis

This section relates to the various statistical tests that were used to analyze data and interpret the results. The researchers used Descriptive Statistics and Pearson Correlation. In addition, the researchers used Mann-Whitney Test to analyze and test the study hypotheses which were formulated using the null hypothesis approach.

Descriptive Statistics:

Table 2 Study null hypotheses

<i>First quarter</i>	
H0:	There are no statistically significant differences between the first quarter of 2019 compared to the first quarter of 2020 in terms of capital
H0:	There are no statistically significant differences between the first quarter of 2019 compared to the first quarter of 2020 in terms of profits
H0:	There are no statistically significant differences between the first quarter of 2019 compared to the first quarter of 2020 in terms of liquidity
H0:	There are no statistically significant differences between the first quarter of 2019 compared to the first quarter of 2020 in terms of assets
H0:	There are no statistically significant differences between the first quarter of 2019 compared to the first quarter of 2020 in terms of facilities
<i>Third quarter</i>	
H0:	There are no statistically significant differences between the third quarter of 2019 compared to the third quarter of 2020 in terms of capital
H0:	There are no statistically significant differences between the third quarter of 2019 compared to the third quarter of 2020 in terms of profits
H0:	There are no statistically significant differences between the third quarter of 2019 compared to the third quarter of 2020 in terms of liquidity
H0:	There are no statistically significant differences between the third quarter of 2019 compared to the third quarter of 2020 in terms of assets
H0:	There are no statistically significant differences between the third quarter of 2019 compared to the third quarter of 2020 in terms of facilities

6.1 *First Quarter of 2019*

Table 3 below shows the various descriptive results that relate to the first quarter of 2019.

Table 3 above shows that the total property rights amounted to an average value of 163,338,799 dollars, while the highest value amounted to 35,3914,121 dollars. As for the profits (profit after tax), it ranges between 10,784,284 dollars and 106,2702 dollars, and on average it reached 4,201,265 dollars, and this is considered as a good value. As for the liquidity (cash and balances with the authority Cash + balances with other banks), it ranged between 166,571,347 and 1,528,394,556 dollars, and this indicates a clear discrepancy in liquidity.

6.2 *First Quarter of 2020*

Table 4 below shows the various descriptive results that relate to the first quarter of 2020.

Table 4 above shows that the total property rights amounted to an average value of 178,886,380 dollars, which is higher than the first quarter of 2019, while the

Table 3 Results of first quarter 2019 obtained using Descriptive Statistics

Descriptive statistics						
	N	Minimum	Maximum	Mean	Std. deviation	Variance
Cap	6	98,685,576.00	353,914,121.00	163,338,799,8333	99,350,018.34838	9,870,426,145,822,762.000
Pro	6	1,062,702.00	10,784,284.00	4,201,265.1667	3,552,401.26292	12,619,554,732,821.766
Cash	6	166,571,347.00	1,528,394,556.00	551,043,084.1667	504,572,853.35797	254,593,764,345,801,984.000
Ass	6	462,376,677.00	4,856,137,611.00	1,839,490,552.1667	1,588,186,998.86745	2,522,337,943,371,586,600.000
Fas	6	223,071,151.00	7,160,978,921.00	2,148,076,799,8333	2,601,777,392.62968	6,769,245,600,798,894,100.000
Valid N (listwise)	6					

Table 4 Results of first quarter 2020 obtained using Descriptive Statistics

Descriptive statistics						
	N	Minimum	Maximum	Mean	Std. deviation	Variance
Cap	6	100,734,216.00	420,515,742.00	178,886,380.6667	123,366,065.09290	15,219,186,016,505,700.000
Pro	6	1,067,936.00	7,710,331.00	3,438,059.3333	2,298,365.99089	5,282,486,228,086.667
Cash	6	181,481,874.00	11,123,811,576.00	2,472,954,800.0000	4,304,247,929.98531	18,526,550,242,782,847,000.000
Ass	6	125,810,309.00	5,206,898,886.00	1,787,871,305.8333	1,843,490,365.52893	3,398,456,727,798,003,700.000
Fas	6	236,299,479.00	2,969,384,239.00	1,162,799,224.5000	968,059,832.00403	937,139,838,339,672,700.000
Valid N (listwise)	6					

highest value amounted to 420,515,742 dollars. As for the profits (profits after tax), it ranges between 1,067,936 dollars and 7,710,331 dollars, and on average it reached 3,438,059 dollars and this value is less than the value of the First quarter of 2019. As for liquidity (cash and balances with the Monetary Authority + balances with other banks), it ranged between 181,481,874 and 11,123,811,576 dollars, and this indicates a clear discrepancy in liquidity.

6.3 *Third Quarter of 2019*

Table 5 below shows the various descriptive results that relate to the third quarter of 2019.

Table 5 above shows that the total property rights amounted to an average value of 176,385,066 dollars, while the highest value amounted to 426,150,041 dollars. As for profits (profit after tax) it ranges between 3,601,870 dollars and 33,919,970 dollars, and on average it reached 12,550,006 dollars. As for liquidity (cash and balances with the Monetary Authority + balances at other banks), it ranged between 177,404,153 and 1,560,374,250 dollars, and this indicates a clear discrepancy in liquidity.

6.4 *Third Quarter of 2020*

Table 6 below shows the various descriptive results that relate to the third quarter of 2020.

Table 6 above shows that the total property rights amounted to an average value of 183,398,490 dollars, which is higher than the third quarter of 2019, while the highest value amounted to 424,990,926 dollars. As for the profits (profit after tax) it ranges between 165,426 dollars and 14,482,823 dollars, and on average it amounted to 6,232,720 dollars and this value is less than the value of the third quarter of 2019. As for liquidity (cash and balances with the Monetary Authority + balances with other banks), it ranged between 230,914,006 and 1,762,806,352 dollars, and this indicates a clear discrepancy in liquidity. The average assets (total assets) amounted to \$2,146,759,650, while the average facilities (direct credit facilities) amounted to \$1,282,815,885.

6.5 *Pearson Correlation for the First Quarter of 2019*

Table 7 above shows the results of the correlation analysis between the study variables. The correlation coefficients between the variables are different in terms of strength. There is a positive relationship with each of the total property rights and profits (profit after tax) that is equal to 0.990. As for the total property rights and

Table 5 Results of third quarter 2019 obtained using Descriptive Statistics

Descriptive statistics						
	N	Minimum	Maximum	Mean	Std. deviation	Variance
Cap	6	98,278,160.00	426,150,041.00	176,385,066.5000	126,891,599.83107	16,101,478,107,687,260.000
Pro	6	3,601,870.00	33,919,970.00	12,550,006.1667	10,970,364.45670	120,348,896,312,917.380
Cash	6	177,404,153.00	1,560,374,250.00	587,316,012.0000	508,776,440.38951	258,853,466,295,418,688.000
Ass	6	241,376,963.00	5,131,842,540.00	1,600,625,729.0000	1,783,702,844.67327	3,181,595,838,095,528,400.000
Fas	6	229,377,610.00	2,961,640,760.00	1,153,299,183.8333	963,788,724.02561	928,888,704,558,910,850.000
Valid N (listwise)	6					

Table 6 Results of third quarter 2020 obtained using Descriptive Statistics

Descriptive statistics						
	N	Minimum	Maximum	Mean	Std. deviation	Variance
Cap	6	97,580,166.00	424,990,926.00	183,398,490.1667	126,566,003.32843	16,018,953,198,532,600.000
Pro	6	165,426.00	14,482,823.00	6,232,720.6667	4,900,536.84570	24,015,261,376,065.867
Cash	6	230,914,006.00	1,762,806,352.00	650,366,603.6667	563,843,850.87356	317,919,888,167,924,610.000
Ass	6	592,248,877.00	5,444,831,807.00	2,146,759,650.0000	1,749,286,789.08425	3,060,004,270,464,674,800.000
Fas	6	276,353,341.00	3,179,490,243.00	1,282,815,885.5000	1,033,221,664.38484	1,067,547,007,754,172,800.000
Valid N (listwise)	6					

Table 7 Correlations for the first quarter of 2019

		Cap	Pro	Cash	Ass	Fas
Cap	Pearson correlation	1	0.990**	0.993**	0.993**	0.085
	Sig. (2-tailed)		0.000	0.000	0.000	0.873
	N	6	6	6	6	6
Pro	Pearson correlation	0.990**	1	0.991**	0.997**	0.093
	Sig. (2-tailed)	0.000		0.000	0.000	0.861
	N	6	6	6	6	6
Cash	Pearson correlation	0.993**	0.991**	1	0.995**	0.153
	Sig. (2-tailed)	0.000	0.000		0.000	0.772
	N	6	6	6	6	6
Ass	Pearson correlation	0.993**	0.997**	0.995**	1	0.127
	Sig. (2-tailed)	0.000	0.000	0.000		0.811
	N	6	6	6	6	6
Fas	Pearson correlation	0.085	0.093	0.153	0.127	1
	Sig. (2-tailed)	0.873	0.861	0.772	0.811	
	N	6	6	6	6	6

**Correlation is significant at the 0.01 level (2-tailed)

facilities, it was the least and it was equal to 0.0850. This was the highest correlation of facilities with liquidity (cash and balances with the Monetary Authority + balances with other banks) and it was equal to 0.153

6.6 Pearson Correlation for the First Quarter of 2020

Table 8 shows the results of the analysis of the correlation between the variables of the study. The coefficients of correlation between the variables are different in terms of strength. There is a positive relationship with each of the total property rights and profits (profit after tax) and it is equal to 0.9640; it is less than the first quarter of 2019. As for the total equity and facilities, it was high and equal to 0.9840. In contrast to the first quarter of 2019, this was the highest correlation for facilities, and the total equity was equal to 0.9840, which is different from the results of the first quarter of 2019.

6.7 Pearson Correlation for the Third Quarter of 2019

Table 9 shows the results of the analysis of the correlation between the variables of the study. The coefficients of correlation between the variables are different in terms

Table 8 Correlations for the first quarter of 2020

		Cap	Pro	Cash	Ass	Fas
Cap	Pearson correlation	1	0.964**	0.946**	0.970**	0.984**
	Sig. (2-tailed)		0.002	0.004	0.001	0.000
	N	6	6	6	6	6
Pro	Pearson correlation	0.964**	1	0.922**	0.919**	0.982**
	Sig. (2-tailed)	0.002		0.009	0.010	0.000
	N	6	6	6	6	6
Cash	Pearson correlation	0.946**	0.922**	1	0.914*	0.911*
	Sig. (2-tailed)	0.004	0.009		0.011	0.012
	N	6	6	6	6	6
Ass	Pearson correlation	0.970**	0.919**	0.914*	1	0.966**
	Sig. (2-tailed)	0.001	0.010	0.011		0.002
	N	6	6	6	6	6
Fas	Pearson correlation	0.984**	0.982**	0.911*	0.966**	1
	Sig. (2-tailed)	0.000	0.000	0.012	0.002	
	N	6	6	6	6	6

*Correlation is significant at the 0.05 level (2-tailed)

**Correlation is significant at the 0.01 level (2-tailed)

Table 9 Correlations for the third quarter of 2019

		Cap	Pro	cash	Ass	fas
Cap	Pearson correlation	1	0.990**	0.993**	0.895*	0.982**
	Sig. (2-tailed)		0.000	0.000	0.016	0.000
	N	6	6	6	6	6
Pro	Pearson correlation	0.990**	1	0.995**	0.908*	0.990**
	Sig. (2-tailed)	0.000		0.000	0.012	0.000
	N	6	6	6	6	6
cash	Pearson correlation	0.993**	0.995**	1	0.873*	0.995**
	Sig. (2-tailed)	0.000	0.000		0.023	0.000
	N	6	6	6	6	6
Ass	Pearson correlation	0.895*	0.908*	0.873*	1	0.866*
	Sig. (2-tailed)	0.016	0.012	0.023		0.026
	N	6	6	6	6	6
Fas	Pearson correlation	0.982**	0.990**	0.995**	0.866*	1
	Sig. (2-tailed)	0.000	0.000	0.000	0.026	
	N	6	6	6	6	6

*Correlation is significant at the 0.05 level (2-tailed)

**Correlation is significant at the 0.01 level (2-tailed)

Table 10 Correlations for the third quarter of 2020

		Cap	Pro	Cash	Ass	Fas
Cap	Pearson correlation	1	0.633	0.989**	0.993**	0.987**
	Sig. (2-tailed)		0.178	0.000	0.000	0.000
	N	6	6	6	6	6
Pro	Pearson correlation	0.633	1	0.730	0.660	0.636
	Sig. (2-tailed)	0.178		0.099	0.154	0.175
	N	6	6	6	6	6
Cash	Pearson correlation	0.989**	0.730	1	0.990**	0.980**
	Sig. (2-tailed)	0.000	0.099		0.000	0.001
	N	6	6	6	6	6
Ass	Pearson correlation	0.993**	0.660	0.990**	1	0.998**
	Sig. (2-tailed)	0.000	0.154	0.000		0.000
	N	6	6	6	6	6
Fas	Pearson correlation	0.987**	0.636	0.980**	0.998**	1
	Sig. (2-tailed)	0.000	0.175	0.001	0.000	
	N	6	6	6	6	6

**Correlation is significant at the 0.01 level (2-tailed)

of strength. There is a positive relationship with each of the total property rights and profits (profit after tax) and it is equal to 0.9900. As for the total equity and facilities, it was high and equal to 0.9820. This was the highest correlation of facilities with liquidity (cash and balances with the Monetary Authority + balances with other banks) and it is equal to 0.9950.

6.8 Pearson Correlation for the Third Quarter of 2020

Table 10 above shows the results of the analysis of the correlation between the variables of the study. The coefficients of the correlation between the variables are different in terms of strength. There is a positive relationship with each of the total property rights and profits (profit after tax); it is equal to 6330, which is less than the third quarter of 2019. As for the total property rights and facilities, it was high and equal to 0.9870, which is higher than the third quarter of 2019. This was the lowest correlation for the facilities, profits (profit after tax) which was equal to 0.6360.

6.9 The First Quarter of 2019 with the First Quarter of 2020

Independent Samples T-Test

Mann-Whitney Test

It is clear from Table 11 that the average total equity for the first quarter 2019 is less than the average total equity for the first quarter of 2020 and that the average profit (profit after tax) for the first quarter 2019 is equal to the average profit (profit after tax) for the first quarter of 2020.

To test the hypotheses in the first quarter of 2019 with the first quarter of 2020, the Mann-Whitney U test was used, which is a non-parametric test, because the data do not follow a normal distribution. The results of the Mann-Whitney U test in Table 12 show that the value of Z is equal to -0.961 for the first hypothesis; this is not statistically significant at 1%, and accordingly the null hypothesis which states that there are no significant statistical differences between the first quarter of 2019 compared with the first quarter of 2020 is accepted.

Table 11 Ranks

	Var	N	Mean rank	Sum of ranks
Cap	1.00	6	5.50	33.00
	2.00	6	7.50	45.00
	Total	12		
Pro	1.00	6	6.50	39.00
	2.00	6	6.50	39.00
	Total	12		
Cash	1.00	6	6.00	36.00
	2.00	6	7.00	42.00
	Total	12		
Ass	1.00	6	6.17	37.00
	2.00	6	6.83	41.00
	Total	12		
Fas	1.00	6	6.33	38.00
	2.00	6	6.67	40.00
	Total	12		

Table 12 Mann-Whitney U Test Statistics^a

	Cap	Pro	Cash	Ass	Fas
Mann-Whitney U	12.000	18.000	15.000	16.000	17.000
Wilcoxon W	33.000	39.000	36.000	37.000	38.000
Z	-0.961	0.000	-0.480	-0.320	-0.160
Asymp. Sig. (2-tailed)	0.337	1.000	0.631	0.749	0.873
Exact Sig. [2*(1-tailed Sig.)]	0.394 ^b	1.000 ^b	0.699 ^b	0.818 ^b	0.937 ^b

^aGrouping Variable: var

^bNot corrected for ties

The second hypothesis, which is related to profits, the results of the Mann-Whitny U test showed that the value of Z is 0 for the second hypothesis and this is not statistically significant at 1%, and accordingly the null hypothesis, which states that there are no significant statistical differences between the first quarter 2019 compared to the first quarter 2020 in terms of profits, is accepted.

With respect to the rest of the hypotheses, the results of the Mann-Whitny U test showed that the Z-value is not statistically significant at 1%, and accordingly, the null hypotheses are accepted.

Mann-Whitney Test of the Third Quarter of 2019 and Third Quarter of 2020

It is clear from Table 13 that the average total equity for the third quarter of 2019 is lower than the average total equity for the third quarter of 2020 and that the average profit (profit after tax (for the third quarter of 2019) is higher than the average profit after tax for the third quarter of 2020.

To test the hypotheses in the third quarter of 2019 with the third quarter of 2020, the Mann-Whitny U test, which is a non-parametric test, was used because the data do not follow a normal distribution. The test results are shown in Table 14.

Mann-Whitny U test showed that the value of Z is equal to -0.641 for the first hypothesis, which is not statistically significant at 1%, and therefore the null hypothesis, which states that there are no significant statistical differences between the third quarter of 2019 compared to the third quarter of 2020 in terms of capital, is accepted.

With respect to the second hypothesis, which is related to profits, the results of the Mann-Whitny U test showed that the Z-value is equal to -1.441 for the second hypothesis, which is not statistically significant at 1%, and accordingly the null hypothesis, which states that there are no significant statistical differences between

Table 13 Ranks

	Var	N	Mean rank	Sum of ranks
Cap	1.00	6	5.83	35.00
	2.00	6	7.17	43.00
	Total	12		
Pro	1.00	6	8.00	48.00
	2.00	6	5.00	30.00
	Total	12		
Cash	1.00	6	6.00	36.00
	2.00	6	7.00	42.00
	Total	12		
Ass	1.00	6	4.83	29.00
	2.00	6	8.17	49.00
	Total	12		
Fas	1.00	6	5.50	33.00
	2.00	6	7.50	45.00
	Total	12		

Table 14 Mann-Whitny U Test Statistics^a

	Cap	Pro	Cash	Ass	Fas
Mann-Whitney U	14.000	9.000	15.000	8.000	12.000
Wilcoxon W	35.000	30.000	36.000	29.000	33.000
Z	-0.641	-1.441	-0.480	-1.601	-0.961
Asymp. Sig. (2-tailed)	0.522	0.150	0.631	0.109	0.337
Exact Sig. [2*(1-tailed Sig.)]	0.589 ^b	0.180 ^b	0.699 ^b	0.132 ^b	0.394 ^b

^aGrouping Variable: var

^bNot corrected for ties

the third quarter of 2019 compared to the third quarter of 2020 in terms of profits, is accepted.

With regard to the rest of the hypotheses, the results of the Mann-Whitny U test showed that the Z-value is not statistically significant at 1%, and accordingly, the null hypotheses are accepted.

7 Conclusions

Table 7 shows the results of the analysis of the correlation between the variables of the study. There is a positive relationship with each of the total property rights and profits (profit after tax) and it was equal to 0.990. As for the total equity and facilities, it was the least and it was equal to 0.0850. This was the highest correlation of facilities with liquidity. (Cash and balances with the Monetary Authority + balances with other banks) was equal to 15,300. It is clear from Table 11 that the average total equity for the first quarter of 2019 was the lowest average of total equity for the first quarter of 2020.

To test the hypotheses, independent sample T-tests (non-parametric) which is a normality test was performed because the data do not follow a normal distribution. The test results are shown in Table 12.

The Mann-Whitny U test showed that the value of Z was equal to -0.961 for the first hypothesis, which is not statistically significant at 1%, and therefore the null hypothesis, which states that there are no significant statistical differences between the first quarter of 2019 compared to the first quarter of 2020 in terms of capital, is accepted.

As for the fourth hypothesis, which is related to assets, the results of the Mann-Whitny U test showed that the value of Z was equal to -0.320, which is not statistically significant at 1%, and therefore the null hypothesis, which states that there are no significant statistical differences between the first quarter 2019 compared to the first quarter 2020 in terms of assets, is accepted.

As for the fifth hypothesis which is related to facilities, the results of the Mann-Whitny U test showed that the value of Z was equal to -0.160 , which is not statistically significant at 1%, and therefore the null hypothesis, which states that there are no significant statistical differences between the first quarter 2019 compared to the first quarter 2020 in terms of facilities and also for the third quarter of 2019 and the third quarter of 2020, is accepted.

For the rest of the hypotheses, the results of the Mann-Whitny U test showed that the Z-value was not statistically significant at 1%, and accordingly, the null hypotheses are accepted.

The researchers recommend that banks should rely on the harmonization between the basic pillars, to ensure the achievement of liquidity, profitability and security because distributing its assets between different uses, the three basic pillars are automatically considered and taken into account.

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Development of Family Entrepreneurship in the Conditions of Influence of Covid-19



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Abstract The article is devoted to the topical problem of family business development in the conditions of COVID-19 influence. The basis of the research is to form a concept of active policy of entrepreneurial potential in rural areas, which includes measures for the development of farms and family farms, in particular through the transformational mechanism of formalization of private farms into a market environment. The situation regarding the impact of quarantine measures in the conditions of COVID-19 and their consequences and interaction in the process of development of farms and family farms in rural areas is analyzed. On the basis of generalization in the development of mechanisms to ensure the efficiency of the agricultural sector of the economy it is necessary to take into account the features and vulnerabilities of the organizational and legal form of management. It was found that the most vulnerable to the introduction of quarantine restrictions are small and medium-sized farms, mostly those that operate in the field of vegetable growing, including the production of early vegetables and berries. The main measures to counteract the impact of restrictive measures under COVID-19 were revealed, which allowed to assess the prospects for the development of farms, including family farms, as well as to make predictive calculations of the impact of the proposed measures on their formation and development.

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Keywords Development · Family business · COVID-19 · Farms · Family farms

1 Introduction

The pandemic caused by COVID-19 in the current conditions of family business development in rural areas poses serious challenges for the agricultural sector of the economy. The situation requires the state to pay more attention to leveling the potential risks that agricultural producers have faced and will face. Among them, the most vulnerable is the family business, which is currently represented by farms and family farms, as well as personal farms. Under such conditions, it is important to prevent the rupture of established chains of production and supply of key agricultural products. Also important in a pandemic is the issue of regulating volatility and price fluctuations in food markets. COVID-19 is a global crisis that has, without exaggeration, already affected the food and agricultural sectors.

2 Literature Review

The issue of development of family business, and its organizational and legal forms, as in theoretical, methodological and practical aspects are covered in the publications of such scientists as: Borodina (Borodina and Prokopa 2014), Malik (Malik and Zaiats 2013; Malik and Shpykuliak 2018; Malik et al. 2018; Lupenko et al. 2019; Nadiia and Igor 2020), Lupenko (Lupenko et al. 2019), Osipova (2017), Prokop, Berkuta, Betlii (Borodina and Prokopa 2014; Prokopa et al. 2010), Spaskyi (2019), Shpykuliak (Malik and Shpykuliak 2018; Malik et al. 2018; Lupenko et al. 2019; Shpykuliak 2019) and others. Also, the issue of this scientific issue is given by Western scientists, among them: Acikgoz (2020), Hill (2020), Petrova (2020), Rossi (2020), and others.

However, the assessment of the impact of restrictions and practical measures to minimize the impact of quarantine measures in the context of COVID-19 on farms and family farms was mostly not considered by the authors, which is of particular interest for scientific issues.

3 Methodology

In order to analyze the development of family businesses, the method of triple exponential smoothing (TESM) with damping trend and seasonal component (LRDTSA) using the innovative platform for small and medium businesses SAP Business One was used. The study was based on data on the parameters of activity of small businesses, obtained during the analysis of statistical data.

4 The Results of the Study

Small and medium enterprises are the driver of economic development of any macrosystem, and in the context of paradigm shift, in particular caused by COVID-19, they can become the main driver of successful family businesses. Thus, the problem of analyzing the behavior of small and medium enterprises becomes an urgent economic task. Identifying the factors that will determine the policy of development and functioning of small and medium enterprises in the context of limiting factors during the pandemic, and proposing possible measures to stimulate their development by public authorities is a necessary condition today.

In Ukraine, the introduction of measures to limit the spread of COVID-19, led to the restriction of all economic activities, which could not adversely affect economic activity, affecting huge losses of jobs, income and markets for most businesses. Small and medium-sized farms, households and personal peasant farms, including family farms operating in the field of vegetable growing, in particular, grow early greenhouse vegetables and berries, are no exception. Due to quarantine restrictions, they were unable to sell their products, resulting in mass market closures - tons of unsold vegetables and fruits.

According to statistics in Ukraine, about 80% of fruit and vegetable products are sold in the markets, only 20% are large commercial supermarkets, in which a significant share has always been imports.

The economic shock is likely to be much more severe for Ukraine for two reasons. First, by COVID-19, the economy was already slowing, exacerbating existing unemployment problems, low incomes, and many other negative economic phenomena; secondly, the large agricultural sector with a large number of agricultural producers, including more than 70% of small and medium-sized farms, and personal peasant farms, which are employed in the informal sector and provide more than 40% of gross agricultural production are especially vulnerable, in particular due to lack of sales channels (closing markets, shops, fairs, restaurants), income and government support. Most of them, who have already felt the effects of the implemented quarantine measures, may cease their activities, which will negatively affect the actual production of agro products (and, consequently, the deficit and rising sales prices) and food security in particular.

These and many other negative phenomena directly affected the indicators of efficiency and effectiveness of both the actual farms and family farms, and PPF as important players in the market (Table 1).

Despite the positive trend in the dynamics of production by farmers and potential subjects of family farming, which are households, including PPF commodity, we see the need to conduct a forecast assessment of the quantitative structure of farms, including family and personal peasant farms (PPF) in Ukraine (Fig. 1).

According to the State Statistics Service of Ukraine, agricultural production is carried out in 33,164 thousand farms and more than 4.0 million rural households (households).

Table 1 The impact of COVID-19 on the development and effectiveness of farms and PPF in Ukraine

Index	2017	2018	2019	Forecast	
				2020	2025
Number of farms, units	34,137	33,164	33,089*	33,014	32,639
<i>Production of crop products, thousand tons</i>					
Cereal and bean crops	8686.4	10,104.9	11,489.7	12,874.5	15,644.1
Sugar factory beet	1105	961.2	459.7	396.6	348.6
Sunflower	2365.3	2811.6	3098.9	3492.2	3825.8
Potatoes	107.4	116	94.0	92.4	79
Vegetable crops	272.1	253	293.9	294.8	316.6
Fruit and berry crops	75.5	135.2	99.8	94.6	89.3
<i>Production of livestock products, thousand heads</i>					
Cattle	106.5	106.3	103.3	102.2	99.0
Incl. cows	3.2	42.8	42.9	45.3	49.0
Pigs	238.9	255.4	284.0	304.5	349.6
Sheep and goats	46.2	43.8	36.1	31.9	21.8
Including sheep	40.4	36.6	28.7	23.5	11.8
Horses	1.4	1.1	1.0	0.8	0.4
Poultry	3177.5	4039.1	4535.2	5275.0	6632.7
<i>Meat production (in slaughter weight), thousand tons</i>					
Meat	58.2	60.0	69.2	73.5	79.0
<i>Including</i>					
Beef and veal	9.9	7.6	8.4	7.1	6.4
Pork	21.1	19.1	20.4	19.5	19.2
Lamb and goat	0.0	0.0	0.0	0.0	0.0
Poultry meat	27.2	33.3	40.4	46.8	53.4
<i>Production of milk, eggs, wool, honey</i>					
Milk of all kinds, thousand tons	194.8	201.8	209.2	216.3	223.5
Eggs of all kinds, million pieces	89.1	117.2	134.3	158.7	181.3
Wool of all kinds, t	55	57	49	47.7	44.7
Honey, t	111	120	98	96.7	90.2
Amount of PPF, thousand	4031.7	3996.5	3975.1	3953.7	3846.7
Households, million people	4.6	4.6	4.6	4.6	4.5
Cereals and legumes	14,011.6	13,960.3	15,161.1	15,527.2	16,101.9
Sugar factory beet	654.4	651.1	546.2	509.0	454.9
Sunflower	1638.8	1971.6	2165.5	2452.0	2715.4
Potatoes	21,778.8	22,087.6	19,895.8	19,371.1	18,429.6

(continued)

Table 1 (continued)

Index	2017	2018	2019	Forecast	
				2020	2025
Number of farms, units	34,137	33,164	33,089*	33,014	32,639
Vegetable crops	7942.4	8083.1	8266.7	8421.7	8583.9
Fruit crops and berry	1714.2	2014.7	1762.7	1879.0	1903.3
<i>Production of livestock products, thousand heads</i>					
Cattle	2364.2	2194.8	2042.5	1878.8	1718.0
incl. cows	1551.2	1451.6	1349.9	1249.6	1149.0
Pigs	2806.3	2629.7	2427.3	2242.1	2052.6
Sheep and goats	1122.3	1086.3	1035.9	995.1	951.9
Including sheep	549.1	526.0	500.0	475.9	451.4
Horses	247.9	229.8	212.0	194.0	176.1
Poultry	92,318.6	92,841.5	92,712.6	93,018.2	93,215.2
<i>Meat production (in slaughter weight), thousand tons</i>					
Meat	835.2	821.3	794.5	776.3	756.0
<i>including:</i>					
Beef and veal	268.7	271.2	267.8	268.3	267.9
Pork	363.3	342.8	323.5	303.4	283.5
Lamb and goat	12.7	13.4	12.7	12.9	12.9
Poultry meat	170.6	174.3	171.7	173.3	173.9
Rabbits	11.6	11.6	11.1	10.9	10.7
Horses	8.3	8.0	7.7	7.4	7.1
<i>Production of milk, eggs, wool, honey</i>					
Milk of all kinds, thousand tons	7514.8	7308.5	6934.6	6672.4	6382.3
Eggs of all kinds, million pieces	7140.5	7231.7	7319.9	7410.1	7499.8
Wool of all kinds, t	1712	1672	1534	1461.3	1372.3
Honey, t	65,384	70,389	69,150	72,073.7	73,956.7

*Preliminary data (Derzhavna sluzhba statystyky Ukrainy 2020; Statystychnyi zbirnyk Roslynnnytstvo Ukrainy 2019; Statystychnyi zbirnyk Tvarynnnytstvo Ukrainy 2019)

As of January 1, 2019, the number of private farms reached 3996.5 thousand units, or 82% of all households in rural areas, and the total area of land in their use enlisted 6132.2 thousand hectares, which is 43.3 less than in 2018. The average size of personal farms in Ukraine is 1.53 hectares.

Despite the negative trend of the prospects of changing the legal status of farms, this indicates the potential effectiveness of the family form of management, as with a decrease in their number may also increase the share of land use above the established criterion, which will require changing the legal status of private individuals.

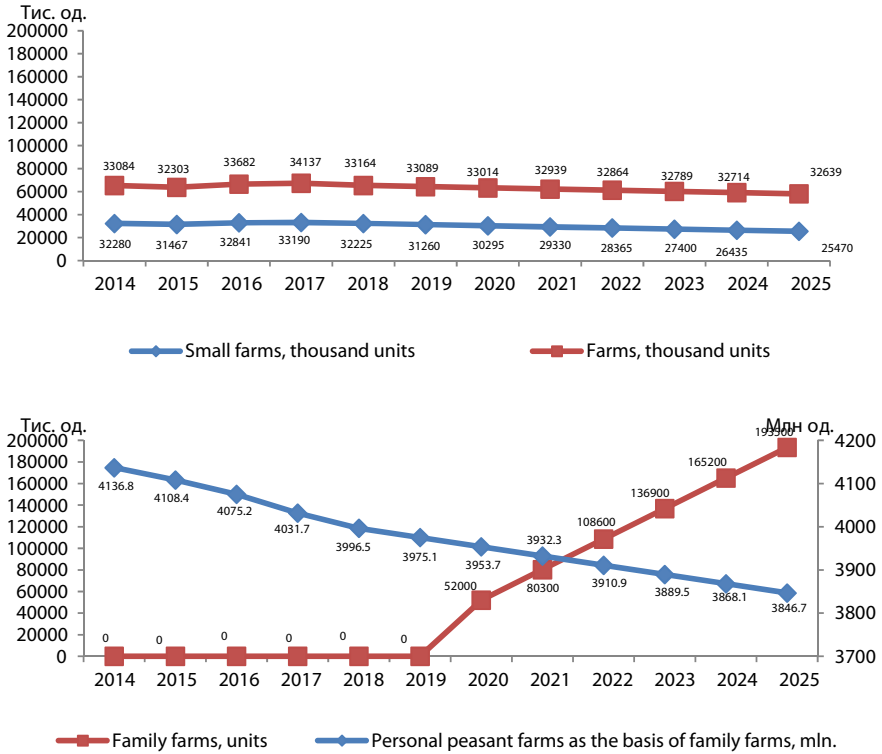


Fig. 1 Structure and dynamics of development of farms and personal farms in agriculture of Ukraine in terms of COVID-19 (Derzhavna sluzhba statystyky Ukrainy 2020)

When developing mechanisms to ensure the efficiency of the agricultural sector of the economy, it is necessary to take into account the peculiarities and vulnerabilities of the organizational and legal form of management. It was found that the most vulnerable to the introduction of quarantine restrictions are small and medium-sized farms, as well as PPF, mostly those that carry out their activities in the field of vegetable growing, including the production of early vegetables and berries. After all, they faced the problem of selling products, which were mostly sold in local markets. This can directly lead to a reduction in their number. Thus, according to estimates, by 2025 the number of farms may decrease by 450 units that is up to 32,639 units against 33,089 units in 2019. However, the introduction of measures, in particular to compensate family farms for the share of SSC, can provide in the near future approximately 200 thousand family farms both through a change in the organizational and legal form of existing small farms and through the formalization in the market environment of personal peasant farms with the acquisition of official status of business entities, private individuals.

5 Conclusions

Quarantine measures have drawn increased attention to agriculture, a vital sector that is often unresolved by both government and policy, reaffirming that the agricultural sector is central to security and livelihoods. Without exaggeration, small family and peasant farms are a priority sector for employment, supported by a real capacity to mitigate the effects of the COVID-19 pandemic crisis.

The prior and practically unsolved problem is the possibility of selling products, which requires specific steps to be implemented through state support systems: to develop and approve a financial mechanism for compensation of losses to farms for early crops and greenhouse products, through the expansion of approved areas of support for farmers and cooperatives; to adapt of the organization of the functioning of the infrastructure of trade in agro-food products to the requirements of the introduced quarantine measures, in particular through the introduction and support of alternative tools for the sale of agricultural products - e-commerce platform; to open and create the trading platforms adapted for trade in agricultural products with observance of quarantine conditions on the agro-food markets; to organize cooperative sales channels for agricultural products with the involvement of e-commerce networks; to oblige large retail chains to prioritize the purchase of seasonal agricultural products from domestic producers at the lowest reasonable prices; to introduce preferential lending for microbusiness, including the development and introduction of a mechanism for interest-free credit lending with unambiguous, simple and clear terms of issuance; to abolish all mandatory tax payments by the end of the year for sole proprietors and self-employed in the field of green and agritourism, in which the activity is terminated by the decision of the relevant authorities; to accelerate the formation of a register of family farms to formalize and determine the criteria for providing them with state financial support under quarantine.

In the current situation an important organizational and institutional aspect of support for farmer is creating organizational and economic conditions, providing farms with infrastructure opportunities to access markets, creating a quarantine-adapted mechanism for supplying products, sites for sale, because farmers are losing en masse harvest of early vegetables, etc.

It should also be noted that, according to estimates, by 2025 the number of farms may decrease by 450 units that is up to 32,639 units against 33,089 units in 2019. However, the introduced measures, including compensation for family farms to share SSC, are able to provide in the near future approximately 200 thousand similar farms both through a change in the organizational and legal form of existing small farms and through formalization of personal farms with the acquisition of official status of business entities - Individual entrepreneur- in the market environment.

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Learning Continuity During the Novel Coronavirus (COVID-19): A Case Study of Arts Faculty Students at University of Dhaka



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Abstract The COVID-19 pandemic has been affecting the educational and social systems world over, and Bangladesh is no exception. Insufficiency of trained human resources in dealing with the pandemic has been prompting the populous at large to clamor for more. Therefore, this paper analyzes the experiences and perceptions of the students of the Faculty of Arts about learning continuity practices during the ongoing COVID-19. Quantitative approaches were used for this study. From the various departments of the Faculty of Arts, 205 students replied to the online survey questionnaire. The data were analyzed using SPSS version 20. The study shows the learners agree with the learning continuity practices. However, high costs of internet bandwidth are causing major impediments for sustaining online education in the long run. Results of the chi-square test showed there was no major difference in the use of personal computers between male and female students. This study was limited to only the Faculty of Arts at the University of Dhaka. The findings of this study would be helpful for universities in Bangladesh to improve the quality of e-learning and implement clear policies and guidelines. Present paper also provides some policy level implications based on the findings. The current study offers several areas for future research.

Keywords E-learning · Online learning · COVID-19 · Learning continuity · Faculty of Arts

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1 Introduction

In December 2019, the city of Wuhan in China witnessed the outbreak of a novel coronavirus (COVID-19) (Abdulmir and Hafidh 2020). It spread like wildfire globally, crippling the world economy and bringing life to a stand still. The education sector was no exception; across the globe, students were compelled to learn from home. They were forced to pursue 'online learning' with all academic institutions being closed; since then, the practice seems to have expanded exponentially (Ferrel and Ryan 2020). The pandemic has tested the readiness of governments to tackle a crisis that demands online and remote action. Under 'natural' circumstances, institutional efforts to spread online learning were carried out with stiff resistance from various sections of the society (Scagnoli et al. 2019). Online learning is not one single entity but rather a growing collection of modalities and technologies (Sandars et al. 2020). Online learning in its entirety is dependent on technological devices and the internet (Adedoyin and Soykan 2020). Where technology transmits knowledge through content learning, such as text, video conferencing, and online evaluations. Although traditional teaching experience cannot be substituted, online educational programs can empower students in both positive and productive ways to improve their learning (Ali 2020). Educational institutions and their programs needed to be prepared for such challenges; for instance, they had to have multi-modal approaches, increase and develop current learning tools and strategies to maximize student engagement and learning. The sudden outbreak of COVID-19 has exposed some of these drawbacks while bringing to the fore the importance of remote research and distance learning. Ironically, this pandemic has made online learning the 'only' learning alternative today (Sujarwo et al. 2020). Notably, the basic essence of continuity of learning is embedded in the fact that even if institutions are closed, learning must continue (Mukherjee 2020). Based on this premise, this situation is undoubtedly an excellent opportunity to increase the standard of education by working on emerging innovations (Jadhav and Mahadeokar 2019). The proliferation of non-traditional students is possibly one of the important outcomes of education 4.0. Eventually, these mature learners, who are focused and engaged in selection-based learning, will invade the learning space, assuring them of their learning objectives (El-Seoud et al. 2014). The Ministry of education in Bangladesh issued a circular note for schools and other educational institutions, including higher education to stop conventional teaching temporarily (Daily Prothom-alo 2020). From 18th March 2020, all educational institutes in Bangladesh were declared closed to avert the blowout of COVID-19 among the students (Anwar et al. 2020). So, the key objective of the present study is to identify the Faculty of Arts students' perceptions of learning continuity during the pandemic and reveal the challenges in higher education.

2 Problem Statements

The pandemic has influenced students' lives in many ways, not only negatively impacting their studies but also impacted their personal lives owing to social constraints prevalent today (Bender 2020). Many final-year students are staring at an uncertain future. As for others; they are almost immediately separated from their social group and may not be able to complete their course or tests in the usual way. Given the current situation, it is unlikely that the students who make the transition to higher education would be offered a session later for their year-end school examinations (e.g. the International Bachelor of Arts) (Tobolowsky and Allen 2016). Particularly as regards their programs, they are nervous even before they know how to rebuild their courses and assessment plans post the crisis. Tertiary institutions may not always be able to reassure them that they would be able to apply based on 'compassionate' admission criteria (Hameed et al. 2008). There are periods of uncertainty for teachers, parents, and students. Teachers and administrators of the school, colleges, and universities are endowed with the filial duty to instill hope and courage to the parents. Also with details of the examination patterns and admission processes under this altered situation (Klein and Ware 2003). The anxieties students in such times could be alleviated by teachers and counselors, possibly better than my parents. For a long time, various countries have established 'open' universities to offer comparable incentives through extending exposure to higher education by distance learning (Kogan et al. 2007). COVID-19 has restricted families to their home environment; parents are concerned about their challenging financial conditions. In these situations, it is difficult to study at home, particularly for low-motivated children. Such homes also lack the facilities and infrastructure that wealthier families find to be obvious, which makes the issue even more intriguing (Yan 2020).

Many scientific investigations have been carried out on COVID-19, both in medicine and other health sciences (Meng et al. 2020; Gondauri et al. 2020; Holshue et al. 2020; Usak et al. 2020; Toquero 2020). Nonetheless, very little has been done regarding the pandemic's impact on the education system (Bao 2020). Therefore, this study gives a snapshot of the challenges posed by the ongoing pandemic for higher education practitioners. In particular for those who need to keep up with emerging higher education paradigms, modern testing and accreditation processes, and new teaching and training strategies.

3 Research Questions (RQs) of the Study

The key objective of the present study is to identify the Faculty of Arts students' perceptions of learning continuity during the pandemic and reveal the challenges in higher education. The following research questions (RQ) are being probed to meet the research objective:

RQ1. Is there any use of online learning among students of the faculty of Arts during the pandemic?

RQ2. How would students rank their present situation as compared to before COVID-19?

RQ3. Is COVID-19 making any change in their life?

RQ4. Which method would be easy for students to join the class and what are the challenges for students to join online classes?

4 Literature Review

E-learning applies to any learning that is electronically allowed (Abbad et al. 2009). E-learning was defined by Jenkins and Hanson (2003) as learning encouraged and assisted by ICT. Clark and Mayer (2003) presented E-learning as machine guidance to facilitate learning. Anastasiades and Retalis (2001) argued that e-learning comes in three separate categories such as; a) full-online access learning, b) hybrid mode or blended learning, and c) web-assisted learning. Algahtani (2011) has explored three types of e-learning in education, including extension, blended e-learning, and online learning. Mamattah (2016) has shown that most students view e-learning as an innovative idea that needs to be inspired. However, some issues were also found, like the fear of employers' discrimination against those studying through e-learning. The study also found the preferred approach for students was blended learning, i.e. a combination of the online and classroom. Arkorful and Abaidoo (2014) looked into the impact of e-learning on higher education and identified its advantages and disadvantages. While they appreciated the flexibility, ease of access, cost-effectiveness, etc. offered by e-learning. They also observed the success of e-learning is often hampered by various problems. They indicated that lack of interaction between teachers and learners, the possibility of plagiarism are the problems of e-learning (Murphy 2020) while exploring the issue of securitization of higher education for post-pandemic pedagogy, maintained that e-learning may contribute towards overcoming the digital divide.

Daniel (2020) observes that the ongoing COVID-19 offers the teachers an opportunity to reap the benefits of asynchronous learning. As it gives them flexibility in planning the learning materials, and allows the students to cope with both home and study demands. Adedoyin and Soykan (2020) revealed that learners 'hid behind their cameras' as they were not obliged to turn them on. They also added that students' involvement had reduced due to the lack of suitable conditions in their homes and to the lack of support from their parents'. Similarly, Flores and Gago (2020) stated the license of online learning on technological apparatus and the provision of the apparatus is a key problem for educational institutions, teachers and students.

El-Seoud et al. (2014) extensively explored students' motivation vis-à-vis the effects of e-learning in educational institutions. They concluded the usage of multi-media aspects in e-learning was important to improve the degree of encouragement of students. They also highlighted the importance of delivering the contents effectively

and equipping the instructors with adequate training for ensuring the effectiveness of e-learning. Chitra and Raj (2018) emphasized the development of appropriate tools for enhancing the efficacy of e-learning. They also found out that distance learning systems used about 90 percent less electricity and produced 85% less CO₂ pollution than conventional campus-based education programs.

Ali (2020) while focusing upon the constructive impact of online learning on students, maintains that the teachers need to consider the students' financial ability to pay for learning. Also, concentrating on the availability of infrastructural facilities (e.g. the internet), and proper selection of learning applications to ensure the full benefit of e-learning. Allo (2020) argues that the teaching community at large needs to exercise thoughtfulness, coordination and careful decision-making in the pursuit of e-learning. He also emphasized the requirement to keep up with the fast proliferation of emerging technologies, thus rendering e-learning, hybrid, and remote learning a higher education necessity. Agarwal and Kaushik (2020) in their study assessing the students' perceptions of e-learning during the pandemic revealed the overall effect of e-learning on student morality had been positive. They termed online learning 'feasible' and further opined that it needs to become an integral part of postgraduate training in India, even once the pandemic is over.

5 Methodology

We applied quantitative approaches for this study. Further, we used a standardized questionnaire to collect data from the participants. Students from the Faculty of the Arts, University of Dhaka participated in the research. The Faculty of Arts is the largest in this university with seventeen departments. This Faculty represents the diverseness of the university while offering a wide range of disciplines like literature, history, linguistics, performance studies, information science and library management (Shuva 2010). Students were randomly chosen from various departments who were active in social media and belonged to diverse semesters. There were two parts to the questionnaire; the first segment addressed the socio-demographic characteristics, while the second, centered upon the usage of the internet along with COVID-19 related factors. From the various departments of the Faculty of Arts, 205 students replied to the online survey questionnaire, and the data were analyzed using SPSS version 20. Notably, this paper is largely influenced by related literature, collected from numerous documents like books, journal articles, websites, etc.

Table 1 Demographic profile of the respondents

Gender	Frequency	Percentage
Male	115	56.1
Female	90	43.9
Total	205	100%
Age group	Frequency	Percentage
18–21 y	110	53.7
22–25 y	73	35.6
26–29 y	15	7.3
Above 30 y	7	3.4
Total	205	100%
Current level of study	Frequency	Percentage
Undergraduate	147	71.7
Master	52	25.4
M.Phil and Ph.D.	6	2.9
Total	205	100%

6 Result

6.1 Demographic Profile of the Respondents

Out of the 205 responses (Table 1) it has been seen that 115(56.1%) were male, while 90(43.9%) were female respondents, implying thereby that there has been no gender discrimination. Most of the respondents 110(53.7%) belonged to the age category of 18–21 years, followed by 73(35.6%), 15(7.3%), who were in the age group of 22–25, and 26–29 years respectively. The lowest group of respondents i.e. 7(3.4%) belonged to the age group of more than 30 years. The data in Table 1 indicate their current level of study. Among all the 205 participants, the largest group i.e. 147(71.7%) were undergraduate students. A moderate number of respondents i.e. 52(25.4%) were Master Students, while the rest i.e. 6(2.9%) were MPhil and Ph.D. students.

6.2 Perceptions Towards Online Class During Pandemic Situations

Table 2 revealed that 89(43.4%) there is use of e-learning in pandemic situations, while 72(35.1%) of them agreed that there was no use in remote learning during pandemic situations, and 32(15.6%) strongly disagreed with the statement in itself.

Table 2 Perceptions towards online class during pandemic situations

Statement	Strongly disagree		Disagree		Neither agree nor disagree		Agree		Strongly agree	
	N	%	N	%	N	%	N	%	N	%
I do not foresee any usefulness of e-learning in Pandemic situations	32	15.6	89	43.4	00	00	72	35.1	12	5.9
In pandemic situations, I think e-learning platforms are user friendly	15	7.3	60	29.3	00	00	110	53.7	20	9.8
I do not think e-learning suits courses that require practical demonstrations	14	6.8	58	28.3	00	00	104	50.7	29	14.1
Technologies that are convenient to allow individuals to take class tests and send tasks online	38	18.5	87	42.4	00	00	72	35.1	8	3.9
Electronic resources are accessible to allow for direct contact between teacher and student without face-to-face meetings	34	16.6	71	34.6	00	00	87	42.4	13	6.3

Further, 110(53.7%) agreed that e-learning platforms have been generally user-friendly during this pandemic, whereas 60(29.3%) participants disagreed with the statements. 104(50.7%) accepted that e-learning is suitable for training, however, it needs realistic demonstrations; while 58(28.3%) participants disagreed with this statement. Moreover, 87(42.4%) participants disagreed with the fact that technology was readily convenient to allow individuals to take class tests and send tasks electronically, while 72(35.1%) agreed, and 38(18.5%) participants disagreed strongly. 87(42.4%) participants accepted that electronic resources were available to facilitate direct contact between the teacher and the student without face-to-face meetings, while 71(34.6%) disagreed, and 34(16.6%) strongly disagreed.

6.3 The Method Preferred by student's to Participate in the Online Class

Almost half i.e. 98(47.8%) respondents preferred the Zoom meeting application for online classes; 61(29.8%) preferred messengers (e.g. Facebook/Yahoo, etc.), while the rest i.e. 24(11.7%) favored Google Meet, and 21(10.2%) preferred WhatsApp. Interestingly, only 1(.5%) chose Microsoft Teams (Table 3).

6.4 Chi-Square Identity and Device Frequency and Internet Use Testing

Results of gender assessments showed there was no major gap in the use of personal computers between men and women students ($X^2 = 5.584$, $N = 205$, $df = 4$, $p = .232$); the effect size was minimal (Cramer's $V = .225$). Results of Chi-square gender studies indicated that there was no significant difference in internet use between both men and women ($X^2 = 5.584$, $N = 205$, $df = 4$, $p = .232$), and the effect size was minimal (Cramer's $V = .165$) (Table 4).

Table 3 Method preferred by students to participate in the online class

Method	Frequency	Percent
Zoom	98	47.8
Google meet	24	11.7
Microsoft Teams	1	.5
WhatsApp	21	10.2
Messenger	61	29.8
Total	205	100.0

6.5 *Chi-Square Tests for Gender and Decision Made by the Department and Participation in an Online Class*

Results of the chi-square tests of gender also showed that input from men and women students on answering questions about decision taken by the department did not vary significantly ($X^2 = .973$, $N = 205$, $df = 2$, $p = .615$); herein again, the effect size was minimal (Cramer’s $V = .069$) (Table 5).

Table 4 Chi-square identity and device frequency and internet use testing

Chi-square identity and device frequency and internet use testing	Value	Df	Asymp. Sig. (2 sided)	
Pearson chi-square	5.584	4	.232	
Likelihood ratio	5.739	4	.219	
Linear-by-Linear Association	.052	1	.820	
N of valid cases	205			
Symmetric measures	Value		Approx. Sig.	
Nominal by nominal phi	.225	.165	.034	.232
Cramer’s V	.225	.165	.034	.232
N of valid cases	205			

Table 5 Chi-square tests for gender and decision made by the department and participation in the online classes

Chi-square tests	Value	Df	Asymp. Sig. (2 sided)	
Pearson chi-square	.973	2	.615	
Likelihood ratio	.984	2	.611	
Linear-by-Linear Association	.795	1	.373	
N of valid cases	205			
Symmetric measures	Value		Approx. Sig.	
Nominal by nominal phi	.069		.615	
Cramer’s V	.069		.615	
N of valid cases	205			

6.6 Chi-Square Gender Assessments and Online Class Participation

Results from chi-square test indicated that there is no significant difference between gender in terms of their feedback on online class participation ($X^2 = 2.979$, $N = 205$, $df = 1$, $p = .084$); the effect size was minimal too (Cramer’s $V = .121$) (Table 6).

6.7 Where Are You Living Currently in Pandemic Situations?

Table 7 represents where the students have been living in this pandemic. The mean score of 3.45 (Male, $N = 115$; Std. Deviation, .752; Std. Error of Mean, .070) and 3.26 (Female, $N = 90$; Std. Deviation, .773; Std. Error of Mean, .081) indicated that most of the students are living in their village, while a few of them are living off-campus, however, within the same city (Dhaka).

Table 6 Chi-square gender assessments and online class participation

Chi-square tests	Value	Df	Asymp. Sig. (2 sided)
Pearson chi-square	2.979	1	.084
Likelihood ratio	3.018	1	.082
Linear-by-Linear Association	2.965	1	.373
N of valid cases	205		
Symmetric measures	Value		Approx. Sig.
Nominal by nominal phi	.121		.084
Cramer’s V	.121		.084
N of valid cases	205		

Table 7 Where are you living currently in Pandemic situations?

Gender	Mean	N	Std. deviation	Std. error of mean	Minimum	Maximum	Variance
Male	3.45	115	.752	.070	Off campus but in the same city	Own village	.566
Female	3.26	90	.773	.081	Off campus but in the same city	Own village	.597
Total	3.37	205	.766	.053	Off campus but in the same city	Own village	.586

6.8 Whom Are You Currently Staying with?

The data analysis (mean score of 1.45; N = 115; std. deviation, .499; std. error of the mean, .024) pointed out that most of the students are staying with family, while only a few of them (mean score of 1.00 and 1.67; N = 7 and 3; std. deviation, .000 and .577; std. error of the mean, .000 and .333) are staying with their roommates and/or family members (Table 8).

6.9 Related to Pre-COVID Times, How Would You Rank Your Overall Situation?

A considerable majority i.e. 78(38%) stated that their present situation is worse than before; 62(30.2%) participants replied that their position is much worse' than before, while 31(15.1%) participants said that their current condition was same as before. Further, 25(12.2%) participants selected the option of Not Applicable (N/A). Interestingly, only 9(4.4%) participants replied that their present situation was better than before (Table 9).

Table 8 Whom are you currently staying with?

Living	Mean	N	Std. deviation	Std. error of mean	Variance
Roommates	1.00	7	.000	.000	.000
Family	1.45	195	.499	.036	.249
Alone	1.67	3	.577	.333	.333
Total	1.44	205	.497	.035	.247

Table 9 Related to pre- COVID times, how would you rank your overall situation?

Overall situation	Frequency	Percent
Not Applicable (N/A)	25	12.2
Much worse than before	62	30.2
Worse than before	78	38.0
Same as before	31	15.1
Better than before	9	4.4
Total	205	100.0

6.10 *Is COVID-19 Changing the Expenditure of the Students?*

No statistically significant difference has been calculated between groups by ANOVA one-way, $F(3,201) = .787, p = .502$. Table 10 displayed that the ANOVA analytical performance, where there is no statistically relevant difference between the means of our group. Further, we note that the significance value is .502 (i.e. $p = .502$ which is greater than .05), and the expenditure for pandemic situations is not significantly different among students (Table 10).

6.11 *Challenges for Joining the Online Class*

Most of the participants i.e. 95(46.3%) replied that poor internet connection is a major challenge to join online classes. 34(16.6%) students said that the financial problem was another challenge. 24(11.7%) participants think that they are not mentally prepared for online classes, while 20(9.8%) students think that they do not have adequate training. Only 7(3.4%) participants replied that there was no internet connection at all in their village, and 9(4.4%) participants stated that they have not any Smartphone/laptop/desktop (Table 11).

Table 10 Is COVID-19 changing the expenditure of the students? One way ANOVAs test

Expenditure	Sum of squares	Df	Mean square	F	Sig.
Between groups	1.362	3	.454	.787	.502
Within groups	115.877	201	.577		
Total	117.239	204			

Table 11 Challenges for joining the online class

Challenges	Frequency	Percent
No smart phone/laptop/desktop	9	4.4
No internet connection in your village	7	3.4
Poor internet connection to join the online class	95	46.3
Electricity failure	16	7.8
Financial problem	34	16.6
Mentally not prepared	24	11.7
Do not have adequate training	20	9.8
Total	205	100

7 Findings and Discussion

Reacting to the COVID-19 emergency, numerous nations and tertiary instruction establishments have had to change their activities online. Importantly, in recent times, numerous nations have looked to advance their technological prowess; this includes building/upgrading infrastructure for fiber optics, for instance by the National Research and Education Networks (NREN) (Toquero 2020). Due to the ongoing pandemic, educational institutions all over the world over have been closed. Such physical closure of educational institutions has disrupted the pace of learning. It has opened up chances at the same time for nations to redesign their instructive method of conveyance and look to rapidly adopt innovations. Advanced education foundations in this way need to take advantage of the lucky break to fortify its proof-based practices. Then give open psychological wellness-related administrations and make the educational program receptive to the necessities of the evolving times (World Bank group education 2020). In this study, we note that while 89(43.4%) respondents affirmed that e-learning is indeed useful, especially in pandemics, 72(35.1%) differed and replied negatively. Moreover, this study found that more than half of the respondent's i.e.104(50.7%) agreed that e-learning is appropriate for courses, which require realistic proofing; nevertheless, 58(28.3%) respondents disagreed with this statement. 98(47.8%) respondents preferred zoom, followed by the messenger i.e. 61(29.8%) respondents. Chi-square tests for gender have shown there's no major difference in the internet frequency between men and women students ($X^2 = 5.584$, $N = 205$, $df = 4$, $p = .232$). Chi-square test results also revealed that the response of all the participants at large was not substantially different ($X^2 = .973$, $N = 205$, $df = 2$, $p = .615$) as regards questions on the department's decision. The findings of the chi-square gender tests also showed that there were no major gaps in the answers on online class participation ($X^2 = 2.979$, $N = 205$, $df = 1$, $p = .084$) between all the participants. Even amidst this pandemic, there doesn't seem to be any statistically significant difference in expenses too. Moreover, we noted that most of the students have been living in their village during these trying times, while a few have been staying within the city (i.e. Dhaka), but off-campus. We also noted that most of the students were staying with family members, and only a few were staying with other members (e.g. room-mates/friends, etc.). Notably, a considerable majority i.e. 78(38%) of the students stated that their present situation is worse than before. Where 62(30.2%) students replied that their positions were 'much worse' than before. 95(46.3%) students think that poor internet connection to join online classes is the major challenge.

The world has been ill-prepared for an outbreak of this scale and magnitude. Although a few countries have managed to stave off the first wave of the pandemic at the expense of huge human and financial losses. Most of the countries are still grappling with the pandemic with no end in sight. Additionally, in most countries, the education sector has borne the brunt of the pandemic that has necessitated introducing online classes. It has put immense pressure on those countries' ICT infrastructure (Brown et al. 2008). Importantly, the pandemic has also been an eye-opener for the

authorities and governments. As it revealed the weaknesses of the ICT infrastructure and the inherent problems of the education systems. Herein confide the significance of this research, as it has looked to explore critical issues related to online learning during the ongoing pandemic (Bacow 2020).

As the findings reveal, the acceptability of online learning is rising; students are beginning to realize the significance and inevitability of online learning during this unprecedented public health crisis. They are gradually equipping themselves to take part in e-learning and acclimatize themselves with the major e-learning platforms (Karim and Hashim 2004). Although the suitability of online platforms for courses that require practical demonstration is contentious, most respondents seem to agree on this point. However, this issue certainly needs further exploration, as the usefulness of online platforms for certain courses (especially in the science stream) is not beyond dispute. The effectiveness of online classes, as it is evident from the findings, is severely hampered by the poor quality of internet connection. Many of the students join online classes from their homes, often in the rural and suburban areas. They face multifarious problems like low bandwidth, frequent disruption in internet connection, and power shortage. Although the Government of Bangladesh has succeeded in expanding internet connectivity even to the remote villages and far-flung areas. The country's internet users currently stand at slightly more than 100 million, with the majority of them covered by the mobile internet network (Internet Subscribers in Bangladesh 2020) Still there are many outstanding issues about the penetration of broadband internet connection and stable connectivity. The financial inadequacies of the students, exacerbated by the fact that many of them do not even own smartphones, have substantially worsened the problem. Overall, this is an issue that calls for immediate attention from the government, as it does have a long-term impact on the education sector at large.

The magical triad of three classical theories i.e. constructivism (Dewey 1938), connectivism (Siemens 2005) and media richness (Daft and Lengel 1986) has collectively been highlighted. The propagation of content and its subsequent assimilation in the minds of learners are primarily dependent on a few factors. They include peer learning, skill of problem-solving, ability to connect with the subject through their experiences to construct knowledge, and the responsible role of media working as a vehicle to transmit the learning content across the network. Absence of any one of these legs from the triad will fail the basic purpose of online education. Going by our results, the impelling infrastructural issues and exceptionally high bandwidth charges in the country work as a deterrent to the proliferation of online learning.

8 Policy Level Implications

Bangladesh, a South Asian nation with a population of approximately 170 million has a total of 46 public, 106 private, and 3 international universities (University Grant Commission 2020). The University of Dhaka is the country's largest and oldest university, which opened its doors for the students on 1 July 1921. With 13

Faculties, 83 Departments, 12 Institutes, 20 residential halls, 3 hostels, and more than 56 Research Centers, 37,018 students, and close to 2,000 teachers. The university continues showing a vital character in fulfilling the higher education needs of a large portion of the population (University of Dhaka 2020). For a country with such a large population, the role played by the University of Dhaka in imparting quality education can hardly be over emphasized.

Findings of the paper indicate universities need to plan for learning continuity through online learning. So, educational institutions need to reassess curriculum approaches, to effectively tackle critical challenges of COVID-19. Health officials at the university campuses could also develop guidelines and tools to ensure stakeholders are in line with environmental health activities beyond their academic systems (Blumenstyk 2020). Educators and researchers must join to examine and evaluate the disturbances caused by the pandemic. They also need to inspire students to continue their study and quest for knowledge. The growth of online learning must be accelerated and organized more consistently with universities to explore the most useful aspects of technical learning (Surayatika 2019). In times of crisis, higher educational institutions must take advantage of frameworks and training programs learning continuity. The pandemic has resulted in closing down thousands of universities, impacting global education. Also, educational organizations have been facing major obstacles in their approach, in terms of preparation, implementation, and assessment. However, looking at it positively, the pandemic has also allowed us to upgrade training methods and concentrate on emerging technologies with education 4.0 (Toquero 2020). Higher educational institutions need to take advantage of this opportunity, and enhance best practices, provide affordable mental health services and meet the needs of curricular programs at evolving times. In the context of the COVID-19 in the Philippines, (Javaid et al. 2020) pointed out that educational institutions do need to see the crisis as a way to improve information monitoring, reporting and evidence-based implementation. So that online learning services can be made even better for learning continuity of the students. As this study revealed, a substantial number of the students have expressed a positive attitude towards online learning, demonstrating thereby their readiness for e-learning. More studies of this kind will provide valuable information regarding the perception and the challenges and opportunities of e-learning. It would possibly help the policymakers plan e-learning programs, reflecting the ground reality of Bangladesh and other developing nations (Sarker et al. 2019). The biggest obstacle to implementing a successful e-learning program, as identified by the majority of respondents, is weak ICT infrastructure. Governments must make all-out efforts to strengthen the internet infrastructure to ensure the continued success of the e-learning programs both during the pandemic and in the post-pandemic periods (Tretter et al. 2020).

9 Conclusion

Finally, this phenomenal situation will change. The later, new normal ecosystem would require integrative development and collaboration between academia and administration to propagate the government's mandate on education for a sustainable future (Chick et al. 2020). Learning continuity through e-learning encourages students to relate with everyone and also helps them to share knowledge effectively. It also expands the interactions of both the teaching and learning processes and facilitates communication. Our study attempted assessing the readiness of students for e-learning and came up with insightful findings. The weakness of internet connectivity has been cited as a major stumbling block to online learning, which needs to be corrected without delay. Students have accepted the inevitability of e-learning in these challenging times, and are striving to adapt to this. However, if they are not provided the necessary facilities and required infrastructural support, students will fail to adapt to e-learning. Therefore, they would be unbenefited from this learning methodology at the desired level. Educationalists and policymakers need to comprehend the challenges as well as the opportunities provided by e-learning and act accordingly. Only then will it be possible for the community and society at large to reap the full benefit of learning continuity by e-learning both during and even after the pandemic.

9.1 *Limitations and Future Research Scope*

The response rate is included in the limits of this study. The number of participants is two hundred five compared to all students from the Faculty of Arts. Out of 13 faculties, only the Faculty of Arts was included in the present study. The current study offers several areas for future research, like surveying students and teachers of various faculties of University of Dhaka and other higher educational institutions in Bangladesh.

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The Impact of Conditional Conservatism on Bank Loan During Pandemic Covid 19 in the Asia Pacific Countries



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Abstract This paper examines the impact of conditional conservatism on the decision to provide loans for a borrower in the first year of the health crisis, pandemic Covid 19. The samples are banks listed on the stock exchanges of Asia Pacific countries, namely Australia, New Zealand, Singapore, South Korea, Indonesia, and Thailand for 2019 and 2020. The 2019 period is for observing the application of conditional conservatism in normal conditions, while 2020 is for investigating the global health crisis, the covid 19 pandemic. The amount of the observation is 68 bank years. The determination of the sample countries was based on consideration of countries with high and low COVID-19 cases. We employ a multivariate model with cross-sectional data to test the hypothesis. The findings show that in the first year of the pandemic COVID 19, the loan provided by banks is lower than before the pandemic. However, to anticipate the default risk, banks increase the allowance for loan loss. The stressing factor, conditional conservatism, is higher during the crisis but does not influence the loan. Besides, operating cash flow is getting higher and significantly affects the loan. Otherwise, profitability and liquidity are lower but significantly affect the loan.

Keywords Conservatism · Bank loan · Pandemic Covid 19 · Loan loss provision · Asia-Pacific Countries

1 Introduction

The COVID-19 pandemic began to spread throughout the world in early 2020. This pandemic was proclaimed as a global human health crisis due to the worse effect of the crisis on human activities and the economy and state finances at almost all countries in the world (Khurana et al. 2019). The crisis also affects business activities and company liquidity (Corbet et al. 2020; De Vito and Gómez 2020). At the onset of the pandemic, financial markets around the world also slumped, trading volume and

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stock prices fell as well as stock market liquidity (Corbet et al. 2020). This pandemic is categorized as being even more severe than the global financial crisis in 1997/1998 and 2007/2008 (Khurana et al. 2019). During the first financial crisis, in 1997/1998, almost all companies, especially banks in Southeast Asia and East Asia, experienced the worst financial crisis that caused a deep economic downturn. Companies need a long time to recover from the financial crisis (Song and Lee 2016). In the second global financial crisis, in 2007/2008, the worst affected companies were financial companies in America and Europe (Balakrishnan et al. 2016; Zhang 2020). During the health crisis due to COVID-19, the companies that were most severely affected were companies exporting and importing plantation and agricultural products due to restrictions on goods entering and leaving each country, transportation companies, especially airlines (Maneeop and Kotcharin 2020), hotels, and resorts, restaurants, and venues for events (Im et al. 2020). Many of these companies had to temporarily stop their business activities and lay off their employees for a while.

The decline in business activities led to debt growth (De Vito and Gómez 2020) from other sectors to banks, thus affecting banking financing activities. At the onset of the COVID-19 pandemic, DeVito and Gomez (2020) predicted that the COVID-19 pandemic would cause a liquidity crisis for companies listed on the stock exchange due to a drastic sales downturn. The company can only survive for a few months if sales decline to 50–75%. During that period, cash flow from operations can cover the short-term debt. If the pandemic continues, non-financial companies will increase their short-term debt and long-term debt to prevent a liquidity crisis. However, the debt upsurge did not fully address the liquidity problems, as indicated by about a tenth of the listed companies will experience a liquidity crisis within 6 months of the pandemic. For banks, this is an opportunity to increase bank loans to maintain an ideal Loan to Deposit Ratio (LDR) by avoiding default credit risk. Therefore, this research focuses on banking. Shocks that occur during the crisis create high uncertainty that can drastically reduce the rate of liquidity and bank performance (Balakrishnan et al. 2016). To maintain a balance between total loans to third parties and total third-party funds, banks must continue to carry out financing even in times of crisis. This effort is in line with the borrowers' (companies in other sectors) need when they must increase financing activities in certain condition in order to increase their company value. Diantimala et al. (2021) show that making appropriate financing decisions increase the value of the company. Banks can retain financing stability if they use the concept of conservatism before the crisis (Lawrence et al., 2012; Kousenidis et al., 2014; Ha 2021) because conditional conservatism reflects a timelier recognition of economic losses than economic gains (Zhong and Li, 2016; Khan and Watts 2009).

Previous researches examined the impact of conservatism on bank loans by considering borrowing companies (Zhao et al. 2014) and trade credits provided by suppliers to customers during the 2007–2008 global financial crisis (Zhang 2020). There are similarities in the results of their research in terms of subjects who perform conservatism. Zhao et al. (2014) showed that companies that apply conservatism receive higher bank loans, lower interest rates, and lang periods than companies that do not implement conservatism. Zhang (2020) pointed out that in times of financial crisis,

suppliers prefer conservative customers to unconservative ones due to higher information asymmetry in the production network. Both results conclude that companies with conservatism have lower risk and information asymmetry, so they receive special treatment to increase their credit scores. However, from the bank's perspective, there are still very few studies that examine the effect of the application of conservatism on financing decisions by banks during the crisis. Ha (2021) examined the influences of applying conditional conservatism on the quality of loans provided by banks to their customers under normal conditions, not in a global financial crisis. The results showed that conservatism is beneficial for banks to keep high loan quality under higher risk and information asymmetry. The conservatism reduces bank risk-taking in loans because the risk of default has been anticipated by a loan loss provision and provision for credit losses. This result is consistent with the results of Leventis et al. (2013) who found that banks with effective board and audit governance structures prefer loan loss provision than changes in non-performing loans. Therefore, this study examines the effect of conditional conservatism by banks on the decision to increase their lending in the first year of the covid 19 pandemic. The pandemic at the beginning of 2020 reflects higher environmental risk perceived by banks which triggers a higher information asymmetry. In conditions of high information asymmetry, the risk of crashing stock prices is higher (Kousenidis et al., 2014). Moreover, Kousenidis et al. (2014) and Kim and Zhang (2015) explained that companies with a higher level of conditional conservatism face a lower crash risk of stock prices. We proclaim that in the Covid 19 pandemic, conditional conservatism helps banks to avoid the crash risk of stock prices so that able to provide more loans to customers.

In a higher information asymmetry condition, banks intensify the allowance for credit losses that contain their high opportunistic interests to anticipate risk (Ha 2021). During the global crisis, the level of uncertainty and information asymmetry is higher than normal condition (Balakrishnan et al. 2016). We argue that in the first year of the COVID-19 pandemic, the need for corporate debt was so high (De Vito and Gómez 2020) that banks increased their lending by allocating credit losses opportunistically. Ha (2021) states that conservatism improves loan quality. The improvement of loan quality is even higher in high-risk conditions. We suggest a positive correlation between conservatism and loan quantity is higher during the global health crisis.

2 Research Method

2.1 *Sample and Data Collection Techniques*

The sample companies in this study are financial companies, namely banks listed on the stock exchanges of Asia Pacific countries, namely Australia, New Zealand, Singapore, South Korea, Indonesia, and Thailand. The amount of the observation is 68 bank years for the period 2019 and 2020. The determination of the sample

Table 1 Determination of sample countries based on Number of Covid 19 cases

Countries with high COVID-19 cases	Countries with low COVID-19 cases
Indonesia, South Korea, and Thailand	Australia, New Zealand, and Singapore

Notes: WHO data sources are accessed at <https://covid19.who.int/>. Data on countries with COVID-19 cases divided by 3. First: >1 million cases are classified as high. Second: 100,000–1 million cases are classified as moderate. Third: <100,000 cases are classified as low

countries was based on consideration of countries with high and low COVID-19 cases as shown in Table 1.

The sample banks have the same accounting period, starting from January 1 to December 31 every year, financial statements are presented in English, and are complete. The observation period is 2019 and 2020. The 2019 period is for observing the application of accounting conservatism, while the 2020 period is for observing the global health crisis, the covid 19 pandemic. The sampling method is purposive sampling with the criteria of companies applying accounting conservatism for 3 consecutive years. This is to consider consistency in accounting policies, namely using the same accounting method for at least 3 consecutive years.

2.2 Definition and Measurement of Research Variables

The dependent variable of this study is a bank loan for customers. According to Ha (2021), a loan for a customer is calculated by the total loan deflated by total assets. The independent variable is conditional conservatism (CC_{it}). Conservatism is a crucial accounting concept for a company due to its prudent approach to revenue recognition and measurement (Givoly and Hayn 2000). Accounting conservatism is measured by conditional conservatism developed by Basu (1997) and used by Givoly and Hayn (2000) and Khan and Watts (2009) and several other recent studies, including Balakrishnan et al. (2016), Bandyopadhyay et al. (2017), García Lara et al. (2016) and Zhang (2020). Conditional conservatism was measured using the firm-specific asymmetric timeliness measurement. This measure describes the company’s accounting conservatism for one accounting year. Indications of accounting conservatism are shown by the relationship between earnings and stock returns as follows:

$$Er_i = \alpha_0 + \alpha_1 DM_i + \alpha_2 SR_i + \alpha_3 DM_i * SR_i + \varepsilon_i \tag{1}$$

where Er_i is earnings of firm i ; α_0 is constant; α_1 is coefficient of dummy; Dm_i is a dummy variable equal to 1 when $SR < 0$, and equal to 0 otherwise; α_2 presents good news timeliness; SR_i is stock return of firm i ; α_3 represent conservatism which

is incremental timeliness to bad news over good news; $DM_i * SR_i$ is; and ε_i is error term. Total bad debt timeliness is $\alpha_2 + \alpha_3$.

To estimate the accounting timeliness that reflects good news and bad news each year for the company’s accounting period, the term G-Score is used to indicate the timeliness of good news each year, and the C-Score is used to indicate the incremental timeliness of the bad news every year. G-Score and C-Score are linear functions of size, firm value, and leverage as follow:

$$G - Score = \alpha_2 = \lambda_0 + \lambda_1 Sz_i + \lambda_2 FV_i + \lambda_1 Lv_i \tag{2}$$

$$C - Score = \alpha_3 = \gamma_0 + \gamma_1 Sz_i + \gamma_2 FV_i + \gamma_3 Lv_i \tag{3}$$

To estimate the G-Score and C-Score, we substitute the above two equations into Eq. (1) as follows:

$$\begin{aligned} Er_i = & \alpha_0 + \alpha_1 DM_i + SR_i(\lambda_0 + \lambda_1 Sz_i + \lambda_2 FV_i + \lambda_1 Lv_i) \\ & + DM_i * SR_i(\gamma_0 + \gamma_1 Sz_i + \gamma_2 FV_i + \gamma_3 Lv_i) \\ & + (\delta_1 Sz_i + \delta_2 FV_i + \delta_3 Lv_i + \delta_4 DM_i * Sz_i + \delta_5 DM_i * FV + \delta_6 DM_i * Lv_i) \\ & + \varepsilon_i \end{aligned} \tag{4}$$

Zhang (2020) also uses C-Score and G_Score to describe timeliness measurements as linear functions of firm value, firm size, and leverage. C_Score is the firm-specific measure of conditional conservatism, wherein a higher value of C_Score presents a higher level of conditional conservatism (Zhang 2020).

Crisis or not crisis is moderating variable in this study. Ha (2021) stated that the relationship between conditional conservatism and loan quality depends on information asymmetry or risk. The moderating variable, crisis or non-crisis, is measured by dummy 2 for crisis and 1 for non-crisis. Based on Ha (2021), a loan provided to a customer is sensitive to loan loss provision, non-performing loans, operating cash flow, profitability, and liquidity. Therefore, these variables are control variables.

2.3 Data Analysis Method

Ha (2021) used risk or information asymmetry moderating variable on the relationship between conservatism and loan quality. Based on Ha (2021), to test the hypothesis, this study reflected higher risk and information asymmetry as crisis or non-crisis condition as moderating variable in the multivariate analysis model as follow:

$$\begin{aligned} Ln_{it} = & \beta_0 + \beta_1 CC_{it} + \beta_2 LLP_{it} + \beta_3 NPL_{it} + \beta_4 OCF_{it} + \beta_5 Pfit \\ & + \beta_6 Lq_{it} + \beta_7 CC * Cr_NCr_{it} + \beta_8 LLP * Cr_NCr_{it} \end{aligned}$$

$$\begin{aligned}
& + \beta_9 NPL * Cr_NCr_{it} + \beta_{10} OCF * Cr_NCr_{it} \\
& + \beta_{11} Pf * Cr_NCr_{it} + \beta_{12} Lq * Cr_NCr_{it} + \varepsilon_i
\end{aligned} \tag{5}$$

To avoid multicollinearity problem, we divided the variables in the model into two as follows:

$$\begin{aligned}
Ln_{it} = & \beta_0 + \beta_1 CC_{it} + \beta_2 LLP_{it} + \beta_3 NPL_{it} + \beta_4 OCF_{it} \\
& + \beta_5 Pf_{it} + \beta_6 Lq_{it} + \beta_7 Cr_NCr_{it} + \varepsilon_i
\end{aligned} \tag{6}$$

and

$$\begin{aligned}
Ln_{it} = & \beta_0 + \beta_1 Cr_NCr_{it} + \beta_2 CC * Cr_NCr_{it} + \beta_3 LLP * Cr_NCr_{it} \\
& + \beta_4 NPL * Cr_NCr_{it} + \beta_5 OCF * Cr_NCr_{it} + \beta_6 Pf * Cr_NCr_{it} \\
& + \beta_7 Lq * Cr_NCr_{it} + \varepsilon_i
\end{aligned} \tag{7}$$

where Ln_{it} is bank loan provided for customer measured by loan deflated by total assets; CC_{it} is conditional conservatism; LLP_{it} is loan loss provision; NPL_{it} is a non-performing loan; OCF_{it} is operating cash flow; Pf_{it} is profitability; Lq_{it} is liquidity; $CC_{it} * Cr_NCr_{it}$ is conditional conservatism interact with crisis or non-crisis; $LLP_{it} * Cr_NCr_{it}$ is loan loss provision interact with crisis or non-crisis; $NPL_{it} * Cr_NCr_{it}$ is non-performing loan interact with crisis or non-crisis; $OCF_{it} * Cr_NCr_{it}$ is operating cash flow interact with crisis or non-crisis; $Pf_{it} * Cr_NCr_{it}$ is profitability interact with crisis or non-crisis; and $Lq_{it} * Cr_NCr_{it}$ is liquidity interact with crisis or non-crisis.

3 Results and Discussions

3.1 Descriptive Statistics

Descriptive statistics of all variables observed in crisis and non-crisis period and the percentage of mean changes of crisis and non-crisis are presented in Table 2.

The figures included in the descriptive statistics show that the average loan provided to the customer (Ln_{it}) and non-performing loan (NPL_{it}) as well as profitability (Pf_{it}) and liquidity (Lq_{it}) during the crisis period decreased (lower) than during the non-crisis period as a whole or based on data in each country. In contrast, conditional conservatism (CC_{it}), loan loss provision (LLP_{it}), and operating cash flow (OCF_{it}) increased overall or in individual countries. These results indicate that the financial performance of banks as proxied by profitability and liquidity declines during the crisis (Corbet et al. 2020; De Vito and Gómez 2020). The crisis drives lower profitability and liquidity. To anticipate perceived and financial risk, banks

Table 2 Descriptive statistics of all variables in crisis and non-crisis periods

Variables	Countries with high Covid 19 case		% Growth	Countries with low Covid 19 case		% Growth
	Crisis	Non-crisis		Crisis	Non-crisis	
<i>Ln</i>						
Mean	0.5274	0.6745	-21.806	0.6860	0.6990	-1.852
Max	0.8340	0.8411		0.8631	0.8948	
Min	0.0817	0.2156		0.5125	0.5333	
Std. Dev.	0.2149	0.0621		0.0285	0.0344	
<i>CC</i>						
Mean	0.080	0.013	521.754	0.161	-0.003	-5759.222
Max	0.715	0.055		0.547	0.020	
Min	-0.222	-0.032		-0.078	-0.002	
Std. Dev.	0.158	0.011		0.037	0.012	
<i>LLP</i>						
Mean	0.076	0.061	24.072	0.009	0.007	30.145
Max	0.200	0.200		0.020	0.019	
Min	0.020	0.005		0.001	0.001	
Std. Dev.	0.049	0.066		0.002	0.002	
<i>NPL</i>						
Mean	6.090	7.110	-14.355	2.189	2.262	-3.228
Max	65.800	80.500		8.493	8.987	
Min	0.500	0.500		0.162	0.268	
Std. Dev.	9.693	11.962		1.005	0.889	
<i>OCF</i>						
Mean	0.005	-0.011	-140.502	0.023	0.008	171.387
Max	0.086	0.074		0.064	0.066	
Min	-0.172	-0.381		-0.076	-0.027	
Std. Dev.	0.046	0.059		0.013	0.010	
<i>Pf</i>						
Mean	0.006	0.010	-41.935	0.008	0.011	-29.526
Max	0.030	0.037		0.019	0.021	
Min	-0.085	-0.069		0.003	0.005	
Std. Dev.	0.017	0.017		0.002	0.002	
<i>Lq</i>						
Mean	0.947	1.127	-15.983	0.978	1.000	-2.144
Max	1.906	2.028		1.237	1.330	
Min	0.099	0.005		0.688	0.622	

(continued)

Table 2 (continued)

Variables	Countries with high Covid 19 case		% Growth	Countries with low Covid 19 case		% Growth
	Crisis	Non-crisis		Crisis	Non-crisis	
Std. Dev.	0.618	0.344		0.029	0.044	

Note: Ln_{it} is bank loan provided for customer. CC_{it} is conditional conservatism; LLP_{it} is loan loss provision; NPL_{it} is a non-performing loan; OCF_{it} is operating cash flow; Pf_{it} is profitability; Lq_{it} is liquidity. Each descriptive statistical attribute is compared by country with the severity of covid. Descriptive statistical attributes of countries with high covid or low covid cases are grouped by crisis period (2020) and non-crisis period (2019). Percentage of growth is the percentage difference of each variable between the non-crisis period (2019) and the crisis period (2020)

increase conditional conservatism and LLP_{it} . The results are consistent with Ha (2021).

Growth percentage of mean of each variable shows a decrease in lending by banks in Asia Pacific countries by 3.4%. In countries with high Covid cases, the highest decline occurred in South Korea by 42%, then Thailand (6.5%), and Indonesia (5.7%). In countries with low Covid cases, the highest decline was in New Zealand (3.9%), in Australia and Singapore the decline in Loans was very small, 0.9% and 0.3%, respectively. LLP in each country increased. The percentage increase in LLP in Southeast Asian countries is 11.7%. The increase in LLP in countries with the highest Covid cases occurred in Indonesia 31%, followed by South Korea and Thailand 24.4% and 14.4%, respectively. The increase in LLP also occurred in countries with low Covid cases. The highest increase occurred in Australia 38.2%, followed by New Zealand 28.7%, and Singapore 26.6%.

3.2 Correlations

The Pearson correlations among the independent variables in the models of Eq. (6) and (7) are presented in Table 3. Almost all variables are significantly correlated at the 1%, 5%, and 10% levels. The variable of interest $LOAN_{it}$ has a high correlation with the other independent and control variables. The $LOAN_{it}$ has a significantly positive correlation with operating cash flow (OCF_{it}), profitability (Pf_{it}), and liquidity (Lq_{it}). Otherwise, the $LOAN_{it}$ has a significantly negative relationship with loan loss provision (LLP_{it}). The LLP_{it} has a significantly negative correlation with OCF_{it} , Pf_{it} , and Lq_{it} at the 1% and 5% levels of significance.

Table 4 summarizes the results of the multivariate regressions that examine the effect of conditional conservatism and control variables on loans. The positive coefficient of CC and $LOAN$ is consistent with the hypothesis that greater conservatism leads banks to increase their loan. However, the value of the coefficient is not significant (coef. = 0.031, t-stat. = 0.419). The insignificance of this effect can be caused

Table 3 Pearson correlation coefficients for all variables used in the main analyses

Pearson correlations, N = 68

	LOAN _{it}	CC _{it}	LLP _{it}	NPL _{it}	OCF _{it}	Pf _{it}	Lq _{it}	CRN _{it}
LOAN _{it}	1							
CC _{it}	0.124	1						
LLP _{it}	-0.222*	-0.151	1					
NPL _{it}	-0.090	-0.087	0.144	1				
OCF _{it}	0.312***	-0.054	-0.265**	0.106	1			
Pf _{it}	0.292**	0.048	-0.306**	0.229*	0.609***	1		
Lq _{it}	0.619***	0.066	0.369***	-0.074	-0.060	-0.122	1	
CRN _{it}	-0.151	0.456***	0.095	-0.028	0.153	-0.118	-0.078	1
	LOAN _{it}	CRN _{it}	CC*CRN	LLP*CRN	NPL*CRN	OCF*CRN	Pf*CRN	Lq*CRN
LOAN _{it}	1							
CRN _{it}	-0.151	1						
CC*CRN	0.121	0.457***	1					
LLP*CRN	-0.235*	0.334***	-0.082	1				
NPL*CRN	-0.115	0.113	-0.043	0.186	1			
OCF*CRN	0.259**	0.192	-0.095	-0.118	0.125	1		
Pf*CRN	0.219*	0.048	0.141	-0.215*	0.246**	0.546***	1	
Lq*CRN	0.301**	0.713***	0.405***	0.481***	0.015	0.033	-0.173	1

The symbol *, **, *** denote for a Significance level of 10%, 5%, and 1%, respectively.

Table 4 The impact of conditional conservatism on loan

	Variable	Coefficient	Std. error	t-Statistic	Prob.	Collinearity Statistics	
						Tolerance	VIF
Equation 6	C	0.307	0.061	4.991	0.000		
	CC	0.031	0.073	0.419	0.677	0.628	1.592
	LLP	-1.512	0.333	-4.542	0.000	0.648	1.544
	NPL	0.000	0.001	-0.355	0.724	0.876	1.141
	OCF	0.398	0.229	1.742	0.087	0.495	2.020
	PF	1.311	0.866	1.515	0.135	0.496	2.014
	LQ	0.416	0.043	9.656	0.000	0.769	1.301
	CRN	-0.022	0.026	-0.838	0.405	0.585	1.708
	Adj-R Squared	0.659					
	F-Statistic	19.499***					
Equation 7	C	0.670	0.037	18.044	0.000		
	CRN	-0.261	0.031	-8.316	0.000	0.407	2.456
	CCCRN	-0.008	0.038	-0.216	0.830	0.556	1.798
	LLPCRN	-0.937	0.202	-4.648	0.000	0.604	1.657
	NPLCRN	0.000	0.001	-0.669	0.506	0.864	1.157
	OCFCRN	0.289	0.144	2.011	0.049	0.559	1.787
	PF CRN	1.590	0.513	3.099	0.003	0.538	1.857
	LQCRN	0.271	0.026	10.246	0.000	0.359	2.788
	Adj-R Squared	0.674					
	F-Statistic	20.767***					

The symbol *, **, *** denote for a Significance level of 10%, 5%, and 1%, respectively.

by many factors, including the number of samples (n) being too small so that variations in data cannot be captured properly. Conditional conservatism is proxied by firm size, firm value, and leverage where the values do not appropriately vary. In addition, the short observation period also causes CC does not to affect LOAN.

$$Ln_{it} = \beta_0 + \beta_1 CC_{it} + \beta_2 LLP_{it} + \beta_3 NPL_{it} + \beta_4 OCF_{it} + \beta_5 Pf_{it} + \beta_6 Lq_{it} + \beta_7 Cr_NCr_{it} + \varepsilon_i \tag{6}$$

and

$$Ln_{it} = \beta_0 + \beta_1 Cr_NCr_{it} + \beta_2 CC * Cr_NCr_{it} + \beta_3 LLP * Cr_NCr_{it} + \beta_4 NPL * Cr_NCr_{it} + \beta_5 OCF * Cr_NCr_{it} + \beta_6 Pf * Cr_NCr_{it} + \beta_7 Lq * Cr_NCr_{it} + \varepsilon_i \tag{7}$$

One factor that determines a loan that is no less important than CC is loan loss provision (LLPit). The LLP refers to allowance reserved by a bank to cover bad loans—the ones that don't get fully repaid because the borrower defaults or those that offer less interest income because the defaulter negotiated a lower rate. The goal of the LLP is to ensure that the bank's cash flow is protected so the banks still have the funds to provide services to other customers. The LLP is a bank's best estimation of the percentage of a loan that may not get paid back. Once set aside, the LLP will be included in a bank's financial statement as a contra account of a loan to indicate the banks' financial health. The LLP significantly negatively affects the LOAN (coef. = -1.512 , t-stat. = -4.542) at 1% level of significance. These results indicate that banks with high LLP tend to lower their LOANs. Otherwise, banks with lower LLP increase banks' loan to customer. In the first year of pandemic Covid 19 (CRN_{it}), the LLP (symbolized by LLP_{CRN}), significantly negatively affects the LOANs (coef. = -0.937 , t-stat. = -4.648) at a 1% level. It indicates that the decline in loans during the pandemic was caused by an increase in LLP. Banks do not challenge to increase loans to avoid the risk of default by the borrower. These results support Ha (2021) and Leventis et al. (2013).

Crisis or not crisis is symbolized by CRN. It influences negatively the loan provided by banks for their customers (coef. = -0.022 , t-stat. = -0.838). It means that the crisis period does not affect the LOAN. However, the value is not significant. When the CRN functionated as a moderating variable, it has a significant role on the LOAN (coef. = -0.261 , t-stat. = -8.316) at a 1% level of significance. It denotes that the effect of CC, LLP, NPL, OCF, Pf, and Lq on the LOAN is higher in the first year of the pandemic. Furthermore, conditional conservatism in the first year of pandemic (CCCRN) does not affect the loan provided by banks for customers (coef. = -0.008 , t-stat. = -0.216). It implies that in the first year of the health crisis, the increase or decrease in LOAN is not triggered by CC. As CCNCR, either does non-performing loan in the crisis (NPLNCR) not affect the loan (coef. = 0.000 , t-stat. = 0.506).

During the pandemic covid 19, operating cash flow (OCFCRN), profitability (PFCRN), and liquidity (LQCRN) positively significantly affect the loan at 5% level (coef. = 0.289 , t-stat. = 2.011), at 1% level (coef. = 1.590 , t-stat. = 3.099), and at 1% level of significance (coef. = 0.279 , t-stat. = 10.246) respectively. They imply that a decrease in the loan was generated by a decrease in the bank's financial performance. The lower loan provided by banks for borrowers is affected by lower operating cash flow, profitability, and liquidity. The results are consistent with Ha (2021).

4 Conclusion

This paper examines the impact of conditional conservatism on the decision to provide loans for a borrower in the first year of the health crisis, pandemic Covid 19. The sample are banks listed on the stock exchanges of Asia Pacific countries, namely Australia, New Zealand, Singapore, South Korea, Indonesia, and Thailand

for 2019 and 2020. The results show that in the first year of the pandemic COVID 19, the loan provided by banks is lower than before the pandemic. However, to anticipate the default risk, banks increase the allowance for loan loss. The stressing factor, conditional conservatism, is higher during the crisis but does not influence the loan. Besides, operating cash flow is getting higher and significantly affects the loan. Otherwise, profitability and liquidity are lower but significantly affect the loan.

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Post-COVID-19 Learning Context: The Impact of Remote Leadership on Blended Learning in Higher Education



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Abstract The Covid-19 pandemic has impacted the society, and this pandemic has prompted higher education institutions to shift to remote work at the administrative and educational level, which prompted the leaders of educational institutions to practice remote leadership as one of the appropriate leadership styles in post-COVID 19 era. Blended learning is one of the methods offered by different academics and scientific researchers as a sustainable and best-fit alternative for educational establishments for at least a few quarters post-pandemic. Therefore, the present study aims to examine the impact of remote leadership on blended learning effectiveness in higher education institutions. Survey data were collected from 385 instructors in UAE universities via an online survey distributed (google forms). Path coefficients analysis was used to test the instructor's perspective by scales and the measurement model fit, using SEM. The findings of this study Remote Leadership (RL), leadership traits, technology adoption, technology skills, trust in leadership and learning flexibility are more likely to adapt to Blended Learning (BL) with (58.9%). The more positive the perceptions, the more adaptable the instructors will be, and the more prepared they will be to use a BL approach in the post-pandemic era for their professional growth, did only when necessary by (41.1%) in order to maintain remote leadership measures.

Keywords Remote leadership · Blended learning · Remote leadership traits · Technology · Technology skills · Trust

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1 Introduction

COVID-19's widespread occurrence has many consequences for several business sectors (Crawford et al. 2020). Universities sought virtual learning to mitigate COVID-19's effects on universities, teachers, and students. Online learning may be able to assist in opening a pathway to higher education at a time when many educational institutions are closing due to health concerns (Taamneh and Fatin 2021). However, some issues and challenges arose due to insufficient learning techniques, and both students and teachers struggled (Bao 2020). Higher education institutions (HEIs) are increasingly utilizing blended and online learning as alternatives to improve student learning experiences, increase access flexibility, and expand their worldwide reach (Gordon 2014). In response to the Covid-19 pandemic, this has lately been expanded by providing remote and blended learning (Nordmann et al. 2020). After the gradual decline of the pandemic, higher education institutions in the UAE are currently implementing the blended learning system.

Blended learning (BL) comprises all technologically aided learning contexts, with the exception of exclusive online learning platforms and traditional classroom education. BL is also indicated to as the new traditional paradigm or the "new normal" because virtually all colleges now use an online learning management system through which at least teaching materials are made available (Dziuban et al. 2018). Universities, in particular, are known for their resistance to change. It's worth noting that the popularity and early success of blended learning are attributable to the fact that it's a method for preserving and enhancing higher education's traditional ideals. Blended learning, when intelligently planned, may improve the academic career while also extending thinking and learning through the innovative use of the Internet and communications technology (Garrison and Kanuka 2004). Blended learning should be obvious that it is not a technical fad, given its potential alignment with traditional higher education ideals and aims. It is an approach and plan that can be built on gradually, systematically, and intelligently, which will invariably transform the institution with the most excellent principles over time (Collins 2001).

The contemporary issue for higher education leaders and policymakers is recognizing and accepting all social, educational, technological, and economic developments that have changed significantly and irreversibly. As a result, confronting and adapting to these changes requires imaginative and proactive action. Higher education institutions must shift their mind-set and commit to repositioning themselves in teaching and learning to respond to these expectations successfully. To meet this challenge, leaders must be imaginative and innovative and modify their thinking about operating and managing the educational industry (Garrison and Kanuka 2004). Other research has repeated these considerations, highlighting the importance of Leadership, infrastructure, and support in the transition to blended learning (Garrison and Vaughan 2013; Moskal et al. 2013; Porter et al. 2016; Taylor and Newton 2013). Infrastructure support, leaders preparation, and pedagogically informed technology use are all required to meet the needs of distant and blended learning beyond Covid-19 (Dale et al. 2021; Ali 2020; Al-Okaily et al. 2020).

In the same vein, virtual Leadership in higher education is under-researched. Higher education leaders must wear many hats; they must be knowledgeable in curriculum, assessment, pedagogy, legal issues, personnel issues, current research, and professional development (Alward and Phelps 2019). The pressure on academics and administrators to be accountable for learning quality and effectiveness has intensified. This paper aims to investigate the impact of remote Leadership on blended learning in higher institutions from the instructors' perspectives based on the ramifications of the COVID-19 Pandemic (Karam and Kitana 2020).

1.1 Problem and Research Gap

The Covid-19 outbreak came as a shock. Businesses were forced to rapidly undertake digital transformation across the board (Aspan 2021). Leading an organization remotely (i.e. interacting online) is a novel experience. Furthermore, many organizations have little or no experience with digital communications and platforms like Zoom, Microsoft Teams, Google Hangouts, Skype, Slack, and others essential for remote work (Blackburn et al. 2020).

Thus, there is a greater need to expand the expertise of leading successfully and creating highly functional virtual teams. There is little understanding of e-leadership and no theory dedicated to it. It's unclear whether current leadership knowledge can be applied to e-leadership (Contreras et al. 2020). As presented in the following literature review section, many research studies have examined Remote Leadership by knowing the transformational leadership model. Several types of research on remote team leadership have also employed the transactional/transformational approach. (Ramage 2017; Hoyt and Blascovich 2003; Madlock 2013; Neufeld et al. 2010). Furthermore, the current literature lacks studies on how leadership styles change while transitioning from face-to-face to hybrid work in higher education institutions and the impact of this rapid transformation on the effectiveness of education. In addition, many studies have explored if and how remote Leadership can affect individuals' and Subordinates outcomes. These gaps are notable and worth filling by going deeper and focusing on the impact of remote Leadership on blended learning effectiveness in HEIs.

Research Questions

The current study was guided by the following questions:

Q1: What is the impact of remote Leadership on blended learning effectiveness in higher education?

Q2: Which remote leader traits are common to successful remote Leadership in higher education institutions?

Q3: What is the effect of technology adoption in remote Leadership on blended learning effectiveness?

Q4: What is the effect of technology skills in remote Leadership on blended learning effectiveness?

Q5: Does the trust in remote leaders affect blended learning effectiveness in higher education institutions?

Research Objectives

The main aim of study is to examine the effect of RL on BL effectiveness in higher education institutions in post-COVID 19. The current study examined and tested remote leadership model suggested by (Eikenberry and Turmel 2018). Empirical data on remote Leadership is acquired and integrated from diverse domains of study with the underlying goal of giving information that can be utilized to deliver excellent remote Leadership and effective blended learning in higher education institutions.

Research Significance

Higher education administrators, faculty leaders, and staff may find the information presented in this study proper as they create and operate online programs, particularly their virtual academic teams. It will be easier to support remote employees, supervisors, and faculty within an educational setting with remote leadership styles that focus on the resources and special considerations of blended learning.

Conceptual Model

A conceptual model is defined as conducting research that involves monitoring and assessing existing information on a particular issue. To come up with the notions, the researchers employed a conceptual model (RL) through Leadership Traits, Technology Adoption, Technology Skills, and Trust in Leadership based on observations of instructors on (BL) Post-COVID-19.

2 Literature Review and Hypotheses Development

2.1 Remote Leadership

Working arrangements that involve the separation of the leader and his followers are often referred to as remote or virtual leadership (Ziek and Smulowitz 2014). Remote leadership refers to the relationships between members of a team and their leaders, which are typically dictated by the physical distance between them. There are many levels of remote leadership based on the extent and often of face-to-face engagement.

Several employees have never met their supervisor in person, while others would only meet him or her a week or even less. Regardless of the continuum, remote leadership would be deployed in this study to refer to any partnerships in which the majority of communication between the member and the leader is done through digital rather than face-to-face. A simple definition of remote leadership is managing teams and units that are remote from the comfort of their home or office (Cowan 2014). The leadership concept considered as a procedure which uses technology to influence individuals' behaviors and attitudes (Avolio et al. 2009). Despite the advantages of remote work, little is known about the abilities of remote leaders. The

title must be actively studied to understand how these abilities are utilized (Attieha and Zouhairi 2021).

Although the phenomenon of leading from a distance is not new and has been practiced for decades, “Remote Leader” is a relatively recent notion in the leadership field. Remote Leadership attempts to build and disseminate corporate vision, unite organizations or individuals, and coordinate and supervise plan execution without departing from traditional Leadership (Avolio and Kahai 2003) Remote Leadership is defined as connection among employees and leaders via various digital communication channels (Busse and Weidner 2020).

Remote Leadership Model

Theories about a leadership model when the leader and follower do not engage face to face are still in their early phases (Shiller and Mandviwala 2007). Organizational behavior researches and theories are based on a rough model in which individuals interact face-to-face with their leaders and group members, and parts of this conventional environment have been thoroughly investigated. Leadership has been shown to be critical for both group and individual outcomes in numerous studies. Further, a scarcity of experimental data demonstrating that the findings of the proximal leadership situation may be applied to the remote model. So far, no one has agreed that the two settings are sufficiently diverse to necessitate different leadership styles. This study developed the remote leadership model proposed by Eikenberry and Turmel (2018) in accordance with the research nature and objectives by studying the appropriate elements of various studies in the higher education context.

Eikenberry and Turmel’s (2018) created a remote leadership model that shows three working gears, each of which has a significant role in driving remote work. The model also describes the various skills needed to use those tools effectively. The Leadership and management gear remind us that our job is still the same. Leaders are expected to exhibit the traditional leadership traits while using tools and technology that are uncomfortable for them. Skill and Impact gear is the easiest to maintain, but it can cause a lot of trouble. When selecting a tool, make sure that it’s the right one for the job.

This study extends the model to include trust as the distance leadership style is deeply connected to trust and perceived in leaders (Dirks and Ferrin 2002). Authors have investigated the importance of trust in leadership in higher education institutions (Pujiyati et al. 2018; Fiernaningsih Fiernaningsih 2021). This study extends the model to include trust as the distance leadership style is highly correlated with perceived trust in leaders (Dirks and Ferrin 2002). Researchers have recognized the significance of trust in Leadership in higher education institutions.

Blended Learning (BL)

Blended learning is a concept that refers to a variety of teaching methods and approaches. There are various ways to approach teaching in this field (Klimova 2021). Driscoll (2002) refers to a combination of various web technologies used to achieve educational goals. This concept can be considered as a mix of various teaching methods and technologies. Some reports have claimed that the lack of consensus

regarding a hard definition of basal ganglia (BL) had hampered the effectiveness of studies on its use (Saboowala and Manghirmalani 2021). A study focused on the use of blended learning (BL), where the online portion of the interaction replaced some or all of the face-to-face contact time (Graham et al. 2013; Al-Derbashi and Abed 2017).

Blended learning is becoming more common in higher education institutions, this to enhance the student's learning experience and provide flexibility of access (Saboowala 2021). Most recently, this has been extended through the provision of remote and blended learning in response to the Covid Pandemic (Nordmann et al. 2020). As per Garrison and Kanuka (2004) argued that blended learning could transform learning by promoting deep reflection and critical thinking. They noted that institutions should start planning for how they will use blended learning and resources.

The findings of the research studies indicate that the use of the BL approach is effective (Rios and Cabrera 2008; Sun and Qiu 2017; Nikolaeva et al. 2019; Klimova 2021; Al Bataineh et al. 2019). In another study, Rios and Cabrera (2008) report that their students who used the BL approach significantly improved compared to the control group that did not utilize the method.

Developing Leadership focuses on the abilities and competencies of leaders who are most strongly linked to successful learning institutions and participants' better academic attainment. Despite the necessity for competent Remote leaders, multiple studies have revealed the various flaws in administrator training programs (Barnet 2004; Darling-Hammond et al. 2007). Such research raises the question of whether leaders are adequately prepared to change the organization environment in a way that significantly improves students' academic progress. Educational leaders in They are expected to be in a digital world just as they are supposed to be in a non-digital world. (Shepherd and Taylor 2019). Similarly, Apsorn et al. (2019) stated that remote leaders' readiness can affect the entire learning process if it is digital. Hence, this study postulates the following hypothesis: *H1: Remote Leadership positively affects Blended Learning Effectiveness in Higher Education Institution.*

Leadership Traits (LT)

It is critical that leaders of universities understand the challenges of virtual academic teams and that they properly utilize virtual leaders. Several leadership abilities and traits are required for higher education virtual leaders (Alward 2019). The characteristics of a remote leader were often described in terms of personality traits, leadership style, and competencies. These traits and characteristics were not affected by distance (Neufeld et al. 2010). In spite of this, a remote leader is required to have fabulous administration aptitudes, such as the capacity to form choices, set objectives, and construct a vision (Ramserran and Haddud 2018; Alani et al. 2011; Verburg et al. 2013; Li et al. 2016; Maduka et al. 2018). Workers appreciate a leader's capacity to characterize their work as a pioneer and their positive notoriety (TwoRoger et al. 2013).

Furthermore, Leaders are expected to understand the unique characteristics and circumstances of their employees. This comes from the belief that employees deserve the autonomy and responsibility that they provide (Savolainen 2014; Poulsen and Ipsen 2017). A leader's crossover abilities and innovation adroit can moreover support the organization in utilizing modern advances to make strides work forms and administrations (Verburg et al. 2013). Effective remote leadership depend on a leader's openness to modern thoughts and innovative progressions, as well as interest in continuous learning. Moreover, remote leaders must be able to effectively manage tasks assigned to them, so they can challenge their employees in a way that will professionally utilize them. Other characteristics that successful remote leaders have are traits related to their competencies and traits. These include being able to communicate effectively and being good listeners (Poulsen and Ipsen 2017). Thus, this study proposed the following hypothesis: *H1-2: Remote Leader traits positively affect Blended Learning Effectiveness in Higher Education institutions.*

Technology Adoption

Blended learning has gained widespread attention due to its increasing popularity. Mostly all university courses are now considered accredited blended (Prasad et al. 2018). Blended learning, according to researchers, will become the "new normal" in higher education (Norberg et al. 2011). "Enriched, student-centered learning experiences made possible by the harmonious integration of diverse tactics, achieved by integrating face-to-face interaction with ICT," according to Torrissi-Steele (2011). Even though technology has plenty of new opportunities for businesses, implementing new systems can be very complex and time-consuming. To make matters even more complicated, individuals react differently to different forms of technology, so managers must be aware of this when they begin the process of developing a new technical platform (Nayak and Taylor 2009). Technology must be used in such a way that it enhances rather than merely facilitates communication (Brady and Prentice 2019). For any manager, the objective is that technology will not only serve as a tool but also as an instrument in driving the leadership vision.

According to the literature of Gerke (2006), that the remote leaders should determine needs and abilities and match them to certain duties. This will give executives a better idea of which communication methods are best for reaching out to staff, especially when confronted with a situation that requires an immediate response. To satisfy the desire for speed and customization in the remote workplace, the leader must examine the tool's richness, speed of feedback, and ease of comprehension for non-experts while evaluating effective communication channels (Cortellazzo et al. 2019).

In the Vein, creating a Successful Virtual Team is a challenging and complex endeavor. In order to achieve this, one must first blend various elements of the technology, processes, and people into one cohesive unit (Nayak and Taylor 2009). Thus, this study proposed the following hypothesis: *H1-3: Technology adoption positively affects Blended Learning Effectiveness in Higher Education institutions.*

Technology Skills

Virtual faculties, leaders, students, and administration in higher education all benefit from utilizing current, dependable technology. The Casebier (2014) argued that overcome virtual environments barriers, leaders should be involved, present, and experienced. The efficient virtual leader leverages existing technology to engage and communicate his/her teams; but, team performance is ultimately determined by the virtual leader's competence, not the technology.

After all those processes and norms are in place, teams and team leaders should focus on tools other than email and phone, such as webinars, Skype, Zoom, and blogs, as well as other collaborative technologies, in boosting employee interaction and connectivity, as well as improves greater comfort with innovation (Crisp and Jarvenpaa 2013). Technology may, among other things, create a bond between virtual team leaders and their teams, as well as between virtual team members. The capacity to instantly connect may build a sense of community while also enhancing prominence. The Bjorn and Ngwenyama (2009) addressed the visibility is a critical component of the idea of trust, and it may help leaders avoid and recover from communication failures and misconceptions.

A vital component is the capacity of leaders to employ technology successfully (Bozeman and Spuck 1991). The ability to effectively communicate with staff via ICT (e.g., email, WhatsApp, blogs, etc.) has been identified as one of the most critical skills for the 21st-century principal (Soleman 2020). Another important skill that leaders should be familiar with is software, including information and data retrieval, management, and planning. At all levels, leaders must demonstrate their ability to manage digital communications tools. E-communication is, without a doubt, efficient and effective according to Jameson (2013). The effective deployment, administration, and continual development of blended learning in higher education are all dependent on the performance of the e-learning system (Zhang et al. 2020). As a result, the rise of contemporary technology offers new potential to actualize current educational trends in the twenty-first century, and distant leaders of educational institutions must possess the essential abilities to make blended learning effective. Hence, this study proposed the following hypothesis: *H1-4: Technology Skills positively affect Blended Learning Effectiveness in Higher Education institutions.*

Trust in Leadership

The trust element was being proved the relation between leader and staff has been proven to be more important than in 'conventional' FTF leadership (Ramserran and Haddud 2018; Maduka et al. 2018; Savolainen 2014; Tworoger et al. 2013). Building trust, on the other hand, has been regarded as challenging. The absence of natural human emotions in the distant setting emphasizes the importance of leaders proactively devoting their time to trust-building (Taamneh et al. 2018).

Furthermore, the absence of FTF meetings, particularly at the start of a partnership, has been cited as a contributing factor to remote teams' low concentrations of mutual trust (Maduka et al. 2018). Higher levels of trust have been linked to greater team performance, in addition to being important for achieving organizational goals (Goh and Wasko 2012). Empathy, fairness, and, surprisingly, the perceived attractiveness

of remote leaders has all been identified as elements that improve trust; however, a leader's technology experience has not been proven to predict the amount of trust between a leader and their staff (Taylor et al. 2013; Guinalú and Jordán 2016).

The most important factor in creating a good working environment is trust. It comprises both leaders' faith in their workers' capacity to fulfill their tasks and people's faith in their leaders' ability to care for them. In a trusting atmosphere, the level of control that leaders believe is essential is lowered. Coworker appreciation facilitates good collaboration. It is best displayed in day-to-day operations, such as offering an employee a role in important choices or displaying empathy (Huovila 2021; Holland and Piper 2016).

Innumerable studies have identified trust as a vital component of leadership. While individual and individual performance benefits from a sense of trust (Zeffane et al. 2011). Studies have shown a clear link between trust and the achievement of group goals (Daim et al. 2012). There are clear links between communication, communication frequency, and trust (Ramage 2017). Trust may be more difficult to develop in the remote leadership context due to the specific constraints posed by communicating from a distance. Having a sense of trust is harder to achieve when the worker regularly sees their supervisor. This is because trust is built through repeated interaction (Daim et al. 2012; Fiol and O'Connor 2005; Berry 2011).

Given the need for innovative management tactics, a strong sense of trust is vital for successfully managing virtual teams (Bonatti and Horner 2011). Emotional intelligence, as well as communication and trust abilities, are vital in a virtual team leader (Bryant 2013). Team members may resist change and underperform if managers do not foster a culture of trust. To compensate for the lack of physical assistance, a strong climate of transparency is essential between managers and virtual employees. In virtual academic management circumstances, Hill et al. (2014) recognized leadership traits such as incorporating technology that is appropriate for the context, building a sense of community with shared goals, and working together despite institutional limits. Hence, this study postulates the following hypothesis: *H1-4: Trust positively affects Blended Learning Effectiveness in Higher Education Institution.*

3 Method and Measurement

The study aims to examine the remote leadership model and hypotheses on blended learning, therefore, data gathering was based on adapting a questionnaire to get the better results which found in a pre-existing studies. Data was gathered using an online survey delivered (through Google forms) to university lecturers in the UAE. Further, to determine the sample size the researchers relied on survey system website, based on the quantitative approach and randomly method to distributed the questionnaire, the suitable sample size was (385) based on the margin of error 5% and the confidence rate of 95%. Thus, the researchers have received 385 samples correctly which means (100%) of the sample size was achieved.

In this study, route coefficients analysis was performed to examine the perspective of instructors by scales and the measurement model fit, and SEM Smartpls3 was utilized to conduct the studies. The composite reliability (CR) and the average variance extracted (AVE) were also calculated. According to Hair et al. (2014), the study should aim for all scales to be above (0.7) on crucial ratio and above (0.6) on AVE, which is in line with the recommendations.

3.1 Measures

The literature right now does not provide an observationally tried study instrument to assess remote Adoption of leadership at the individual leader level we began our effective implementation and creation of the instrument, motivated by the gap, using the conceptual remote leadership model given by (Eikenberry and Turmel 2018). “A five-point Likert scale (1 strongly disagree to 5 strongly agree)” was used in this study to measure all the variables. Six items of the Leadership Traits (LT) scale was adopted and used Liu et al. (2018) to measure LT.

The sample question of LT includes, “My leader is enthusiastic and energetic.” “Five Items from Van Wart et al. (2017) was used to measure Technology Adoption (TA). The sample question includes:” “My leader personally evaluates/researches ICTs when he intends to use them”. Five items of Technology Skills (TS) were adopted from Van Wart et al. (2017) to measure TS. The sample question of TS includes” My leader displays solid technical skills specific to his/her area of expertise”. Five items were adopted from Podsakoff et al. (1990) to measure trust. Sample question includes, “I feel quite confident that my leader will always try to treat me fairly”. Twelve items were adapted from a study by Birbal et al. (2018) to measure BL from instructors’ perspectives. The sample question of BL includes “I am able to deliver course-related information when it is presented in video format.”

4 Data Analysis and Results

Several key aspects of the PLS-SEM investigation analysis debate were examined. PLS, or Partial Least Squares is a means to provide values in the PLS-SEM Performance model recommendation as well as in an open substance-based report. It can also be obtained when the indications for paradigm effects have been verified. The output initially has two sorts of numbers in the same layout: the circles with numbers within them show the LVs’ degree shift, which is cleaned up by the other inactive factors. Second, direction coefficients are the numbers on the headings.

4.1 Reflective Models PLS-SEM

Assessing the models, which differ for reflecting and formative components, is the first step in analyzing PLS-SEM results. If the measurement models match the criteria, researchers must then evaluate the structural model. The loadings of the indicator must be evaluated in the first step of the reflective measurement model evaluation. Loadings greater than (0.7) are suggested since they show that the build explains more than half of the variance in the indicator, resulting in good item dependability.

Furthermore, bootstrap confidence intervals will be used by researchers to assess whether the building's dependability is significantly bigger than the least required criterion. The third stage involves evaluating the convergent validity of each concept measure. Convergent validity is the degree to which the construct converges in order to comprehend the variance of its elements. The average variance extracted (AVE) for all items on each construct is the statistic used to determine a construct's convergent validity.

The stack of each indicator on a construction must be squared and the mean value determined to get the (AVE). The least appropriate AVE is 0.50 or larger than AVE 0.50 or higher, meaning that the construct resolves 50% or more of the variation of the construct's components. The next step is to analyze discriminant validity, which seems to be the extent to which a concept differs statistically from other ideas in the structural model. Fornell and Larcker (1981) introduced equating the AVE of each construction to the squared inter-construct connection (as an extent of shared variance) of the same growth and all other brilliantly measured builds within the basic model - the shared variance should not be higher than their AVEs for all show builds (Karam and Kitana 2021).

The model explains how effective each variable is on the others. Coefficients of the path "Path coefficients" Reactive measurements are present in both LVs. In the SEM inner model, "latent variables" (LVs) are connected to each other as indicated by substantive theory; for example, the phenomenon of digitalization is a substantive area, and a substantive theory of this phenomenon is constructed by investigation inside or among groups within the same substantive domain. In this study, the blended learning wards where instructor's perceptions on remote leadership at various rates, for example, might yield substantial ideas about the effectiveness of blended learning, with exogenous and endogenous LVs separated into two categories. The PLS-SEM execution calculation is as follows: Both evident factors are related by a "regression" in their LVs, which shows the way factors are represented inside the current worldview.

Factors Variance Explanation

Based on the variance of variables which is shows on Table 1, the quality of the association between IV factors has been illustrated, whereas the LVs: X_1 Leadership Traits, X_2 Technology Adoption, X_3 Technology Skills, and X_4 Trust in Leadership, though $Y =$ Blended Learning as dependent variable were reflected by R-value. Relied into the Path model estimation diagram (Fig. 1), as can be seen overall determination of coefficient were found as enough evidence in (Table1). The coefficient of

Table 1 Path coefficients

	R square	R square adjusted	P-value
Blended learning	0.589	0.587	0.000

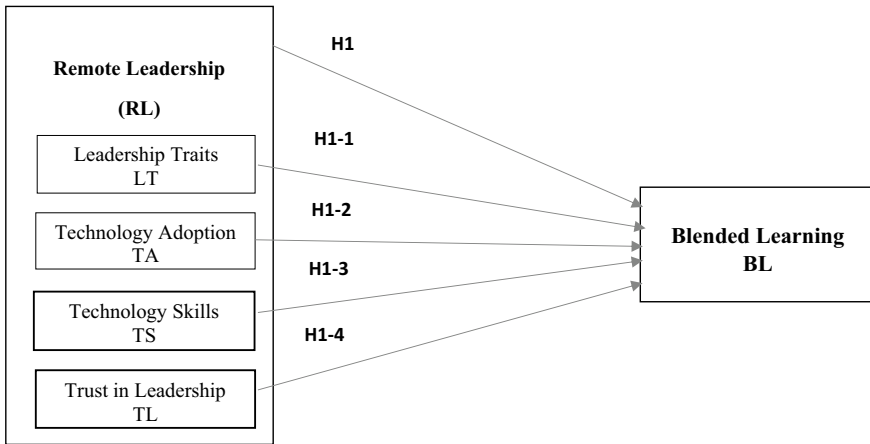


Fig. 1 Study conceptual model

determination was ($R^2 = 0.589$) Blended Learning. In any case, it has been appeared the coefficient of assurance were showed up (58.9%) of the variety within the DV, and this can be sufficient prove to acknowledge the free factors variety, with noteworthy P-value (0.000) (Fig. 2).

Discriminant Validity

The utmost conservative and well-known way to assess discriminant validity has been proposed by (Fornell and Larcker 1981). As a result, multiple approaches are utilized to assess discriminant validity; the goal was for the association numbers between constructs to be (0.8) or less (0.9). Despite the fact that the numbers are greater than the connection numbers in the (columns) of (BL = 0.765), (Leadership Traits = 0.740) (Technology Adoption = 0.830), (Technology Skills = 0.874), (Trust in Leadership = 0.774), furthermore greater than those in the (rows). The average number of square roots for all variables is more than the AVE merits obtained. Overall, discriminant validity was well established. Furthermore, in order to demonstrate discriminant validity, the square root of each latent variable’s extracted average variance (AVE) must be larger than the latent variable correlations. As demonstrated in Table 2, the study model definitely fulfilled discriminant validity since the square root of AVE for LVs is substantially bigger than the corresponding (Karam 2020).

Construct Reliability and Collinearity

Construct validity affects how successfully a test or experiment adheres its reasons. It relates to whether the operational definition of a variable accurately captures the underlying theoretical meaning of a term. According to traditional paradigm research,

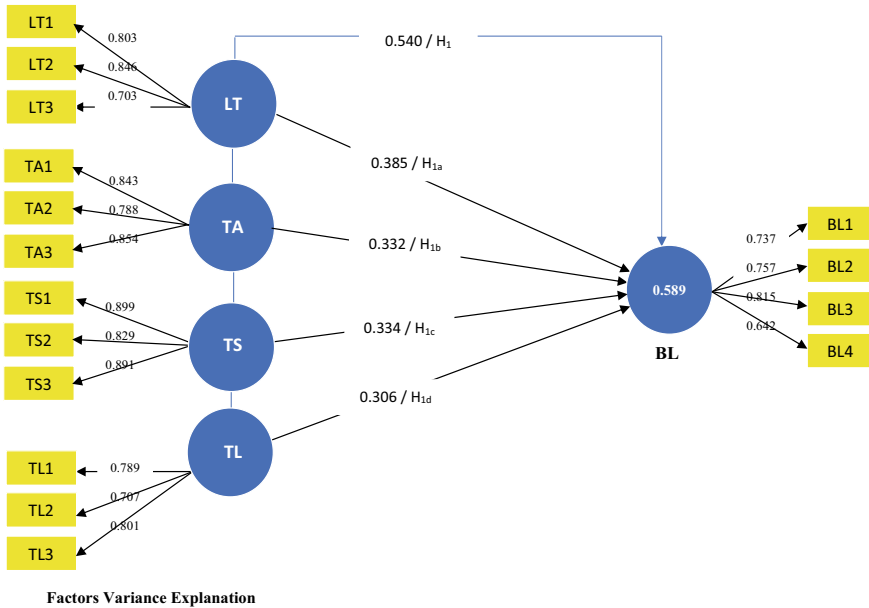


Fig. 2 Remote leadership effect on blended learning

Table 2 Discriminant validity

	BL	LT	TA	TS	TL
Blended learning	0.765				
Leadership traits	0.635	0.740			
Technology adoption	0.717	0.574	0.830		
Technology skills	0.762	0.631	0.682	0.874	
Trust in leadership	0.607	0.726	0.508	0.486	0.774

“construct validity” is a form of vital type of legitimacy verification, Criteria legitimacy and substance validity are analogous. Nowadays, the validity theory identifies “construct validity” as a broader problem of legitimacy investigation, embracing several sorts of validity confirmations.

To find out the construct reliability, the researcher depends on Cronbach’s alpha, rho A, and composite reliability must be greater than AVE levels as the evidence. Hence, as an example of Table 3, Blended Learning (BL) = Cronbach’s Alpha (0.740), rho_A (0.738), and Composite Reliability (0.839) with AVE (0.601).

In a collection of multiple regression variables, the Variance Inflation Factor (VIF) should be greater than (1), as it is a measure of the total multi collinearity. Karam (2019) discussed that each independent variable (IV), this ratio is computed. Despite the fact that a high VIF shows that the linked (IV) is significantly collinear with the other variables in the model.

Table 3 Summary of model results

	Cronbach's Alpha	rho_A	Composite reliability	Average Variance Extracted (AVE)	Collinearity Statistics (VIF)
Blended learning	0.740	0.738	0.839	0.601	1.490
Leadership traits	0.730	0.726	0.828	0.550	1.678
Technology adoption	0.775	0.790	0.870	0.690	1.590
Technology skills	0.845	0.848	0.908	0.765	2.180
Trust in leadership	0.775	0.774	0.857	0.598	1.640

The study discovered that the variation in a single coefficient was 49.0% more than what should be expected if there was no multi collinearity, i.e. there is no correlation with multiple indicators, for Blended Learning (VIF = 1.490). As a result, a range of variance inflation factors across (1 & 2) including all factors shows that the SEM-PLS model assessment was suitable and well-organized.

Hypothesis Testing

To measure the hypotheses strength of the linking with the model latent components with the constant of determination (R^2) was indicating the influence on all LVs to explore the hypothesis significantly. The study's decision to reject (H_0) the significance threshold is self-assertive. The investigation discovered that the bootstrapping testing results of model hypotheses have shown an acceptable match to all esteems based on the route coefficients analysis in (Table 4). Hence, the BL model estimate for (5) hypotheses results of bootstrapping tests has indicated importance levels with all parameter gauges were statistically significant at 0.05 level based on T-Values bigger than (>0.1), P-Values smaller than 0.05 (Karam and Kitana 2018).

Table 4 Hypotheses testing

	(O)	(M)	(STDEV)	(O/STDEV)	P Values	Results
RL → BL	0.307	0.311	0.043	7.206	0.000	Supported
LT → BL	0.370	0.368	0.050	7.639	0.000	Supported
TA → BL	0.334	0.336	0.059	5.836	0.000	Supported
TS → BL	0.524	0.527	0.044	12.323	0.000	Supported
TL → BL	0.387	0.381	0.046	8.712	0.000	Supported

“Original Sample (O), Sample Mean (M), Standard Deviation (STDEV), and T Statistics (|O/STDEV|)”

Following that, to establish the statistical levels of significance, hypotheses from H1 to H5 were statistically significant. Hence, the strongest connection Hypothesis was Technology Skills → Blended Learning with T-Statistics (12.323), and P-value (0.000). The study found that a suitable sample size (385) was obtained based on AVE values in (Table 3), indicating that sufficient valid data were acquired. Furthermore, a statistical metric known as (R²) is used to elucidate the variation in LVs and DV based on the paradigm illustrated above (Table 4). However, at an alpha level of 0.05, all estimations of (R²) revealed the severity of the relationship with (P-value = 0.00).

5 Discussion

Understanding instructors' impressions of different learning characteristics when they play the role of learners might be significant in determining their readiness for Blended Learning. According to the present study's findings, instructors with positive attitudes toward online learning, remote leadership, online participation, and learning flexibility are more likely to adapt to Blended Learning with technology (58.9%). The more positive the attitude, the more adaptable the instructors will be and the better prepared they will be to use a Blended Learning approach for their professional growth in the post-pandemic era, with face-to-face learning and classroom interaction done only when necessary, by (41.1%) to maintain remote leadership measures.

Teachers who had participated in or led webinars or seminars and those who had not shown any change in their Blended Learning preparation. Some instructors who were unable to attend may be willing to adapt to this if they are aware of the available online platforms or software for learning due to social media awareness or previously acquired knowledge.

Advances in information technology (IT), such as the development of online applications, mobile devices, and telecommunications, have unavoidably changed how education courses are designed and delivered. Although the transition from classroom to online learning has not yet been fully implemented in classrooms, the Blended Learning approach in the aftermath of the pandemic will undoubtedly aid in improving the learning environment for lecturers and teachers who will be considered learners while attending various training programs. Hypothesis one RL → BL (H1), instructor interactions with technology positively affect remote leadership for Blended Learning implementation, demonstrating a highly significant relationship between frequent instructor interactions with technology and remote leadership for Blended Learning implementation. As a result, teachers must be technologically savvy to incorporate technology into their classes. Furthermore, this knowledge can increase remote leaders' trust in the instructors, allowing the Blended Learning technique to implement post-pandemic successfully.

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Social-psychological Economic Impact of Covid-19 on SME'S in Kelantan: A Review



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Abstract The people, the businessmen, students, and the economy of Malaysia are all affected by the Covid-19 pandemic. The evolution of this disease has significantly impact the social well- being, both psychological and physiological health, and economic condition of the people and the country. This study aims to determine the impact of Covid-19 has on the small and medium enterprises in Kelantan. Kelantan economic is well known of being driven by the SMEs. Nonetheless, less has been studied on Covid-19 impact on SMEs in Kelantan. Most studies focus on present impact of Covid-19 on employees and SMEs in general without in-depth analysis of cultural and social elements (The Star 2020). On the other hand, the Economic Stimulus Package (PRE) announced by the YAB Prime Minister on 27 March 2020 and 6 April 2020 has certainly motivated the people and SMEs at large, however, the question is—how long this stimulus programme can help SMEs to sustain? Based on the SME Annual Report 2017/2018, the number of SMEs in Kelantan is 46,618 which is considering high as compared in other states. Therefore, this study will focus on SMEs in Kelantan and addressing the cultural, sociological, health and economic impact. The study will be further significant as the culture of Kelantan, consumer behaviour, and local surroundings differ from the other states in Malaysia; and secondly, it will allow researchers to distinguish post-Covid-19 intervention programmes. Thus, the psychological aspect of SMEs and consumerism behaviour coupled with social and economic impacts are important elements to be investigated in the context of Kelantan during Covid-19 condition. In sum, the study will identify the impact variables of Covid-19 has on the present social aspect (which covers consumerism behaviour and cultural behaviour), psychological and physiological health aspect, and economic values aspect among SMEs in Kelantan, during Covid-19.

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1 Introduction

The evolution of the disease and its economic impact is highly uncertain which makes it difficult for policymakers to formulate an appropriate macroeconomic policy response. Within a few weeks after the event, Malaysia had become the country with the highest cumulative number of confirmed COVID-19 infections in South East Asia. As at 13 April 2020, there are 4,817 confirmed cases in the country, with the death toll of 77 cases (Report by the Ministry of Health Malaysia, 13 April 2020). Reported illnesses have ranged from mild symptoms to severe illness and death for confirmed coronavirus disease 2019 (COVID-19) cases. These symptoms may appear 2–14 days after exposure (based on the incubation period of COVID-19 viruses) including fever, dry cough, fatigue, shortness of breath, and acute respiratory distress symptom. On 12 March 2020, Malaysian confirmed its first sporadic case of COVID-19, signaling the first time the coronavirus was detected in an isolated and random manner in the community. In other words, a sporadic case means the infected person did not have any travel history to the affected countries or contact with an infected person. This first case was detected after the Health Ministry conducted surveillance on 600 samples taken from people with influenza-like illness (ILI)—462 samples and severe acute respiratory infection (SARI)—138 samples. One of those samples was infected with COVID-19.

In conjunction with this pandemic, several earlier reports and views were presented to describe the impact of Covid-19 on the citizens well-being, and SMEs in general (e.g., MIER on The Star Online 25 March 2020; ISIS Report 26 March 2020; KPMG Report April 2020). However, the reports and views were not exhaustively conducted based on an empirical approach. Any catastrophic or disasters experienced by any country, a proper empirical approach must be conducted to gained a much realistic insights and evidence. Such approach will guide scholars to recommend proper measures to curb with the catastrophic or pandemic outbreak such as Covid-19. In addition, an empirical study will allow mitigation or intervention programmes in later stage. Thus, this study will be conducted empirically on the impact of Covid-19 on three critical components—social; psychological and physiological health; and economic values. Since previous reports of Covid-19 impact were generalized on business fraternity and citizen as a whole, this present study will focus on Covid-19s impact on SMEs in Kelantan (which is almost no empirical study was conducted upon SMEs in Kelantan at present). This study will examine impact of Covid-19 situations.

The increasing number of infected peoples in COVID-19 cases, the Malaysian Prime Minister Tan Sri Muhyiddin Yassin has declared that the entire country will be on a movement control order (MCO) commencing March 18th till March to 31st March (Phase 1), and later was (MCO) extended to 14 April (Phase 2) and 28 April 2020 (Phase 3) respectively. Judging by the relatively high number of positive cases during Phase 1 of MCO, the government has enhanced its Standard Operating Procedures (SOP) of MCO in the second stage of the MCO in terms of time and movement restrictions and business operations' restriction. To remain ever vigilant and cautious,

the Malaysian Prime Minister extended MCO for another two weeks till 28 April 2020 (Phase 3). Hence, Should the pandemic continuous to worsen and MCO to be further extended, it is expected that unemployment will rise to 3.5% (MIER 2020). Other sectors will be impacted include aviation industry, tourism and hospitality, and construction.

Malaysia, on the other hand will witness drop in stock markets, conservative spending behavior, volatile cash flows, and reduced domestic demand. However, the effect of this PRE is still uncertain despite it is a very commendable measure and furthermore is too early to be captured. Therefore, there is a need to study the impact of PRE on Covid-19 has on social, health, economic values not just on the people but the business fraternity like the SMEs. In the absence of empirical evidence in examining the impact of Covid-19 has upon SMEs in Kelantan (as the state is known for SMEs growth), therefore, the main problem in this study is to examine empirically the intensity of Covid-19 on social, psychological and physiological health, and economic values among SMEs in Kelantan; and the influence of Economic Stimulus Package (PRE) as a moderating variable in sustaining the well-being of these SMEs at present as well as during Covid-19 period.

In the last twenty years, several viral epidemics such as the severe acute respiratory syndrome coronavirus (SARS-CoV) in 2002–2003, and H1N1 influenza in 2009, have been recorded. Most recently, the Middle East respiratory syndrome coronavirus (MERS-CoV) was first identified in Saudi Arabia in 2012. In a timeline that reaches the present day, an epidemic of cases with unexplained low respiratory infections detected in Wuhan, the largest metropolitan area in China's Hubei province, was first reported to the WHO Country Office in China, on December 31, 2019. Published literature can trace the beginning of symptomatic individuals back to the beginning of December 2019. As they were unable to identify the causative agent, these first cases were classified as “pneumonia of unknown etiology.” The Chinese Center for Disease Control and Prevention (CDC) and local CDCs organized an intensive outbreak investigation program. The etiology of this illness is now attributed to a novel virus belonging to the coronavirus (CoV) family. On February 11, 2020, the WHO Director-General, Dr. Tedros Adhanom Ghebreyesus, announced that the disease caused by this new CoV known as COVID-19, which is the acronym of coronavirus disease 2019. This new virus seems to be very contagious and has quickly spread globally as it had spread to 18 countries with four countries reporting human-to-human transmission. Accordingly, WHO a Public Health Emergency of International Concern (PHEIC) declared the outbreak. Subsequently, the task of experts of the International Committee on Taxonomy of Viruses (ICTV) termed it the SARS-CoV-2 virus, as it is very similar to the one that caused the SARS outbreak (SARS-CoVs). The CoVs have become the major pathogens of emerging respiratory disease outbreaks. They are a large family of single-stranded RNA viruses (+ssRNA) that can be isolated in different animal species. For reasons yet to be explained, these viruses can cross species barriers and can cause, in humans, illness ranging from the common cold to more severe diseases such as MERS and SARS.

Interestingly, these latter viruses have probably originated from bats and then moving into other mammalian hosts before jumping to humans. World governments

are at work to establish countermeasures to stem possible devastating effects. Health organizations coordinate information flows and issues directives and guidelines to best mitigate the impact of the threat. At the same time, scientists around the world work tirelessly, and information about the transmission mechanisms, the clinical spectrum of disease, new diagnostics, and prevention and therapeutic strategies are rapidly developing. This situation happened globally including Malaysia. The coronavirus pandemic was first identified to have spread to Malaysia on 25th January 2020 (Bernama 2020). Reported cases remained relatively low until a large spike in cases in March 2020, most of them linked to a religious event held in Kuala Lumpur in late February and early March. Within a few weeks after the event, Malaysia had become the country with the highest cumulative number of confirmed COVID-19 infections in South East Asia.

As of 4 April 2020, there are 3,483 confirmed cases in the country, with 57 deaths reported. Reported illnesses have ranged from mild symptoms to severe illness and death for confirmed coronavirus disease 2019 (COVID-19) cases. These symptoms may appear 2–14 days after exposure (based on the incubation period of COVID-19 viruses) including fever, dry cough, fatigue, shortness of breath, and acute respiratory distress symptom. On 12 March 2020, Malaysian confirmed its first sporadic case of COVID-19, signaling the first time the coronavirus was detected in an isolated and random manner in the community. In other words, a sporadic case means the infected person did not have any travel history to the affected countries or contact with an infected person. This first case was detected after the Health Ministry conducted surveillance on 600 samples taken from people with influenza-like illness (ILI)—462 samples and severe acute respiratory infection (SARI)—138 samples. One of those samples was infected with Covid-19. According to the increasing number of infected peoples in COVID-19 cases, Malaysian Prime Minister Tan Sri Muhyiddin Yassin has declared that the entire country will be on a movement control order starting from March 18th March to 31st March. This decision was made under the Prevention and Control of Infectious Diseases Act 1988 and the Police Act 1967.

2 Social Economic Impact (SEI)

Study on SEI is significant in any field of research, business, project development, health disaster, environment disaster as well as technology disaster. Thus, the outbreak of Covid-19 has attracted many entities and scholars to conduct the impact of Covid-19 on both social and economic aspects. Social impact assessment (SIA). On economic aspect, both micro and macro components are significant to be measured and has been applied in various economic impact studies. The common measures include financial capability, and environmental component. Today and in the era of post Keynesian economic, components such as technological impact, innovation and operational efficiency are seen to be vital.

This present study will conceptualized Orbach (1979) and van Willingen (1986) for social impact while the post Keynesian economic theory for the economic

impact of Covid-19. The social impact domain will be measured upon culture, and consumerism behavior, while the health component (which is part of the social impact) will address both psychological and physiological health. On economic domain, three important impacts will be included in this study—profit and loss, financial capability, and employment turnover rate.

Theory of Change was popularised by ToC is a specific type of methodology for planning, participation and evaluation that is used by many organisations and philanthropies to promote social change. Contingent to this theoretical paradigm, the outcomes of this present study will outline the appropriate intervention programmes and measures to curb the Covid-19 issue. This study will be governed by ToC to determine the aggregate impact factors i.e. social, health and economics of Covid-19. The findings will allow the present researchers to outline the intervention programme and its method of delivery to help SMEs in Kelantan to curb the situation.

This advises due to government announced for extended the Movement Control Order (MCO) for a phase 3 (Bernama 2020). Home production is thus a source of savings that households can engage in which should also increase their spending at certain stores as opposed to others. Households substantially changed their spending as news about the COVID-19s impact in their area spread (Strahilevitz 2020). Overall, spending increased dramatically in an attempt to stockpile needed home goods and also in anticipation of the inability to patronize retailers. As the virus spread and more households stayed home with less movement outside resulted to the several sectors including restaurants, retail, air travel, public transport, and etc. Before the spread of COVID-19, these sectors being a main place for the people to spend most of their money and investment. Majority of the household's spending money on groceries products and hygiene products (Baker et al. 2020).

Previous research has revealed a profound and broad spectrum of psychological impact that outbreaks can inflict on people. Among the general public at the individual level, it can precipitate new psychiatric symptoms in people without mental illness, aggravate the condition of those with pre-existing mental illness and cause distress to the caregivers of affected individuals (Ho et al. 2020). Regardless of exposure, people may experience fear and anxiety of falling sick or dying, helplessness, or blame of other people who are ill, potentially triggering off a mental breakdown. Significant psychiatric morbidities have been found to vary from depression, anxiety, panic attacks, somatic symptoms, and posttraumatic stress disorder symptoms, to delirium, psychosis and even suicidality, which have been associated with a younger age and increased self-blame. While the primary intervention of isolation may well achieve its goals, it leads to reduce access to support from family and friends, and degrades normal social support systems and causes loneliness, and is a risk for worsening anxiety and depressive symptoms. If left untreated, these psychological symptoms may have long-term health effects on patients and require treatment adding to the cost burden of managing the illness. Clinical and nonclinical staff is also at risk of psychological distress as they are expected to work longer hours with a high risk of exposure to the virus.

Treatment protocols for people with COVID-19 should address both the physiological and psychological needs of the patients and health service providers.

Providing psychological treatment and support may reduce the burden of comorbid mental health conditions and ensure the wellbeing of those affected. Based on the current epidemiological investigation, the incubation period is 1–14 days, mostly 3–7 days. Fever, dry cough, and fatigue are the main manifestations. With the spread of the epidemic, other cases have been found in other parts of China and abroad (Simione and Gnagnarella 2020). The sources of infection seen so far are mainly patients with new type of coronavirus infection, which are mainly transmitted through respiratory droplets and close contact. Patients diagnosed with this disease must be treated in isolation. Through clinical observation, many patients developed anxiety and sleep disturbances after isolation treatment. Anxiety, as a kind of psychological stress, will trigger a series of physiological events and cause a decrease in immunity. Progressive muscle relaxation is a deep muscle relaxation method based on the principle that muscle tension is the physiological response of the human body to irritating thinking (Wang et al. 2020). Due to the uncertainty and lack of knowledge of COVID-19, its fast transmission speed and infectious nature and its serious threat to life safety, COVID-19 is making the population especially nervous and pushing them into a state of high stress. In the state of stress, people's physiology, psychology and behavior will produce corresponding responses.

Generally speaking, the physiological response of stress state is mainly manifested in the changes of the autonomic nervous system and endocrine system. The specific manifestations include heartbeat acceleration, blood pressure rise, blood sugar increase, palpitations, appetite disorder, and dyspepsia; sleep disorder, headache, body pain, endocrine disorders, etc. The emotional response caused by stress is mainly a series of accompanying emotional experiences putting people in a negative emotional state such as depression, anxiety, panic, disappointment or fear. The main behavioral changes caused by stress are restlessness, inattention, reduced ability to solve problems, slow action, frequent anger, forced behavior (blind excessive disinfection and repeated hand washing), crying easily, smoking, alcohol abuse, etc. (Wang et al. 2010). These psychosomatic and behavioral responses to stress are a psychological mechanism for self-defense. It is a natural, normal and necessary response when people are facing dangerous situations. From the perspective of physical and mental health, if the public responds to COVID-19 properly, it can stimulate the internal drive of the human body to fight against the challenge of the epidemic. On the contrary, if the reaction is inappropriate or excessive, exceeding the bottom line that the body can tolerate, it will naturally disrupt the balance of physical and psychological functions of the person and impair physical and mental health and even cause serious physical and mental illness (Drury et al. 2019).

The International Labour Organisation (“ILO”)’s preliminary estimates point towards a significant rise in unemployment and under-employment as the crisis unfolds (ILO 2020). Hence, the outbreak of COVID-19 has impacted many sectors in Malaysia, which specifically is tourism and hospitality, aviation and logistics, oil and gas, and agriculture. In consequence, it will further, reduce domestic demands and spending arising from unemployment. The continuous situation will drop foreign trade as supply chains are affected. For each country, the model uses GDP decomposed into its’ different economic sectors (Fernandes 2020).

During the crisis months, it is assumed that service-oriented sectors will be more impacted than agriculture or industry. As explained in prior sections, with fewer tourists and lower consumption overall, airlines, retail, hospitality, and entertainment sectors are all expected to suffer greatly from the outbreak. Stock market data in previous figures are consistent with this assumption, too. Overall, this suggests that the economic costs of a recession are unequally distributed. Given the different industrial composition of countries, impacts will be felt differently around the globe (Mann 2020). For instance, the model assumes that countries that have a larger tourism sector (as a % of GDP) will be more severely affected than countries that are more industrial- focused. Given the documented disruption to trade flows, the model also assumes that countries more reliant on exports will suffer disproportionately more.

Baldwin and Di Mauro (2020) suggest that the COVID-19 pandemic is both a demand shock and a supply shock—that is likely to slow down aggregate trade flows significantly and that manufacturing distress and supply-side contagion is imminent through international supply chain distortions. Beck (2020) focuses on finance and banking risks created by the pandemic and argues that the effect would depend on three factors, the extent of the pandemic's economic effects globally, the fiscal and monetary policy reactions to the shocks, and regulatory reactions addressing possible bank fragility. Among financial institutions, Cecchetti and Schoenholtz (2020) argue that banks are highly vulnerable to the likely economic shocks and they compare the challenge with that of stemming a bank run. According to Mann (2020), the interlinkage between global commodity markets, financial markets, public sentiment, and the economy is likely to make situation worse and challenging for policy responses. To fight back with the right policy, Cochrane (2020) urges for a detailed, pandemic-induced financial crisis plan with targeted bailout packages that considers the likely bankruptcies and insolvencies and floods the country with money in the right spots. Based on the experiences of modelling the economic effects of an influenza pandemic, Wren-Lewis (2020) suggest that the COVID-19 estimate reduction in economic growth, coming as a result of reduced labor supply, higher production cost, higher temporary inflation, and reduced social consumption.

The existence of SME in the economic landscape in Malaysia is prevalent as 97.3% (645,136 firms) of the total business establishments is SME (SMEMCorp. Malaysia 2016). The GDP growth of SME has consistently outpaced the overall economic growth in Malaysia since the year 2004. SME also contributed 56% of total employment and 17.8% of total exports in 2014 (Hashim 2015). Despite the positive performance of SME in recent years, the contribution of Malaysia 's SME to the overall nation 's economy remains relatively smaller compared to the other advanced and developing countries. An enterprise will be classified as an SME if it meets either the specified number of an employee or the annual sales turnover definition. Thus, the following definition are acceptable in Malaysia to describe an SME. A microenterprise is an enterprise with a full-time employee of less than 5 or with an annual sales turnover of less than RM 200,000. A small enterprise is an enterprise with full-time employees of between 5 and 19 or with an annual sales turnover of between RM 200,000 and less than RM 1 million; and a medium enterprise is an enterprise

with full-time employees of between 20 and 50 or with an annual sales turnover of between RM 1 million and RM 5 million.

For instance, business operators are required to balance up the emphasis on both profit generation and sustainability development. Indeed, researchers have suggested the integration of sustainability management and business practices among SME entrepreneurs to contribute to sustainable development (Parrish 2010). In explaining the concept, some researchers called it “sustainability-driven entrepreneurship” (Majid et al. 2012) or “sustainable-minded entrepreneurship” (Gagnon 2012). Some studies have also simply equated it to “environmental entrepreneurship” (Schlange 2006). It can be said that there remains no universally accepted definition on sustainable entrepreneurship between SME’s. It is important to note that sustainable entrepreneurship emphasizes several aspects equally.

As such, this paper adopted Majid and Koe’s (2012) description, in which it was regarded as “an entrepreneurial process to exploit the opportunities in an innovative manner for economic gains, society equity, environmental quality and cultural preservation on an equal footing.” Thus, sustainable entrepreneurship requires the business operators’ decisions to embark on it. However, it is considered as something new to many business operators, especially SMEs (Moorthy et al. 2012). Studies have also found that the number of SMEs participated in it was less embracing than large organizations. Therefore, as an initial stage of developing sustainable entrepreneurship among SMEs; understanding the psychological factors that trigger people’s decision to take up this process is crucial. This sustaining SME can be explained as the degree of hardship and effort that SME is willing to put forth to perform a behavior (Ajzen 1991) towards change in the economy or environment.

Economic growth in Malaysia is expected to slow to 3.7% in 2020, as the novel coronavirus (COVID-19) situation continues to weigh on tourism, supply chains and household spending (Institute of Chartered Accountants in England and Wales’s (ICAEW)). The Prime Minister has also announced of the 2020 economic stimulus package with additional measures to mitigate the impact of the COVID-19 pandemic. This stimulus package will benefit all the people and no one will be left behind. A total of RM 260 billion has been allocated for Economic Stimulus Package by Malaysian government to mitigate economic due to COVID-19 pandemic, of which RM 110 billion is for business support. The Malaysian government acknowledges the important role of Small Medium Enterprises (SMEs) as the backbone of the Malaysian economy. Through these stimulus packages, SMEs will be allocated for loan/financing moratorium for all affected businesses for six months. While RM 500 million to provide discounts on electricity bills for the tourism, commercial, industrial, agricultural and also household sectors. The allocation of RM 13.8 billion will be provided to assist up to 4.8 million workers under the Enhanced Wage Subsidy Programme. Moreover, all SMEs will be benefited from the postponement of income tax installments. These packages also aim various forms of assistance to farmers and fishermen, including agricultural inputs to increase domestic production.

Economic stimulus package measured on (1) financing facilities; (2) industry booster, and; (3) socio-economic drivers. The financial institutions facilitate the

restructuring and rescheduling of loans through RM 2 billion allocated to establish a Special Relief Facility (“SRF”) to assist with the cash flows of affected SMEs. While Bank Simpanan Nasional offers RM 200 million in micro-credit facilities to the tourism and other affected sectors and RM 500 million to be invested by the Securities Commission Co-Investment Fund in early-state and growth-stage Malaysian companies. While the hospitality industry is allocated to the exemption of service tax on taxable services for six months. Further, all affected sectors exempted from the Human Resources Development Fund levy and a 15% discount on electricity bills. It is estimated funds amounting to RM 1.1 billion to assist retrenched workers under the Employment Insurance System (“EIS”). KWSP also offer a minimum employee contribution to the Employees Provident Fund (“EPF”) reduced from 11% to 7%, to potentially increase disposable income by approximately RM 10 billion.

From the review of the above variables, below is There is a significant effect of COVID-19 intensity towards the social aspect (i.e. culture, consumerism behaviour) among SMEs’ owner and employees in Kelantan.

3 Conclusion

This study will target 1% of the total population subject to the latest data on the three sectors. Further, an alternative method states that when using the technique of partial least square (PLS), as in this study, the sample size is independent of the number of indicators when the model is reflective (Chin et al. 2003). The heuristic requires ten times the construct with the largest number of structural paths, which would be either of the two exogenous variables. This method indicates $10 \times 30 = 300$ as an adequate sample size. As this research utilizes PLS as well as CFA, the first heuristic will be considered adequate. The usable sample size of 508 exceeds the sample size of 400, which is deemed adequate by the power calculations. While. Participants for the qualitative component of the study volunteered at the end of the quantitative study to be contacted later about participating in a focus group. The number of participants was based on Stake’s (2006) recommendation of sampling 4–10 participants. The majority of the participants is who participated in the quantitative phase. The researcher met/online with the focus groups for approximately 45 min. The qualitative data collection was used to support and further understand the findings from the quantitative component of the study.

The Malaysian Institute of Economic Research (MIER) in a press statement on 24th March 2020 predicts that the real GDP growth of Malaysia in 2020 will drop from 4.0% to (–2.9%) with up to 2.4 million job losses, of which 67% will be from the unskilled worker’s category. These losses due to the result of the COVID-19 pandemic that leads to the Movement Control Order (MCO) phase 1 and phase 2, and commodity supply disruptions both domestically and internationally. Accordingly, the implementation of stimulus measures, policy rates cut and the continued progress of public projects and higher public sector expenditure will support GDP growth in 2020. Therefore.

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Embracing the Hub Model for Sustainable Distribution System of Farm Produce During the Pandemic Crisis



Noor Fzlinda Fabeil , Khairul Hanim Pazim , Juliana Langgat, and Nurhayati Daut

Abstract This conceptual paper embraces the concept of the hub model as the alternative distribution approach for sustainable farm-based business during the pandemic crisis. It is believed that the conventional distribution approach which is typically developed by a longer chain that involves multi-levels of intermediaries might be less significant for farm produce due to perishability, especially when all supporting services like transportation and small retail stores are disrupted. The study focuses on small-scale farmers in Ranau, Sabah who have been affected by the logistic disruption during the movement control order amid the Covid-19 outbreak. The Covid-19 has caused an unstable supply of farm produce to the market due to several physical and logistic restrictions, thus leading to the dumping of farm produce and loss of regular market. This paper is based on key informant interviews with two key small farmers in Ranau who employ different approaches of distributing their farm produce to customers during the pandemic through appointed agents who served as one-stop collection hubs in the city. The findings provide useful insights into the development of the conceptual idea for a sustainable distribution system by embracing the hub model through a mobile app, integrating the farmer, hub agent, runner, and customer in the supply chain. This paper hopes to contribute ideas to policymakers to provide appropriate support facilities on the sustainable distribution system for farm produce in Malaysia.

Keywords Hub model · Distribution channel · Farm produce · Covid-19 pandemic

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1 Introduction

1.1 Background to the Study

The sudden threat of the Covid-19 pandemic has caused an upheaval in several key economic sectors, including the agriculture sector due to operation and logistic restrictions. Since March 2020, the government of Malaysia has instigated several phases of physical movement restrictions as measures to combat the pandemic outbreak in the country. The incessant logistic restrictions have led to instability of the supply of farm produce to the market. The farmers experience loss of daily income due to the disruptive supply chain resulting from the closure of supporting services especially the transportation services and retail sectors. Many extant studies on the impact of mobility restrictions amid Covid-19 found that the food and agriculture sector face greater risk than other sectors, in terms of production (Ridley and Devadoss 2020; Ying and Wei 2020), the supply chain (Richards and Rickard 2020; Sharma et al. 2021), marketing and sales (Amir et al. 2020; Ying and Wei 2020) and farmer's income (Ceballos et al. 2020; Neha Kumar 2021). These studies lend insights into the importance of ensuring the optimum supply of farm produce to the market through a proper distribution system, in order to balance between the market's need and farmer's income.

Finding a proper distribution system for farm produce has always been the most critical challenge in agri-based businesses. Typically, the choice of distribution approach for the farm-based product is determined by the cost of transferring the products from supplier to consumer, as well as the influence of environmental tolerance of each market operating channel (Yagana et al. 2014). Furthermore, to smallholder farmers, distributing farm produce through multiple independent intermediaries is viewed by many scholars as less economical primarily due to the allocative inefficiency (Kim and Frazier 1996) or imbalanced share of power between the supply chain stakeholders (Manikas et al. 2019). The conventional distribution channel is typically developed by a longer chain that involves several intermediaries which consumers do not see or interact with the producers throughout the chain. It is contended that this kind of intermediaries-centred channel might be less significant for farm produces due to perishability and locality reasons.

In Sabah, the government has provided stimulus packages and a variety of measures to reduce the impact of the pandemic on the business sector. The gradual lifting of the restrictions on several essential sectors, such as the agriculture sector, led to a more tolerant to the operation of the business. The Ministry of Agriculture and Food Industry (MAFI) for instance, allows the farmers to market their farm produce in an outdoor market through an open-air bazaar organized by the Federal Agriculture Marketing Authority (FAMA), which serves as a collection centre for farm produces in the city (FAMA 2021). Nevertheless, some primary producers, especially the smallholder farmers might not be able to personally sell their product in the designated bazaar if it is located far from their place as they need to juggle between selling and working on the farm. Key (2020) and Reardon et al. (1998)

contended that a collection centre can be beneficial to farmers if it is developed nearer to the farmer's place as it reduces the need for mobility. Furthermore, during the uncertain situation, such as the current pandemic crisis, the level of restrictions for active logistic movement can be intermittently stringent.

Despite the disruption on the logistic services during the pandemic, some farmers thrive to survive by embracing several strategies as an alternative to reduce the impact on their business. This includes opting for online business through mobile applications like WhatsApp and Facebook, operating their business from home, and abridging the distribution channel through private agents or runners (Aling 2020; Dzulkifli 2020; Halim 2020). Based on the local media, it has been reported that during movement control order (MCO), some farmers in Ranau, Sabah distribute their farm produce to customers through an appointed agent or one-stop collection centres which are located in several city areas. This approach can be regarded as an innovative distribution system, which scholars refer to as hub distribution that integrates all players in the supply chain in a network form (Liu et al. 2012). Under this approach, a hub plays as a central store that is used to cater to various destinations that may be customers, stores or other smaller warehouses, and generally are placed at the places that are near to customers (Manikas et al. 2019). It is assumed that the hub distribution approach is suitable for distributing the farm produce as it can optimise the overall logistic costs of distributing farm produce to consumers.

Previous studies contended that there is still a lack of studies on the distribution channel from the producer's point of view (Sharma et al. 2021; Kim and Frazier 1996), and most studies have been limited to the impact of a channel system towards intermediaries and customers. In addition, scholars in the supply chain suggest two important factors that always have been neglected in the channel system, i.e. the environmental uncertainty (Achrol and Stern 1988) and the value-added channel system for producers (Stern and El-Ansary 1992). With the increasing occurrence of uncertain risks like disease spread crisis, natural disaster, and economic crisis, small agribusinesses need to consider an alternative distribution channel for their business continuity. Many scholars viewed the adoption of innovation, creativity and speed in reaching the market as the most promising strategy for a business organization to sustain their business in time of crisis (Aminova and Marchi 2021; Elali 2021). Therefore, this paper aims to propose an economical and fast distribution channel for farm produce based on the concept of a hub channel. This paper also provides insights that the hub distribution approach might allow agribusiness sustainability though in time of crisis.

2 Literature Reviews

Distribution Channel. A supply chain is a channel where goods or services flow from the producers to final consumers, which is developed by a variety of participating intermediaries that channel a commodity for use or consumption accessible (Blanco 2000). In agri-based businesses, the conventional distribution approach

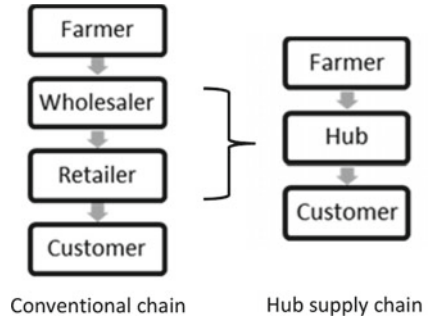
of farm produce often goes through multi-level intermediaries before reaching the customer (Adekanya 1989). Yagana et al. (2014) contended that about three transaction contacts are often involved in transferring fruits and vegetables to the end market, with consumers buying from retailers after the commodity has been transferred from producers through assemblers and wholesalers. The distribution channel for larger agri-based businesses has been dominated by the vertical integration approach and technology-based supply chain management. Nevertheless, many previous studies contended that the conventional distribution channel is less significant when distributing the farm-based produce among smallholder farmers especially in the rural areas due to poor communication between farmers and distributors (Yu-Lian 2008) and logistic infrastructures (Paciarotti and Torregiani 2018). In addition, some argue about the issues of unfair pricing and imbalanced power between independent middlemen in the supply chain, when the middlemen received more income than the producer as they can charge more prices on end-users (Oguma et al. 2010).

In response to the sustainability of agri-business during the pandemic crisis, an alternative distribution system for farm produce should be given a greater concern by the government and responsible agencies. The conversion of the supply chain from the conventional to alternative approach is often viewed by scholars as to shorten the chains (Key 2020) by minimizing or removing unnecessary intermediaries between farmers and customers (Reardon et al. 1998). In this sense, the problem that emerged from the existing distribution approach together with the impact of the pandemic, enlighten the potential of embracing an alternative distribution system for farm produce, such as the hub model.

Hub Model. Some scholars suggest direct channels, via on-farm or off-farm distribution is more suitable for farm produce. Corsi, Novelli and Pettenati (2018), Hamzaoui, Sirieix and Zahaf (2013) and Yu-Lian (2008) pointed that customer can buy the products at the farmer's place (on-farm distribution) or farmers bring their product to the one-stop centre in the city (off-farm distribution). It is contended by many scholars that the emerging channel for distributing perishable products to the urban area should be simpler than the durable products, and should not involve several middlemen. Yu-Lian (2008) suggests perishable goods are suitable to be distributed via direct sales (e.g. in farmer's place or farmers' market) or a single stage-channel which contains only one intermediary (e.g. retailer in the consumer market) as the win-win chain approach between the farmers and consumers as both can enjoy fair price and quality products. Manikas et al. (2019) suggest an alternative sustainable channel of distribution for agriculture products through the utilization of the hub model (see Fig. 1). A hub chain model is the one in which farmers produce and sell together in broad central and terminal markets (Adeyeye and Dittoh 1989). A hub chain represents a strategic alliance between stakeholders in the supply chain that able to coordinate activities along the supply chain including storage, distribution and marketing, thus providing economies of scale and better networking between stakeholders (Franklin and Morgan 2014; Manikas et al. 2019).

There have been many previous studies on the distribution channel focusing on the influence of technology-based supply chain management on business performance

Fig. 1 The conventional distribution channel vs hub distribution system (Manikas et al. 2019)



(Borah et al. 2019; Green et al. 2019). Nonetheless, studies on distribution channels for farm-based produce from small farmers’ perspectives in rural areas have not been fully studied. Besides, there are still limited studies on the alternative distribution channel for perishable products during a crisis especially when the supporting services like transportation and retail sectors are disrupted due to emergency orders in time of crisis. It is believed that during the unpredictable crisis, smallholder farmers would favour a short and fast channel of distribution, which is more economical for their business.

3 Aims and Methodology of Research

This paper aims to explore from the farmer’s point of view about the distribution channel used by them to sustain their business during the movement control orders amid the pandemic outbreak. Based on the interviews with two smallholder farmers in Ranau, Sabah, this study suggests the distribution system of farm produce can be done through an integrated channel based on the hub model. It is expected that the hub chain may shorten the chain from farmer’s place to end consumers, and more economical as the income and costs are shared among the players in the hub channel.

This study involved unstructured phone interviews with two small farmers in Ranau, Sabah. The unstructured interview allows the researcher to gather opinions and beliefs of respondents based on their life experience (Marshall and Rossman 2006) in a free flow but informative conversation (Miles and Huberman 2019). Respondents were purposively selected to participate in the study because they were the key smallholder farmers and that the sector was affected by a pandemic crisis due to logistic disruption. Purposive sampling was used in this study as it focuses on gathering information befitting the research objective. In addition, a review of literature and news in the local media were also conducted with the aim to provide insights on the situation of the farm-based business and the potential idea of embracing a hub distribution system as an alternative distribution for farm produce. The insights and thoughts gathered from the study were analysed and summarised into a proposed

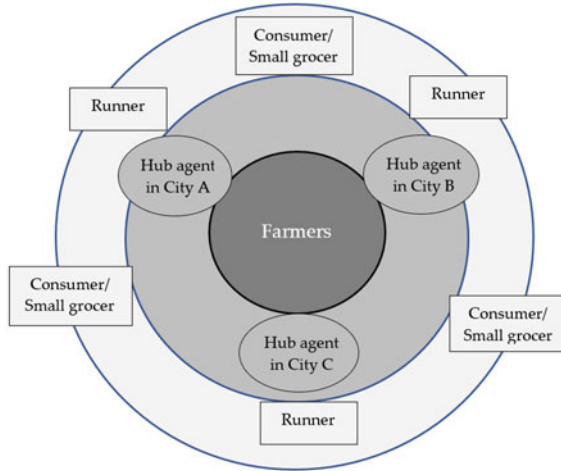
diagram (Manikas et al. 2019) to provide meaningful hindsight about how farmers manage the distribution of their farm produces to end consumers during the pandemic crisis.

4 Results

The interviews with two smallholder farmers revealed that most farmers use a multi-synchronous strategy during the pandemic crisis to ensure the continuous delivery of their farm produces to customers, mainly by optimising the distribution channel from the use of several intermediaries to a minimal number of designated distributor or agent. It is surprising to find that these farmers call their appointed agent a 'hub agent', in line with the role of the hub model as an integrated channel. Based on the interviews, the role of the hub agent is to collect the farm produce from the farmer's place and transport them to a particular grocery store in the city area, where consumers can collect from the store or request the runner to their home. In response to this approach, the use of a mobile app such as WhatsApp, Telegram and Facebook Messenger ease the communication of transaction of produce from the farm to the consumer in the city. They contended this approach as much faster and easier compared to conventional distribution channel, either through intermediaries or to market in an open bazaar. This market-driven distribution approach is parallel to previous studies (Corsi et al. 2018; Hamzaoui et al. 2013) who suggest direct distribution channels as appropriate for perishable goods.

The interviewed farmers also perceived that a more centralised distribution approach for vegetables and fruits as a better option during a crisis. They suggested the government to initiate several one-stop frozen centres in the main city that can bring together farm produce from farmer's place to the market. This view is parallel with the hub model where farmers can produce and sell directly their produce in broad central and terminal markets through the designated chain (Adeyeye and Dittoh 1989). In this case, each retailer or mini-mart who are referred to as hub agent serves as a collection centre for agricultural products received from the farm. In the hub distribution system (see Fig. 2), farmer and produce are the central hub, the registered hub agent and runner flow around the hub to facilitate the integration. This study proposes the hub agent can be located in various destinations within five kilometres radius near residential areas.

Fig. 2 The use of hub agent and runner as an alternative distribution system for farm produce during the pandemic crisis



5 Conclusion and Future Direction

The impact of the logistic restrictions amid the Covid-19 outbreak is huge to the agriculture sector. The smallholder farmers, especially in the rural area had a greater impact due to loss in income when they have to stop their production due to the inaccessibility of their farm produce to the market. In addition, the shortage of this nutrition in the market disrupts the intake of healthy food among customers, especially for vitamins and minerals. It is essential to stabilise the supply chain for farm produce in order to ensure continuous supply although in time of crisis. The study reveals that during an adverse situation such as the pandemic crisis, farmers viewed the conventional distribution approach to be less economical when all supporting services like transportation and retail stores are disrupted. As an alternative to reduce the impact, farmers in this study have made a collective decision through the farmers’ association, to work closely with appointed individuals who they call as agents to deliver the farm produce from the farmer’s place to the market. This alternative distribution system is parallel to the concept of the hub chain model, which farmers believe to be the most economical approach during the pandemic crisis.

Elali (2021) suggested the most promising survival strategy for a business organisation in adverse condition is by transforming to digital means for a sustainable supply chain. Embracing the hub chain model in farm produce distribution means the farmers can enjoy a shorter chain to sell their products to customers. This integrated network can be transformed into a mobile app, which is handier to users. This conceptual idea of embracing the hub model for the distribution of farm produce hopes to contribute a spill-over effect to the farmers, intermediaries (hub agent, runner) and consumers for a sustainable distribution of farm produce in Sabah. The farmers will be able to supply their produce to consumers just-in-time, and may also keep track of the flow of their farm produce in the market. The hub agent (can

be among the independent retailer or wholesaler, and runner) will be able to enjoy greater inventory options and sales potentials, build customer rapport and thus able earn extra income from the side job. Finally, through the proper development of a mobile app, consumers can save their groceries shopping time and enjoy safe buying during the pandemic.

This study is limited in that it focuses primarily on results from two farmers only and employs exploratory qualitative analysis of the results. Notwithstanding, this study provides a preliminary insight into the literature relating to alternative distribution channel approach for small farm-based business in a rural area in time of crisis. Further analysis using relationship tests with the larger group of respondents, including the hub agent or runners in the chain might provide a holistic view of the distribution channel system of small agribusiness in Sabah. Overall, the findings provide insights on the mechanism of distribution of agri-based products in light of the COVID-19 crisis and other shocks. This study could potentially improve the capacity of policymakers to react more effectively in the future to adverse events affecting agro-businesses dealing with perishable food systems, especially agricultural products in Sabah.

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The Internationalization of Malaysian Food and Beverage Industry During Corona (COVID-19) Pandemic: A Study from Technological Capabilities Perspective



Hayda Abu Hasan and Sathiswaran Uthmaputhran

Abstract The main objective of this paper is to study technological capabilities as a key enabler for internationalization among Malaysian SMEs in food and beverage (F&B) manufacturing sectors. Technological capabilities play an important role in determining the success of new ventures or SMEs because it enable companies to gain market acceptance and achieve long-term competitive advantage through continuous innovation in improving existing products and/or creating new products in the market. Drawing on the existing literature review, we are going to conduct a qualitative research model by interviewing 6–12 F&B manufacturing companies in which technological capabilities not only influence firm performance but to identify its role as the key enabler in the internationalization process for SMEs to penetrate the international market. The finding of this research is going to contribute to the development of F&B industries in developing countries especially in Malaysia. It will provide important information about technological capabilities that will be useful for Malaysian F&B industries in penetrating the international market and it will contribute to the body of internationalization knowledge and international entrepreneurship.

Keywords Food and beverages · Malaysian SMEs · Technological capabilities · Internationalization

1 Introduction

SMEs have been recognized as one of the main contributors to economic activity, innovation, employment, and wealth creation in many countries. According to Pasanen (2003), SMEs create innovations as they are active actors in global business networks and they also help in generating societal growth in terms of new jobs and revenues in many countries especially in Malaysia (Iskanius and Lamminsalo 2005). Malaysian SMEs represents the vast majority (98.5%) of the business population with a contribution of 38.3% to the overall GDP in 2018, 17.3% to total exports and 66.2%

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to total jobs in 2018 (NESDC 2019). The performance in 2019 showed a slight increment where SMEs contributed 38.9% to the overall GDP by employing more than 7.3 million people, which contributed to 48.4% to the country in 2019 compared to only 48.0% in 2018 (NESDC 2021). Comprising of various sectors including the services, manufacturing, mining and quarrying, construction, and agriculture, Malaysian small and medium-sized enterprises are indeed the catalyst for addressing economic inequalities across different classes, ethnicities, regions and supply chains (NESDC 2019). However, despite the positive growth in terms of 2018–2019, the world economy including Malaysia has actually been affected badly in the year of 2020 with the spread of virus Covid-19 all over the globe. The government had to take extra precautions by implementing so many rules and regulations that restrict businesses to operate in a normal way. Small businesses had to close down their shops and business operations in order to prevent the spread of the virus while complying with the SOPs provided by the government. On the other hand, many companies that currently running their business in both domestic and international market had to suspend their operation due to the pandemic when the government decided to implement the “Movement Control Order” (MCO) (Uthramaputhran et al. 2021).

This pandemic had cause the management team including business leaders, founders, and entrepreneurs to realize the importance of reinventing their organizations by implementing new operational mechanisms and structural changes that will enable a better proactive organizational that capable in turning any challenges brought by either domestic or global issues into a great business opportunity (Elali 2021). It is very important for any business to quickly react to issues or problems especially when it affects the operation of the organization. For an example, when the pandemic first happened and the government decided to implement the MCOs, many employers nor employees were not familiar with the term ‘working-from-home (WFH)’ or the implementation of remote work. At the time, many companies thought that the issues would be resolved quickly hence decided not to respond to any changes. However, when the pandemic continues, companies had no choice but to adapt to the new norms via the integration of latest-generation informational, computational and communication technologies that enable them to speed up their decision-making process via virtual meeting without having the needs to actually travel and meet each other for a meeting (Elali 2021).

Technological capabilities (TC) are commonly recognized at the national and company levels as a strategic source of development and prosperity (Chantanaphant et al. 2013). The adaptation of technology in daily operation had help many companies to survive during the pandemic by enabling them to shift their operation to online platform. Companies with more advanced technology will be able to gain competitive advantage by having the ability to innovate new products and to achieve higher differentiation and customization in order to meet the demand from the customers and to quickly respond to the changes in the market (Chantanaphant et al. 2013). TC also plays an important role in determining the success of new ventures because it enable companies to keep improving their existing product or creating new products in order to gain market acceptance and achieve long-term competitive advantage (Zou et al. 2010). However, in spite of internationalization benefits that promote

SMEs growth, Malaysian SMEs involvement in cross border activity is relatively low compared to developed nation due to obstacles, internal and external factors (Hasim et al. 2018). Small and medium enterprises (SMEs) are still struggling to be competitive in the foreign market and they are said to be lacking in penetrating the international markets for seeking more profits and market opportunity (Hussain et al. 2014).

Despite there is growing interest in the intersection between internationalization and technological capabilities, the Malaysian companies remains under-researched with some exceptional where the main challenge is a limited scale of this phenomenon from Malaysian perspective because not many companies interested to go abroad and do business. The objective of this article is to conduct a conceptual investigation on technological capabilities that enable the Malaysian companies to go abroad since their inception.

2 Literature Review

2.1 Definitions of Small Medium Enterprises

Previously, there is no common definition of small and medium enterprises (SMEs) in Malaysia as every agency define SMEs based on their own criteria and needs. Most agencies identify small and medium-sized enterprises (SMEs) based on the basis of their own metrics, typically benchmarking against annual revenue turnover, amount of full-time staff or shareholder funds (National SME Development Council 2005). This was not a surprise because most studies only focus on larger organizations or also known as multinational companies even though small and medium-size enterprises are growing tremendously (Mi and Baharun 2013) and play an important role in the country's economic development and had posed a significant contribution toward Malaysian economy in term of GDP and as a source of employment (Hasim et al. 2018).

By understanding the needs to establish a standard definition of SMEs in order to facilitate better identification of SMEs across sectors, the National SME Development Council has approved the first common definitions of SMEs on June 9th, 2005 and the definition has been adopted across ministries and agencies including financial institutions involved in SME development (National SME Development Council 2005). However, a review of the definition was conducted in 2013 given the facts that there were many changes and developments in the economy since 2005 such as price inflation, structural changes and change in business trends (SME Corporation 2020). Definitions of SMEs in Malaysia are based on two main criteria which is the number of employee or annual sales turnover (National SME Development Council 2005). Table 1 shows a summary for the definition of small and medium enterprises by SME Corporation Malaysia:

Table 1 Definition of small and medium enterprises by SME Corporation Malaysia

Category	Small	Medium
Manufacturing	Sales turnover from RM300,000 to less than RM15 million OR full-time employees from 5 to less than 75	Sales turnover from RM15 million to not exceeding RM50 million OR full-time employees from 75 to not exceeding 200
Services and Other Sectors	Sales turnover from RM300,000 to less than RM 3 million OR full-time employees from 5 to less than 30	Sales turnover from RM3 million to not exceeding RM20 million OR full-time employees from 30 to not exceeding 75

Source SME Corporation 2020

2.2 Internationalization Process

The term ‘internationalization’ varies even among researches but from an economic point of view, it is defined as the process where business gets more involved in the international market (Azuayi 2016). Scholars refers to Dunning’s (1981, 1988) eclectic paradigm or ownership to understand the process of internationalization. Many companies have decided to take their business to a different market with different objectives; some of them wanted to penetrate a new market by selling the products to different customers while others decided to produce products at a lower cost in a different country (Kotler and Keller 2016). The term internationalization is defined as the ongoing strategy process for most of the business firm who are transforming their business internationally (Zou et al. 2010). Calof and Beamish (1995) further explained that internationalization is a procedure or process of adapting a firm’s operation (strategy, structure, resource, etc.) to international environments. Internationalization together with the development in communication technology and information provide the opportunity for small and medium enterprises (SMEs) to expand their business into the foreign market (Nik Abdullah and Mohd Zain 2011) and in today’s modern world, internationalization is essential even for SMEs as they emerge as a dominant force impacting the growth of national economies (Mpofu and Sauti 2014).

The objective and motivation for companies to internationalize their business process varies depending on the type of the strategy being used. Some factors that might motivate SMEs in entering overseas markets include market expansion, more profit and exposure to new ideas (Nik Abdullah and Mohd Zain 2011) and several studies also showed that a key driver for internationalization is growth opportunities (Mpofu and Sauti 2014). According to a survey done by HSBC including more than 202 firms from Malaysia, “Four out of five businesses in Malaysia (85%) feel that they have positive prospects for international trade over the next two years,” while many businesses in Malaysia strongly believe that international trade will help them to improve efficiency, drive innovation and provide new and better business opportunities in the next five years (Syed Jaafar 2019).

2.3 Technological Capabilities

Technology capability or technological capabilities derived from the word ‘technology’ and ‘capability.’ Technology is defined as the practical application of knowledge especially in particular area (Merriam-Webster n.d.) or the application of scientific knowledge for practical purposes, especially in industry, which include the machinery and equipment developed from the application of scientific knowledge (Lexico n.d.). Another definition for the word ‘technology’ is the branch of knowledge that deals with the creation and use of technical means and their interrelation with life, society, and the environment, drawing upon such subjects as industrial arts, engineering, applied science, and pure science (Dictionary.com n.d.). On the other hand, the word capability means the ability to do something (Cambridge Dictionary n.d.). That being said, technology capability is the ability to do something through the application of scientific knowledge for practical purpose.

The meaning of technology capability or technological capabilities might vary among researchers; however, the definitions were not so much different from one another. Technological capabilities or TC is a term used to define a set of knowledge, experience, skill and capacity to select technologies to be used in operation with the primary goal to increase values or to extend values to the processes and products that will benefits the company (Ahmad et al. 2014). Another author defines technology capability as the company’s ability to perform technical functions in developing new products or new processes and to operate companies’ facilities effectively (Lestari and Adianti 2019) while Salisu and Abu Bakar (2019) defines technological capabilities as an organization’s ability to recognize, obtain, develop and also use modern and latest idea in production of superior products by using technology throughout the processes that will best meets the current market requirements and improves the overall efficiency of the organization.

Technological capabilities play an important role in determining the success of new ventures because it enable companies to gain market acceptance and achieve long-term competitive advantage through continuous innovation in improving existing products and/or creating new products in the market (Zou et al. 2010). Besides, it also allows companies to address foreign limitations by helping them to be more flexible in their design of products (Lestari and Ardianti 2019) thus enable them to compete in both domestic and international market (Zou et al. 2010). In order to compete and sustain in both domestic and international market, SMEs also need to be more resilient by strengthen their capability, which involve acquiring new skills, techniques and technologies, and how to utilize these factors to improve their business operation.

2.3.1 Role of Technological Capabilities in Internationalization

There are so many supporting tools in technological capabilities, from the smallest application to the biggest one such as the use of machinery. One of the simplest tools

in technological capabilities is the internet of things (Iot) where it helps businesses to use online platform for so many different reasons that will definitely benefit their business in the long-term. SMEs were able to market and promote their business without having to worry about the limitation of borders whereas the concept of online business begins to eventually replaces the traditional business systems. Some other businesses even use it as a communication channel for their organization, especially in establishing a better and more productive relationship with the customers and stakeholders (Razali et al. 2018). In addition, many companies might take it for granted or they probably did not realize the fact that knowledge sharing is very important where SMEs will be able to take advantage by learning the knowledge from experts in improving innovation performance. Knowledge has proved to have a significant positive impact especially for entrepreneurs and founders of SMEs (Al Sahaf and Al Tahoo 2021). Knowledge sharing happens when individual or employee mutually exchanges knowledge with others to recreate new knowledge (Yuen and Ng 2021) and it will definitely help in influencing innovation performance because the more employees that are willing to share ideas and knowledge, the higher innovation performance can be achieved by companies. Bringing in brilliant people from diverse areas or different background will help companies during the process of internationalization in Malaysian enterprises because the fast-paced atmosphere requires the hiring of highly capable people that can take the businesses to the next level (Uthmaputhran et al. 2021) hence it is very important also for founders and entrepreneurs especially in SMEs to keep increasing their knowledge level prior the launch of the business or during the startup phase of the business as knowledge will definitely help them to gain competitive advantage.

New digital technologies are changing the way any business operates in today's world in nearly every industry including manufacturing especially in food and beverage industry. An example of supporting tool of technological capabilities is the big data analytics where it assists companies and SMEs by providing variety of options for enhancing asset performance, optimizing manufacturing processes and facilitating product customization. In addition to that, machinery also help companies especially manufacturing industry in innovating their products to better meet the demand of consumers. As Neuhaus and Schertler (2016) wrote, "Products are being altered dramatically in order to meet the demand in the market, hence companies need to plan and decide how to upgrade and manage many thousands of pieces of machinery that have been deployed by connecting and delivering huge volumes of data needing to be analyzed and understood." Discussing on the topic of machinery is very interesting considering the scope of the topic where almost everything in manufacturing industry will be related to a piece of machine, even in the simplest form of machine with a very basic application. Machinery helps companies to create opportunities for innovation where companies will be able to modify products more easily in order to meet the demand in the market.

Moving from traditional business system to online presents was not easy but necessary for every business especially SMEs in order to grow their business by connecting with potential customers. Even by looking at the domestic market, when the pandemic of Covid-19 spread across the globe, most businesses not just SMEs

were paralyzed in terms of moving forward with their business operation because they did not prepare for such event to happen. However, when the “Movement Control Order” (MCO) continues, most businesses especially SMEs realized the importance of changing their business strategy in order to survive by penetrating the digital platform and by having social media presence (Facebook, Instagram, TikTok), website and e-commerce, online stores, etc. In addition, food franchises or restaurants had to change their strategy by having the needs to register their business on online platform such as Food Panda or Grab Food due the restriction where customers cannot dine-in in order to reduce person to person contact. This transition requires time, skills, knowledge, and tools; something that might be a limitation for some businesses and SMEs.

COVID-19’s global epidemic has revolutionized the way the world works, demonstrating the critical role of technology in society and the economy. This unforeseen instability has changed the way people and business’s function, interact, and share information, where it now relies heavily on technology (Uthramaputhran et al. 2021). Digitalization not just impacts businesses in domestic market but also plays an important role to support the internationalization processes of companies by enable them to have access of resources, skills, and competence acquisition and also as a tool for learning and getting more knowledge in foreign markets (Hervé et al. 2020). Digital technologies such as artificial intelligence help companies to optimize production and distribution and also act as a supporting tool to help in decision-making process because companies will be able to understand and target new customers more effectively, to select relevant partners, to prepare advertising strategies, to take better pricing decisions before entering foreign market (Hervé et al. 2020). Summarizing, it can be stated that while most extant theories were originally based on studies on internationalization of companies from developed countries, not many really understand the latecomer from emerging economies like Malaysia or Indonesia. Specifically considering the interplay between technological capabilities and internationalization, it seems as the technological capabilities tend to be a precondition for companies to go global and targeted for oversea expansions.

2.4 Challenges for International Growth Among SMEs in Malaysia

Internationalization is one of the missions set to be achieved by SMEs to have a competitive global presence. However, in spite of internationalization benefits that promote SMEs growth, Malaysian SMEs involvement in cross border activity is relatively low compared to developed nations due to obstacles, internal and external factors (Hasim et al. 2018). Small and medium enterprises or SMEs are still struggling to be competitive in the foreign market and in general, SMEs are said to be lacking in penetrating the international markets for seeking more profits and market opportunity (Hussain et al. 2014). SMEs represents the vast majority of 98.5% of the business

population with contribution of 38.3% to Malaysian overall GDP, 17.3% to total exports and 66.2% to overall employment in 2018 (NESDC 2019). However, Deputy Finance Minister Datuk Amiruddin said that, “38.3% is not good enough compared to other developed nations and economies, which the SMEs contributed at the rate around 60%, 70% and even 80%” (Kamel 2019). Besides that, prior research had found that 50% of the Malaysian SMEs had ended up in bankruptcy within five years of establishment, and this is due to the inability to cope with global competitions and environmental change that needs firm to innovates in many ways to keep them in line with those changes and to continuously meet the demand in the market (Hasim et al. 2018).

It is important to understand the reasons behind this failure of SMEs in penetrating the international market might be due to several internal and external barriers including the inability to access financial assistance, lack of internal resources and expertise in the development of global marketing techniques for branding and marketing, limited knowledge on foreign demand and lack of networking with other companies (Hasim et al. 2018). Other studies show that some of the internal factors faced by SMEs include the limitation to the resources, management, marketing and knowledge while at the same time SMEs was also need to face the challenges of short-term financing, shortages of labor skills, as well as insufficient production capacity (Wasowska 2016) while having a difficulty in absorbing new learning technical skills, resulting in a substantially lower level of innovation compared to their counterpart in other countries (Yuen and Ng 2021).

Most studies showed that there are higher numbers of SMEs that did not involve in international trade which means that there are still opportunities for the government to encourage internationalization and a more comprehensive approach is needed to help these SMEs in improving their competitive advantage that will enable them to compete in the international market (Nik Abdullah and Mohd Zain 2011). And due to SMEs low capacity to access management and technology, lack of expertise to develop new products and limited adoptability of existing technology to acquire and disseminate information in the company, SMEs will not be able to compete effectively with the world (Yuen and Ng 2021). In order for Malaysian SMEs to grow internationally, first they have to grow and sustain domestically through continuous R&D and production innovation in order to meet the demand of consumers in the market. SMEs need to take advantage of new technologies and upgrading their knowledge in the process of seeking opportunity discovery in international marketplaces (Uthmaputhran et al. 2019). The international market is more competitive and challenging, hence having a competitive advantage in the domestic market will definitely help them to be prepared to compete with international players.

2.5 Pilot Case Study

A lot of research had been done on how technological capabilities affects business performance in manufacturing sector. However, not many research focuses on

the relationship between technological capability in the internationalization process among Malaysian SMEs especially in food and beverage manufacturing sector. Hence, in order to have a better understanding on how technological capabilities are applicable to businesses especially among SMEs in the manufacturing sector, this research did a study on Haliza Industries Sdn. Bhd. or also known as HISB as a pilot case in order to get further understanding on this topic. Haliza Industries was established in 2008 and after 4 years of R&D, they came up with their first product in 2012. With the believe that snacks must also be related to nutritious foods, HISB begins to produce and sell healthy snacks focused on corn, potatoes, wheat and other grains compared to other junk foods on the market without addition of monosodium glutamate (MSG), artificial flavor and color.

In the early stage of establishment, there was very little demand of the product in the Malaysian market thus the founder decided to use the online platform to market the product. By using the technology via internet of things as the platform, they decided to promote the product via online platform and were able to get the prospect from China that was very interested in bringing the product to the different market. After a successful meeting with the prospect, Haliza Industries Sdn. Bhd. was successful in exporting the products to their first international market in the early stage of the establishment. In August 2017, HISB received a grant worth RM2.5 million from Palm Oil and Rubber National Key Economic Area (NKEA) and used the money to buy fully automated machinery. According to the founder, "We used the money to buy fully automated machinery not available in Malaysia and had to be imported from overseas. Aside from creating higher-quality products, the machines improved our production from 100 kg of cereal per hour to 200 kg of cereal per hour". Currently, HISB focused on exporting the products to other country such as Arab Saudi (Jeddah and Riyadh), China (Guangzhou, Shenzhen and Shanghai), Brunei, Singapore, Maldives, Seychelles, Cambodia, Oman and Bahrain Starting 2017, we managed to export up to more than 10 times.

Technological capabilities through machinery have helped SMEs in gaining competitive advantage compare to other competitors. HISB showed that technological capabilities together with technical knowledge will help companies in product innovation and ease the overall production process. HISB was able to gain competitive advantage in the market because they have the ability to adjust their flavor, spices and packaging based on the demand from the buyers through the application of technological capabilities. When dealing with international market, SMEs need to be able to adapt to rapid changes in the market environment so that they will be able to sustain. This study takes a step towards empirically demonstrating the significance of technological capability on the internationalization strategies of SMEs companies.

2.6 Summary of Selected Literature

Below is the summary of selected literature on SME studies related to this paper's area of discussion.

Research title	Authors	Objective	Methodology and findings
Internationalization and Performance Small and Medium Enterprises (SMEs) in Malaysia	Shankar Chelliah, Mohamed Sulaiman, Yusliza Mohd Yusoff (2010)	To investigate the relationship of internationalization and performance of SMEs, this study focuses on SMEs in the Malaysian manufacturing sector	Quantitative Study
A Review of Technological Capability and Performance Relationship in Manufacturing Companies	Nurazwa Ahmad, Siti Norezam Othman and Halim Mad Lazim (2014)	The major intention of this paper is to have an overview on how TC actually relates towards performance measures in manufacturing companies	Literature Review (Conceptual Paper)
Technological Capability and Business Success: The Mediating Role of Innovation	ER Lestari and FL Ardianti (2019)	To investigate the influence technological capability to firm performance of SMEs who operating in Batu, Indonesia	Quantitative Method
The Internationalization Theory and Malaysian Small Medium Enterprises (SMEs)	Nik Ab Halim Nik Abdullah and Shahrul Nizam Mohd Zain (2011)	The objective of this paper is to look at the internationalization process of Malaysian SMEs and how it fits the internationalization theories	Quantitative Method
Exploring the Barriers to Internationalization for Malaysian SMEs	Muhammad Asyraf Hasim, Mohd Fikri Ishak, Mohd Farid Shamsudin (2018)	This study aims to determine the barriers to internationalization faced by Malaysian SMEs. Qualitative method of research was employed, using asynchronous web-based semi-structured interviews	Qualitative Method

2.7 Conceptual Framework

As mentioned earlier, various studies have been done on how the practice of technological capabilities is related to the business performance but not many researches focus on technological capabilities as a key enabler during the internationalization

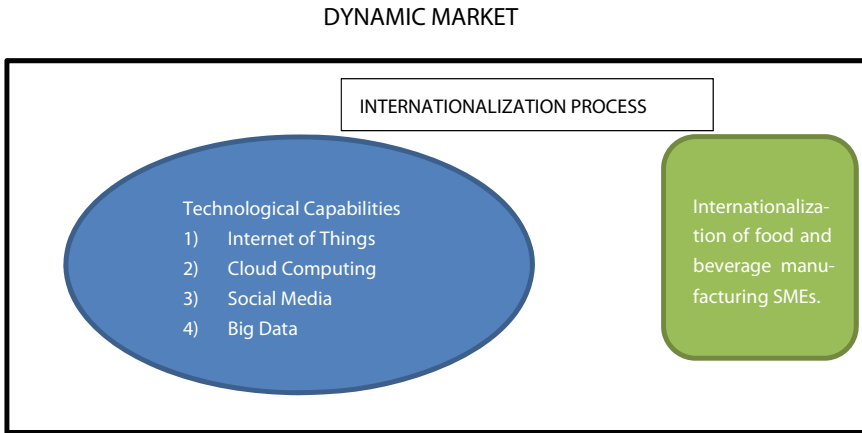


Fig. 1 Proposed theoretical framework

process and how it will help SMEs in penetrating the international market. This research is trying to identify how SMEs especially in F&B sectors will be able to penetrate international market with the application of technological capabilities in their overall operation (Fig. 1).

3 Research Method

The methodology used for this paper consists of library search and evaluating on the existing literature review on the subject of Small Medium Enterprises (SMEs), Internationalization of SMEs, and Technological Capabilities. The library search encompasses from online and offline materials to article journals from several online database such as Science Direct, Google Scholar, Scopus, etc. The advance search is limited to only available resources thus the limitations from this paper could be due to limited resources from databases. In order to get a better understanding of the topic, we are going to conduct a qualitative research model by interviewing 6–12 F&B manufacturing companies in which technological capabilities not only influence firm performance but to identify its role as the key enabler in the internationalization process for SMEs to penetrate the international market (Hervé et al. 2020). We are hoping that these interviews will give a better and deeper view on the topic. The finding of this research is going to contribute to the development of F&B industries in developing countries especially in Malaysia. It will provide important information that will be useful for Malaysian F&B industries in penetrating the international market and it will contribute to the body of internationalization knowledge and international entrepreneurship.

4 Analysis

Various studies have been done on how the practice of technological capabilities is related to the business performance among SMEs or MNC. Most researches agreed that technological capabilities are essential in businesses because companies with more advanced technology will be able to gain competitive advantage by having the ability to innovate new products and achieve higher differentiation in respond to the changes in the market and demand from the customers. However, not many researches focus on technological capabilities as a key enabler during the internationalization process and how it will help SMEs in penetrating the international market.

5 Limitations and Suggestion for Further Research

The focus on this research paper is to get a better understanding on how technological capabilities play a role during the internationalization process. Various studies have been done on how the practice of technological capabilities is related to the business performance but not many researches focus on technological capabilities as a key enabler during the internationalization process. The study on internationalization and technological capabilities mainly focus on large organizations or also known as multinational companies, which resulted in limited resources or journals on this topic when it comes to the relationship between SMEs and TC. This study is trying to identify and understand the relationship between technological capabilities and how it will help SMEs in penetrating the international market. Theoretically, technological capabilities are essential for business performance but empirical data is needed in order to show the relationship of technological capabilities during the internationalization process especially for SMEs.

There is a need for further research being done to find the connection of SMEs and technological capabilities and to identify if TC act as a key enabler during internationalization process among SMEs. As a country where SMEs represents the vast majority (98.5%) of the business population, researchers should pay more attention to SMEs by doing further research on how SMEs can be pushed to reach their maximum potential so that they will be able to contribute to GDP at the higher rate like what happen at developed nations and economies. Nevertheless, it is important to understand that this is a conceptual paper based on literature review and a pilot-case study. The next step in getting a better understanding regarding this paper is through data collection by interviewing companies and agencies regarding the topic on how technological capabilities help companies during the internationalization process.

6 Conclusion

This paper has successfully developed a theoretical framework that is helpful for future research in this area. Nevertheless, as this is a conceptual paper, there is no data collected to enable generalization to other countries. On top of that, the framework in this study is self-constructed with reference to the previous literatures. Drawing on the existing literature review, we are going to conduct a qualitative research model by interviewing 6–12 F&B manufacturing companies in which technological capabilities not only influence firm performance but to identify its role as the key enabler in the internationalization process for SMEs to penetrate the international market.

As a country where SMEs represents the vast majority (98.5%) of the business population, the findings will definitely help in identifying the supporting factors that can be used as a push factor for Malaysian SMEs to internationalize. Many researches and literatures had discussed several factors for internationalization in general, but not many focus the factors on SMEs especially in F&B industry where there is a huge potential to be explored. The finding of this research is going to contribute to the development of F&B industries in developing countries especially in Malaysia. It will provide important information that will be useful for Malaysian F&B industries in penetrating the international market and it will contribute to the body of internationalization knowledge and international entrepreneurship.

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Crisis Response Strategies: A Comparison Between New Zealand and Croatia in Responding to Covid-19 Crisis During First Wave of Crisis



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Abstract We are happened to be bounded with the outbreak of very dangerous virus, Corona virus-19 since the end of 2019 until today. An overview that has been release by World Health (2019), WHO about Corona Virus-19, which famously known as COVID-19, by saying that it is an infectious disease caused by a newly discovered virus. This paper will be discussing the actions taken by New Zealand and Croatia countries as well as the comparisons between the approaches taken by the selected countries based on few variables such as media coverage of COVID-19 and supporting assistance by government. New Zealand and Croatia provides a contrast in how countries handled Covid-19 crisis. Based on conceptual review analysis, both countries have a quite similar numbers of population but have huge differences in COVID-19 cases, either on death cases, infected cases and others. The question of 'comparison' has been answered throughout the lesson as the researcher seen how different types of administration that has been taken by both countries. If New Zealand has been praised for a quick response by their Prime Minister, Croatia also been applauded for their government service on changing the situation of the nation from zero to hero. Basically, both countries combatted COVID-19 existence through different ways. This article serves as a guidance in providing a best approach for a future crisis.

Keywords Covid-19 · Crisis · Crisis response strategies

1 Introduction

Coronavirus diseases (COVID-19) or 2019-nCoV related to severe acute respiratory syndrome coronavirus. This virus has been spread to the worldwide and because of the uncontrolled number of cases, the World health Organization (WHO) have declared this virus as a pandemic. This pandemic has forced many countries to lockdown their country to minimize the risk. Two countries have been selected in this study to

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examine the responses taken by them in combating COVID-19 crisis which are New Zealand and Croatia. New Zealand and Croatia were selected for this research because both countries do have quality in their nation's management, in every aspect such as in education, health, economics, politics and all. New Zealand is an island country located in the South Pacific Ocean, at the south-western-most part of Polynesia (Wowles 2020). Hold the big city under the name of Wellington with its most populous city named Auckland. Have a beautiful geographical structure, this country owing the last largest habitable lands to be roomed by humans with only five million populations. This country is a constitutional monarchy with a parliamentary democracy although its constitutional is not codified. For Croatia country, known as a home of the world's biggest truffle, Croatia has the largest number of intangible products from United Nations Educational, Scientific and Cultural Organization (UNESCO) of any European country such as human rights instruments, mutual respect between communities, cultural heritage and sustainable development (Ivan 2015). Located at the crossroads of Central and Southeast Europe of Adriatic Sea, this country is basically sharing a maritime border with Italy nation. With the number population 4.07 million, this country has been looked as a small, yet progressive state. Croatia has been classified by the World Bank as a high-income economy and ranks very high on the Human Development Index as the relations between people and business is going well along. This country is a republic governed under a parliamentary system in which its current President is Zoran Milanović and Andrej Plenkovic as the Prime Minister of Croatia.

2 Crisis Responses Strategies

New Zealand

Pertaining to the point of approaches taken by New Zealand, there were so many fast steps that has been implemented by this country in combat the virus outbreak beforehand. The major fast step was regarding its border closures from largely affected countries. According to Dancel (2020), the Philippines news reported that there was an old Philippine man who has become the first person outside the China to die due to Covid-19 on 2nd February 2020. This man has known to be infected before his arrival in the Philippines itself, as he was from Wuhan (the origin of the novel coronavirus). The death man had contracted serious pneumonia and appeared to have recovered. Yet, his health got worsened steadily within only 24 h. During this time, there are still zero cases reported in New Zealand, but the Prime Minister, Miss Ardern started to ask the country to begin a banning entry to any foreigner from or via China. Plus, any local people who were returning from China had to isolate themselves for 14 days. A flight banning was also applied to Iran, as the virus was spreading internationally and as it is the origin of New Zealand's first outbreak case. The limitation was also imposed towards those who coming from South Korea, Northern Italy or anyone who displayed symptoms.

Next approach that has been taken by New Zealand administration was through self-isolation. This approach has been started since the very early days of virus outbreak, as mentioned in the official website of Ministry of Health of New Zealand (2020). But during the early stage of New Zealand in combating the virus, the self-isolation approach was applicable for anyone who were returning from China, as these people would have a high percentage to be infected earlier and they could have become the carrier. However, another phase was coming later, and during this phase, which was on 16th March 2020, the government started to ask anyone who were arriving from any nations (except from the largely unaffected Pacific Island nations) to do a self-isolation, upon their arrivals.

New Zealand was basically reflected an action that being taken by the China government in facing the coronavirus outbreak. The key learning from China was all about “Speeding”. The sooner you can identify the cases, the separate the cases and map their close interactions, the more successful you can be. The next approach that has been taken by the New Zealand government was basically a hard decision, but a must one. The government entirely closed the national border even though it might hurt their economic stability as well as nation’s steadiness. During the peak days of this outbreak, the Prime Minister Jacinda Arden took the exceptional step to close entire borders, and it was applicable to almost all non-citizens or residents.

Another big step that has been taken by the New Zealand’s Prime Minister, Jacinda Arden and Deputy Prime Minister of New Zealand, Grant Robertson did a press conference in announcing a total lockdown in New Zealand on 26th March 2020 (Herald 2020). The lockdown was being held for four weeks. For those deemed to work in an important and essential sector, for instance food vendors, supermarkets, front liners including doctors, nurses, police, fire fighters and more, it was business as normal, in fact some office workers now set up to work from home. This action brought a major effect towards the country in order to contain the spread of the virus among the New Zealander and to stop the rising cases to be updated.

Since the day of lockdown, the government extended their efforts in doing some extensive testing by carried out 10,000 tests a day. The numbers of test that has been provided by the government was huge and through this, it shows the credibility and the honesty of a government to take care of their citizens well. According to their Ministry of Health, he detailed that there were 130,039 individuals were screened in the week of August 13th to 19th itself. Plus, the recorder has fallen precipitously the next week to just 45,771 individuals. A strict contamination was believed to be needed in order to stop the spread of the virus among society. After the confirmed case, contact tracers got to alert anyone who had close interactions with the cased person and told them to isolate after doing the test. By doing this, the government and the people surround it can shoot a faster step to counter the spread of the virus.

Another final step that has been taking by the New Zealand government was through a creation of a harmonical environment. During the outbreak of COVID-19 and the lockdown phase, the opposition leader, Simon Bridges argued that people’s mental health was suffering—the lockdown impacted the economy; thus, it impacted the mental health. People were losing their jobs, being contained in a house, cannot go outside and take a deep of fresh airs and lots others. Due to this argument and

arousing problem, the government has finally provided an effective communication and public compliance to work on this issue. There were so many motivational and advices advertisements, banners, posters, and lots other to be portrayed in the local television, radio, streets, outside the home spaces and more (Jones 2020). These kind of approaches means so much towards the people as they can keep motivate themselves by relying on government's motivational quotes.

Croatia

The government was expanding the emphasis, organizations, foreign organizations and individuals to discourage the further dissemination of COVID-19 in the Croatia itself. Basically, the first step to be taken by Croatia government was social distancing requirement. In order to achieve a primary progress, this requirement has been built and all people were required to apply it under every activity. It was claimed that through social distancing, it can stop the transmission of the disease because the tendency of virus to be spread through salivary or touch spots can be detained. A vast majority of the people to work from their homes, with colleges, schools, physical activities, religious meeting and cultural venues being scrapped at the moment.

Next, the approach that has been implemented by the Croatia nation was regarding the mandatory of COVID-19 Kit. The kit here means a bunch of stuffs that are needed during the pandemic of this virus. The kit included face mask and hand sanitizer. According to (The National 2020), since the increment of COVID-19 cases in Croatia around mid of July 2020, the government enforced everyone, including the administrative people itself to put a mask on and keep hands safe by applying hand sanitizer if you touched something in the open air. Even though the enactment of self-isolation did not create yet during this period, the citizen of Croatia began to question on why all of these kit and requirements? From reading materials, the writer believes that the implementation of something new is not easy in this country as the people were not showing their supports towards government as much as New Zealanders did. A rally that dubbed a "Festival of Freedom" claimed that COVID was all based on lies and they are not *covidiot*s.

This country did not implement such border closure or any kinds of that to stop the incoming of tourists as is the way to regain the stability of their economics, plus, this country is very popular with their tourism due to wonderful geographical area. Basically, the national border was still opened in the middle of May 2020, even though the cases was rising during that time (still under ten thousand cases). However, during the summer season, the numbers of tourists came into this country recorded roughly two thirds of stays compared to the previous one. The illness rates rose so much by the end of August 2020, that epidemiologists began to voice an alarm about the effect of autumn and the coming flu season on the health system (cases rose up to 12,800 per day). With regard this, the Croatian Prime Minister announced strict new measures in order to combat the pandemic itself. This measure is the latest steps took by the government, starting in November and will be proceeded to December. Due to his concern on "no total lockdown, strict shut restaurants will do" as to stop hotspot for people's gathering (Xinhua 2020).

3 Plans and Activities in Managing Online Activities

New Zealand

New Zealand hold a title of a country with quality live elements in which, it includes the educational content also. Prior to the lockdown initiative that has been taken by their government in combating the coronavirus outbreak, all the physical activities cannot be done. It also impacted the physical school presence. Thus, the government did another initiative to provide an educational online platform for their people to learn and teach through virtual experience. This educational system has been called as “ClassroomNZ2020”. This platform offers school access to an online National Certificate of Educational Achievement (NCEA) courses within school pupils aged from 7–13 years old. *Te Aho o Te Kura Pounama* (Te Kura) hit a big time in lifetime as their performance in implementing this online course gave a huge positive movement for the country under educational phrase. This movement is a voluntary movement; thus, the current Learning Management Programs in New Zealand will not be replaced. Of course, the Year 9 and 10 pupils can follow both educational platforms anyway (Ministry of Education 2020).

Learners and teachers had to go through a virtual learning as they cannot enter schools, universities or any other institutions without strong reasons. Due to this event, the government did their job in managing the citizen well-being by providing computer devices to those who in need, especially people from Auckland (the most tragic cases reported in New Zealand) and some other poorer states. This action has been taken seriously because the stock of computer devices in New Zealand were limited, thus the price of them were expensive. In additional, this nation’s administration also provided a wider Internet connection range as they wanted this connection to be available to all learners without any bias taken. Another management that has been created by New Zealand administration is by providing their people with a pack of printed learning materials to some of the households in the country. The written educational materials has been sent to those learners, who are in the local medium learning pathway aged between 0 to 18 years old, (Ministry of Education 2020). This pack sparks a good way for New Zealand’s learners to presume their education without any worried. This kind of management will be kept update in order to maintain the well being and comfortability of the citizens along with pandemic experiences.

At the end of June 2020, the government of New Zealand had opened a plan to be the host of the Asia–Pacific Economic Cooperation (APEC) summit through virtual digital platforms (Staff 2020). The press conference that been hosted by the nation’s Foreign Minister, Winston Peters spoked regarding this matter in conjunction to stop the fluctuate COVID-19 cases by stop all the physical meeting even though amongst higher people. As being the host for the next APEC summit, Miss Ardern shows her concern that the spread of the coronavirus novel will worsen the record of the global pandemic report, as well as in New Zealand itself if any teams or countries are still urging to do a physical meeting. She also said that “they are going to open the borders in future, but to say that in this moment, where the virus is getting stronger, is frankly irresponsible”, during the media briefing in Wellington. The APEC 2021

summit will be held in New Zealand at the end of next year with 21 leaders from the APEC's joined countries.

In conjunction to combat more development and emergence of coronavirus disease, the government took a step of making a collaboration with a local technology company to create something beneficial for the business industry. *Takapuna-based Unleashed* Software has launched a digital platform which function as a marketplace showcase in order to keep the trading business alive during lockdown period in the country (Foxcroft 2020).

As the usage of internet platforms are having a high demand during the novel coronavirus pandemic period, the government moves this interest from the only trading interest into something that beneficial in combating the virus under the health context. The Ministry of Health of New Zealand had launched a mobile software application namely *NZ COVID Tracer* in the end of May 2020. According to Robson (2020), through this application, any individuals who may have been in contact with any persons with COVID-19 infected record, the Ministry can trace the places that have been visited by these people through the app as they used this app during their visiting periods. Basically, this app allows its user to scan an official QR Codes which has been provided by every premises of business and any other organisations in New Zealand.

Prior to this activity, the app will save the visiting data and it can be traced again by the government once the individual has been infected with the virus, so that, people who are going to the same place will be notified and can do a screening test of COVID-19. The app can be downloaded from both App Store and Google Play.

Croatia

In the midst of pandemic hit this country around March 2020, the government set up a website entitled *kornavirus.hr* for their citizen to know more about the COVID-19, the latest recorded cases or even to ensure they are on the right track of COVID-19 restrictions. The implementation of this website is basically a user-friendly platform because it provides their origin's language and international language which is English. The distribution of cases also been pointed on a big map of this nation which makes it easier for old people to conclude the most prominent cases recorded. The website also seems 100% reliable and excellent as it provided the information very quickly.

The usage of online platforms is vital and useful during this pick periods as it can decrease the physical activities without terminate or sweep any important information to be spread towards the citizen. On 3rd April 2020, the Croatian Institute of Public Health implemented a platform through Facebook chatbot under a name of *Nada* in disseminate a high speed of information towards their people, especially to the younger generation because they are haunted by the used of social media in nowadays period. According to Kozjak (2020), *Nada* responds to corona questions and there will be Zagreb Innovation Center (ZICER) representative members linked the messenger to their own created app to measure how likely you are to get infected function. *Nada* was created by a man from Hero Factory named Dario Begonja in just few days. She (Naa) was designed to answer all Croatian questions regarding coronavirus, at any

time of any day or night, instead of personally asked a doctor. She claimed to know everything about the disease that we all care about.

Besides that, the government also celebrate an implementation of Whatsapp chatbot with the name of *Andrija* in making the front liner's works easier than before. As before, the country has *Nada*, now, the country got both gender of robotics systems. *Andrija* was named after his engineer, Andrija Stampar which his aim is to provide people, especially Croatian who believe they are contaminated with the customized advice of the disease. If people felt doubtful towards their own body performance, they can directly ask Andrija through Whatsapp platform.

4 Action and Government Support in Helping the Constituents

New Zealand

New Zealand's Prime Minister, Ardern will always move faster than anyone else in combating the emergence and the development of COVID-19 virus in her country. Prior to this behaviour, she has been entitled as a smart Prime Minister in the world. According to Falconer (2020), New Zealand does not occupy their initiatives with only fundamental things. This also government also used science and technology under one go to avoid the coronavirus lockdown. This so called 'unique' movement that has been moved by this government got praised by The World Health Organization (WHO) due to its genome sequencing technology. Genome sequencing means a sequence that informs scientist on what kind of genetic information that been held in a single section of DNA, thus in this case, the technology used was to gain the real characters of the COVID-19 virus and through this information, the scientist can start to implement any kinds of disease-repellent. Through this activity, the government help to encounter this epidemic situation with a brilliant way that other nations were rarely used. They can gain the real information and can create a better prevention on their people as efficient as they can.

Prolong to above movement, the government also help its constituent in providing the constituent of research team, which is The Institute of Environmental Science and Research (ESR) with NZ \$600,000 (U.S. \$416,000) in order to make out the sequencing program successful. This rare research and development could contain a huge financial distribution thus, a help from government is really needed. Next to it, the government also allocated \$1.5 million to the Aotearoa New Zealand Centre of Research Excellent for Complex System for the model of the current and future projects. This allocation also shows that the government is really supportive in not only the genomic work, but also towards the other projects as they all bring an excellent effect on individual, society and nation (Falconer 2020). Beforehand, the writer would like to state that the other name for this centre is *Te Pūnaha Matatini*, according to New Zealander's original language.

The action and support that has been taken by New Zealand government in helping its constituent can also be seen through the implementation of no Customs pay

or import GST (KPMG 2020). This action can help both local and international businesses as export and import activity linked two or more international countries. Based, the duty relief pointed that the importers could joy the no-pay-Customs duty and no GST will be charged due to COVID-19 impacts on worldwide and nation's trading market. The government also highlighted on temporarily tariffs removed on medical and hygiene stuffs that has been imported in many countries. There are many kinds of compromises category which the first one is the compromises of any kinds of soaps. The second one is a compromise of any good that has been covered by the COVID-19 testing kits and diagnostic reagents. This help from government can ensure the connectivity if the supply chain and the elimination of exchange blockages under one important which includes the medical staffs, drugs and also surgical instruments as three of them are the basic needs in a hospital especially during these pandemic days. In general, government can focus this initiative as an open plurilateral of the nation, as the program could encourage the other nations to participate together.

Croatia

In the middle of March 2020, the government of Croatia, under the administration of Andrej Plenkovic as the Prime Minister declared a Civil Protection in order to contain those people who were affected by the virus. The government did a joint venture with national army to erect a tent for medical camp outside the busiest hospital in Dubrava, Zagreb (Croatia Week 2020). It has been located with a capacity of 270 beds to hold the contaminated patients and other accommodations that can be stated as 'comfort'. This step was a part of the intensive care that has been made by the government in providing a proper health security for the infected patients. The numbers of infected people in Croatia were getting higher and surging through the days, thus, this collaboration between the government, the Ministry of Health and National Army shown their integrity and responsibility on citizen's welfare.

Due to the emergence of the virus outbreak in Croatia, a nation that popular due its beautiful geographical area, had stormed the economy stability as well as their financial reputation. However, the Croatian Prime Minister, Andrej Plenkovic has planned many things to encounter the arising problems in this nation under his governance. The bravery step taken by Andrej was paid off when Croatian has been announced by the European Commission and European Central Bank (ECB) that this country was successfully admitted into the European Exchange Rate Mechanism (ERM II) (Huaxia 2020). It was an exciting news to be pounded within this country as the fact that they are one of the ERM II members, they can strengthen the Croatia's economic and financial reputation in amid of COVID-19 outbreak. This makes Croatian citizen very happy and felt blissful with government's action.

A government cannot leave their people alone and betrayed their loyalty, just because the world is facing the most pandemic situation ever. In order to contain the citizen's well-being and emotion, the Croatian government implemented a programme entitled the Welfare Benefits in Croatia. This programme basically offers a social assistance for their people in form of social services and also financial benefits. This programme accorded any Croatian citizen that basically a resident in this

country, a foreigner who lived with local Croatian and also a person that has been granted an international protection and members of a family that lived in Croatia legally. In this welfare programme, there are two types of social assistance that has been offered by the government towards the applicant. The first one is regarding a minimum benefit guaranteed and the second one is a one-time assistance. Through this implementation, there will be no Croatian left behind with poverty and hardship to face the virus outbreak that broke many hearts since its existence.

Another action that has been taken by Croatian government towards their constituents was through an implementation of Responsible Remain Close campaign under the administration of the Ministry of Labor, Pension System, Family and Social Policy (Health System Response Monitor 2020). This campaign was launched in order to aim one goal which is to educate and raise the awareness regarding the death disease of COVID-19 towards the general public, especially those who are amongst older people. Through this campaign, the admin took his best to create an attention of people regarding 'responsible behaviour' and the devotion to follow the recommended guidelines that has been introduced by the government. The campaign created an answer towards the speculation of lack responsibility of government towards people's welfare as they seen a late response of the government on the presence of COVID-19 during the late February 2020. The creation of the campaign can help the constituent to be more alert with their own personal stability too as they can deliver their heavy minded regarding COVID-19 questions towards the campaign's admin.

5 Conclusion

In conclusion, there is no countries in this world are safe from the emergence of the novel pandemic coronavirus that has been arrived in this globe since late of 2019. The virus brought many lost towards individual, society and the nation itself. This pandemic experience also taught people to appreciate something that existed for them and not to cry over something that does not belong to us forever, such as, appreciate our country instead of travelling to the other countries. In short, within this study, both countries have a quite similar numbers of population but have huge differences in COVID-19 cases, either on death cases, infected cases and others. The question of 'why' has been answered throughout the lesson as the writer seen how different types of administration that has been taken by both countries. If New Zealand has been praised for a quick response by their Prime Minister, Croatia also been applauded for their government service on changing the situation of the nation from zero to hero. Basically, both countries combatted COVID-19 existence through different ways.

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Potential of Cyberpreneurship Adoption Towards COVID-19 Situational Poverty Eradication Among Single Mothers in Malaysia



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Abstract Digitalization in Malaysia shapes the nature of entrepreneurial opportunities and the effectiveness of governmental policies, practices, and funding to improve those opportunities. The positive impact of the digital age, in terms of job creation and economic expansion, has prompted a set of cyber-development initiatives during the Covid-19 pandemic to alleviate poverty; first to boost the productivity potential of digital entrepreneurs, and second to forward progress towards Cyberpreneurship, especially during lockdown protocols, which is in line with promoted Working from Home (WFH) efforts. This study explores the potential factors of the initiatives needed for Covid-19 pandemic situational poverty eradication. Next, to analyses how these factors relate to a single mothers' participation in Cyberpreneurship. This study

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highlights several entrepreneurial and policy ideas to decrease poverty among single-mother entrepreneurs. The study relies on in-depth qualitative research that includes a systematic literature review and Focus Group Discussions (FGD). A total of $n = 12$ interviews were conducted with seven single, micro-entrepreneurs, mothers, two Officers of The Ministry of Women, Family, and Community Development (KPWKM) Department, and three local Community Welfare Officers. The findings of this research indicate that competency among single mothers has a significant influence on poverty alleviation. The correlation between the constructs has shown that most participant members actively contribute to the human, economic, cultural, and social capitals. This research is critical for understanding the circumstances that facilitate digital entrepreneurship which guides public policies to support single, low-income, women and suggests potential improvements to their socioeconomic conditions by using cyber technology as an entrepreneurship option, particularly during this ongoing Covid-19 pandemic.

1 Introduction

In Malaysia, as well as all over the globe, the rapid rise of digital entrepreneurship is a crucial reference source for research on strategic entrepreneurship initiatives because of its role in facilitating global economic growth and success (Hasbolah et al. 2020). Digital Entrepreneurship, such as Cyberpreneurship adoption, is one of the prominent game-changers in economic development (Elia et al. 2020).

It has long been an effective solution for job creation and poverty eradication (Mulyono et al. 2020; World Bank 2018). Nevertheless, the Covid-19 pandemic and its subsequent lockdowns have spurred digitalisation efforts even further and led to more significant digital business transformations and solutions. The Covid-19 pandemic is a global issue that affects economic and human capital development (Gennaro et al. 2020) but it does not seem as if it will be over quickly (Ratten 2020). It has created an economic pillar that has brought together human, cultural, and social capital sustainability (Mulyono et al. 2020). In reaction to Covid-19 pandemic crisis issues, Cyberpreneurship as a digital approach has the unique opportunity to incorporate more digital entrepreneurship (Ratten 2020) into the workforce. This study focuses on a community group of single mothers. Single mothers are “women who do not have a husband and who could be divorced or widowed” (Mat et al. 2017). According to The Ministry of Women, Family, and Community Development (KPWKM), “the definition of a single mother should fulfil three criteria which are; first, women who are divorced and have children, second, women who still have dependent children and have to provide for their family after their husband has sustained a critical accident or illness, and third, unmarried women who have adopted children, or given birth to illegitimate children” whose father’s whereabouts are unknown (Mat et al. 2017).

For single mothers, especially those living in impoverished, rural communities, digital entrepreneurship can alleviate their situational poverty. Single mothers face

various emotional, mental, and physical challenges due to situational poverty (Abirah and Nadiyah 2020). Digital entrepreneurship makes a tremendous contribution towards rural economic development with the potential to improve the communities' social well-being, especially with its reliance on advanced technologies (Zhu et al. 2015). This study explores the potential factors to eradicate the Covid-19 pandemic situational poverty, and how best these factors relate to single mothers' engagement in business. Since the traditional customs of entrepreneurship have been changed by Cyberpreneurship adoption, this study identifies a diverse digital entrepreneurship orientation in maintaining single mothers' engagement. Cyberpreneurship adoption has been one of digital entrepreneurship's trends due to its comprehensive digital solutions, which result in the orientation strategy's advancement of the Internet of Things (IoT) (Mamat et al. 2018).

2 Literature Review

2.1 *Cyberpreneurship Adoption of the Digital Entrepreneurship Towards COVID-19 Situational Poverty Eradication*

Cyberpreneurship is the new digital frontier to increase economic development and job creation as revealed in the "Malaysia Education Blueprint" since Cyberpreneurship, as a digital trend, also creates economic trends to become a job creator (Mamat et al. 2018; Ministry of Higher Education (MOHE) 2015; Shabbir et al. 2016). Like many developing countries, Malaysia has pushed toward technological advancement and has promoted digital entrepreneurship (World Bank 2018) which is closely aligned with government initiatives including lending support for single women entrepreneurs.

The growth in Cyberpreneurship adoption has been rapid and contributes to overall stability in the community of single mothers. Its development has been noted since businesses continue to utilise digital entrepreneurship. Since the early 2000s, it has expanded its potential towards innovation orientation (Chang et al. 2019). Table 1 shows a summary of the literature used in the current study. Furthermore, the Covid-19 situation has notably increased employment loss (LOE) (EIS-UPMCS 2020) while the innovation of Cyberpreneurship has changed people's mindset, in that, a digital transformation has been accepted as a necessity for business success especially during pandemic lockdowns. This knowledge has seen new business opportunities through various platforms and internet technologies (Hasbolah et al. 2020), such as individuals' business communication interactions (Rahyadi and Aras 2020) both within companies, between vendors, and into the retail sectors between buyers and sellers.

The digital entrepreneurship process, such as digital activities, actors, motivators, and organisations, is a more effective ecosystem for digital entrepreneurship (Elia

Table 1 Summary metadata literature reviews

Num	Authors	Year	Cyberpreneurship	Entrepreneurship	Situational poverty	Digital	Covid-19	Single Mothers @ Armalah
1	Das and Marcus (2020)	2020	✓	✓				
2	Rahyadi and Aras (2020)	2020		✓		✓		
3	Abirerah and Nadiyah (2020)	2020			✓			✓
4	Ooi and Dambul (2020)	2020			✓		✓	
5	Altafah et al. (2020)	2020			✓		✓	
6	Di Gennaro et al. (2020)	2020			✓		✓	
7	EIS-UPMCS (2020)	2020			✓		✓	
8	Elia et al. (2020)	2020		✓		✓		
9	Hasbolah et al. (2020)	2020	✓	✓		✓		
10	Mulyono et al. (2020)	2020		✓		✓		
11	Ratten (2020)	2020		✓	✓		✓	
12	Shahar et al. (2019)	2019			✓	✓		
13	Chang et al. (2019)	2019	✓	✓		✓		
14	Paim et al. (2019)	2019			✓			
15	Azlan et al. (2018)	2018			✓			
16	Gharaibeh et al. (2018)	2018		✓		✓		
17	Mamat et al. (2018)	2018	✓	✓		✓		
18	Mukri and Norhidayati Nadiha (2017)	2017		✓	✓	✓		

(continued)

Table 1 (continued)

Num	Authors	Year	Cyberpreneurship	Entrepreneurship	Situational poverty	Digital	Covid-19	Single Mothers @ Armalah
19	Wan Safira Diyana Wan Abdul Ghani et al. (2017)	2017	✓	✓		✓		
20	Mat et al. (2017)	2017		✓	✓		✓	✓
21	Zal (2017)	2017		✓	✓			
22	Souza et al. (2016)	2016		✓				
23	Othman (2016)	2016		✓	✓			
24	Zhu et al. (2015)	2015		✓	✓			
25	Ministry of Higher Education (MOHE) (2015)	2015		✓		✓		
26	Zhu et al. (2015)	2015		✓	✓			
27	Ukperere et al. (2014)	2014		✓				
28	Githiora (2012)	2012			✓			
29	Payne (2009)	2009			✓			
30	Cavalcante and Goldson (2009)	2009			✓			

Source: Authors' elaboration based on Literature Reviews

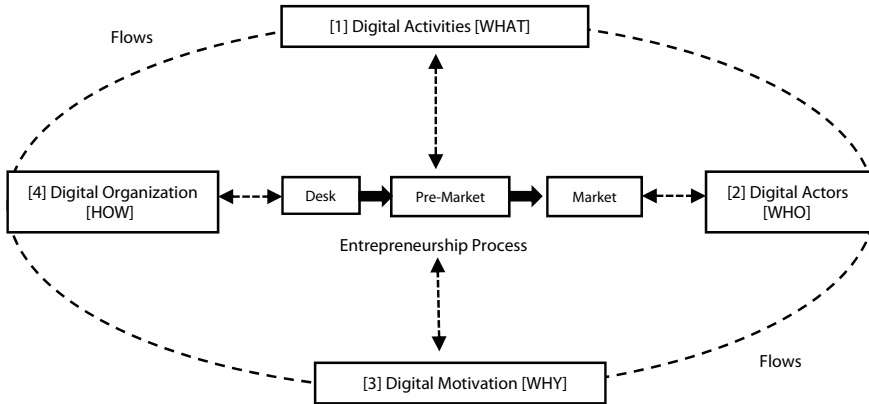


Fig. 1 Collective intelligence model of the digital entrepreneurship ecosystem (Sources: Elia 2020)

et al. 2020; Gularso et al. 2020). Figure 1 shows the Collective intelligence model to support actions and entrepreneurial decisions.

2.2 Potential Factors towards Covid-19 Situational Poverty Eradication

Single mothers, like the group known as “Armalah” in Arabic (which means “widow”), have a high potential to improve their standard of living, especially in this Covid-19 situation while they also need to create plans to address issues affecting their businesses’ survival and to enhance its connectivity. The current Malay labour market requires these women to have the energy to face the Covid-19 crisis as well as more the specific skills used in business. Indeed, entrepreneurial competencies have a significant impact on business growth, as proved in the research of Lerner et al. (1997).

Entrepreneurs nowadays need to have superior skills, and personality characteristics, to be able to survive and thrive. Even though it was reported that women contribute to skill competency, in entrepreneurship, in many ways (Ahmad et al. 2020). There is still evidence that women business owners feel weaker than men in financial management skills (Stevenson 1986) which leads to personal dissatisfaction with their business performance and entrepreneurial competencies (Al-Shami et al. 2019). Therefore, the role of the government is essential. The government’s current responsibility is to provide high expectations, insistence, and behavioural support (Payne 2009).

Additionally, poverty has adverse effects such as its impact on the physical environment; such as energy, water, transportation, housing, and social networks within the community. Part of the physical environment is our water. Water is necessary

because it is the source of life. Therefore, we need several policy recommendations to address the lack of water (water poverty) in counties which continually have a shortage of water, and to help those counties to effectively manage shared water resources, for the benefit of all (Githiora 2012).

Other impacts are on health. Poverty affects emotional well-being, such as feelings of anxiety, increases mental health problems, and stresses coping strategies. It affects access to education and has negative effects on productivity and family interactions. Programs need to be enacted for single mothers, to gain access to organisations, which support people with disabilities, and which maintain a focus on human rights, and generate knowledge related to the issues of poverty and disabilities. Organisations which promote inter-institutional partnerships with the collaboration of government, non-government, and international agencies to build the indicators which monitor the efficacy of single mother poverty reduction programs. Lastly, we must create an alliance between research institutions and universities to promote research on this poverty-disability cycle among single mothers (Cavalcante and Goldson 2009).

Meanwhile, many have tried to tackle Covid-19 induced poverty by becoming involved in agricultural work because it is one of the critical sectors that utilises foreign labour, other than manufacturing, hospitality, and construction. Addressing food security should include the lowest denominator, the poor, who are the most vulnerable. However, in many places are low-income households like the smallholder farmers, income deficient women, and foreign manual labourers (Ooi and Dambul 2020). The creation of a business program, like the agricultural program, with an entrepreneurship orientation can indeed help increase inadequate incomes. However, there are also problems and weaknesses in the programs already implemented, like a lack of assistance for the poor, and deficiencies in the management of aid distribution.

In addition to that, the low-income population in Malaysia is also at risk of malnutrition and obesity. Specific cost-effective strategies are indeed needed to educate this sector of the population on nutrition and provide them with access to healthy meal choices to improve their quality of life. The low-income population in Malaysia faces various health challenges, particularly related to diet, as well as poor mental health, and physical disabilities due to diet and a lack of exercise, or overwork (Shahar et al. 2019). Indeed, the government should lead educational communication, and policy efforts, to build an integrated nation where everyone benefits, by considering these differences, to ensure effective implementation of programs for single mothers facing Covid-19 pandemic induced poverty (Azlan et al. 2018).

2.3 The Orientation of Cyberpreneurship Programs to Eradication Poverty

Technology advancement has accelerated economic establishment strategies by increasing all sectors' efficiency and productivity. ICT based SMEs have helped to develop and support this knowledge based economy.

Human resource development emphasises the successful implementation of ICT programs for skilled and un-skilled workers. ICT enhances awareness, among the population, of digital technology through its implemented campaigns for the whole country. This is a move forward, to cross the digital divide, between the rich and the poor, the urban and rural areas, and to bridge gaps in the economic sectors for all people who benefit from ICT (www.pmo.gov.my).

At a regional level, all economies in the Asia–Pacific Economic Cooperation (Asia–Pacific Economic Cooperation, APEC) continue to take steps in the four critical areas of the Small and Medium Enterprise Working Group Strategic Plan (Small and Medium Enterprise Working Group, SMEWG) under APEC for the year 2017–2020, which refer to:

- (i) entrepreneurship, innovation, and the digital and internet economy (Gularso et al. 2020);
- (ii) market access to SMEs;
- (iii) financing for business expansion and capacity development; and
- (iv) the inclusive business ecosystem that supports SME development.

One of the priorities under ACCMSME for 2019 is digitisation, so the Office of SMEs Promotion Thailand (OSMEP) with the assistance of Canada, through the Canada-OECD Project for SMEs in ASEAN, presented the Global Digitalization Model, for Micro Business Workshops in May, 2019, and policy dialogue sessions; Starting a Business in ASEAN: Micro-Business Formalization, and How Digitalization Can Support It in June, 2019, in Thailand.

The key findings and conclusions of these two initiatives were compiled in the ASEAN Micro Enterprise Digitalization Policy Guidelines (ASEAN Micro Enterprise Digitalization Policy Guidelines) which propose policies for consumers to formally register their businesses and adopt digital solutions for business use (www.smecorp.gov.my). CBMA (Cloud-Based Mobile Application) is a new technology that allows users and buyers to directly run their business through a mobile app regardless of time or location. However, the acceptance of e-commerce is still low among entrepreneurs in Malaysia (Omar and Rahim 2015) (Table 2).

3 Materials and Methods

This study is of an exploratory, empirical nature which explores the potential factors of Covid-19 pandemic situational poverty eradication and its correlation to single mothers. This method is appropriate for the evolving field of digital entrepreneurship (Elia et al. 2020) and its initial data can be used as an underpinning of new theory development.

The method employed for collecting data is in the form of a Focus Group Discussion (FGD). The questionnaire comments and FGD provide further insight, notably correlated to single mothers' engagements with human, cultural, social, and economic capital. However, the FGD generated data that may not reveal the overall

Table 2 Key finding of situational poverty literature reviews

Year	Key Author(s)	Key findings 2
2009	Payne (2009)	Develop a plan to address the current situation along with a future plan
2009	Cavalcante and Goldson (2009)	Six domains are defined as: (1) Impacts on the physical environment (2) Impacts on health (3) Impacts on emotional well-being (4) Impacts on education (5) Impacts on productivity (6) Impacts of family interaction
2012	Githiora (2012)	Improve the poverty situation in the counties Provides several policy recommendations
2017	Mukri and Norhidayati Nadiha (2017)	Identify the potential role of business and entrepreneurship-oriented programs in eradicating poverty in Malaysia They are analysing the effectiveness of such programs in helping the poor out of poverty
2019	Shahar et al. (2019)	The low-income population in Malaysia is also at risk of both under-and over nutrition They are facing various health challenges, particularly related to poor mental health, nutritional and physical function
2020	Ooi and Dambul (2020)	Food security during and post COVID-19 pandemic in Southeast Asia has many intersections. One of the proposed solutions is for farmers to reach household consumers with digital marketing

Source: Authors' elaboration based on literature reviews

aspects of the individual interviews (Gharaibeh et al. 2018). So, the remainder of this study relates, relatively, to a hypothesis identifying critical issues about the diverse digital entrepreneurship orientation of maintaining engagements among single mothers.

Furthermore, the FGD delivers a wider consideration of the participant members' beliefs and suggestions about the topic fields. In this study, this approach was accomplished to gather in-depth information from participants about the construct. Ten to twelve participants are considered appropriate for producing adequate information from a focus group (Paim et al. 2019).

Data were collected through face-to-face interview sessions with twelve participants using a structured questionnaire. The questionnaire's core was a cluster of competencies related to entrepreneurial development (effectiveness or regression) compiled from previous theoretical and empirical research. The single mothers group of respondents represent different demographics. Their profiles in terms of age, education level, number of children, and marital status' are presented below in Table 3.

Table 3 Demography profile of FGD among single mothers and experts

Members	Age	Education level	Num. of children	Marriage status
A1	45	M	5	Divorced
A2	52	STPM	2	Widowed
A3	51	M	4	Widowed
A4	28	M	2	Divorced
A5	45	M	1	Divorced
A6	51	M	6	Divorced
A7	63	M	7	Widowed
E1	30	DEGREE	3	Expert
E2	32	DEGREE	3	Expert
E3	40	DEGREE	4	Expert
E4	28	DEGREE	3	Expert
E5	42	DEGREE	4	Expert

Source: Authors' elaboration based on Focus Group Discussion (FGD)

**Note*

A1–A7 Single Mothers

E1–E2 Local Community Welfare

E3–E4 The Ministry of Women, Family, and Community Development (KPWKM)

E5 Local Community Welfare

Table 3 reveals that the FGD consisted of seven (7) single mothers all who come from low-income households, two (2) Officers of The Ministry of Women, Family, and Community Development (KPWKM), and three (3) officers from the local Community Welfare office. They were all interviewed on October 6, 2020, at Pejabat Pembangunan Wanita Negeri Kelantan.

This Focus Group Discussion (FGD) used a recording device and video camera to help the researcher analyse the issues under discussion. The researcher also reminded participants that the completed information would be treated with the strictest confidentiality. To take full advantage of the exchange between the interviewer and all participants, the participants were encouraged to openly answer questions in their own words (Esterberg 2002). At the end of this session, the researcher thanked all of the participants for their contributions.

4 Results and Discussion

The results of the Focus Group Discussion (FGD) were accomplished using a three process procedure: transcription, analysis of the transcripts, and formation of the clusters of themes.

Table 4 Final results of focus group discussion

Members	Human	Economic	Cultural	Social
	Skill and knowledge	Digital entrepreneurship	Behaviour	Community welfare
A1	WorkFromHome		Positive	Single mother
A2	Tailor	Marketing online	New life norm	Single mother
A3	Tailor	Platform online	New value	Single mother
A4	Tailor		Positive	Single mother
A5	Restaurant chef	Marketing online	New value	Single mother
A6	Tailor		Positive	Single mother
A7	Tailor	Marketing	New value	Single mother
E1	Expert	Trainer	Motivator	Yes
E2	Expert	Trainer	Motivator	Yes
E3	Expert	Welfare officer	Motivator	Yes
E4	Expert	Welfare officer	Motivator	Yes
E5	Expert	Trainer	Motivator	Yes

Source: Authors’ elaboration based on Focus Group Discussion (FGD)

First, all of the interviews conducted with the participants, were transcribed. Second, the researcher scrutinised the transcripts. Then, all construct items related to definite themes were gathered and analysed. Finally, the researcher produced a questionnaire with survey items to support the study. Table 4 reveals the final results of the FGD.

Accordingly, previous studies have recommended that community capital components be measured based on an “innovative measurement” of poverty (Amir Zal et al. 2020). For this study, the correlation between the constructs showed that most participant members contribute to human, economic, cultural, and social capital. All participants had a positive outlook toward digital entrepreneurship. However, most importantly, the common theme factor from the FGD regarding human capital with technology was skill competency. For participants, the Covid-19 crisis might not negatively affect their businesses but it could make it more prosperous thanks to Cyberpreneurship adoption of digital technology.

Their testimonies aligned with others (Elia et al. 2020) about the digital evolution as a “new socio-technical paradigm”.

Another potential factor discussed in the focus group was culture capital’s effect on poverty eradication. The typical issues involve values (preferred benefits and interests), norms (way of life) and attitudes (Sardu et al. 2012). In the focus group, these factors were discussed and were considered very harmful since the Covid-19 crisis. The participants seemed to be very afraid about the possibility of a loss of income due to Covid-19 related factors (lockdowns, supply chain, deliveries, etc.). However, the participants agreed that the development of technology, in entrepreneurship, might cause a change to a new living style and require strategies for dealing with crisis

issues. In addition, the government must support many activities to improve their living (Mukri 2017). The development of technology has also been significant on websites (Sulistyo and Pranata 2020). Overall, the focus group discussion highlighted the awareness of attitudes toward their own skill competency.

The FGD participants also discussed how to advance infamous social networking sites such as Facebook, WhatsApp and other marketplaces that have seen an increase in human capital since the Covid-19 pandemic crisis. Social networking changed the women's community and mindset toward being a job creator culture using social media platforms (Ukpere et al. 2014). Social media includes three areas delineated as: "cultural, social relations and work" (Velasco 2020). They agreed that this approach would change human capital behaviour within economic sectors (Siauwijaya and Steelyana 2020).

Based on the FGD analysis, skill competency has a significant role among single mothers for poverty eradication. In this way, the ongoing uncertainty from the Covid-19 crisis is acknowledged to cause situational poverty, but at the current time, a positive attitude has been fostered among single mothers.

5 Conclusion

Along with the Covid-19 crisis, female Malay entrepreneurs have encountered a tough challenge to implement proper strategies to survive digitally. Numerous factors may influence the success of a business. This study empirically explores these potential factors and their relationships among the single mother entrepreneurs to explain the human, cultural, social, and economic capital challenges. The findings reveal that human capital is impacted the most within technology skill competency in digital entrepreneurship which is the most vital aspect to improve for Covid-19 situational poverty eradication.

This study also offers a comprehensive analysis of the competencies of single mother entrepreneurs which identifies critical competencies groups and significant factors which impact their Cyberpreneurship. The research provides the basis for a plan to focus on single mother entrepreneurs' prosperity.

Developing human capital in the context of knowledge ownership and technology skills is paramount, especially for single mothers living and surviving in this rapidly evolving worldwide digital economy. Efforts to develop the economy through online businesses have generously benefited the community in many ways by minimising business costs, such as shop rent, stock storage, marketing, and others. As a result, this reduction in early entrepreneurial expenses can be transformed into an opportunity to generate faster and better monetary gains.

Increasing the participation of single mothers in digital entrepreneurship also echoes with the Single Mother Empowerment Action Plan 2015–2020, which aims to empower single mothers through economic development by engaging them in entrepreneurship. This strategic plan also emphasises efforts to increase human capital in terms of knowledge and entrepreneurial skills. Entrepreneurs who utilise

digital platforms are entrepreneurs who have extraordinary skills and creativity compared to conservative entrepreneurs who need a physical place to market and showcase their products. According to Faradillah (Omar and Rahim 2015), entrepreneurs' success depends on the presence of innovative values that they inject into their products, which can help them compete against other products and stay relevant in the digital business world. The government also acknowledges that the use of Information and Communication Technology (ICT) can bring about positive change to household incomes when a community utilises it as a business tool (Siti Masayu Rosliah Abdul Rashid 2016).

Therefore, single mothers need to embrace and be ready to transform themselves into Cyberpreneurship if they want to improve their economic status. By relocating their business onto digital platforms, single mothers can increase their autonomy by shaping their business in terms of operations management, time, and merchandise, to name but a few.

Furthermore, digital platforms can provide single mothers with opportunities to develop themselves through active participation in entrepreneurship. Similar findings (Aminova et al. 2020) support that women entrepreneurs have a high potential for digital entrepreneurship. One of the options, that can benefit single mothers as cyberpreneurs, is to expand their network circle with other entrepreneurs who are also active on digital platforms. Such participation is an element that will contribute to the empowerment of all single mothers in the network. According to one study (EIS-UPMCS. 2020), active participation in the network circle positively impacts the economic development of a person and their cultural and social aspects. This confirms a fact that the relationships of entrepreneurship have reflected positively on social relationships in an entrepreneur's life (Gholami and Al Tahoo 2021). In agreement with previous research, the results reveal that in the competitive environment of Covid-19, technological breakthroughs have brought the importance of strategic agility to business survival during the Corona virus disease pandemic (Elali 2021). Concurrently, active participation also helps nurture inquisitive tools, especially identifying problems, planning, and producing the necessary actions.

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The Economic Impact of Pandemic Covid-19 Outbreak: Comparative Analysis of Three Major Economic Groups



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Abstract The Pandemic Covid-19 outbreak cause a negative shock to the world economy, throwing many countries into economic uncertainty, facing an economic recession and if Covid-19 continuously actively spread possibly many countries face an economic depression. This study assessing the economic impact of Covid-19 by analyzing on the three main economic indicators which are GDP growth rate, inflation, and unemployment. This study using estimation proposed by Aditya and Acharyya (Aditya and Acharyya J. Int. Trade Econ. Dev. 22:959–992, 2013), applies generalized methods of moments (GMM) estimators. Data consist of 171 countries of the quarterly data set. The results of the study indicate that the most significant effect of the Covid-19 outbreak is on the GDP growth rate. However, the effect of the Covid-19 outbreak on inflation and unemployment is no exception. The findings suggest that the world economy can recovery or expand if policymakers and government focusing to stimulate investment through fiscal intervention which is likely to give a positive multiplier effect on economic activity.

Keywords Covid-19 · GDP growth · Inflation · Unemployment

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1 Introduction

In January 2021, the Pandemic Covid-19 outbreak has resulted in over 93.8 million confirmed cases and over 2.01 million deaths globally. Specifically, as report in Table 1, in developed countries is about 46.3% of world cases equal 4.5 million, and total deaths are 2% (the number of deaths relative to many cases) are reported, the transition countries account for only 6.9% cases (6,754,545) and 1.7% of deaths accounted in this region. For developing countries, Covid-19 had infected 40,284,802 people that accounted for 41.4% of world cases and around 2.5% of deaths. According to Asian Development Bank Report, as compared to the other Epidemic virus (i.e. Acute Respiratory Syndrome (SARS) outbreak in 2003 and the Middle East Respiratory Syndrome (MERS) outbreak in 2012), the total cases and deaths of Covid-19 has risen rapidly and quickly and far surpassed the total from the SARS, 2003.

On 30 January 2020, the Pandemic Covid-19 outbreak had been acknowledged by World Health Organization (WHO) as a global emergency. Due to this announcement, countries have enforced border shutdowns that cause human suffering and major economic disruption. In the early Covid-19 outbreak, OECD economics outlook had made projections from the 2019 database that World GDP growth in 2020 are set to remain week within 2019 world Gross Domestic Product (GDP) growth rate is at 2.9% and projection to drop to 2.4% in 2020, and in 2021 expected to increase to 3.3%. However, the real data indicated that the World GDP growth rate in 2020 is dropped by 4.179% that the decrease in value is greater than the projection to increase. Figure 1 illustrates the data of GDP growth rate for OECD countries and the World as a total for 2019 and 2020. The figure shows that in 2020 nine OECD countries faced a sharp decrease in GDP growth rate that above 8% (Austria, Colombia, France, Greece, Italy, Mexico, Portugal, Spain, and the United Kingdom), where Spain face the highest decline in GDP growth (11.63%) follow by United Kingdom (11.25%).

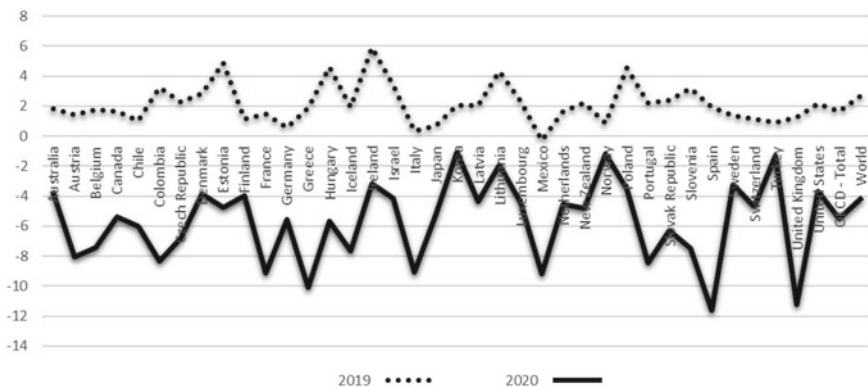


Fig. 1 The growth rate of Gross Domestic Product in OECD countries and the world (*Source* The author develops the figure based on data collected from OECD Database)

There are several ways that the Pandemic Covid-19 outbreak affects the economic activity in the world. Slow down and even negative economic growth rate, increase in the unemployment rate, discourage the foreign direct investment activity, negative effect on the stock market, reduce the trade activity is among the Pandemic Covid-19 consequences. Over the years, there are a lot of changes in the national investment policies as a means to promote sustained economic growth, especially in liberalize and promote investment rather than imposing restrictions and regulations. This situation is expected to accelerate the wake-up world economy due to the COVID-19 pandemic, which has been raising concerns in many countries that faced an economic downturns. As reported by UNCTAD, due to the Covid-19 outbreak, the FDI flows in 2020 indicated a significant decrease compared to 2019, where developed countries facing a 69% decrease that equal to \$229 billion, transition economies show tremendously drop by 77% (\$13 billion) and developing countries face 12% decrease in FDI in 2020, although the percentage indicates the smallest value as compared to the other groups, unfortunately in terms of monetary value, it shows that the decreasing value of FDI in developing countries is equal \$616 billion, that is higher than the other two economies group. In total, world FDI faced a decrease by 46% in 2020 as compared to 2019 which shows the loss of FDI is equal to \$858 billion, which resulted in the world GDP growth rate in 2020 drop by 4.2%. Besides that, as the government introduced the fiscal package, the inflation rate indicated an increase in value. Data from selected OECD countries shows a slight increase in inflation rate in 2020 compared to 2019, as illustrated in Fig. 2, but in the figure, this rate is still at an increasing rate that will harm the consumers.

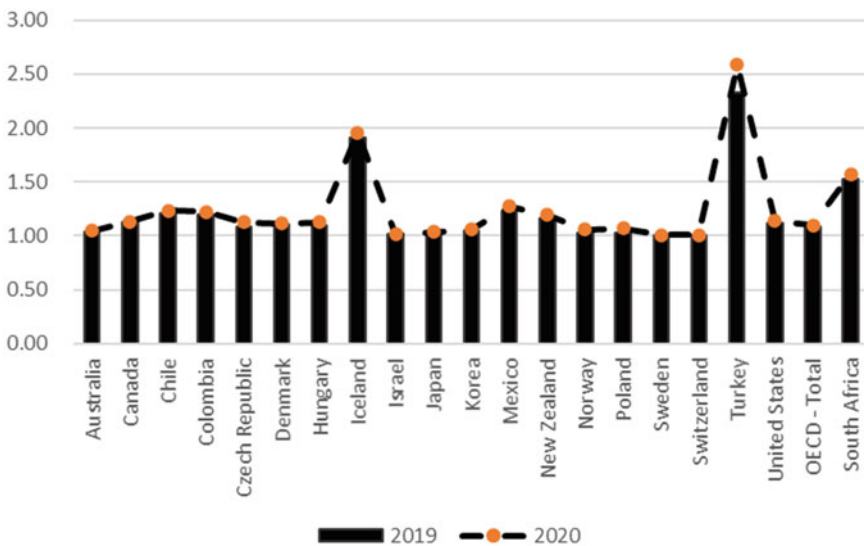


Fig. 2 Inflation rate in selected OECD countries in 2019 and 2020 (Source The author develops the figure based on data collected from OECD database)

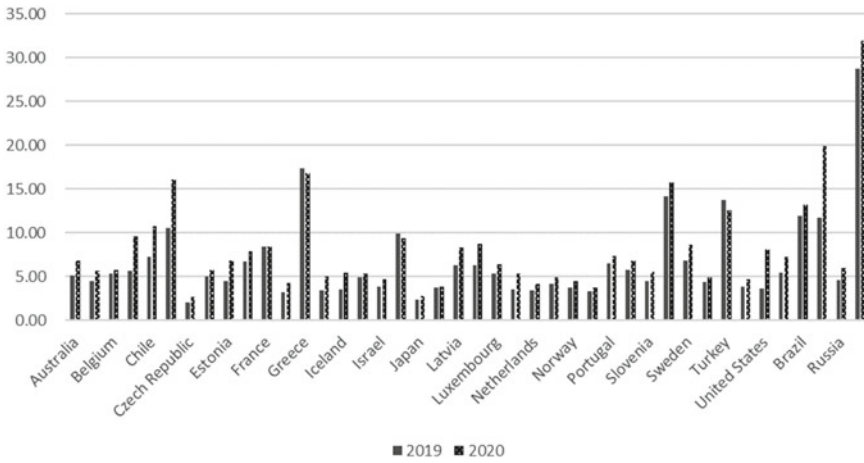


Fig. 3 The unemployment rate in selected OECD and non-OECD countries in 2019 and 2020 (Source The author develops the figure based on data collected from OECD database)

As illustrated in Fig. 3, as the Covid-19 spread and explodes globally and shut down the economy, the early and worst effect is on humans, that suffering from job loss. The figure shows that all the selected countries of OECD and non-OECD indicated a sharp increase in the unemployment rate. Where, there are three countries in OECD (Chile, Spain, and Turkey) that surpassed 10% of the unemployment rate, and for non-OECD countries South Africa with the highest the unemployment rate at 32%, Costa Rica 20%, and Brazil 13.2%.

The pandemic Covid-19 outbreak cause a major impact on the world economy. Therefore, it is essential to determine the impact of this health crisis on the economic indicators in ensuring that further action and designing policies can be prepared to ensure stable economic growth for the subsequent years. The rest of the article is organized as follows: In the following section is summarize of past studies. Then, an explanation of methodology and data employed in this study and follows by discussion and results and the last section is a conclusion.

2 Literature Review

The Covid-19 outbreak caused much of an impact on the economy. The main impact is on humans, that they suffer loss in jobs that cause a sharp rise in the unemployment rate as a result of the economy being closed. As such, the government has taken action by introducing fiscal and financial packages. A recent study by Bianchi et al. (2020) supports this government’s role, by suggesting that implementing a fiscal package, can stimulate increased aggregate spending, reduce the interest rate, but the

nation will face an increase in the inflation rate, which, this action been supported by Auerbach et al. (2020) in their study.

A recent study on the impact of Covid-19 on the job loss that causes an increase in the unemployment rate had been explored by many researchers (Adams-Prassl et al. 2020; Béland et al. 2020; Coibion et al. 2020a; Kahn et al. 2020). A study by Coibion et al. 2020a, find that there is a sharp decrease in the number of employees with a number equal to 20 million in the early Covid-19 crisis. In short term, about 50% of the population that is categorized as labor force might not able to find a job due to the economic recessionary situation (Gourinchas 2020), which is the most significant impact of the Covid-19 crisis, where the World GDP growth rate faced a decline by 4.179%. The labor market is one of the main sources that contributed to economic growth as explained in the endogenous growth theory.

The model predicted that the rate of total factor productivity influences economic growth which is one of the factors that generate higher total factor productivity in the labor market. Whereas, in the endogenous growth model, the AK model developed by Romer (1986, 1990), Lucas (1988), and Robelo (1991) in the first wave of which focuses on human capital accumulations. The essence of this theory is reflected in equation $Y = AK$, where A is the expression factor that affects technology and K is capital (i.e. physical and human capital). According to the AK model from the accumulation of capital created technological progress and since this theory assumes no diminishing returns to capital, an increase in investment in physical or human capital could sustain economic growth. The importance of the accumulation of capital has been proved by empirical literature (see for example Caballe and Santos 1993 and Tallman and Wang 1994).

Bonadio et al. (2020) stated in their study that, a decline in global GDP is a major reduction in world economic activity with a major interruption in the world supply chain. When the economy has to shut down, it will affect the labor productivity that directly causes a decline in the firm revenue (Elenev et al. 2020), that been supported by Cespedes et al. (2020) with their finding indicated that the Covid-19 outbreak leads to loss of productivity. Based on the real business cycle model, Baker et al. (2020), the Covid-19 outbreak lead to an economic uncertainty that causes a contraction of GDP. This situation had been studied by Barua (2020), which she had shown that the economic impact of the Covid-19 outbreak can be categorized into five waves. The first wave is known as short-term effects that caused initial production shock, initial demand shock, distortion to the supply chain, and cause an interruption of capital flows. In the second wave of the impact Covid-19, Barua stated impact internationalized that cause distortion to trade flows and interruptions of capital flows, this second wave is called short term to medium term impact. Continuously, in the third wave, this health crisis causes a negative macroeconomic impact that will influence aggregate supply, aggregate demand, cause a price level shock, loss of employment and income, exchange rate volatility, and rise in financial risk and instability. For fourth wave and fifth wave, is categorize in long term impact, wherein the fourth wave cause a reduction in economic growth and finally bring the economy from recession to depression and also shift in international cooperation.

A study by Carlsson-Szlezak et al. (2020) explained that there are three channels through the Covid-19 outbreak that affect the economy, which are direct effect, indirect effect, and supply-side disruptions. The first channel of direct impact is, the economy will face a reduction in consumption of goods and services that as Barua (2020) explained in the first wave. Due to economic shutdown, job loss, lockdown had caused the consumer to cut the expenses on goods and services. The Pandemic Covid-19 effect indirectly on the economy which influences the financial market that gives a high impact on the real economy. Financial institutions offer to defer payment of loans (moratorium) that cause bank losses in the income generated. The third channel is supply-side disruption as explain by Barua (2020) in the third wave that happens in the medium-term period. This channel indicated that the reduction in the production, negative impact on supply chain, distortion demand of labor, increase the unemployment rate and increase the inflation rate. Generally, the Covid-19 already harm individuals' economies, firms, nations, and the world, which has triggered a massive spike of economic uncertainty where the Pandemic Covid-19 outbreak had been labeled by media as a black swan event and likened to the economic scene of World War Two.

3 Methodology

3.1 Model Specification

The indicator of covid-19 is an estimate based on residual. Because we rely on the quarterly data of Covid-19. We estimate the model starting 1 January 2020 through 31 December 2020. In the first stage, the Covid-19 data estimate in the following form:

$$\Delta C19_i = \alpha_i + \emptyset C19_{i,t-1} + \beta_{i1} \Delta GC19_t + \beta_{i2} \Delta RC19_t + e_{it} \quad (1)$$

Jan 1, 2020 ≤ t ≤ December 31, 2020

The variable is a daily change of Covid-19 spread of country i . On the right of the model (1), the lagged dependent variable regress with the two indicators, $\Delta GC19_t$ is the Global value of Covid-19 and $RC19_t$ is the regional (country classification group) factor. Whereas the global factor is measure as the cross-sectional average of daily log Covid-19 change over the sample noncountry group (i.e.: if country i is a developed country, thus the global factor were from countries from the economies in transition and developing countries). The regional factor is measured similarly with the global factor from the number of developed countries used in the analysis, the number of regional factors is excluding country i .

The second stage is getting the residual of Covid-19. The Covid-19 residual is calculated as follows:

$$\Delta COV_{it} = \Delta C19_{it} - \left[\hat{\alpha}_i + \hat{\theta}C19_{i,t-1} + \hat{\beta}_{i1}\Delta GC19_t + \hat{\beta}_{i2}\Delta RC19_t \right] \quad (2)$$

By using the residual, the estimation of the model of study is as follows. The model used to test the impact of Covid-19 is based on a similar model developed by Zeren and Hizarci (2020) that studies the impact of Covid-19 on the stock market. Among many other researchers Ayittey et al. (2020) and Estrada et al. 2020 used this estimation procedure to explain the possible effects of Covid-19 on the economy, that also follow by Luo and Tsang (2020).

$$\Delta COV_{it} = \alpha + \beta_1 GDP_{it} + \beta_2 INF_{it} + \beta_3 UMP_{it} + \mu_{it} + \varepsilon_{it} \quad (3)$$

where ΔCOV is a residual of Covid-19, GDP is a rate of growth of real GDP, INF is a consumer price inflation, UMP is unemployment rates.

3.2 Data Sources

The data for a sample of 171 countries that includes developed countries, economies in transition, and developing countries, has been collected from the Trading economics database, World Health Organization database, and World Economic Situation and Prospect 2020 report. The sample covers 36 developed countries, 16 countries in transition and, 119 developing countries for the year 2020.

The data of Covid-19 cases from 1 January 2020 through 31 December 2020 were extracted from World Health Organization Database, rate of growth of real GDP, consumer price inflation and unemployment rate (developed countries) were collected from World Economic Situation and Prospect 2020 report, and unemployment data of economies in transition and developing countries were extracted from Trading economics database. Estimation is based on balance panel data analysis, which is the period is based on quarterly ($t = 4$) with four indicators, and a sample of 171 countries ($i = 171$), with our total observations, is equal to 2736.

3.3 Estimation Procedure

To estimate panel data analysis, this study follows estimation proposed by Aditya and Acharyya (2013), with applies generalized methods of moments (GMM) estimators proposed by Arellano and Bond (1991), Arellano and Bover (1995), and Blundell and Bond (1998). It uses GMM estimator because of three reasons: (1) to control autocorrelation, the inclusion of lagged dependent variables are included; (2) the country-specific effect can be controlled by using GMM that cannot be done using country-specific dummy because of the dynamic structure of the regression equation

and (3) due to some variable may be endogenous, the GMM able to control this simultaneity bias.

There are two types of estimation approaches using GMM estimator namely, difference GMM and system GMM. The former method proposes an instrumental variable estimation in the first-difference specification, where the lagged differences dependent variable and other predetermined or endogenous variables are instrumented by their earlier values in levels and by other strictly exogenous or additionally specified instruments (Arellano and Bond 1991). The S-GMM methodology by Arellano and Bover (1995) and Blundell and Bond (1998) propose a similar method in which level equations are combined with level equations. The specification in levels uses the lagged value of first-difference as an instrument. Estimation in one-step and two-step procedures are applied in difference GMM and System GMM. Whereas, in one-step estimators, the independent variable is estimated by using weighting matrices, whereas the two-step GMM estimators, will be estimated using optimal weighting matrices, where the moment conditions are weighted by a consistent estimate of their covariance matrix. Thus, based on the specific procedure conducted in two-step estimators, it makes the two-step estimators' results are more efficient as compared to the one-step estimators.

Although the difference GMM estimator can control for country-specific effects and simultaneity bias, it still has one major weakness. As shown in Blundell and Bond (1997), the results become weak for regression, which leads to small sample estimators are biased, if the estimation indicates persistence over time of a lagged dependent and the explanatory variables. Thus, system GMM is proposed by Arellano and Bover (1995) as an alternative method that estimates the regression in differences jointly with the regression. This estimator has been shown to perform much better (i.e. less bias and more precision), especially when the series is persistent or the autoregressive process is too persistent which is the first difference that might be weakly correlated with its lagged levels. Arellano and Bover (1995) and Blundell and Bond (1998), proposed using additional moments conditions in which lagged differences of the dependent variable are orthogonal to the levels of the disturbance/errors.

To get the best estimation result from GMM, the estimation model depend on the specification test proposed by Arellano and Bond (1991), which is the Sargan test. This specification test will examine the validity of all variables in the estimation that as Baltagi (2005) explained in the article, the Sargan test will analyze the sample based on moment conditions. In the Sargan test, the variable will be test base on the hypothesis of does variables are interrelated with the residual. If the results indicated to accept the hypothesis, with the results indicated the statistically significant, thus the researchers may conclude that the variables used in the estimation are exogenous and the model estimation passed the Sargan test. The more highly significant result of the Sargan test indicated that the model is firm and not misleading (Table 1).

Table 1 Percentage of Covid-19 cases and deaths

	Percentage of cases	Cumulative percentage cases of total per 1 million population	Percentage of total deaths	Cumulative percentage total deaths per 1 million population
Developed countries	46.3	33.0	2.0	38.7
Economic In transition	6.9	12.6	1.7	13.2
Developing countries	41.4	28.4	2.3	29.6

(Source World Health Organization database)

4 Results and Discussion

4.1 Preliminary Analysis

As a preliminary analysis, a summary of statistics for all variables used in this analysis are presented in Table 2: Covid-19 residual (COV), GDP growth rate (GDP), inflation (INF), and unemployment rate (UNM). The statistics presented in the table are based on 171 selected global countries. The main indicator of these statistics is that there is considerable variation in the Covid-19 across countries, ranging from 0 in Vanuatu to 7.4 in the United States. The range for GDP growth is between 0.1 in Sudan and 16 in Liberia. Meanwhile, the range for the inflation indicator is between 0.1 (Central Africa Republic) and 44.3 (Argentina). The minimum value of unemployment is 0.1 represent by Oman and Angola indicates the maximum value at 34.

Table 3 presents the correlation analysis for all variables. It is worth to note that the correlations of all variables with Covid-19 are consistent with theoretical predictions which indicate negative correlations with Covid-19 residual.

Figures 4, 5 and 6 displays the Covid-19 residual plotted against the GDP growth rate. The fitted line shows negative relationships between the Covid-19 and GDP growth rate for the three groups of countries. Developed countries ($R^2 = 0.8138$), economies in transition ($R^2 = 0.7188$), and developing countries ($R^2 = 0.8109$).

Table 2 Summary of descriptive statistics

Variables	Mean	Std. Dev.	Minimum	Maximum
COV	4.6	0.08	0	7.4
GDP	3.4	0.16	0.1	16
INF	5.0	0.7	0.1	44.3
UNM	7.9	0.4	0.1	34

Notes The variables are defined as follows: COV = Covid-19 residual, GDP = GDP growth rate, INF = inflation, UNM = unemployment rate

Table 3 Correlation matrix

	COV	GDP	INF
COV			
GDP	- 0.2467		
INF	- 0.0152	0.0117	
UNM	- 0.1009	- 0.1365	0.0934

Notes The variables are defined as follows: COV = Covid-19 residual, GDP = GDP growth rate, INF = inflation, UNM = unemployment rate

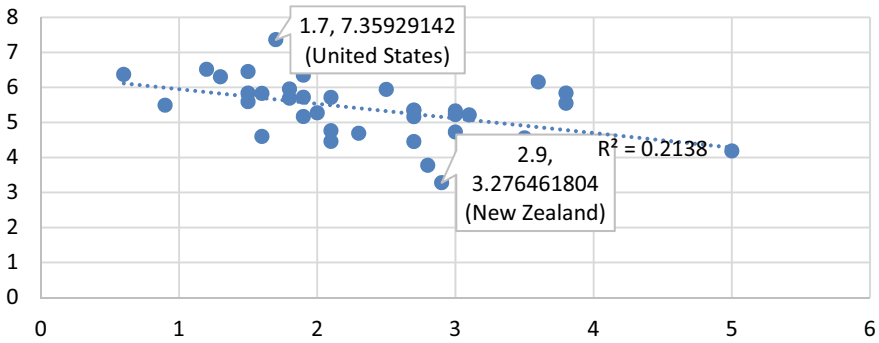


Fig. 4 Scatter plots of Covid-19 residual vs GDP growth rate in developed countries

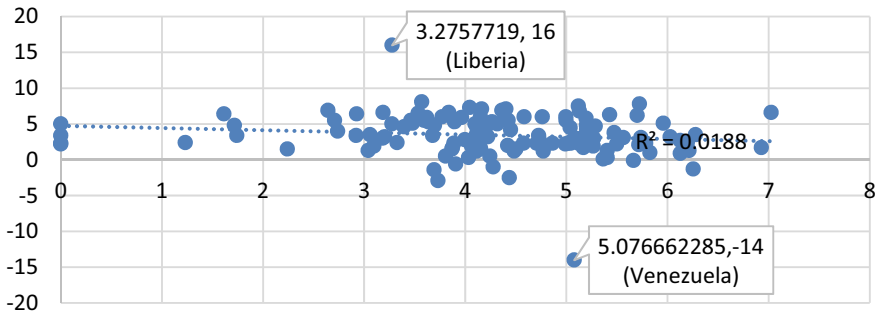


Fig. 5 Scatter plots of Covid-19 residual vs GDP growth rate in developing countries

The estimation and figures indicate that developed countries face the larger effect of Covid-19 on the GDP growth rate. These results indicate that, one of the giant economies (the United State) in developed countries had faced the highest rate of recession (-10) which had been never experienced by the US since 1947, (Routley 2020; Elali 2021; Ahmed 2020).

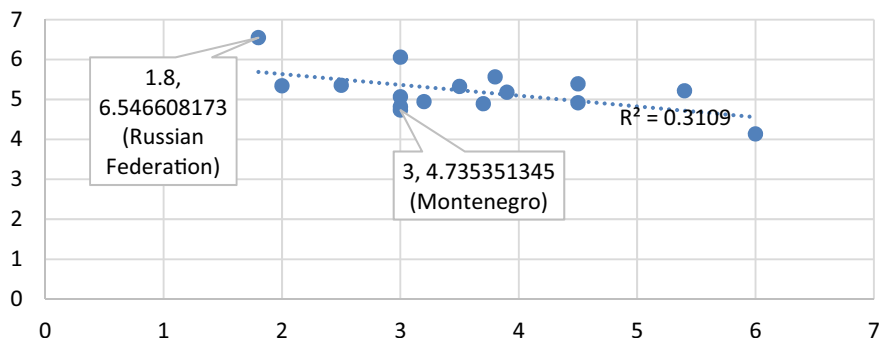


Fig. 6 Scatter plots of Covid-19 residual vs GDP growth rate in transition economies

The first step of our analysis is to estimate a simple linear model as shown in Eq. (3). Results are reported in Table 4. At this stage, we estimate the model to the world economy, and specific to the developed countries, economies in transition, and developing countries. The results indicate that as global, when the pandemic Covid-19 increase by 1%, it causes a decrease in world GDP growth by 0.1228% which is consistent with finding by Gourinchas (2020) and Maital and Barzani (2020). The result shows that the unemployment rate is increased by 0.0118% as a Covid-19 increase, which is a similar finding by Bauer and Weber (2021), and the impact on the inflation rate is slightly lower than unemployment rate (0.0014%), Seiler (2020) indicate that due to the lockdown the inflation rate becomes higher. In the specific analysis on country economy groups, developed countries faced a major impact on GDP growth rate that causes a decrease by 0.55% as compared to the other economies groups. For the second economic indicator, developed countries also have to face a significant increase in consumer price or inflation with 0.52%. However, results indicated that developing countries have the highest percentage in

Table 4 Linear estimation result

	World	Developed countries	Economies in transition	Developing countries
Constant	4.99*** (24.45)	5.56*** (8.83)	6.11*** (11.59)	4.27*** (16.24)
GDP	- 0.1228 (-3.15)**	- 0.55 (-3.56)***	- 0.27 (-2.3)**	- 0.05 (-1.1)*
INF	0.0014 (0.15)*	0.52 (1.9)*	0.02 (0.4)*	0.008 (0.8)*
UNM	0.0118 (0.89)**	0.02 (0.44)*	- 0.002 (-0.10)	0.04 (-1.8)**

Notes The variables are defined as follows: COV = Covid-19 residual, GDP = GDP growth rate, INF = inflation, UNM = unemployment rate. Figures in bracket is the value of t-statistics. The symbol of ***, **, and * indicate statistical significance at the 1, 5, and 10% levels, respectively. All variables are in logarithmic form

the unemployment rate (0.04) compare to the others. Overall, the Pandemic Covid-19 outbreak shows a significant impact on economic indicators with a decrease in GDP growth rate and increase the inflation and unemployment rate is consistent with Coibion et al. (2020b).

4.2 Generalized Methods of Moment

To examine the impact of Covid-19 on economic indicators, Eq. (3) is estimated using both difference GMM and system GMM estimators. The results are reported in Table 5. The result of the diagnostic test reveals that difference GMM at one-step estimators failed to pass the Sargan test and therefore the result is unreliable. For the difference GMM estimation, the result shows that the lagged dependent variable is statistically significant and this indicates that previous cases of Covid-19 affect the economic situation, which has been supported by the estimation in the two-step System GMM. Based on System GMM, the results indicate that the coefficients of all variables tested are statistically significant at the usual levels. GDP growth ($\beta = -0.1445$, $p < 0.01$) indicate the negative effects on the Covid-19 residual, which is similar with Maital and Barzani (2020), however inflation rate ($\beta = 0.2643$, $p < 0.1$) and unemployment rate; ($\beta = 0.3252$, $p < 0.05$) indicated positive effects on the Covid-19 residual. These results suggest that 1 percentage point increase Covid-19 will decrease GDP growth, by 0.1445, and increase inflation and unemployment rate by 0.2643 and 0.3252 percentage points, respectively, which is explained by Coibion

Table 5 GMM estimation of the world

	Difference GMM	System GMM
Constant	4.7097 (1.46)***	4.2392 (1.69)***
COV (Lagged)	0.1457 (13.48)***	0.1670 (12.76)***
GDP	- 0.1418 (5.76)***	- 0.1445 (-2.71)***
INF	0.1653 (3.82)***	0.2643 (6.48)*
UNM	0.2185 (-2.71)**	0.3252 (6.04)**
Sargan test	10.5440 (0.0090)	15.7830 (0.1670)

Notes The variables are defined as follows: COV = Covid-19 residual, GDP = GDP growth rate, INF = inflation, UNM = unemployment rate. Figures in bracket are the value of t-statistics, s, except for the Sargan test which is the p-values. The symbol of ***, **, and * indicate statistical significance at the 1, 5, and 10% levels, respectively. All variables are in logarithmic form

et al. (2020b). The p-value for the Sargan test 0.1670 suggests that over-identification restriction cannot be rejected. Therefore, the instruments used in estimation are valid.

4.3 Sensitivity Analysis

This study conducts two sensitivity tests to ensure that the estimation results are robust. First, we assess the potential impact of outliers on the results. Secondly, the sensitivity analysis is conducted by excluding a potential outlier United States from the estimation.

In the first estimation of sensitivity analysis, the researcher assesses whether outliers may have affected the results obtained in the previous analysis. To detect outlier observations, this study follows the strategy advocated by Besley et al. (1980) using the DFITS statistics. This statistic is used to identify countries with a high combination of residuals and leverage statistics. Following Besley et al. (1980), an observation may be considered an outlier if the $DFITS > 2/\sqrt{k/n}$ where k is the number of explanatory variables and n is the number of countries. The test suggests that United States, New Zealand, Liberia, Venezuela, Russian, and Montenegro are potential outliers in the estimation.

The results which exclude outliers are reported in Table 6. Based on the estimation in two-step estimation, interestingly, the exclusion of outliers has slightly decreased the magnitude of the impact of Covid-19 residual on global GDP growth rate with 0.1246 compare with the previous value global GDP growth rate with outliers is

Table 6 Sensitivity analysis by excluding outliers

Variable	Difference GMM	System GMM
Constant	4.6844*** (1.07)	4.2543 (2.26)***
COV (Lagged)	0.1385*** (7.56)	0.1816 (7.89)**
GDP	- 0.1087*** (8.17)	- 0.1246*** (7.93)
INF	0.0419*** (3.04)	0.0363*** (6.01)
UNM	0.3634*** (5.11)	0.3100*** (2.83)
Sargan test	19.3441 (0.2989)	21.7273 (0.4809)

Notes The variables are defined as follows: COV = Covid-19 residual, GDP = GDP growth rate, INF = inflation, UNM = unemployment rate. Figures in bracket are the value of t-statistics, s, except for the Sargan test which is the p-values. The symbol of ***, **, and * indicate statistical significance at the 1, 5, and 10% levels, respectively. All variables are in logarithmic form

0.1445. More importantly, these sensitivity analyses indicate that the new estimation GMM is adequately specified and the results are not driven by the simultaneity bias. Therefore, the previous interpretation on the impact of pandemic Covid-19 causes a negative effect on the GDP growth rate is unchanged. Other indicators are also a statistically significant indication that, as an increase in Covid-19, the inflation rate and unemployment rate will increase. Thus, the result is robust and not driven by outliers.

Finally, the United States is excluded from the estimation as the United States is viewed as a potential outlier because of the highest cases of Covid-19. The results of excluding the United States from the estimation are reported in Table 7. Based on the system GMM at two-step estimation, the results suggest the effect of Covid-19 on the global economy remains intact although the coefficient on GDP growth rate is slightly lower ($\beta = -0.0793$), inflation rate $\beta = 0.0291$) and unemployment rate ($\beta = 0.2556$). The results indicate that as the number of Covid-19 increases by 1%, GDP growth will decrease by 0.0793% and increase inflation and unemployment rate by 0.0291 and 0.2556. However, unemployment indicated the highest affected from Covid-19 due to action taken by the government in implementing a lockdown economy. This finding is similar to Ashraf (2020) stated that lockdown had affected job losses and income loss for more than 10 million people, Kawohl and Nordth (2020) stated that the outbreak of the Covid-19 pandemic had caused an increased worldwide unemployment rate. Hensher (2020) stated that, although many governments had taken many actions to protect workers during the outbreak of Covid-19, the unemployment rate is at increasing value.

Table 7 Sensitivity analysis by excluding United States

Variable	Difference GMM	System GMM
Constant	5.5270 (3.7934)	5.0106 (4.6501)***
COV (Lagged)	0.1362 (8.1374)***	0.1124 (7.2007)***
GDP	- 0.0984 (-1.1789)**	- 0.0793 (-0.9015)
INF	0.0393 (3.7375)***	0.0291 (3.2252)**
UNM	0.2430 (5.4730)***	0.2556 (2.1394)**
Sargan test	11.0078 (0.6851)	16.3146 (0.5100)

Notes The variables are defined as follows: COV = Covid-19 residual, GDP = GDP growth rate, INF = inflation, UNM = unemployment rate. Figures in bracket are the value of t-statistics, s, except for the Sargan test which is the p-values. The symbol of ***, **, and * indicate statistical significance at the 1, 5, and 10% levels, respectively. All variables are in logarithmic form

5 Conclusion

This study provides an empirical assessment of the impact of the Covid-19 outbreak on the economy globally. It analyses several important factors namely GDP growth rate, inflation rate, and the unemployment rate as a main economic indicator using quarterly data for the year 2020. There are two major contributions associated with this study. This paper it is found that the most significant impact of Covid-19 is on GDP growth. The most affected economic group is developed countries. Developing countries face a slightly higher unemployment rate as compared to developed and transition economies. The finding also indicates that the pandemic Covid-19 outbreak has caused an increase in the inflation rate. The result from GMM estimation shows that the outbreak of the Covid-19 outbreak had caused the unemployment rate to increase drastically worldwide. In conclusion, the effect of Pandemic Covid-19 is already in the fourth wave as stated by Barua (2020). As many governments take action in the implementation of fiscal package, it hopes that will stimulate the world economy. To stimulate economic growth, policymaker and government should weigh on encourage foreign direct investment through fiscal interventions which are able to stimulate more investment activity, which is likely to give a progressive multiplier effect on economic activity to bring the economy out of the slump.

One of the limitations of this study is availability of data to estimate the long run effect for empirical analysis. This study adopts quarterly data analysis for the year 2020. It is suggested that for future research to examine for cross sectional analysis and extend the empirical analysis on a country specific basis to ascertain more precise implications at country specific level.

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The Role of Ar-Rahnu as an Alternative in Reviving Micro-Enterprises Through Pandemic Crisis



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Abstract Both ar-Rahnu institutions and micro-entrepreneurs contribute greatly to the country's economic growth. Unemployment and economic recession can be better-handled businesses are prepared to face any catastrophe, such as pandemics. Then, the aim of this study is to explore the use and role of ar-Rahnu as an alternative for micro-enterprises to revive in this pandemic crisis. The study will adopt a qualitative approach, gathering data from micro-entrepreneurs in the selected areas. Data from the in-depth interviews will be analyzed and categorized thematically to see how ar-Rahnu can help micro-entrepreneurs in reviving their businesses in this environment. It is expected that the findings of the study will identify various issues such as awareness, understanding, and acceptance of ar-Rahnu, which will then be used to prove that it is an alternative source of funds to help micro-entrepreneurs deal with the crisis. This study will also demonstrate the role that ar-Rahnu plays in safeguarding the financial security of micro-entrepreneurs. This study will not only benefit the individual entrepreneurs but also the society and institutions by explaining the role of ar-Rahnu in ensuring business continuity. Therefore, this research will give a broad review of the significance of Islamic pawnshops in improving the economy of businesses and the country after showing that they have a significant impact in overcoming this pandemic crisis.

Keywords Ar-Rahnu · Microfinance · Pandemic · Micro-enterprises · Malaysia

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1 Introduction

Micro-enterprises have a positive economic impact in some developing countries, although there are some barriers such as limited support from public and commercial organizations (Soto 1989; The Futurist 2003). Employment opportunities can be offered and poverty rates can be reduced by the existence of micro-enterprises (Rogerson 2004; Servon 1999). It also provides goods and services at affordable and lower than usual prices (Kirkpatrick and Hulme 2001). Gross sales for micro-enterprises are under \$ 25,000 a year (Tinker 2000) and they are sustainable. Some micro-enterprises are more likely to operate than homes (Clark et al. 1999). Today, micro-enterprises have an effective role to play in developing and improving the country's economy. Micro, Small, and Medium Enterprises (MSMEs) have risen across the world added to MSMEs' gross domestic product (GDP) increased in 2018 and 2019 compared to the prior year (Department of Statistics 2021; Hun 2018). It happens due to actively developing innovative products, creating a collaborative network service and improving the business. Also, MSMEs have played a significant role in assisting growth, employment, and income generation, as well as being an integral component of Malaysia's economic transformation. MSMEs contribute 99.2% of total business and 32% of GDP in Malaysia, proving their importance to the country's economy. (Tahir et al. 2018).

However, the remainder of the globe faces a huge problem in finding urgent remedies to level the curve as consequences of the Covid-19 pandemic. The implemented lockdown and partial lockdown indicate that the measure causes a short-term success according to countries as ways to level the medical curve (Eggers 2020). However, in the post-Covid-19 crisis, what's most challenging is that steep curve leading to the economic recession and the financial crisis. Issues such as sudden demand and supply after the lockdown have significantly affected the global economy and are expected to lead to economic depression (Yusuf et al. 2020). Hence, the impact of the Covid-19 pandemic is not only on individuals, but also on governments.

This pandemic crisis has affected the business activities of micro-enterprises. Various challenges will have to be dealt by micro-entrepreneurs like cash flow problems due to daily income loss, operational disruptions, laying on workers, and supply chain disruptions (Che Omar et al. 2020; Fabeil et al. 2020). Furthermore, Micro-enterprises, according to Bartz and Winkler (2016), do not grow as rapidly as large companies when facing pandemic crises (Bartz and Winkler 2016). Fabeil et al. (2020) also found that the infrastructure restrictions, labour shortages, and low financial reserves were among the additional problems faced by small companies in rural locations (Fabeil et al. 2020). Thus, the pandemic posed problems not just to individuals, but also to different sorts of businesses, geographic locations, sizes, and resources (Cassia and Minola 2012; Lai and Scheela 2018). Cook's (2015) findings showed that 75% of firms without a business continuity strategy would disappear within three years of a disaster or crisis. (Cook 2015).

Thus, government assistance such as wage subsidy program, Special Care Grant and various assistance were introduced by the Prime Minister of Malaysia, YAB

Tan Sri Dato' Haji Muhyiddin Bin Haji Mohd Yassin on 18th January 2021 during the Special Announcement of the Economic and People's Protection Assistance Package (PERMAI) in facing this pandemic (Prime Minister's Office of Malaysia 2021). In addition, the Malaysian government has also offered various financial and credit assistances to entrepreneurs as efforts to enhance and promote community involvement in the entrepreneurship sector. Among the agencies and financial institutions that provide micro-credit financing include Amanah Ikhtiar Malaysia (AIM), Tabung Ekonomi Kumpulan Usaha Niaga (TEKUN), Majlis Amanah Rakyat (MARA), Agrobank Malaysia Berhad and SME Bank. Therefore, entrepreneurs have various options to obtain fundamental resources to cover their business financing whether it is government or private provision (Salimah and Nadratun 2020).

This Covid-19 pandemic has affected micro-enterprises globally. While there are various incentives and grants offered by the government, how far they can survive with those funds. They have to seek alternative funds to survive their business. In a world where income levels are rising, people are living longer lives, and the financial sector is becoming more complex, Islamic financial planning is becoming more vital (Azwan et al. 2020). From an Islamic perspective, Islamic financial planning plays a significant role in offering Shari'ah-compliant activities such as wealth creation, growth, purification, and protection (Nur et al. 2017). Nik Hadiyan et al. (2021) said during the Covid-19 pandemic, Islamic social finance played a critical role in stabilizing incomes among micro-entrepreneurs (Nik Hadiyan et al. 2021). Micro-entrepreneurs must select a different means of acquiring Islamic social finance (ISF) money than relying on the Malaysian government's economic stimulus program. The Islamic social finance (ISF) eco-system contributes an opportunity to incorporate Islamic and shariah-compliant financial institutions. Its policy is more flexible in helping micro-entrepreneurs. The Islamic social finance (ISF) sector includes micro-finance institutions such as Zakat, Waqf, Baitulmal and non-profit such as ar-Rahnu. During the Covid-19 outbreak, these instruments were used by micro-enterprises to support their survival (Salimah and Nadratun 2020). Islamic social finance should act as a stabilizer between the economy and society as the safety move to prevent the problems of poverty and unemployment due to the Covid-19 pandemic crisis (Hidayat et al. 2020). Thus, to stimulate the country's economic growth, Islamic social finance plays an important role in increasing economic activities such as consumption, investment, and government spending (Ashraf and Hassan 2013; Zamir and Abbas 2006; Warde 2010).

In this context, there is a pressing need to research and assess how proper micro-finance supplied by the economic and financial sectors might benefit society in general and micro-enterprises in particular. Ar-Rahnu is an Islamic micro-credit institution that grants momentary financing to those in need whether low, medium or high. According to Nik Hadiyan et al. (2016), micro-entrepreneurs are among those who use ar-Rahnu due to the fast money service and simple procedures (Bhatt and Sinnakkannu 2008; Muhamat et al. 2011; Hassan et al. 2015; Nik Hadiyan et al. 2016). The favorable chosen ar-Rahnu because of the shariah-compliant system (Salimah 2020). The uniqueness and capability of ar-Rahnu services are among the main factors for customers choosing ar-Rahnu financing (Nik Hadiyan et al. 2020).

According to Nik Hadiyan et al. (2020), ar-Rahnu acceptance and financial well-being were linked. During the Covid-19 pandemic, micro-entrepreneurs were severely affected. Therefore, the study recommends the ar-Rahnu approach to help them survive in their business (Nik Hadiyan et al. 2020). So, the research question raises on how the use and the role of ar-Rahnu as an alternative among micro-entrepreneurs do assist them to recover from the pandemic crisis. As a result, the research will aim to analyze the use of ar-Rahnu as one of the Islamic Social Finance instruments to assist micro-entrepreneurs raise alternative funds. In addition, the study also will identify the role of ar-Rahnu as an alternative source of funds for micro-entrepreneurs in ensuring business continuity.

2 Literature Review

2.1 Islamic Microfinance in Malaysia

According to Izzati and Asmy (2020), the microfinance sector in Malaysia is under the supervision of small and medium enterprises (SMEs) which are deemed to be 90% of micro-enterprises. Financial institutions that provide microfinance services, namely microfinance institutions, cooperatives, development financial institutions, and commercial banks with microfinance schemes. Amanah Ikhtiar Malaysia (AIM), Yayasan Usaha Maju (YUM), and Tabung Ekonomi Kumpulan Usaha Niaga (TEKUN) are among the focus centres for Islamic microfinance. Yayasan Usaha Maju (YUM) and National Entrepreneur Group Economic Fund (TEKUN) are under the Ministry of Agriculture and Agro-based Malaysia, while Amanah Ikhtiar Malaysia (AIM) is an NGO (Izzati and Asmy 2020).

In addition, development institutions such as Bank Rakyat, Bank Simpanan Nasional, and Agrobank offer lending facilities to micro-enterprises as directed by the Malaysian government. Bank Rakyat offers pawnbroking (ar-Rahnu), while Bank Simpanan Nasional offers micro-loans to finance non-agricultural industries, and Agrobank provides microfinance to micro-enterprises in agriculture and agro-based industries. Not only that, but commercial banks also offer microfinance through microfinance schemes announced in 2006 after being given the opportunity by Malaysian government. Microfinance instruments presented to society are shariah-compliant products. For example, the rahn principle is used in microfinance by Bank Rakyat, the qard hassan principle is also used by AIM in their microfinance products and the *bai 'inah* principle is also offered by several financial institutions involved (Izzati and Asmy 2020).

Besides, Islamic microfinance is one of the easily accessible financings. This financing focuses on increasing financing assistance towards micro-businesses through the Islamic microfinance institution (González 2014). Offering total Islamic microfinance to micro-enterprises between RM1,000 to RM50,000. The fund facilitates the financing of working fundamental and capital expenditures. When a crisis

hits, micro-enterprises are most affected by a lack of fundamental or access to cash. The lack of adequate funds and fundamental shortages are therefore often identified as barriers to the development of micro-enterprises, especially in their initial stages of operation (Carpenter 2001; Meijerink and Roza 2007; SME Annual Report 2019).

This study focused on ar-Rahnu as one of the Islamic microfinance instruments, because it draws the interest of micro-entrepreneurs in gaining access to it. It's also rising in popularity among micro-enterprises as a source of quick cash although ar-Rahnu required collateral for cash. Among the factors influencing the use of Ar-Rahnu is the offering of low-cost financing to micro-entrepreneurs. Furthermore, the procedure is quick and the payment process is simple and easy. Then as a result of interest rate fluctuations, micro-entrepreneurs are hesitant to borrow from banks, which can result in increased loan payments if market interest rates rise (Nik Hadiyan et al. 2020; Cheong and Sinnakkannu 2012). Ar-Rahnu appears to be a better alternative to Islamic Microfinance for micro-enterprises.

2.2 Ar-Rahnu

Ar-Rahnu in Arabic uses the term rahn and can also be named al-habsu. Etymologically, the meaning of rahn is fixed and old, whereas al-habsu means the detention of an item of ownership until it can be used as payment from the goods (Anshori 2006). Ar-Rahnu is an Islamic mortgage scheme, which can meet its debts by placing a bet or collateral so that the repayment of the loan is guaranteed. Even if the borrower is unable to settle the loan, the creditor holding the pawn can sell it and take the price at the borrowed rate only. The rest is returned to the owner of the item (Azizah et al. 2013). Rahnu is an alternative to the existing loan facilities, as well as giving the borrower the option to follow the Islamic sharia requirements, which is to eliminate usury or interest and *gharar* available in pawnbroking conventionally.

The establishment of ar-Rahnu in Malaysia has led to a positive phenomenon that has prompted additional industries, both financial and non-financial, to implement this scheme. The ar-Rahnu plan is a short-term, fast, and free financing strategy presented to the public by mortgaging jewellery to ar-Rahnu institutions such as banks or pawnshops as collateral for loans. Ar-Rahnu provides halal and zero pawnbroking services from the usury element through welfare financing under the qard hasan concept. In addition, ar-Rahnu also provides shariah-compliant services that do not charge any interest rate (Hassan et al. 2015).

The history of Islam proves that the pawn economy has been around for a long time as stated in Sect. 2 (Surah al-Baqarah) verse 283:

وَإِنْ كُنْتُمْ عَلَىٰ سَفَرٍ وَلَمْ تَجِدُوا كَاتِبًا فَرِهْنَ مَقْبُوضَةً

And if you are on a journey and cannot find a scribe, then a security deposit [should be] taken. [Al-Baqarah, 2: 283]

From the translation of this verse of the Qur'an, it is understood that Allah SWT commanded them to be together (individuals involved in debts), whereas neither of these parties found any scribe who could write down their debts, the debtor is allowed to bring any property he possesses to be collateral so that both parties obtain a favour, where the creditor does not lose his rights, as well as for the debtor there is a guarantee for the payment of his debt (Al-Jaziri 1970).

The first Islamic tax scheme was introduced in Malaysia by Muassasah Gadaian Islam Terengganu (MGIT) on the initiative of the Majlis Agama Islam dan Adat Melayu Terengganu (MAIDAM) on 23rd January 1992 with the concept of *ar-rahnu* and *qard hassan*. Then followed by the Kelantan State Economic Development Corporation (PKINK) on 12th March 1992 which established 'Kedai ar-Rahnu' based on the concept of saving wages for the first time. 'Kedai ar-Rahnu' was the earliest pawning company or institution in Maamor et al. (2005). Looking at the potential of this scheme as an alternative to the existing (conventional) pawnbroking system free of usury (interest), *gharar* (doubt) and manipulative elements, the Minister of Finance on 21st August 1993 announced that the ar-Rahnu scheme would be implemented by Bank Kerjasama Rakyat Malaysia (Bank Rakyat) in collaboration with the Malaysian Islamic Economic Development Foundation (YaPEIM). Through this scheme, Bank Negara Malaysia acts as an advisor and provides expertise in this area, YaPEIM acts as an investor and Bank Rakyat provides infrastructure for carrying out Islamic mortgage transactions (Azila et al. 2014). Next, followed by other commercial banks like EON Bank, AgroBank, RHB, Bank Islam, YaPEIM, cooperatives, and most recently Pos Malaysia. With positive growth in Islamic financial instruments in Malaysia, Malaysia has become the first country to implement Islamic pawnbroking transactions in tandem with conventional pawnbroking which is majority Chinese-operated (Azila et al. 2013).

Over the past two decades, the establishment of ar-Rahnu has managed to reduce its influence on conventional pawnbroking services. Customers are more focused on ar-Rahnu due to its zero-usury concept and cheap service (Mohammed et al. 2005). This scheme is not only fast but also facilitates low-income communities, even now accepted by small and medium entrepreneurs (SMEs) in helping businesses them as immediate fundamental when pawning gold or jewellery (Mohd Rafi et al. 2012). The establishment of an Islamic pawn scheme is seen to have the potential in changing the perception or image of this scheme in a more positive and fair direction which in turn has a favourable influence on the socio-economic development of community.

2.3 Ar-Rahnu as Alternative Sources of Funds

MSMEs' owners, according to Al-Afifi (2019), are more compliant with internal sources of funding and do not rely on external financing sources (Al-Afifi 2019).

Financing decisions have a significant and positive relationship with feasibility studies and collateral to evaluate how they impact the ease with which SMEs may borrow (Alremaidhi et al. 2020). Thus, ar-Rahnu seen as a viable strategy for obtaining finance since they use their own property as collateral. Ar-Rahnu has become a popular choice for those seeking liquidity services. Generally, banks are reluctant to provide loans to micro-enterprises because there is no guarantee and no fixed income, which causes micro-entrepreneurs to adopt ar-Rahnu as the source of funds (González 2014; Rugayah 1986; Yusri and Hashim 1995). Ar-Rahnu is likely to be one of the possible financings for micro-enterprises (Ismail and Ahmad 1997). Basically, ar-Rahnu is recognized as a source of fundamental for micro-entrepreneurs and in addition, ar-Rahnu is a source of start-up fundamental for a business as well as an additional source of fundamental to grow their business. Also, ar-Rahnu is intended as an investment tool to attract entrepreneurs to keep saving or trading (Hashim et al. 2013). This is because gold has a stable market value (Meera 2009). Gold is beneficial to individuals who require funds to establish a business or expand their existing one. Microbusinesses may pawn gold and get cash immediately, which has already been explained by Awang Kechil and Razak (2005) and Othman et al. (2013).

The ar-Rahnu scheme was introduced as a micro-credit loan instrument to help the low-income group as well as micro-entrepreneurs who need business fundamental. Ar-Rahnu aims to help the underserved to obtain financing from financial institutions, as well as aims to provide financing to small entrepreneurs to continue their business (Rasmin and Markom 2014). Yuhuan and Sheng (2019) said, small or micro-enterprises in some developing countries have the problem of lack of support in the form of finance to achieve optimal profits in their enterprises (Yuhuan and Sheng 2019). In addition, small or micro-enterprises are categorized as high-risk businesses and require years to generate lucrative returns. Thus, Nik Hadiyan et al. (2020) and Osman et al. (2020) state that for low and moderate income people, ar-Rahnu is the greatest option. The growth of ar-Rahnu's and sustainability are necessary to ensure that clients receive the best Islamic microfinance solutions (Nik Hadiyan et al. 2020; Osman et al. 2020).

2.4 Ar-Rahnu and Financial Stability

Ar-Rahnu Institution's goal is to ensure its individuals' financial well-being. Ar-Rahnu is one of the financial instruments that may provide justice for individuals, society, and the economy by assuring fairer income distribution and relieving poverty, according to Chapra (2008). Awareness about the importance of Ar-Rahnu in wealth management, such as saving, beginning a new business, expanding an existing business, and purchasing a house for investment is also remarked by Meera (2009). So, the main goal of this research is to concentrate on the role of ar-Rahnu in maintaining the financial stability of micro-enterprises. Ar-Rahnu's customers agree with the positive role that financing plays in improving their economic situation, according to a

study conducted by Abdul Razak in 2011 (Azila 2011). Women micro-entrepreneurs benefit from Ar-Rahnu by expanding their business, according to Nik Hadiyan et al. (2017). Women microfinance entrepreneurs choose Ar-Rahnu over other instruments because it provides instant cash, is handled using simpler procedures, and is easily accessible to them.

In this case, financial stability is important for micro-entrepreneurs to ensure the viability of their business. Allen and Wood (2006) state that in a business context, financial stability is seen as its ability to facilitate and grow the economy, manage risks, and be prepared for any shocks (Allen and Wood 2006). Malaysia's central bank defines financial stability as an environment in which intermediation is fluid and key financial institutions and markets have a high level of assurance (Negara Malaysia 2021). From the perspective of micro-enterprises, the viability of a business is very important to measure financial stability (Gray et al. 2007). Profits, sales, assets, liabilities, and income need to be assessed and considered by micro-entrepreneurs. They need to survive and sustain their business in this pandemic situation. This causes micro-enterprises to need alternative funds to stabilize their financial status.

3 Research Methodology

The researchers will be used a qualitative approach in this study to learn more about the use and role of ar-Rahnu as an alternative in supporting micro-businesses. Qualitative research is a type of exploratory study (Crawford and Irving 2009). Qualitative research is a method of gaining a better understanding of social or human problems by conducting in-depth interviews with informants and doing it in a natural setting (Creswell 1998).

Qualitative research also utilizes an inductive-logical approach. The inductive method progresses from the particular to the general, deriving broad inferences from specific data (Sekaran and Bougie 2009). The categories were created by the informants, not the researchers. Information that leads to the creation of patterns or ideas that assist explains a phenomenon falls into this category. Researchers generally utilize informant verification techniques or triangulation procedures, which integrate data from a various information source, to assess the authenticity and quality of the information acquired (Creswell 1994).

As a result, for this study, the in-depth interview technique (case study method) will be used, either face to face (face to face) or online (online). The case study technique will be utilized to collect data and organize the research. To obtain a better knowledge of the topic under investigation, researchers use various samples, such as people, places, or study backgrounds (Othman 2014). A purposive sample of micro-entrepreneurs who use ar-Rahnu will be used to obtain qualitative data. This study's target audience is Kelantan's micro-entrepreneurs. Various elements of role ar-Rahnu's as an alternative source of funding for micro-enterprises will be discussed. When it comes to calculating the number of informants to interview, there are no clear guidelines. In other words, there are no specific rules for the size of

the sample to be interviewed (Patton 2002). If the data are analyzed and answer the research questions, then the sample size, even if small, is sufficient in this study.

To address the study questions, the researcher gathers primary data sources, generally through interviews with informants. In this technique, informants will be questioned in a comprehensive and semi-structured way for one hour in-person or online. To fulfill the research questions, an interview protocol was established ahead of time. The interview questions were created to learn more about the ar-Rahnu sector and how it might help micro-entrepreneurs to provide the sustainability of the company in Kelantan's chosen locations. All sessions will be digitally recorded by the researcher using a recording device. According to the research protocol, the audio and video data will be coded.

Afterward, the data will be analyzed using thematic analysis. The goal of thematic analysis, which is one of the data analysis techniques, is to find patterns or themes in the data collected from the study (Braun and Clarke 2006). This approach is an efficient research strategy for examining qualitative data in-depth and relating patterns or themes in a phenomenon, as well as explaining the phenomenon through the researchers' perspective (Fereday and Muir-Cochrane 2006). Understanding the data, generating the code, and then searching for themes are the processes in doing thematic analysis (Braun and Clarke 2006). To draw correct conclusions for the discussion of this study, all topics collected from the interviews will be included. The findings will then be used to describe how effective the ar-Rahnu sector at persuading micro-entrepreneurs to manage their money in order to ensure the survival of their businesses.

4 Proposition Finding

The goal of this research is to learn more about how ar-Rahnu may help micro-businesses to obtain alternative financing. Micro-entrepreneurs in Kelantan showed favourable acceptance of ar-Rahnu based on intrinsic characteristics, according to Salimah (2020), however micro-entrepreneurs still do not have the right knowledge about ar-Rahnu (Nik Hadiyan et al. 2020). Various issues and challenges experienced by micro businesses have led to the idea of adopting ar-Rahnu finance as an alternative as according to Salimah (2021). In this regard, the study's findings will show a variety of concerns, including awareness, understanding, and acceptance, in order to highlight that adopting ar-Rahnu as an alternative can support micro entrepreneurs in reviving their businesses especially in this pandemic situation.

In addition, the role of ar-Rahnu as an alternative source of funding for micro-enterprises to survive in pandemic crises will be studied. Ar-Rahnu can be a helpful financial tool for financing small businesses and assisting women micro-entrepreneurs in becoming financially self-sufficient (Salimah 2020). As they were aware of the presence of the Ar-Rahnu Institution, ar-Rahnu developed a strong enough relationship with financial stability (Hidayat et al. 2020). According to Gray et al. (2007), a business's continuity is critical in determining financial stability (Allen

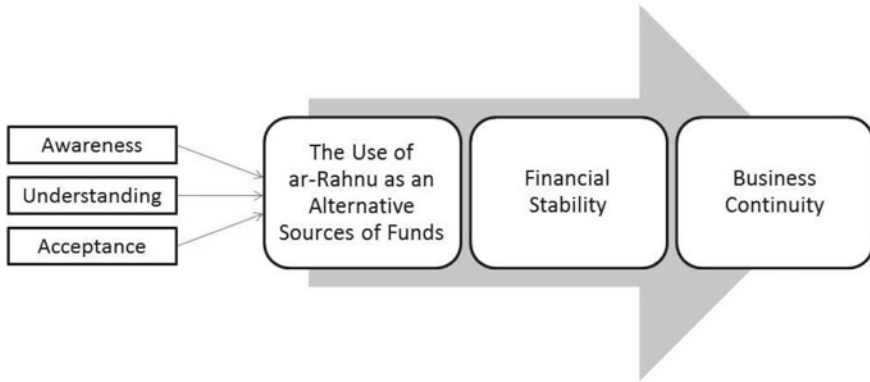


Fig. 1 Proposition conceptual framework

and Wood 2006). As a result, the study's findings will emphasize the importance of ar-Rahnu for micro businesses in maintaining financial stability and company continuity in the face of the crisis.

If micro entrepreneurs are well informed, they will comprehend the role of the ar-Rahnu institution and be eager to engage in the scheme. As a result of this study, micro-enterprises' mindsets towards ar-Rahnu in Malaysia will be changed. In addition, the ar-Rahnu industry is expected to benefit from this study as it provides insights into improving the financial position and ensuring the long-term sustainability of a business (Fig. 1).

5 Conclusion

The study will provide an overview of the importance of ar-Rahnu (Islamic pawn-broking) in improving the economy of businesses and the country. It will show that they have made a contribution in overcoming this pandemic crisis. This study will not only benefit the individual entrepreneurs but also the society and institutions. As a consequence, it is suggested that further study be done into evaluating Islamic social financial products via ar-Rahnu in order to identify the issues that the Malaysian society is facing. Meanwhile, the alternative approach was chosen by micro-enterprises is expected to reduce the effects of the pandemic crisis and be made an adaptation to the new norms.

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Customer Satisfaction of Pos Laju Malaysia Service During Pandemic Covid-19



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Abstract Providing good quality service in business activity is an important aspect for a sustainable competitive advantage. Customer satisfaction leads to an organization's success. The relationship between service quality dimensions and customer satisfaction and the factors influencing customer satisfaction of Pos Laju Malaysia service during Pandemic Covid-19 were examined in this study. By applying the modified SERVQUAL model, four service quality dimensions (reliability, assurance, empathy and responsiveness) were used as the independent variables. Quantitative research and convenience sampling methods were used for data collection among Pos Laju Malaysia's users. 383 questionnaires were collected through an online survey. Both spearman's rho correlation analysis and multiple linear regression through IBM SPSS were applied. The findings found that reliability, empathy, assurance, and responsiveness were positively and significantly associated with customer satisfaction toward Pos Laju Malaysia services. Among four service quality dimensions tested, reliability was the strongest factor influencing customer satisfaction on courier services (Pos Laju Malaysia) during Pandemic Covid 19. These findings are essential to the practitioners specifically Pos Laju Malaysia in improving their existing practice in order to make sure their service meets customer satisfaction consistently.

Keywords Customer satisfaction · Modified SERVQUAL model · COVID-19 · Pos Laju Malaysia

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1 Introduction

1.1 Overview of Courier Service During Pandemic Covid-19

The coronavirus (COVID-19) outbreak began in December 2019, which originated in Wuhan City, China. The virus continued to spread throughout the world and was declared a global pandemic. Malaysia is currently aware of the outbreak of the disease and has implemented the Movement Control Order (MCO) to prevent the spread of the disease which started in March until today.

Surprisingly, MCO has given a positive impact on the logistic industry including the postal service business. Online business activity has increased due to the restriction implemented by the government, where no one is allowed to go out without a valid reason. Throughout the period, the online business became a popular platform for purchasing activities and provide advantages to both customers and merchants including suppliers, agents, and drop shippers.

Online purchasing provides consumers with abundant advantages especially save time, borderless business, cost-saving, encourage cashless transactions, and helps the government to curb the spread of infection due to reduced human-to-human contact (Fam et al. 2020). For the merchandiser, the online business helps them to increase their sales up to 40% higher than pre-pandemic revenue, during the lockdown and engaging with digital marketing (Fam et al. 2020). As reported in National E-Commerce Strategic Roadmap in 2018, the growth of online businesses in Malaysia is evolving at more than 10% every year. In the year 2020, it increased to 20.8%. The online business growth is expected to contribute in boosting Malaysia's GDP by 0.5% in the year 2021.

It was proven that there has been a drastic increase in the use of courier services due to the high demand of online purchases during the MCO. As reported in Berita Harian on Dec 2020, Pos Laju Malaysia as one of the courier service providers have recorded an increase in demand during the Movement Control Order (MCO) (Zaky and Zainuddin 2020). The exponential increase of online purchases has caused congestion in the warehouse, leading to problems such as failure in conveying goods' information (tracking number), misplaced mail, late delivery, broken goods and loss of items which can be categorized as mishandling of the parcel services. In addition, (Teoh et al. 2020) stated that most of the parcel services have put the service quality aside, which in turn affected customer service satisfaction throughout this pandemic. These problems must be solved efficiently and effectively. Each courier service must play an important role to convince the customer and build up trust for them to ensure the business is sustained. These problems can be tackled by implementing the best service quality. (Mapunda 2021) believed that identifying the customers' perception in the service quality is very essential as it will give the output of what needs to be done based on customers' response.

It is notable that the service quality dimension is important to ensure the courier service achieves high satisfaction among customers, especially during Pandemic Covid-19. It must be applied by each courier service as previous studies have proven

that the service quality dimensions should be put into consideration in the service business. In addition, there is a lot of courier service under logistic industry established in recent years. Therefore, the quality of service must be a priority for each business organization to ensure the sustainability of the business.

Thus, the aim of the study is to investigate the Pos Laju Malaysia users' satisfaction during Pandemic Covid-19. The specific objectives are to examine the relationship between the element of service quality and customer satisfaction and identify factors affecting customer satisfaction. The study will contribute a new perspective to the existing literature by providing the appropriate service quality dimension that needs to be given attention during a pandemic situation. In addition, the trend nowadays has put courier services in high demand because most of the businesses are operating online. Therefore, this study is seemingly relevant because instead of aim for quantity, the quality of the service must be a priority.

This paper has five sections. Section 1 presents an overview of the customer satisfaction on logistic courier service during pandemic Covid-19. It includes the issues and objectives of the study. Section 2 explains the literature review, including service quality dimensions and previous studies. Section 3 provides the methodology used for the study, such as research design, sample and sampling design, and statistical technique. The result and discussion discuss in Sect. 4. Lastly, Sect. 5 contains the conclusion, recommendations, limitations and future study.

2 Literature Review

2.1 *Service Quality and Customer Satisfaction*

Service quality is about the service value given to the customer. The service industry, including the logistic industry, it could be described as a tendency to focus on the customers' need, trust, and expectation of the product (Ali et al. 2021). While customer satisfaction refers to the output of the customer feedback towards the quality offered by an organization. It has a beneficial impact on the performance of a body. Customer satisfaction helps a company to understand better the dimensions and aspects of the service that motivates and impacts the customers most during a service delivery process. (Ali et al. 2021) and (Terefe and Singh 2016) opined that customer satisfaction depends on the service quality level offered.

In terms of logistic service quality, the performance of logistic service quality is a key marketing component that helps generate customer satisfaction and has been recognized for some time. Logistics industries can be divided into five basic categories known as warehousing, inventory management, information technology, production, and transportation (Vu Phuong et al. 2020). The quality of service is the ability of an organization to deliver reliable customer services accurately, correctly, and perfectly to the customers. Currently, numerous courier service providers are operating in Malaysia. As the competition increases, courier service providers started

to offer significant quality where customer satisfaction and service quality are of utmost importance.

A SERVQUAL is one of the established models and has been extensively used to assess the service quality (Roslan et al. 2015; Gencer and Akkucuk 2017; Ali and Amir 2020). The SERVQUAL model focuses on the difference in perception between the level of service offered, predicted quality of service and has been generally adopted to describe user view of service quality. The pioneer of the SERVQUAL model is (Parasuraman et al. 1985). Initially, 10 dimensions were used in the model which was further restricted to only five dimensions which consist of reliability, tangibility, assurance, empathy, and responsiveness (Kaushik and Vakeel 2020; Parasuraman et al. 1988). However, the modified SERVQUAL model applied by Ali and Amir (2020) was adopted for this study. Their study highlighted that the customers' satisfaction was influenced by reliability, empathy, assurance, and responsiveness.

2.2 Reliability

Reliability is defined as the relationship between time and service, which includes delivery to customers on time, promising time delivery to fix consumers' concerns, delivery of damage-free items and doing the right thing (Razik et al. 2018). Reliability was considered as the most vital dimension of service quality (Siali et al. 2018). Providing reliable services such as giving speedy and safe interaction, providing extra counters during peak hours will lead to customer satisfaction (Ali and Amir 2020).

2.3 Empathy

Empathy is known as customers' consideration, wants, problems, and the way their desires are tackled, cared, and resolving their problems efficiently and effectively (Ali and Amir 2020). Empathy is also defined as providing careful and individualized, customer- focused services. It is a tool for effective human interactions. A two-way communication between courier service staff and customer is important to ensure the empathy quality is fully satisfying (Siali et al. 2018).

2.4 Assurance

Assurance can be characterized as protection, warranty and security offered by service providers. The elements of assurance consist of knowledge and skill, kindness, validity, stability, and the capability to install confidence among customers (Mapunda 2021; Sam et al. 2018). (Ejdys and Gulc 2020) verified that the high

quality of assurance contributes to a high rate of customer satisfaction. Gulc (2017) reported the assurance is the strongest factor affected users' satisfaction. However, the findings may not be applicable to other cities or country because the study sample was taken from Changdao Country only.

2.5 Responsiveness

Responsiveness was quoted as willingness to help the customers and offer prompt assistance (Mapunda 2021). Based on (Alnsour et al. 2014), responsiveness positively influenced customer satisfaction. Recently, (Ali and Amir 2020) also proved that the responsiveness dimension was the most influential factor that leads to high satisfaction among the users.

2.6 Research Hypothesis

By adapting the modified SERVQUAL model used by Ali and Amir (2020) and extensive literature from previous studies, the hypotheses of the study are as follows:

Hypothesis 1: Reliability has a relationship with customer satisfaction of the Pos Laju Malaysia service during pandemic Covid-19

Hypothesis 2: Empathy has a relationship with customer satisfaction of the Pos Laju Malaysia service during pandemic Covid-19

Hypothesis 3: Assurance has a relationship with customer satisfaction of the Pos Laju Malaysia service during pandemic Covid-19

Hypothesis 4: Responsiveness has a relationship with customer satisfaction of the Pos Laju Malaysia service during pandemic Covid-19

Hypothesis 5: Service quality dimensions significantly influence customer satisfaction of the Pos Laju Malaysia service during pandemic Covid-19.

3 Methodology

3.1 Research Design

This study applied the quantitative method. The online survey was conducted to collect information regarding the service quality and customers' satisfaction of the Pos Laju Malaysia service. This study established the six sections of the questionnaire based on the previous studies and the SERVQUAL model. The first section provides the demographic information. The reliability, empathy, assurance and responsiveness were emphasized in the second, third, fourth, and fifth sections. The last section

displays information on the customers' satisfaction of Pos Laju Malaysia service. The validity and reliability of the questionnaires were done in a pilot study.

3.2 Population, Sample Size and Sampling Design

The sample population for this study consist of Pos Laju Malaysia users during pandemic Covid-19. By using a convenience sampling technique, a set of questionnaires was disseminated through several online platforms such as email, WhatsApp, and social media. The online survey was done through a google form applicable to only those who have used Pos Laju Malaysia services. The data collection took a month. 383 questionnaires were collected successfully. However, there were 369 questionnaires which were used for data analysis because it was found that 14 respondents had never used Pos Laju Services. This group was omitted in further analysis. According to Krejcie and Morgan (1970), this sample size can be considered adequate.

3.3 Statistical Technique

The statistical technique namely Spearman rho correlation and multiple linear regression analysis was used for data analysis. All the analysis was aided by SPSS version 26.0. The Spearman rho correlation analysis was used to examine the research hypothesis 1 to hypothesis 4. While, hypothesis 5 was examined using multiple linear regression analysis.

4 Results and Discussions

4.1 Respondent's Profile

The respondents of the study consist of 59.7% female and 41.3% male. They were between 18 and 50 years old and above. Specifically, 176 respondents (47.7%) were aged between 18 and 29, followed by 130 respondents (35.2%) were aged between 30 and 39, 52 respondents (14.1%) were aged between 40 and 49 and the minor group aged 50 years old and above, was recorded as 11 respondents (3.0%). The majority of the respondents were Malay which accounts 74.8% (276 respondents), followed by 14.6% Chinese (54 respondents) and 8.4% Indian (31 respondents). Lastly, 2.2% equivalent to 8 respondents of Pos Laju Malaysia users were from other races. Moving on, based on the response gathered, 22 respondents (61.2%) were married and the remaining 143 respondents were single (38.8%). In terms of occupation, 63.5% of the

Table 1 Descriptive statistic for each dimensions

Dimensions	Mean	Std. deviation
Customer satisfaction	4.07	0.67
Reliability	4.24	0.75
Empathy	4.1	0.7
Assurance	4.22	0.69
Responsiveness	4.01	0.7

Pos Laju Malaysia users were self- employed followed by 20.8% who were employed which was a combination of government and private employees. Meanwhile, 11.7% were reportedly students, and others, including unemployed accounted for 4%. In terms of educational background, 15.9% of the respondents completed primary level education, 42.5% completed secondary level education (SPM/STPM certificate). In addition to that, 6.1% hold a tertiary education qualification including diploma, degree, master degree and PhD degree certificate, while 5.5% possess a professional certificate.

4.2 Descriptive Statistics

Table 1 shows the descriptive statistic, consist of the mean and standard deviation of four independent and one dependent variable. The analysis depicted that the Reliability variable has the maximum mean value (4.24) while the minimum mean value among all independent variables was the Responsiveness (4.004). Table 1 also shows the mean for other independent variable, namely Empathy and Assurance were 4.1 and 4.22, respectively. While, the mean value of customers' satisfaction was reported as 4.07 which reveals that the users were satisfied with the Pos Laju Malaysia services.

4.3 Reliability Test

Reliability test is a common step before the in-depth analysis is conducted. Table 2 presented that the individual alpha coefficient of Reliability, Empathy, Assurance, Responsiveness and customer satisfaction were 0.74, 0.79, 0.801, 0.800 and 0.697 respectively. Based on the rule stated by Sekaran (2016), the Cronbach alpha value of less than 0.6, 0.7 and above 0.8 were considered to be poor, acceptable and good reliability respectively. Hence, these values denoted that the measurement for Reliability, Empathy, Assurance, Responsiveness and customer satisfaction were reliable.

Table 2 Cronbach alpha value

Variables	Number of items	Cronbach alpha value
Reliability	4	0.740
Empathy	4	0.790
Assurance	4	0.801
Responsiveness	4	0.800
Customer satisfaction	4	0.697

Table 3 Normality tests of customer satisfaction of Pos Laju Malaysia

Aspect	Mean	Std. Deviation	Skewness		Kurtosis	
			Statistic	Std.	Statistic	Std.
Customer Satisfaction	4.28	0.53	- 1.48	0.13	5.13	0.25
Reliability	4.23	0.56	- 1.39	0.13	3.52	0.25
Empathy	4.19	0.59	- 1.31	0.13	3.27	0.25
Assurance	4.22	0.55	- 1.17	0.13	3.47	0.25

4.4 Normality Test

Normality tests were used to determine the normality of the data. The acceptable range of normality for skewness and kurtosis value was from -1 to 1 and -3 to 3 respectively. Table 3 illustrated that the data for all variables were not normal since the values were outside the normal ranges.

4.5 Correlation Analysis

The first objective of this study was to examine the relationship between Reliability, Empathy, Assurance and Responsiveness of Pos Laju Malaysia users’ during Pandemic COVID-19. Spearman’s Rho Correlation was used since the data were not normal.

Table 4 depicts the Spearman’s Rho correlation analysis between each service quality dimension and customer satisfaction. The correlation values for Empathy, Assurance and Responsiveness were 0.647, 0.633 and 0.611 respectively. The finding showed that there was a moderate positive correlation between these three-services quality dimension and customer satisfaction. The correlation value of 0.731 for Reliability, highlights that there was a highly positive correlation with the customer satisfaction. Table 4 also indicated that there was a significant relationship between

these four service quality dimensions and customer satisfaction. Hence, hypothesis 1 – hypothesis 4 established in this study were supported.

The results were consistent with the previously reported studies and specified that Reliability, Empathy, Assurance and Responsiveness dimensions have a significant positive feedback on customer satisfaction although these four service quality dimensions did not provide an identical impact on it (Ali and Amir 2020). It was believed that the different impact was due to the different behaviour of people who were involved in Pos Laju Malaysia service across Malaysia.

4.6 Multiple Linear Regression

The factors influencing the customer satisfaction of the Pos Laju Malaysia service during pandemic Covid-19 were investigated using Multiple Linear Regression. There were four service quality dimensions tested in this study, which were Reliability, Empathy, Responsiveness and Assurance. A R-squared of 67.9% in Table 5 reveals that 67.9% of the data fit the regression model.

Table 5 indicated that the most influential service quality dimension of customer satisfaction was reliability with ($\beta = 0.499$, $p < 0.000$), followed by Empathy with ($\beta = 0.243$, $p < 0.003$), and Assurance with ($\beta = 0.136$, $p < 0.041$). The Responsiveness were declared as the least influential service quality dimension of customer satisfaction with ($\beta = 0.087$, $p < 0.068$). The findings contradicted with the study

Table 4 Spearman's Rho correlation of service quality dimension and customers satisfaction of Pos Laju Malaysia

		Mean Reliability	Mean Empathy	Mean Assurance	Mean Responsiveness
Means Customer Satisfaction	Correlation Coefficient	0.677	0.647	0.633	0.611
	Sig. (2 tailed)	0.00	0.00	0.005	0.012

Table 5 Multiple linear regression result

Customer Satisfaction hypothesis	Std. Beta	Std. Error	P-Value	R-Squared
Reliability	0.499***	0.052	0.000	0.679
Empathy	0.243***	0.047	0.003	
Assurance	0.136**	0.063	0.041	
Responsiveness	0.087*	0.046	0.068	

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

by Ali and Amir (2020). This happened because of the excessive number of parcels received by Pos Laju Malaysia. The staff at Pos Laju Malaysia assumed that the task was completed once the customer received the parcel. Therefore, any response or feedback sent by customers was not entertained well because the staff assumes the parcel were received completely. Reliability and Empathy of service quality dimensions were significant at 1%. While, Assurance and Responsiveness of service quality dimensions were significant at 5% and 10% respectively. Therefore, hypothesis 5 was supported.

The output revealed that the Pos Laju Malaysia service were capable of providing courier services efficiently by taking seriously on the aspect of time management, problem solving, and parcel safety. Compared to other service quality dimensions, Pos Laju Malaysia service should further enhance their responsive quality. They need to be ready for any impromptu assistance related to the customers' wishes. By taking this into consideration, (Ali and Amir 2020) believed that it will increase the satisfaction level among customers.

5 Conclusion and Recommendation

This study consists of two objectives. The first objective was to examine the relationship between service quality dimension and customer satisfaction. While, the second objective was to investigate the factors influencing the customer satisfaction. Both of the objectives were examined in the context of Pos Laju Malaysia during pandemic Covid-19. By using the SERVQUAL model, correlation analysis and multiple linear regression in the present study indicated that there was a significant positive relationship between all four service quality dimensions and Pos Laju Malaysia's customer satisfaction. This study also found that all four service quality dimensions implemented by Pos Laju Malaysia significantly influenced user satisfaction with various significance levels. Among these four service quality dimensions, Reliability was the most influential factor, whereas Responsiveness was the least influential factor affected by the customers' satisfaction of Pos Laju Malaysia courier services. Additionally, Reliability was the most influential factor, whereas Responsiveness was the least influential factor affected by the customers' satisfaction of Pos Laju Malaysia courier services. The findings translated that service quality was the main element towards service organization and business owner which leads to the customer satisfaction.

This valuable finding is vital for the users and practitioners such as Pos Laju Malaysia and other courier services in Malaysia to further improvise their service quality. It will increase the customer satisfaction which can be translated into service repetition by users. The repetition by the users represented that the customers were happy and enjoy the service. Other than that, it will help Pos Laju Malaysia as well as logistic industry to improve their business profit hence contributing to the economic growth. In addition, it is good as Pos Laju Malaysia is the only public parcel service provider in Malaysia. Therefore, by prioritizing the best quality in the

services provided, it was believed that the public courier service can compete well with other private courier services at the present time.

Limitation and Future Research

The online survey has limited the amount of information obtained during data collection process. The detailed information regarding the customers' wants and need must be further explored. Hence, it is recommended that the qualitative approach like in depth interview should be incorporated in the future study. The service quality dimension of tangibility also should be taken into consideration for future study as there are several previous studies highlighted the importance of this dimension.

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Social Network Analysis to Identify Influencer in Twitter Conversation on SMEs in Times of Covid-19 Pandemic



Nordin Norfarah , A. K. Siti-Nabiha , and Mohd Ali Samsudin 

Abstract Since the coronavirus pandemic spread in Malaysia, there are increase discussions on the issue related to SMEs in Malaysia. These conversations have included social media users' assistance to SMEs. The government extended assistance to SMEs either in kind or through various programs. Twitter, a popular social network site (SNS) is the leading platform to engage in online conversation related to the SMEs enhancement and related programs. The understanding of who starts the conversation engaged into and responds to the information spread are important so as to enhance the government service and delivery of the assistance to SMEs. Hence, the objective of this study is to examine the social network metrics from Twitter data to find the influencers, URLs, and drivers of the news spreading in a selected SNS i.e., Twitter. A social network analysis and brief content analysis of Twitter data were conducted in August 2021. There are 982 networked users of Twitter collected for the analysis. The influential users were identified using social network analysis (SNA) and graph clusters for visualization. The influencers were ranked by their betweenness centrality score, and the graph's vertices were grouped by cluster using the Clauset-Newman-Moore algorithm to visualize the network structure. The top words in conversation, top hashtags, and top URLs were also examined. The result identified the 10 most influential Tweeters, most popular hashtags, and URLs in the social network of 982 users. This study implies that SNA and its tools help for improving the information spread and sharing on the issue related to SMEs in Malaysia.

Keywords Social network analysis · Influencers · Twitter · SMEs · Entrepreneur

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1 Introduction

Twitter, a social network site (SNS), has become the second most popular site in Malaysia to communicate news or share a message, photos, and short videos to a large community. Twitter is accessed by millions of people every day because its' microblogging functionality is appealing for catching up on news updates, sharing short messages, and posting an opinion about events. Twitter allows its users to connect with whomever they wanted on Twitter—termed as the follower; received updates on news from other users—termed as Tweets; and reacted to the Tweets—termed as Retweets, Replies or Mentions. This unique interactive feature of Twitter creates social communities and network structure and Twitter users generated huge data daily. The data generated represent a powerful source of knowledge to support the investigation of different aspects of online social communities and trending issues. For example, user-generated content can be used to understand customers' opinions about products, analyze sentiment about an issue and define the social network models to represent the shared knowledge. Utilizing the potentials of Twitter and other SNS data should be encouraged among both small businesses in Malaysia (Siti-Nabiha et al. 2021) and the community (Yeung et al. 2021; Mohammed and Ferraris 2021; Rufai and Bunce 2020) so as to improve decision making.

Despite the importance of Twitter, its use is undermined due to issues related to; legitimate authority (Hoover et al. 2020; Rivers and Ross 2020; Gong and Lane 2020), the spread of fake news, and misinformation (Ahmed et al. 2020). Even though Twitter cannot replace the work of the officials i.e., the government department of information, or newscaster; but communications and conversations through Twitter are faster than the traditional media.

In terms of features Twitter messages, known as Tweets; can help the users or stakeholders of the messages, and researchers to carry out a live-data investigation. Tracing tweets is made easy because it has the Hashtags tool. Hashtags tool functions to organize and sort tweets. Twitter Hashtags help to indicate the content that is relevant to a certain topic and ensure the penetration of the tweets in front of an interested audience.

In contemporary scholarly research, many SNA employing Twitter data comes from; medical and health studies (Ahmed et al. 2018; Yeung et al. 2021) or strategy and politics studies (Rufai and Bunce 2020). However, a limited number of SNA studies on decision-making, particularly in small businesses research (Faroh and Lestari 2021, 2020). There is a gap in SNA usage in studies related to small businesses. Therefore, this study aimed to add to the empirical literature regarding the SNA discussion on SMEs.

More specifically, this research is focusing on Malaysia. The research objectives were to answer the following questions: (1) who is influential in spreading the message on SME programs/issues on Twitter? (2) what online sources of information or URLs are people referring to? (3) what are the top hashtags in the conversation? (4) what are the top words that appear in the conversation? and (5) what steps and actions can be taken to improve the service and delivery of information to SMEs'

social network? To achieve the objectives, this study retrieves and categorizes tweets using Social Network metrics i.e., betweenness centrality scores in the network; mapping the graph metrics to X and Y coordinates, and examining top items output i.e., Top Hashtag, Top URLs, and Top Words in Tweet. The theory of structuralist is the underlying theory use to support the paradigm of research method use.

This paper is organized as follows. Section 2 overviews the most relevant, related works concerning SNA using Twitter, and discussed the gap in SMEs' social media research. Section 3 presents the methodology and Sect. 4 presents the findings from the SNA and the related social network metrics. Section 5 presents the limitation of study and suggestions for further studies of this work, while Sect. 6 draws the conclusions.

2 Related Work

There are many types of social media and sometimes dubbed as social network sites (SNS). SNS includes Flickr, Twitter, Facebook, and YouTube, Wikis, Weibo, Snapshot, and many more. Some SNS are exclusively used in certain countries and some countries ban the use of certain types of SNS for various reasons. Data collected from SNS can be analyzed using social network analysis (SNA). However, many SNA software tended to favor Facebook, YouTube, Wikis, and Twitter. But Twitter is among the most popular choice among the scholar and consequently, SNA using Twitter data is discussed in this research.

The rising interest among the scholar to utilize SNA on Twitter data in social media research is due to its' accessibility. Hence, in the United States, United Kingdom, and Europe, studies using SNA for Twitter data are plentiful. In Asia, studies using SNA employing Twitter data are limited (Bukhari et al. 2020; Roslan et al. 2019; Faroh and Lestari, 2020, 2021). The following are some of the examples of SNA studies using Twitter. Hunt (2021) studied food companies' use of Twitter to influence policy in Australia; Kinsky et al. (2021) examined the use of Twitter to enable communication during hurricane assaults in the United States, while Bashir et al. (2021) studied public sentiments in a chemical attack event in Syria.

There are also studies that examined Twitter role in spreading misinformation; for example, Ahmed et al. (2020) studied misinformation about Covid-19 and its relationship with the 5G conspiracy in the United States. Despite the misinformation threat, the Twitter and also other social network sites, still have enormous potential to be utilized as a strategic message for spreading news, campaigns, and establishing an effective communication system during this Covid-19 outbreak or in any other situations.

Despite the tremendous potential of social network sites and its widespread use, limited research has been undertaken on SMEs employing SNA as the means of data analysis which might be due to SNA usage challenge among scholars. Specifically, no studies were found employing SNA in the context of SMEs in Malaysia except for one study on social entrepreneurial learning in higher education (Roslan et al. 2019).

In Indonesia, Faroh and Lestari (2021, 2020) use SNA to study food delivery services among SMEs. There are many recent studies on social media adoption among SMEs such as Siti-Nabiha et al. (2021); Al Mamun et al. (2020); Jani and Zakaria (2021, 2020); Basit et al. (2020); Teh et al. (2021); Islam et al. (2021) using either interview or survey questionnaire; not through the SNA approach. A recent study on customers' perception and social media engagement also employed the use of interviews (Jani and Zakaria 2021) while another study in Pakistan, Qalati et al. (2021) employed a survey questionnaire technique to study social media adoption.

While this literature review search is not exhaustive, in summary, within the South-east Asia region, particularly in Malaysia various studies were conducted on social media, or/and social media influence on SMEs performance are utilizing surveys and interviews. Even though survey and interview method are no less superior, but it has the limitation on the ability to gather samples of respondents and timely data analysis. In contrast, SNA approach enables a timely study with richer responses, and also no direct disturbance on the samples. Therefore, this study is hoped to fill the literature gap on SNA in the context of Malaysian SMEs.

2.1 SMEs and Covid-19 Pandemic in Malaysia

Covid-10 pandemic has resulted in significant impact on Malaysian SMEs. For example, the movement control order, one of the government responses to mitigate the spread of the virus; has resulted in severe economic impact to SMEs with a number of the business closed down. In response, various government agencies and also other parties including NGOs and individual, also have provided assistances and conducted programs to assist the affected SMEs. With the movement control order in place in Malaysia, people tend to get networks and establish connections through social network sites (SNS). In the SNS, information on who needs help, where, and when are easily tweeted, tracked, and replies to by the social network communities.

Therefore, there is a need to determine the effectiveness of information dissemination and accessibility to the targeted group or the affected SMEs so as the insights gained could be used to improve service and delivery of the assistance. Moreover, while the issue on SME attracts public interest, community, and the authoritative body, the conversation in social media remains untapped in empirical research. The questions that can be answered through SNA approach are who are concerned about SMEs and their owners and workers well-being and what are the expressions and sentiments around SMEs' social networks? In the next section, a brief discussion on the concept of influence is deliberated.

2.2 *Influence in Social Networks*

In terms of social network analysis, influence is measured by analyzing the social structures. All social structures are based on relationships. Therefore, the measure of influence is highly correlated to the relationships within the social network. A particular member of the social structure, or a node inside the social network, has influence solely because of its relationships within the network.

The types of relationships that make up the network are related to the method used to calculate influence. Different social structures have distinct methods of calculating influence. The social structure usually refers to how nodes are settled within the network, how far they are from related nodes and how many nodes they are connected with.

For this purpose, the connections of a particular node and how close it is to other nodes are crucial to calculate the measure of influence. For instance, nodes with a high number of connections and with short paths to related nodes usually have more influence than others. In terms of opportunities, the number of connections and the length of the paths determines how many people might be influenced and how quickly influence can spread. The next section will discuss the concept of structuralist and its application into social network analysis.

2.3 *Structuralist Theory*

The structuralist theory is concerned with how patterns of relationship can enable the process of discovering the topics within a research discipline. The theory focuses on the social interaction that happens among actors or members of a social network. Giddens (1984) and Whittington (2010) assert that business and marketing activities are recursive in that the activities are created and recreated by social actors, who reproduce or redefine the conditions for the activities to happen. The above notion signifies the reflexive form of knowledgeability of the actors involved.

Structuralist theory highlights two essential elements, namely interaction, and structure on which we specifically draw on in this study, as they reflect useful elements for understanding entrepreneurs' connections and how it is leveraged by different parties. Particularly, we focus primarily on the premise of interaction-which indicates the activity within the social network focusing on space and time and how it is manifested by actors within the social network to produce or re-produce properties of an interactive system toward achieving desired outcomes (i.e., solving problems).

3 Data Analysis Procedure

3.1 *Tweet Sampling*

This research extracted a total of 982 Twitter users whose recent tweets contained “(usahawan OR “entrepreneur Malaysia” OR “SME Malaysia” OR peniaga kecil OR peladang OR penternak OR nelayan)”, or who were replied to or mentioned in those tweets. The NodeXL Pro has set the limit to a maximum of 18,000 tweets. The network was obtained from Twitter on Tuesday, 03 August 2021. The tweets in the network were tweeted over the 8 days from Monday, 26 July 2021 to Tuesday, 03 August 2021. Additional tweets that were mentioned in this data set were also collected from prior time periods. These tweets may expand the complete time period of the data. There is an edge for each “replies-to” relationship in a tweet, an edge for each “mentions” relationship in a tweet, and a self-loop edge for each tweet that is not a “replies-to” or “mentions”.

3.2 *Social Network Analysis Using NodeXL Pro*

In terms of software selection, NodeXL Pro is one of the most popular open-source templates integrating the most used network metrics and graph layout. Therefore, the primary data were collected using the built-in Twitter API search tool in NodeXL Pro, which provides live data crawling and social network analysis capabilities. The extraction procedure included identifying and selecting the public usernames to allow for the extraction of their Twitter network edges for further analysis. Once tweets were extracted in raw form, data were cleaned so that groups of networks only contained tweets exclusively about each user. The process eliminated duplicate edges, noisy and redundant data (Smith et al. 2009).

Data contained information on the types of relationships that connect Twitter users. Hashtags were included, being the most commonly used form when providing information on a particular topic. The sample also contained replied-to ties, an integral Twitter feature that allows users to reply to other user’s messages, demonstrating an organic stance to SMEs. Finally, the sample also contained mentions, a feature that represents the influence of a Twitter user which was used in the analysis. The next section provides the dataset tweet profile in detail.

4 Findings and Discussion

4.1 Social Network Analysis and the Overall Graph Metrics

The following are the overall graph metrics for this study.

Vertices: 982

Unique Edges: 1149

Edges With Duplicates: 386

Total Edges: 1535

Self-Loops: 184

Reciprocated Vertex Pair Ratio: 0.00865800865800866

Reciprocated Edge Ratio: 0.0171673819742489

Connected Components: 165

Single-Vertex Connected Components: 99

Maximum Vertices in a Connected Component: 259

Maximum Edges in a Connected Component: 440

Maximum Geodesic Distance (Diameter): 11

Average Geodesic Distance: 3.051374

Graph Density: 0.00120933168075305

Modularity: 0.713938

NodeXL Version: 1.0.1.445

Network Graph Clusters. The groups of Twitter users are examined from the social network graph clusters using the Clauset-Newman-Moore algorithm. Each small color dot represents a user and a line between them represents an edge. Groups were formed around SMEs-related topics based on how frequently users mentioned each other. There is an edge for each “replies-to” relationship in a tweet, an edge for each “mentions” relationship in a tweet, and a self-loop edge for each tweet that is not a “replies-to” or “mentions.” The size of the nodes is ranked by their betweenness centrality score (BCS), which measures the influence of a vertex over the flow of information between all other vertices under the assumption that information flows over the shortest paths among them.

The network graph output from NodeXL highlights that several different groups were formed, but 9 large groups stand out within the cluster. Maps of collections of social media connections reveal different network shapes. These shapes tell a story about the groups that form as some people link to each other more than to others in the network.

Moreover, using the Circle-Layout algorithm the network graph showed that group 1, 2, and 4 are the densest and have larger numbers of other users following them. The overall network structure pattern of the social network is confirmed to ‘broadcast’ type. Broadcast type of pattern indicates SMEs issue attracting wide comments from the large populations of disconnected participants (Smith 2015). However major media outlets have a distinctive hub and spoke pattern in which many people repeat what the news source tweets, forming an “audience” group. The audience is often

Table 1 Top 10 hashtags

Rank	Top hashtags in Tweet in entire graph	Entire graph count
1	#kominikasikita	163
2	#kitajagakita	39
3	#sapotlokal	39
4	#alorsetar	24
5	#menangbersama	14
6	#petrakasih	10
7	#parlimen2021	10
8	#eDesa	10
9	#houseofpahang	8
10	#pahang	8

connected only to the hub news source, without connecting. In some cases, there are smaller subgroups of densely connected communities of people who regularly discuss the news with one another.

Within groups, several influential user accounts can also be seen toward the center of the group and a circle of accounts around these. The broadcast network structure is often found in the networks for news accounts and journalists because their tweets are retweeted with high frequency. Celebrities with large followings will also tend to have a broadcast network shape.

Top 10 Hashtags Used. Table 1 below provides an overview of the most used hashtags during this time, showing that “komunikasikita” ($n = 163$) and “kitajagakita” and “sapotlokal” (combined, $n = 78$) appeared among the most used hashtags.

The highest number of hashtags count ($n = 163$) is “komunikasikita” referred to “Jabatan Penerangan Malaysia” (@JPenerangan) a department under the Ministry of Communication and Multimedia Malaysia (MCMC) who used this hashtag to highlight the important message related to national policies and agenda, in this context SMEs’ programs and funding available for the SMEs from the Malaysia government. The mission of @JPenerangan is translating and communicating national policies and agendas so that they are understood, supported, and appreciated by the public.

Sharing the 2nd most popular hashtags are #KitaJagaKita and #SapotLokal ($n = 39$ respectively). #KitaJagaKita interprets the spirit of togetherness regardless of race and political ideology, to safeguard the well-being of the people started at the beginning of the Covid-19 pandemic in Malaysia. “Sapotlokal” means to support the local SMEs’ products and services during the pandemic, including purchasing local produce.

Hashtag #alorsetar ($n = 24$) appears as the 4th most popular hashtag that was used in the network graph. These hashtags repeatedly appear in various nodes/actors. In particular, this hashtag refers to the capital city of Kedah which is located in northern Peninsular Malaysia. Kedah has many small businesses flourishing before the pandemic but now are seeking support from the nation to survive. #alorsetar

Table 2 Top 10 URL

Rank	URL	Description	Count
1	https://www.hmetro.com.my/utama/2021/08/737932/pemuda-hasilkan-laman-web-bantu-peniaga-kecil-pasar-produk	Newspaper	24
2	https://twitter.com/imranshah_/status/1421802886346858496	Citizen Twitter Status	22
3	https://gkp.hasil.gov.my/	Government Agency Website	17
4	https://twitter.com/nizambakeri/status/1420219348874973186	Citizen Twitter Status	17
5	https://www.hmetro.com.my/mutakhir/2021/07/735847/saya-kuatkan-semangat-mengenangkan-nasib-pekerja	Newspaper	9
6	https://twitter.com/JPenerangan/status/1421953003397939202	Government Agency Twitter	6
7	https://www.getaran.my/artikel/semasa/8562/petra-kasih-promosi-percuma-peniaga-kecil-terkesan-covid-19	Newspaper	6
8	https://play.google.com/store/apps/details?id=com.invoke.meniaga.my	Promoting Application	5
9	https://apps.apple.com/my/app/meniaga-my/id1516839999	Promoting Application	5
10	https://www.hmetro.com.my/mutakhir/2021/07/735807/peniaga-kecil-mahu-kembali-beroperasi	Newspaper	5

repeatedly appears on Twitter identified as “Harian Metro” (@hmetromy)—a local newspaper. As the nature of the discussion during this period is to support the local SMEs, newspapers, and news broadcasters help in publicize affected small businesses as a form of marketing for SMEs.

The 5th most popular hashtag is #MenangBersama (n = 14) is a word in Malay, meaning together-we-win a slogan frequently used to indicate the fight against transmission of Covid-19. Shared 6th most popular hashtags are #PetraKasih, #Parlimen2021, and #eDesa. #eDesa (n = 10) is an application that aims to help rural small and medium entrepreneurs promote their local sales products digitally. #PetraKasih (n = 10) is an initiative of the Vinod Sekhar Foundation, an NGO, to help promote small traders affected by Covid-19. #PetraKasih focuses on business owners struggling for survival. On the other hand, #Parlimen2021” (n = 10) appeared as a popular hashtag as this referred to the current event in Malaysia which is the Parliament is sitting during the Twitter data collection.

Shared 7th placing of the most popular hashtags is #HouseOfPahang and #Pahang. #HouseOfPahang (n = 8) referred to the Pahang Royal Family. This hashtag referred to the Pahang Royal Family to displays the latest developments and activities of the royal family. #Pahang (n = 8) appears as a popular hashtag in the network graph

Table 3 Influential users ranked by their betweenness centrality score (BCS)

Rank	Account description	Betweenness centrality score	Followers	In-Degree	Out-Degree	Group Cluster	Tweets
1	Jpenerangan (Government Agency)	65,727.00	204,060	243	1	1	46,404
2	Imranshah__ (Founder of NGOHungerHurt)	26,162.57	7,604	109	2	2	53,646
3	Hungerhurtsmy (NGO)	25,538.38	1,872	108	1	2	1,160
4	Hmetromy (Newspaper)	25,282.00	1,345,405	31	1	6	268,732
5	Corona_ssy (YouTuber, Bots account)	22,692.00	2,431	0	3	6	339,597
6	Syedjymalzahiid (Senior Correspondent with @malaymail)	20,029.33	1,585	49	1	5	3,500
7	Wardahfaisal (Citizen)	12,206.00	810	0	4	9	149,670
8	Bersamamalaysia (NGO)	8,180.00	6,889	26	3	9	97
9	Rahah_ghazali (Citizen)	8,073.33	2,608	0	5	20	261,290
10	Fendyhasni (Citizen)	7,831.48	883	47	7	4	24,692

centrality score, the account description provides an outline of the type of account, the betweenness centrality column provides the raw score for each user, the follower column lists the number of followers an account had, and the group cluster column identifies which group Twitter users belonged to in Fig. 1. The follower count is based on the number of followers the users had during this period.

The majority of influential users tweeting about SMEs consisted of members of the public. They shared their views and opinions or news articles and express their support for the cause. A key feature of the accounts was that they were actively engaged in sharing opportunities, assistance to SMEs; their account descriptions included words such as “philanthropies” and “empowerment”, “poverty-free” and “youth”.

The 1st ranked influencer is a governmental authority. 2nd ranked is a figure who is actively fighting for SMEs’ survival and also a founder of an NGO. The 3rd and 8th ranked most influencing users are Non-Governmental-Organization (NGO). 4th ranked is a local newspaper Twitter user. The 5th influencer identified as a YouTuber

and 6th influencer is a local newspaper senior correspondence. Influencers' user accounts ranked 7,9 and 10 appeared to be citizens who were tweeting during this time.

The analysis reveals that there are several authorities figure who is active in the social network of SMEs. Twitter users that have the highest number of followers is a newspaper (n = 1.3 million followers). This shows how the account linking newspaper stimulated debate on Twitter and held power over the network because the account was both highly influential and mentioned.

High in-degree in comparison to out-degree formed by the influential actors may obstruct diversity in the social network formed. In this community, individuals are heavily interconnected, so information shared is likely to reach the entire individual in the graph because the structure is composed of strong ties. Hence it exhibits tight interconnectivity.

5 Limitation and Further Studies

The Twitter data used in this study is limited, time-bounded, and context-specific. For example, in August 2021, there are at least three main events in Malaysia - Independence Day, parliament sitting, and spike of transmission of Covid-19 cases that may affect the social network structure and conversation in the SNS. Secondly, as this study only analyzes Twitter networks, future studies may apply social network analysis to other social network sites such as YouTube and Wikis. Thirdly, the keyword used in this research are in Malay language, thus future studies may include more keywords or used keywords in English in the data crawling if the computer capacity permits and to lengthen the duration and time of data collection. Moreover, the output from NodeXL Pro such as the social network metrics can be further analyzed and produce better visual using other software such as the Microsoft PowerBI and Gephi.

6 Conclusion

In line with our research questions to study on influential actors on SMEs Twitter conversations in Malaysia, this research findings revealed the network structure and network characteristics of actors engaged in the conversations. The social network comprises of 982 Twitter users are not necessarily entrepreneurs, some are NGO, and the government agencies. Some users are public figures and highly respected such as the royal families. Apparently, there are mixture of vibes (positive and negative) in the conversation revolves around efforts to curb the impact of Covid-19 pandemic on the small business owners in Malaysia. Further research is suggested.

Stakeholders may leverage on the findings for improvement of service and delivery to SMEs. Overall, it was found that the social network structure resembled the broadcast shape. This broadcast shape network structure indicates a high degree

of centrality. The individuals in this network connect to a few actors for the majority of the flow of information, resulting in a concentration of power in the hands of the very few. They are the most influential actors and are the hub that sits at the center of centralized networks. They are also perceived as experts and authoritative figure. The problem of this structure is that decrease, or departure of an influential actor can interrupt the information flow. A few local newspapers appear in this network; hence this pattern resembles the traditional media broadcast model.

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Online Consumption Under Pandemic: Stress, Cognitive Appraisal, Coping Style, Normative Social Influences, and Risk Averse



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Abstract Malaysia government imposed stay-at-home ruling during COVID-19 pandemic. The pandemic and stay-at-home ruling created stress to the Malaysian consumers. Some consumers turned to online platform for purchase of food and home essential. This study aims to investigate the impacts of pandemic stress, cognitive appraisal, coping style, online normative social influences, and risk averse on the changes in online planned consumption behaviors. Theory of Stress and Coping is used to develop a research framework to examine the planned consumption behavior in this study. Quantitative research with survey questionnaire is used to collect data. Data collected was analyzed with PLS-SEM. Findings confirmed that stress trigger cognitive appraisal, however cognitive appraisal of emotion only related to emotional coping style. Physical coping style, normative social influences and risk averse predicted planned online consumption behavior. This study provided both academic and managerial implications in the context on consumer consumption behavior.

Keywords Stress · Coping style · Planned consumption · COVID-19 pandemic · Normative social influences · Risk averse

1 Introduction

Following the COVID-19 outbreak in Malaysia in March 2020, the Malaysian government announced Movement Control Order (MCO) beginning from 18th

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March 2020. This is the first kind of stay-at-home ruling in Malaysia that involved all residents due to a pandemic. The ruling created stress to the Malaysia residents and many experienced increased anxiety levels, particularly during the first phase of MCO period (Mustapha 2020). Limited mobility, closed internal (state) borders, family separation, boredom, lack of outdoor activities, income cut, leave without pay, and financial instability are among the factors that contributed to the high stress level among the local residents (Mustapha 2020). The MCO ruling limited the mobility of consumers to go out for daily purchases and created sense of uncertainty in the supply of food and home essentials although the Malaysian government had been working to ensure that there are adequate supply of food and home essential. Therefore, the MCO was leading to high level of stress faced by consumer that affected the consumers' psychological, mental, and physical wellbeing (Mustapha 2020). Stress and anxiety, due to the COVID-19 pandemic, evoke various buying behavioral responses from individual.

Past studies that examined buying behaviors under the stress of pandemic on purchasing behavior during pandemic were concentrated on discussing panic buying (Hall et al. 2020; Wang and Na 2020) and impulsive buying (Ahmed et al. 2020; Islam et al. 2021). These studies addressed the obsessive, unplanned, and 'immediate' response in coping with pandemic stress. It is undeniable that the stress of pandemic has leading to unplanned purchase as a resolution to uncertainty faced, however, the unplanned purchase tends to be a temporal consumption behavior (Hall et al. 2020). Consumption adjustment happened after an unexpected incident such as natural disastrous (Liu and Black 2011). Consumer might decide to buy value-based goods, reduce wasteful spending, consume carefully, and purchase necessities (Liu and Black 2011). Consumers will become accustomed to new shopping methods, particularly the online shopping (Roggeveen and Sethuraman 2020). Nevertheless, how pandemic had affected consumers online purchasing for food and home essentials is not yet fully understood.

When facing with stress of pandemic, consumers will appraise the situation before making decision. Theory of Stress and Coping (TSC) by Lazarus and Folkman (1984) proposed that people will determine the coping strategies based on his cognitive appraising on the incident. Cognitive appraisal of the current situation directly related to the consumer decision-making (Achar et al. 2016). Consumers depend on the situation appraisal to determine relevant coping strategies to deal will the situation or problems faced (Baqtayan 2015; Youn and Shin 2019). Coping was found to influence consumption behaviors such as preference switching (Lee et al. 2007), and impulse purchase (Ferreira et al. 2017). However, lack of studies investigated how coping with stress of pandemic influences the consumption behavior, especially planned purchasing behavior.

Today, social media connected people digitally, allowing individual to communicate and share information without going outdoor. The use of social media increased tremendously during the pandemic (UNCTAD 2020). People, who were refrained at their homes during the stay-at-home ruling period, were dependent on social media for information and emotional support. Social media platforms provided information and generated proof that developed panic buying among consumers during pandemic

(Naeem 2021). Past studies (Naeem 2021) supported that social influences via online social media have affected the consumption behavior, lack of studies examined the social influences on the planned purchasing behavior. Hence, investigating the normative social influences via social media on the planned purchasing behavior is critically important. Meanwhile, perceived risk was found to predict health care behaviors such as reduction in smoking (Hampson et al. 2000). During pandemic, perceived risk of infection is associated with the public intention to adopt protective measures in preventing infection (Weerd et al. 2011). Hence, avoiding the risk of disease or risk averse is critical to consumers when making various decision. Nevertheless, lack of literature examined the relation between risk averse and the online consumption behavior. Including risk averse in this study is essential to investigate the impact of risk of contracting COVID-19 on consumers consumption behavior.

Previous studies were focused on the panic buying (Hall et al. 2020) and impulsive buying (Ahmed et al. 2020) during the pandemic. In this present study, data on the online planned consumption behavior during pandemic was collected during COVID-19 pandemic in Malaysia. The aim of this study was to investigate the impacts of pandemic stress, cognitive appraisal, coping style, online normative social influences, and risks averse on the online consumption behaviors. This study can therefore provide the academicians, marketers, and government with a more thorough inside into the possible factors that contribute to the online consumption for food and home essentials during pandemic. Unlike previous studies, this study, underlining by the Theory of Stress and Coping (TSC) (Lazarus and Folkman 1984), added important knowledge to the adoption of online consumption behavior during pandemic and were preparing marketers or entrepreneurs in understanding online business environment.

2 Literature Review

Environmental factors can evoke emotions and shaping consumer decision-making (Achar et al. 2016). Stress is referred as exposure to stimuli in the environment that are assessed as “harmful, threatening, or challenging,” and which exceeds the individual’s ability to cope (Biggs et al. 2017). TSC proposes a model to study the process to cope with the stress faced by individual (Lazarus and Folkman 1984). This theory hypothesized that the person in the dynamic environment is to evaluate the significance or meaning of stress to himself and react to the stress level. The stress could influence the consumption decision-making among consumers (Zheng et al. 2020; Darrat et al. 2016). Although pandemic stress might trigger unplanned purchase such as impulse buying and panic buying, consumers will try to adjust their own planned purchase and hence become adapted to the new environment, particularly the online marketplace (Roggeveen and Sethuraman 2020). TSC proposed that the responses to stress were determined after the appraising of the environment. In TSC, people are constantly appraising the stimuli or changes in the environment (Biggs et al. 2017). People who are facing stress are to cognitively appraise the treat of stress faced to himself. With respective to this study context, cognitive appraisal can be

conceptualized as the extent to which the consumers explicitly identify themselves as being stressful due to the pandemic. Appraisal of the environment would identify the potential treat of stress to the physical and emotional well-being of an individual. Past studies had confirmed that stress level faced trigger the need of cognitive appraisal (Alhurani et al. 2018; Gomes et al. 2016) And hence, this hypothesis is proposed as follows:

H1: Stress positively associated with cognitive appraisal.

Cognitive appraisal of stressful environment will help individual to determine the approach whether to take or avoid (Youn and Shin 2019). Stressful appraisal results in the decisions of taking coping strategies (Ciuchita et al. 2019; Folkman and Lazarus 1985). Coping refers to cognitive and behavioral efforts to manage (master, reduce, or tolerate) a troubled person-environment relationship (Folkman and Lazarus 1985). The TSC focused on two coping strategies, problem-focused coping, and emotion-focused coping. Problem focused coping involves dealing with the problem (or stressor) directly or eliminating the stressors through problem solving skills such as seeking for social support or planning for problem solving; While emotion focused coping involves efforts such as distancing or avoiding the problems to regulate the emotional response to the stressor (Biggs et al. 2017). If stressor is appraised as being uncontrollable or lack of resources to take any action, emotional focused coping is adopted (Biggs et al. 2017). In contrarily, problem focused coping is taken and is related to actions or planned decisions to handle the situation. Nevertheless, Ciuchita et al. (2019) pointed out that appraisal of threat or challenge positively impact both emotional focused and problem focused coping. Coping styles related to customers' decisions or actions to handle the situation (Ciuchita et al. 2019). Consistently, the following hypotheses are proposed:

H2: Cognitive appraisal associated with coping style

H3: Coping styles related to online consumption behavior.

Social media has become an important source of information, particularly during the pandemic. Social media refers to the 'interactive computer-mediated technologies' that encourage the development or sharing of knowledge, ideas, career interests and other forms of expression through virtual communities and networks (Wong et al. 2020). Social media includes a wide variety of platforms such as YouTube, Facebook, Instagram, blogging platforms, WeChat, and WhatsApp. Through the social media, an individual might be influenced to make certain purchasing decision. Social influences are referred to changes in individuals' beliefs, feelings, attitudes, or behaviors as a result of interactions with others (Chou et al. 2015). Normative social influences (NSI) are a dimension of social influences that is essential in the consumer behavior context, in which consumer purchasing decisions are made for the purpose to comply with important others' (Hu et al. 2019). When a consumer is normatively influences, he is driven to gain approval from other individual or social group and hence he is trying to comply with others' tastes and preferences by purchasing products valued, bought, or recommended by others. In literature, consumers with higher level of NSI are more like to perform impulsive purchases (Hu et al. 2019; Bandyopadhyay

2016). However, limited study examined the impact of NSI on planned purchase. Therefore, the following hypothesis is proposed to examine the impact of NSI on online consumption behavior:

H4: Normative social influences positively related to online consumption behavior.

People have different level of willingness in accepting risk. In literature, perceived risk of consumers determined the consumer purchasing intention (Ariffin et al. 2018). Past literature also confirmed that perceived risk predicted health care behaviors (Hampson et al. 2000). During pandemic, perceived risk of the disease strengthen the decision to adopt preventive measures against the disease (Hampson et al. 2000). In view of the risk of pandemic, the willingness to take risk also influence the decision of consumers. Kim and Byramjee (2014) explained that risk averse individual is those who want to stay away from negative potentials of uncertainty. They also pointed out that online shoppers’ willingness to adapt to the new shopping environment is dependent on their inherent preference towards risk. Chang and Meyerhoefer (2020) pointed out that consumer with a higher tolerance for risk may be less likely to order food from online platform, the Ubox. In this study, we proposed that consumers will compare the risk of pandemic to risk of shopping online, consumers who are risk averse will tend to avoid the risk of contracting the disease by avoiding the usual marketplaces and hence choose to purchase online. Thus, based on the past studies, hypothesis H6 is proposed:

H5: Risk averse positively related to online consumption behavior.

Based on the TSC and proposed hypotheses, a research framework is developed (in Fig. 1) to investigate factors predicting online consumption behavior during MCO. The variables included in this framework included stress, cognitive appraisal, coping styles, normative social influences, and risk averse. The online consumption behavior is the dependent variable.

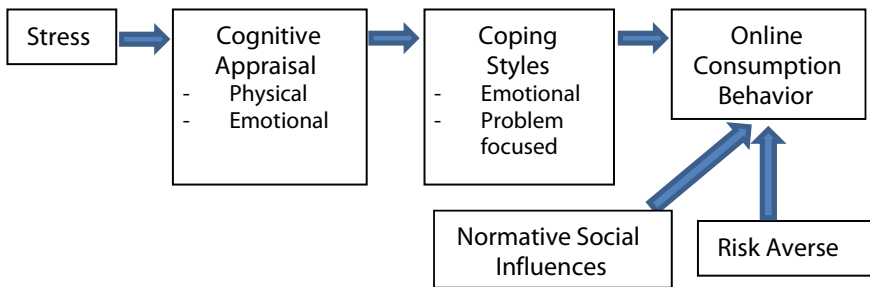


Fig. 1 Research framework

3 Methodology

Adult Malaysian residents who could influence their household purchasing decisions were selected as the sample for this study. Quantitative research with survey questionnaire was used in this study. The structured self-administered survey questionnaire is distributed online to collect data. The questionnaire collected data on the respondent background such as gender, age, race, education level, perceived stress level as well as online consumption before and during MCO. Stress is measured with a single item that asked for the respondent perceived stress level during the MCO period. The instruments to measure cognitive appraisal and coping styles were adapted from Folkman et al. (1986). The three items for cognitive appraisal—physical threat were such as my health or physical well-being was threatened, and two items for emotional threat were such as my emotional well-being was threatened. There are three items to measure coping style—emotional, for example, I wished the situation would go away or somehow be over with. And five items to measure coping style—problem focused (e.g., I asked a relative or friend whom I respected for advice). Six items used to measure normative social influences such as my decision to purchase essential goods and food is influenced by the preferences of friends, were adapted from Hsieh and Tseng (2018). Risk averse was measured by five items adapted from Mandrik and Bao (2005). All items were measure with 7-point Likert scale from strongly disagreed to strongly agreed. All measurements were pilot tested on 30 samples and improved prior to distribution.

Convenient sampling method was used to collect data. The link to answer survey was distributed online via email and WhatsApp between July and December 2020. The respondents were paid with a token of appreciation. A total of 199 usable samples were collected. Data collected was cleaned with SPSS before analyzed with PLS-SEM approach in SmartPLS software (Ringle et al. 2015).

4 Findings

Most of the respondents of this study were female (71%), aged between 21- and 30-year-old (65%) and are Malay or Native (55%). Details of the respondent profile are listed in Table 1.

4.1 Measurement Model Assessment

The measurement model was assessed by checking the internal consistency (composite reliability), convergent validity, and discriminant validity. Analysis results are presented in Table 2. After deleting one item from coping style—emotional, two items from coping style problem focused and three items from risk

Table 1 Respondent profile

		No.	%
Gender	Male	57	28.6
	Female	142	71.4
Age	20 and below	32	16.1
	21–30	130	65.3
	31–40	22	11.1
	41–50	10	5
	51 and above	5	2.5
Race	Malay or Native	110	55.3
	Chinese	71	35.7
	Indian	9	4.5
	Others	9	4.5

Table 2 Composite reliability and convergent validity of reflective model

Construct	Composite reliability	AVE
Cognitive appraisal—emotion	0.937	0.833
Cognitive appraisal—physical	0.904	0.824
Coping style—emotional	0.745	0.598
Coping style—problem focused	0.819	0.609
Normative social influences	0.925	0.675
Risk averse	0.783	0.654
Online consumption	0.904	0.824

averse, the composite reliability of all constructs were 0.745 and above showing good internal consistency. The loadings of measurement items were between 0.616 and 0.963, and average variance extracted (AVE) were 0.598 and above, which reflected that convergent validity was achieved. Heterotrait-Monotrait ratio of correlation (HTMT) was assessed to check the discriminant validity and found that HTMT values of all constructs were lower than 0.85, and hence discriminant validity was achieved.

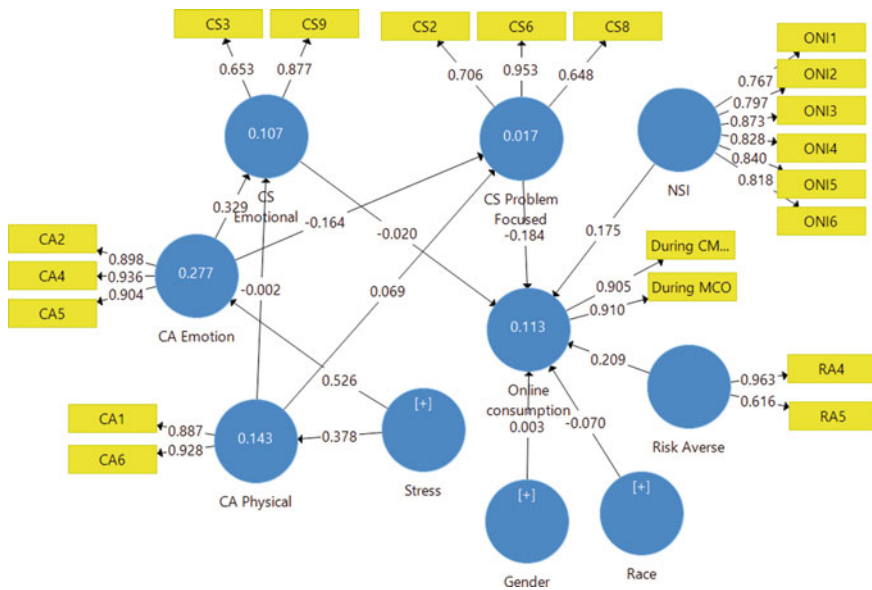
4.2 Structural Model Assessment

Variance Inflation Factor (VIF) of the constructs were checked for collinearity issues and common method biases. The VIF values (in Table 3) were lower than 3.00 reflecting that both collinearity problem and common method biases did not exist.

The structural measurement model of study created by PLS-SEM algorithm is illustrated in Fig. 2. Two control variables, gender and race, is added in this model during analysis process. Next, a one-tailed bootstrapping test with 5,000 sub-samples

Table 3 VIF

Construct	Coping style—emotional	Coping style—problem focused	Online consumption
Cognitive appraisal—emotion	1.766	1.766	
Cognitive appraisal—physical	1.766	1.766	
Coping style—emotional			1.242
Coping style—problem focused			1.09
Normative social influences			1.095
Risk averse			1.159



Note: PLS-SEM Algorithm diagram in the structural measurement model. Loading values in outer model. Path coefficient (p-value) in inner model, and R2 values in constructs.

Fig. 2 Structural model

was run to test the research framework. The path coefficient results are tablet in Table 4. The results found that stress significantly predicted cognitive appraisal of emotional threat ($\beta = 0.526$, t -value = 9.117, p -value = 0.000) and physical threat ($\beta = 0.378$, t -value = 6.070, p -value = 0.000) at 1% significance level. Hence,

Table 4 Path coefficient results

Hypothesis	Path coefficient				
	β	SD	t-value	p-value	Result
H1a Stress => CA emotion	.526	.058	9.117	.000**	Supported
H1b Stress => CA physical	.378	.062	6.070	.000**	Supported
H2a CA emotion => CS emotional	.329	.087	3.786	.000**	Supported
H2b CA emotion => CS problem focused	-.164	.136	1.205	.228	Not supported
H2c CA physical => CS emotional	-.002	.091	.018	.986	Not supported
H2d CA physical => CS problem focused	.069	.122	.562	.574	Not supported
H3a CS emotional => Online consumption	-.020	.086	.235	.814	Not supported
H3b CS physical => Online consumption	.184	.084	2.176	.030*	Supported
H4 NSI => Online consumption	.175	.078	2.245	.025*	Supported
H5 Risk averse => Online consumption	.209	.085	2.467	.014*	Supported

Note: ** one-tailed $t > 2.33$, $p < 0.01$ at 1% significance level. * one-tailed $t > 1.645$, $p < 0.05$ at 5% significance level. Cognitive appraisal (CA). Coping Style (CS). Standard Deviation (SD). Confidence interval bias corrected (CIBC)

hypothesis H1 is well supported. The stress experienced by consumers trigger the need to appraise the possible threat to emotional and physical well-being.

The findings confirmed that only cognitive appraisal—emotion positively predicted the emotional type of coping style ($\beta = 0.329$, $t\text{-value} = 3.786$, $p\text{-value} = 0.000$). And hence only hypothesis H2a is supported. Cognitive appraisal of emotion did not relate to physical coping style. Similarly, cognitive appraisal of physical threat did not predict any coping style taken by consumers. Hence, H2 is partially supported. For hypothesis 3, results confirmed that coping style that focused on problem was significantly predicted online consumption ($\beta = 0.184$, $t\text{-value} = 2.245$, $p\text{-value} = 0.030$) at 5% significance level. Nevertheless, emotional coping style did not predict online consumption. Therefore, H3 is partially supported.

Meanwhile, normative social influences via social media were positively and significantly related to online consumption ($\beta = 0.175$, $t\text{-value} = 3.749$, $p\text{-value} = 0.025$). And hence hypothesis H4 is well supported. Likewise, the risk averse was also positively and significantly predicted online consumption ($\beta = 0.209$, $t\text{-value} = 2.467$, $p\text{-value} = 0.014$) at 5% significance level. Therefore, H5 is also supported. The normative social influences and risk averse have predicted the online consumption of food and essential goods.

The coefficient of determination (R^2) and level of effect size to R^2 (f^2) of structural model were also measured. The R^2 of online consumption was .113 reflecting that the variables explained 11.3% of variances in online consumption. Risk averse was the most important predictor of online consumption. The f^2 level of risk averse on online consumption was the highest at .042 although the effect size was small. Normative social influences ($f^2 = .035$) and problem focused copy style ($f^2 = .032$) were also had small f^2 level on online consumption.

5 Discussions

In line with the proposition of TSC, the findings of this study agree with previous studies (Biggs et al. 2017; Alhurani et al. 2018; Gomes et al. 2016) that the level of stress experiences by consumers inevitably triggered the need to appraise cognitively the threat of stress to both emotion and physical well-being. The cognitive appraisal is the first step to determine the possible actions to be taken while facing with the fear of pandemic. This study discovered that stress had a deeper effect on emotional appraisal than physical appraisal, most likely because the fear of contracting COVID-19 was high, as were the potential side effects of the disease.

After the cognitive appraisal, the consumers made reasonable decision in choosing the right coping style. In contrary with Ciuchita et al. (2019), the cognitive appraisal of emotional threat only predicted emotional focused coping styles, but cognitive appraisal of physical threat did not relate to any coping styles. This study showed that the consumers who perceived high emotional threat were more likely to choose an emotional related coping style. Further, findings reflected that the consumers were rational in deciding for planned purchasing behavior as the emotional coping style was not related to planned online consumption. Consumers may have chosen emotional focused coping because they believe that the disease is somewhat uncontrollable supporting Biggs et al. (2017). Meanwhile, physical coping style was found to related online consumption behavior in this study. Consumers who chose the physical coping style were adapting their online consumption behavior as compared to those who chose emotional coping style.

Findings of this study also confirmed that social media played an important role in encouraging online consumption. The consumers who had to stay home during MCO were turn to social media for emotional support and information. Therefore, online social media provided a platform for the importance others to influence an individual (Hu et al. 2019). The normative social influences via the social media had strong impact on the decision to purchase online supporting past studies (Naeem 2021; Hu et al. 2019). This study showed that social media influences drive beyond impulsive purchases to spur planned consumption behavior. Further, this study also confirmed with past studies (Kim and Byramjee 2014; Chang et al. 2020) that consumers who are risk averse were more likely to purchase online. In line with Kim and Byramjee (2014), consumers who were relatively low in taking risk are more likely to shift to online purchase to avoid the negative impacts of pandemic, the risk of disease contract. Risk averse had the greatest impact on the decision to purchase online, indicating that concern for a pandemic was the most important courage to switch to online purchasing.

6 Implications and Conclusions

This study has contributed to both academic and managerial implications in the context of planned online consumption behavior. This study could be extended to investigate the consumption of other products such as fast food and healthcare products. Nevertheless, there are few limitations with this study. First, the respondents tend to be younger in age attributed to the online data collection method. More data collected from older age could have provide new insight into the understanding of planned consumption behavior among them. Further, the data on consumption behavior was collected few months after the MCO, and hence, consumer might have biases in answering the level of consumption. Collecting data from the secondary sources might be able to resolve this problem.

Academic Implications

This research contributes to consumption behavior and pandemic responses literature in two ways. First, we developed a framework with TSC to understand the responses of consumers in online planned consumption behavior. In this research framework, we confirmed that the stress of pandemic will trigger the changes in the planned consumption behavior. Besides, we confirmed that consumers who are highly risk avoidance were more likely to turn to online platform for the consumption of food and household essential products. Second, we bridge the gap in literature by confirming that the planned consumption behavior happened during the pandemic. The COVID-19 pandemic has inevitably changed the consumption behavior towards online platform.

Managerial Implications

The study has two managerial implications for the marketers. First, this study confirmed that consumers behavior changed after they appraised the impact of pandemic towards their livelihood. Marketers should recognize that these changes to online purchase is not impulse but rather planned after the appraisal of the environment. Responses of the marketers to the changes is critically important to avoid loss of sales. Second, the consumers who were highly normatively influenced are pushed to do more purchase online. Hence, advertising via significant role model in social media should be planned and manipulated to increase the marketing campaign effectiveness.

Appreciation

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Global Food Security Impact of Covid-19



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Abstract The COVID-19 pandemic has caused an increased in food insecurity worldwide. Sustained attention is needed to reinforce the resilience of food systems to such disease outbreaks nonetheless likewise to other shocks. This qualitative study aimed to realize how people involved in food insecurity resulting from the pandemic. This study objective is to explore and analyze the impacts of the COVID-19 pandemic on food insecurity. Comprehensive initiatives and policy reactions are required to alleviate food insecurity as the pandemic progresses.

Keywords COVID-19 · Food security · Global

1 Introduction

COVID-19 is no exemption to 1 of the challenges that food security has had to face today (Huszainey 2020). One of the explanations for global food insecurity is that the lack of access to food (Goring 2021). The global Covid-19 pandemic has dropped at lightweight the importance of food security that's certain to be further essential as borders persist closed with countries having to seek out ways in which to support themselves within the longer run (Azman 2020; Goring 2021). There is one in three persons across the globe presently experiencing some variety of deficiency disease (Goring 2021). The COVID-19 pandemic has in a line cause a severe financial condition and further creates worse food and nutrition insecurity (UNICEF 2020). Reflecting lingering provide disruptions as a result of COVID-19 social distancing measures, currency devaluations, and other factors, several countries square measure suffering increasing food worth inflation at the retail level. Growing food prices have

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a larger influence on low- and middle-income countries than high-salary countries. Specifically, people have to expend a larger part of their revenue on food (Flore Delaware Preneuf 2021).

World Bank did rapid phone surveys in 45 countries demonstrating considerable quantity of people's shortage of food or decreasing their consumption (Flore de Pre-neuf 2021). Food insecurity is also correlated with adverse behavioural and tutorial results among youngsters (Wolfson and Leung 2021). Diminished calorie consumption and give in nutrition threaten gains in impoverishment decline and fitness, and could have womb-to-tomb impacts on the psychological feature cognitive development of young youngsters (Flore de Preneuf 2021). In reaction to this crisis, the emergency food system for example food banks and other charitable organizations that portion food have mobilized to react to a five hundredth rising in demand (Wolfson and Leung 2021).

Food insecurity has been connected to long-term economic effects for instance larger health care prices, lower educational accomplishment, lost yield, lesser earnings in adulthood, and improved risk of poverty future in life. Food insecurity donates to nutrition deficits is also concerning harmful to the upbeat, physical, mental and cognitive development of youngsters within the short and long run (UNICEF 2020; Cheong 2021). According to the Maslow's (1954) hierarchy of needs, human's fundamental desires are accounted for by 5 levels (from the lowest to the very best needs): physiological needs, safety needs, love and belonging desires, esteem needs, to self-fulfillment desires. It is hypothesized that folks are motivated to pursue the higher desires once the lower needs are consummated. Furthermore, individuals UN agency are glad with additional basic desires are seemingly to have higher psychological health. Therefore, following the idea of the hierarchy of desires, it is reasonable to believe that people UN agency expertise food insecurity (i.e., not satisfying with the lowest, physiological desires) not only encounter problem to win safety needs, but additionally at a higher risk to poor psychological health. In fact, empirical studies have shown that food insecurity is harmful to adolescents' and emerging adults' psychological and mental well-being (e.g., Frongillo et al. 2017; Frongillo et al. 2019). For instance, Ahmad and colleagues (2021) found that undergraduate students in Asian country UN agency expertise food insecurity ar additional seemingly to encounter stress, anxiety, and depression. It is noteworthy that 468 suicide cases were recorded from January to could 2021 in Asian country, while the total range of cases was 631 in 2020 and 609 in 2019 (CodeBlue 2021). Meanwhile, a white flag movement (#BenderaPutih) has been launched recently by Malaysian netizens via social media to supply a humanistic channel for folks that are idle and/or financially suffering because of the imprisonment to receive food donations whereas maintaining their dignity (Rodzi 2021). Therefore, it is rational to believe that the rising number of suicide cases is partially because of the monetary crisis particularly food insecurity.

Food insecurity will also provision regional efforts to handle the requirement for trustworthy and rectifiable sources of quality food likewise as support the international organization property Development Goals (UNSDG), in detail SDG2 that

recognises the inter-relationships between achieving food security, backup sustainable agriculture and authorizing tiny farmers (Azman 2020). Food security results dropped often for in-come-poor households, and those obsessed on labour wages. As such, they were more expected to rent food-based header ways and have worse food consumption. The remaining of the paper is organized as follows. Section 2 offers a literature review on the COVID-19 pandemic world. The sources and estimation methods area unit mentioned in Sect. 3. Section 4 reviewed potential policies that are useful to ease the impacts of the pandemic. Descriptive and empirical results are given in Sects. 5 and 6 concludes the paper.

2 Literature Review

Food security is the most relevant and demanding component of property development, with food insecurity and the agricultural sector having far-reaching consequences for developing countries (Workie et al. 2020). According to Workie et al. (Workie et al. 2020), the issues in or developing countries necessitate imperative action to mitigate the pandemic's negative consequences. In their research, they have persisted that governments must act quickly to boost their agricultural sector ability by introducing new risk management systems and reforms, as well as insulating people's livelihoods through cash or food help programs to satisfy their basic desires.

In the case of African country, government transfer payments protect low-income households' overall incomes well. Low-income households' wages are covered, at least partially, as a result of these transfer payments (Arndt et al. 2020). It was also mentioned that the continuation of those payments throughout the crisis is very important for low-income households to sustain food security. According to Arndt et al. (Arndt et al. 2021), South Africa's distancing policies come at a high value to the economy and have negative consequences for the issue distribution of financial gain. Low-skilled workers are dis-proportionately compact compared to those with a secondary or tertiary degree.

The impacts of the COVID-19 pandemic on the food system have also revealed the limitations of the offer chain, though the degree of disruption differs wide across the globe and in Asia (Fan et al. 2021). Despite being put to the take a look at by the COVID-19 crisis, the Asian food system has remained surprisingly resilient in general, contrary to expectations (Fan et al. 2021). The study also disclosed that there have been no significant food offer disruptions, trade has been unaffected, and there areas unit no signs of market food shortages or inflated hunger and deficiency disease with policy interventions delineated still as a history of collective action for social group gain are seemingly to possess via a task.

The COVID-19 pandemic has major impacts on household food security in Jordan, according to Elshahoryi (2020), and where social protection is lacking, they can have devastating economic, social, and nutritional effects, primarily in the organic

phenomenon. According to their findings, approximately four-hundredth of the population was thought of stable, one-third was moderately food secure, and less than 1/4 was severely food insecure. The findings of the study could be applied to however the quarantine's lockdowns and movement restrictions restricted people's physical capability to access food, resulting in food deserts in most areas, reduced wages and loss of income (Elsahoryi 2020).

Building food systems that are resilient to shocks like the COVID-19 pandemic wants coordinated action across the complete agri-food chain, including policy-makers, under that the production of improved, robust agri-food chains would virtually certainly necessitate a fine, complementary balance between existing food supply practices and alternative native patterns (Bakalis et al. 2020). Although the food sector and food demand partly recover as a result of financial gain support initiatives, the state of food security in Kenya remains vulnerable to the pandemic's evolution abroad, according to a study conducted by Nechifor (2020). The study also disclosed that the government's capability to address further economic constraints is also strained, given that the primary set of measures significantly inflated the general public deficit; so, appropriate policy measures by native governments, backed up financially by the international community, may limit the negative effects on international food security.

Food and nutrition assistance ought to be at the heart of social protection programs to secure food access for the foremost underprivileged folks through up their shopping for power and, where potential, through directly supplying food through government or community-based programs (United Nations 2020). According to a report by Ibukun and Adebayo (2021), food insecurity threatens over two-thirds of Nigerian households. The discovery also reveals the government's palliative care funding and delivery to be lamentably inadequate. Furthermore, the study shows that socioeconomic factors, rather than demographic factors, affected food insecurity throughout the COVID-19 pandemic restrictions, therefore in terms of policy implications, strategies and palliatives ought to be well-planned and tailored to the size and desires of the unit.

Intensive public health initiatives have been redirected to combating the COVID-19 pandemic, but nutrition throughout the pandemic has received less content. Malaysians who have already been subjected to essential biological process and dietary deprivations before COVID-19 square measure the most prone to food insecurity, according to UNICEF (2020). From the report, as a consequence of increased economic condition and food insecurity, as well because the suspension of faculty feeding programs, Malaysia's child deficiency disease rate is possible to be exacerbated by the COVID-19 pandemic. Additionally, given Malaysia's high prevalence of malnutrition, prevention should begin as presently as potential, thus throughout and once the crisis, the healthcare system's response to biological process care should be authorised (UNICEF 2020).

From research by Ruszczuk et al. (2021), the effect of the imprisonment on food security and cope mechanisms in 2 little Bangladeshi cities (Mongla and Noapara), residents (particularly low-income groups) had limited access to keep opportunities and knowledgeable substantial or complete financial gain loss. This affected

the amount and quality of food consumed. The study's findings indicate that international, national, and local ways for aiding folks in reconstruction their lives, as well as creating safety nets appropriate for urban households and communities in numerous settings, need to incline careful thought (Ruszczyk et al. 2021).

Personal savings, household financial gain, job status of the head of unit, and nutrition awareness of the head of household were found to be the most socio-economic factors related to food insecurity in Persia throughout the Covid-19 pandemic, according to Pakravan-Charvadeh et al. (2021). Since most jobs are being phased out, unemployment is increasing, and the economy is probably going to worsen over time, prescribing long-term policies to facilitate households subsume this pandemic epidemic is unavoidable; As a result, health measures to mitigate the negative effects of the pandemic's food and economic crises, as well as policies to take care of economic status and food security, are required in this region (Pakravan-Charvadeh et al. 2021).

The COVID-19 pandemic has had a significant and immediate impact on unemployment and unit financial gain, with women taking part in a key role as unit food suppliers and managers of food insecurity in Siam (Narasri et al. 2020). According to Narasri et al. (2020), in times of pandemic and global economic crisis, a community-based approach is recommended to use management ways adore sympathy, empowerment, and commitment to ensure food protection. From their research, community participation initiatives such as women's empowerment teams and public-private collaborations square measure utilized by public health nurses to realize property food security.

3 Methodology

This descriptive qualitative research was conducted to attain the projected aim. COVID-19, pandemic, food security, global food system, and food implications in the context of the COVID-19 pandemic are the topics that have conducted a wide-ranging literature review. It contains an in depth literature review on food security, COVID-19, income, employment, coping methods and different channels through food implications that the pandemic will impact households.

Initiatives were followed to identify the behavior of the epidemic during a money context throughout March 2020, typically in comparison to the food system (OECD 2021; WHO 2020). The methodological feature of this study was primarily based on this study (Meyer 2020). A review of all articles in these journals was conducted through the examination of their title and abstract. Journals were reviewed based on specific keywords square measure connected by the impacts of covid-19 pandemics on food insecurity. These measures had a leading influence on the primary association of the food system, which is delineate in detail within the following sections.

Individual and contextual risk factors that might more our understanding of food insecurity and mental disease, their' limitations should be taken into account. For example, this study is unable to explore the observed relationships between sources and

varieties of stress and happiness or protective factors gift among people that maintain lower stress and higher belonging despite experiencing food insecurity. Therefore, limitations from this paper could be because of the restricted resources from databases as explicit earlier because the exploration results also are expected, individual and contextual risk factors that would possibly any our understanding of food insecurity, measurement error regarding exposures and outcomes is ostensible as a result of single things restricted the extent to that may discover the understand relationships. For instance, this study could not discover the supply and sorts of stress and happiness or protecting factors existing among those persons World Health Organization sustain poorer stress and bigger belonging not with-standing experiencing food insecurity.

4 Policy

Countries and international organisations must work along to tackle food insecurities world and to equilibrium the equilibrium of worldwide food offer chains, should a black-swan event, for instance, COVID-19, happen once again in another type. Numerous initiatives carried out everywhere this era have showcased Malaysia's talents and strengths in ensure that universal food offer chains aren't interrupt-ed. Hand-in-hand with other similar countries for example the United Arab Emirates (UAE) and therefore the Kingdom of Asian country, Malaysia may most positively aid address the shortage in worldwide food offer chains (Huszainey 2020).

International collaborations have also been carried out to understand how employment and revenue negatively impacts people's power to get food. For instance, World Bank Group, governments, and international partners are working closely to keep track of domestic food and agricultural offer chains track to ensure that food systems persevere to perform notwithstanding COVID-19 challenges (Flore Diamond State Preneuf 2021).

Key supplies of the Families initial Coronavirus Act concerned a suspension of the 3 months limit on a low-revenue adult while not kids to obtained SNAP aids and the formation of the Pandemic Electronic advantages Transfer (Pandemic-EBT) program, which allowed households with kids UN agency rely on free or declined-price faculty meals to entrée further of regarding \$114 per kid per month financial bene-fits though faculties were in distance learning (Wolfson and Leung 2020). The university's Unit for Community Engagement is carrying out programs that funding students from deprived communities through the valuation of their nutrient needs and only if food provides to permit them to hold on their learning on-line lacking within the adscitious burden of food insecurity (United Nations 2020). Countries can invest in longer-term interference, for instance, reinforced veterinary services, virus surveillance and food safety below the initial COVID-19 package of International Bank for Reconstruction and Development cluster funding (Flore Diamond State Prebeuf 2021).

It is also vital to develop period of time food security observant system to supply timely knowledge to live the pandemic's development things and maintain track of

these stricken by hunger and deficiency disease. The data are important to spot wherever the danger is most acute and ensure that input packages influence the foremost vulnerable (United Nations 2020). Nutrition programs like Integrated Child Development Services (ICDS), mid-day meals, and Anganwadis (rural childcare centers) ought to stay to work as crucial services and provide rations and meals to recipients reception. Numerous state governments have in progress innovative programs to aid informal workers and therefore the poor. For instance, the Kerala government has given those meals with diversified diets at the doorsteps of households (Mahendra Dev 2020).

5 Directions for Future Studies

Literature has clearly shown that food insecurity has negative impacts on people's psychological and mental well-being. Therefore, on top of distinguishing strategies to mitigate the level of food insecurity, it is also equivalently vital to hold out interventions for food insecurity people to scale back their psychological burdens and improve their psychological state. For instance, it is necessary to look at if the flag of truce movement is helpful in buffering the psychological distress resulted from food insecurity then reduce the suicide cases. It is also essential to research and enhance the property of the flag of truce movement or alternative similar aids (e.g., food bank). In the same vein, it is important to notice that the M40 population is additionally severely and negatively influenced by the pandemic and experiencing monetary and food crisis. Hence, similar amount of attention is needed to perceive the psychological factors that hinder (or encourage) M40 group's temperament to go out and settle for food donations.

As the COVID-19 epidemic is continuous, future research can be needed to evaluate its semipermanent influence on food security and organic process standing, along with the implications to adults' health, particularly enclosed by the helpless population living in countries. Future research can aid justify the extent to that the COVID-19 epidemic and connected policy decisions have an effect on food security among persons with criminal lawful system contact.

In addition, it is important to notice that the adverse result of food insecurity and also the connected distresses on kids could persist even once the COVID-19 pandemic is over. Researchers are suggested to follow up with those wedged kids to examine whether or not and the way the expertise of food insecurity influences their physical and psychological development employing a longitudinal style. One of the promising directions of the investigation is to grasp whether those kids tend to possess a lower vanity than their peers World Health Organization don't encounter food insecurity or perhaps discriminate themselves. This is because vanity is completely regarding one's happiness (Tan et al. 2017), while discrimination is associated with aggression (Ch'ng and Tan 2017). Similar attention shall also be given to operating adults. It is critical to grasp if the food insecurity expertise are going to be extended to the operating context and end in a better level of perceived job insecurity. The latter

has been found to have a negative relationship with engagement (Asfaw and Chang 2019), which is essential to job performance and creativeness (Ismail et al. 2019; Tan et al. 2019; Tan et al. 2019).

6 Conclusion

This paper offers a systematic review of studies on food insecurity impacts of COVID-19. Selected contributions have been evaluated within the light-weight of associate degree integrated framework of financial gain, employment, and food insecurity. The pandemic is persisting when a year, and it is hard to forecast once it'll end though the vaccines have appeared. This study revealed that the rate of food insecurity is increasing particularly for those with low earnings and family units that already struggle to encounter basic desires. Outcomes overall demonstrate that attention has been paid to food insecurity. Nevertheless, our study still highlights a distance in the reviewed studies on the impacts of the pandemic on food insecurity in various countries. Initiatives can facilitate to resume additional positive nutrient practices and cut back the ensuing food insecurity risk following the pandemic. These can be utilized by public health professionals, policymakers, and researchers to report on the development and implementation of public health interventions to decrease the negative impacts of COVID-19 on food insecurity.

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Covid 19: Impact of E-commerce on Small and Medium Sized Enterprises in Sabah



Cheong Jia Qi 

Abstract Small and medium industries facilitate stimulate economic growth by providing employment opportunities to foregoes besides the larger firms. SMEs with their limited ability to hedge risks and bear the costs as a results of the economic stalled are also fighting the difficulties of funds and liquidity, employees, customers, and adapting technology overcoming the pandemic. Problem Statement: As SMEs area unit severely wedged by the Covid-19 scenario, some of them were reduced to the purpose of powerless to service their clientele, pay salary to their staff and be con-summated their commitment with their suppliers. Methodology: The study is determine the Covid-19, economic impacts of e-commerce on small and medium businesses in territorial do-minion. A few methodologies were explored to conduct the analysis including the stage of digital adoption among SMEs, the analysis of causes and barriers for e-commerce adoption including its edges amid the context of COVID-19. Qualitative study with a deep dive interviews conducted to collect primary data. No quota or target was set as there is no known population census knowledge on SMEs with the main focus on e-commerce. Result: Although some of the barriers may well be insurmountable for currently to the purpose that not all industries are ready to adopt e-commerce because of every industries' structure and business operations. SMEs that had adopted e-commerce is expected to perform better than typical businesses but this can be not enough to mitigated total damages from a broken economy because of the pandemic.

Keywords E-commerce · SME · Sabah

1 Introduction

International Labor Organization's (ILO) Sustaining Competitive and Responsible Enterprises (SCORE) program highlights the important fact that micro-, small, and medium-sized enterprises (MSMEs) now matters more than ever. On fact alone is

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the MSMEs contribute more than 70% of global employment and 50% of GDP, and this cannot be overlooked (ILO 2020). SMEs with their limited ability to hedge risks and bear the costs because of the economic slowed down are also struggling with the difficulties of funds and liquidity, employees, customers, and adapting technology overcoming the pandemic (Syriopoulos 2020). E-commerce adoption to SME (Yoon et al. 2021; Hassen et al. 2021; Li et al. 2020; Jovanović et al. 2020; Rachana Harish et al. 2021). Among the 1,000 businesses surveyed from eight countries across four continents, 70% have had to shut down operations. 50% of them were due to instructions by the government while the other 50% were closed temporarily to mitigate the effect from the reduction in orders, as a result of Covid-19 infection among operation personnel or more tragically were permanent closure (ILO 2020).

As SMEs are severely impacted by the Covid-19 situation, some of them were reduced to the point of not able to service their clientele, pay salary to their workers and be fulfilled their commitment with their suppliers. This impact is quite significant as many small and medium sized enterprises are predicted to go out of business during the after the pandemic situation (Syriopoulos 2020). It is expected that more than 75% of SMEs will experienced a decrease in profits for 2020 with as far as one-third (33%) of businesses expected to be losing more than half of their profits. For some cases, it become even worst as profits turn into losses and in view of this unpredictable context it is understandable of the general decision to not expand, according to the entrepreneurs surveyed (ILO 2020). The situation is similar for customer orders, with 75% of corporations suffering from diminished demand and one-third (33%) suffering a more than 50% fall in customer orders (ILO 2020).

The general objective of this study is to determine the Covid-19, economic impacts of e-commerce on small and medium businesses. The specific objectives are as follows: to assess the economic implications of Covid-19 small and medium businesses; and to identify the salient beliefs that policymakers could target to encourage the adoption of e-commerce by small and medium businesses. This paper is organized as follow: next to the introduction, literature review is in Sect. 2, Sect. 3 discusses the method and study area, Sect. 4 provides a Finding and discussion. Section 5 is concluding remark.

2 Literature Review

On 18 March 2020, Malaysia introduced the Movement Control Order (MCO) to curb the spread of COVID-19. Most countries have begun lockdown because of the long incubation time of the virus and its extremely contagious features. Social distancing has now become the new standard or new normal in most societies. The consequences of the Covid-19 Movement Control Order (MCO) on Malaysian SMEs are discussed by Omar et al. (2020) and survival strategies are defined based on the perspectives of the owners. The impacts of MCO on SMEs are classified in their overview report into the operational problems (i.e. disruption of operations; disruption of the supply chain; foresight of the potential course of business) and the financial problems (i.e.

cash flow imbalance; access to stimulus packages; risk of bankruptcy). Meanwhile, financial and marketing strategies come under the main themes of modern survival strategies. There are few proposals for future research work, business development companies, and entrepreneurs in the report.

During the crisis period, the accumulated financial resources of the organization are very effective instruments for business continuity, while other assets and skills enable businesses to adapt to new business opportunities (Omar et al. 2020). Small and medium-sized enterprises (SMEs) must have a certain degree of strategic resources and be adequately agile to mobilize during crisis times, as modern enterprises are exposed to numerous unexpected global crises. In the unforeseeable future of the Covid-19 pandemic crisis, investment in technology, software, online marketing and new distribution systems is crucial. At this stage, the government aid in rapidly improving the delivery system of all business stimulus packages and disseminate information clearly. Public education curriculum additionally would like to be get back to supply prime quality psychological feature, socioemotional, and technical skills that will enable SMEs to navigate the digital marketplace. SMEs competitiveness in on-line business additionally is dependent on policy and delivery of state services, which wish to be increased chop-chop with SMEs' welfare in mind (Cheong et al. 2020).

In particular, the primary production sectors have been severely affected by the introduction of MCOs and by more rigorous quarantine procedures. Waiho et al. (2020) explores the possible effects of COVID-19 on Malaysia's aquaculture industry along with the coping mechanisms adopted by Malaysia and their possible efficacy. According to Waiho et al. (2020), the Federal Agricultural Marketing Authority (FAMA) launched 97 Regulated Fresh Markets (CFMs) throughout the nation during MCO Phase 2 in its effort to ensure the smooth operation of the agricultural supply chain (FAMA 2020). Health screenings and social distancing in all CFMs have been introduced. CFMs act as important outlets for micro and small to medium-sized aquaculture companies to sell their products directly to consumers and have been proven to be successful. BPN and BSH, the other schemes assistance schemes launched by the Government in which Malaysian people are entitled to a one-off assistance of RM450 to RM1500 depending on marital status and monthly income, would also support eligible aquaculturists within the B40 and M40 classes.

In addition to government loans, micro and SMEs aquaculture companies are also able to benefit from the estimated financial loans of approximately USD 46 billion from different financial institutions (Bank Negara Malaysia 2020). For instance, Bank Simpanan Nasional (BSN) increased its BSN Micro Kredit Prihatin Scheme from 46 million USD to 161 million USD to assist COVID-19 impacted micro-sized companies at 0 percent interest rate (Waiho et al. 2020; Bank Simpanan Nasional 2020). Government tax incentives have been shown to be effective in improving the efficiency of Malaysian SMEs (Noor et al. 2016). Furthermore, it is also recognized that other financial incentives, such as allowances, have improved the financial viability of SMEs in the Malaysian aquaculture market (Sara et al. 2014).

Tenaga Nasional Berhad (TNB) provides a two percent discount on monthly bills for all residential, commercial, manufacturing and agricultural sectors for six months,

in line with government measures to support economic activities and alleviate financial strain (Tenaga Nasional Berhad 2020). With the discount on energy use, the production costs of aquaculture farms will be lower and losses could be mitigated by the availability of affordable loans given by different financial institutions.

3 Methodology

As the purpose of this study is to investigate the impact of COVID-19 to businesses of offline and online, a few methodologies were explored to conduct the analysis including the stage of digital adoption among SMEs, the analysis of causes and barriers for e-commerce adoption including its benefits amid the context of COVID-19.

The term e-commerce refers to a wide range of digital adoption among businesses. To differentiate the level of e-commerce adoption, growth models based on “stage of growth” concepts which recognized varying degree of information system including e-commerce among organizations was utilized by the literature (Rahayu and Day 2017). Rao et al. (2003) proposed a four stages model of presence, portal, transaction integration, and enterprises integration, to illustrate the evolution of e-commerce in an organization each with its own characteristic. This four stages model will be utilized to define the digital adoption of SMEs involved in this study (Fig. 1).

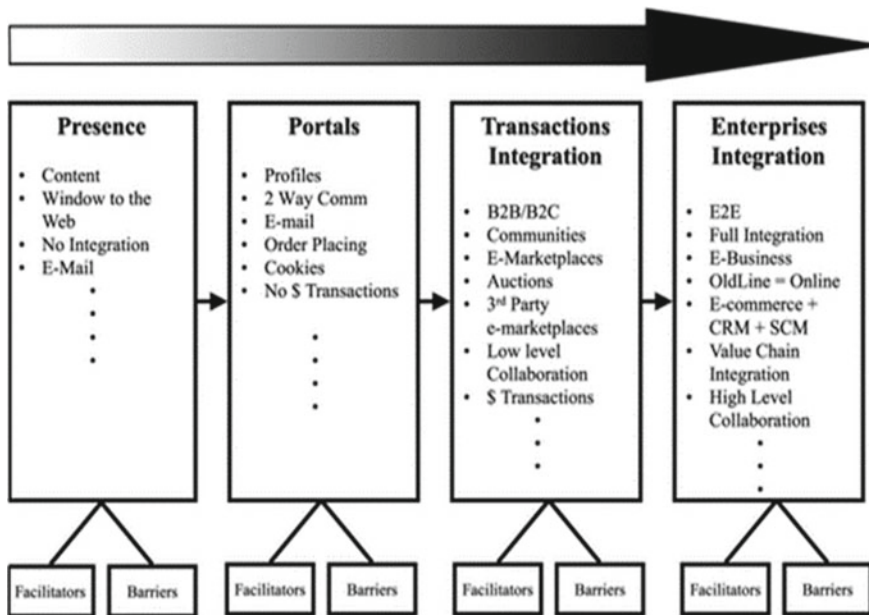


Fig. 1 Stages model. Source Rao et al. (2003)

4 Questionnaire Guide

This study questionnaire guide is written based mostly on the four stages of growth model and technology of acceptance model and guard at the tip to capture the sociology of respondents. Additional analysis can be conducted reckoning on whether or not enough information is collected to change such analysis. Questionnaire in this analysis was divided into 3 components. First half is look at the demographic data of the businesses, such as the numbers of employees and also the business sector to that the corporate belongs. Second part was examining however positive and negative factors encourage the adoption of e-commerce by SMEs.

5 Data Collection

This study is a qualitative study with a deep dive interviews conducted to collect primary data. No quota or target was set as there is no known population census data on SMEs with the focus on e-commerce. Instead, freefall approach was adopted and the accumulated respondent data will be utilized to provide an understanding on the total level.

The purpose of this research was to gain useful insights into the effect of e-commerce on SMEs as well as the perception of SMEs towards e-commerce. The research was performed through telephone interviews with owners and managers of businesses from different areas with consideration of the Covid-19 risks that exist in the community. Eight respondents were interviewed with the snowballing method sampling method while the recruitment criteria is set based on the definition of SMEs. SMEs is defined as small and mid-size enterprises with sales, properties, or employees that fall below a certain level. It is important to note that SME is de-scribed differently in each country. In Malaysia, a company is considered a SME if it meets one of the two qualifying criteria: revenue turnover (not exceeding RM20 million) or full-time staff (not exceeding 75 workers), whichever is lower for the services and other industries (Rogers 2020; SME Corp. Malaysia 2020).

The respondents recruited were involved in various business activities. The majority of those who responded were business owners, while others worked in management positions. What is interesting in Table 1 is that this table lists the specifics of each respondent as well as their company profiles. The interviewees are between the ages of 20 and 40. The number of employees ranged from 1 to 40 people, meanwhile the number of IT staff ranged from 1 to 6 people. The table also mentioned the respondent's respective educational back-grounds, gender and the sector in which their business currently operate in.

From the data in Table 2, it is apparent that depicts the questionnaire guide that was developed to guide the interviewer in their deep dive interview with the respondents. The questionnaire guide are structured with open ended structured questions with the aim to obtain an in-depth knowledge on the company details, e-commerce

Table 1 The profile of respondents and company’s background

Respondent	Gender	Age	Education	Sector	Respondent’s title	No. of employees	No. of IT staff
R1	Female	38	Bachelor’s Degree	Services	Board Member	10	2
R2	Female	31	Bachelor’s Degree	Commerce	Owner	5	1
R3	Female	28	Postgraduate Degree	Services	Owner	1	1
R4	Male	29	Bachelor’s Degree	Commerce	Manager	5	1
R5	Male	21	College Diploma	Commerce	Manager	3	1
R6	Female	31	Bachelor’s Degree	Commerce	Owner	1	1
R7	Male	36	Bachelor’s Degree	Construction	Manager	14	2
R8	Male	30	Postgraduate Degree	Financial	Manager	40	6

Table 2 Interview questions

Information	Questions
Demographics	<ol style="list-style-type: none"> 1. Gender 2. Age: How old are you? 3. Education: What is your highest education certification? 4. Sector: Which sector of the economy are you active in? 5. Respondent’s Title: What is the role or title that you are performing in your organization? 6. Number of Employees: How many employees are there in your company? 7. Number of IT Staff: How many IT staff do you have in your organization?
Four stages model	<ol style="list-style-type: none"> 1. How long has your firm adopted e-commerce into the business? 2. You state that your firm has adopted e-commerce, can you share with us what aspect of e-commerce has your business adopted in terms of: <ol style="list-style-type: none"> a) Presence b) Portal c) Transaction d) Enterprise

perception, strategies, as well the respondents’ thoughts with smooth transition from each of the subjects. The interview was conducted through telephone call which took about 40 min for each session. The data obtained was then categorized, summarized, and tabulated based on the interview transcripts using the content analysis method. Content analysis refers to a technique for drawing inferences by systematically and

critically defining special characteristics of messages (Raffis et al. 2020; Sutton and Austin 2015; Holsti 1968).

6 Findings

This study provides the results of the interviews performed on each respondent. Table 3 shows the data consisting the interviews’ transcription towards the themes involved in the study. From the table, the findings are covering questions from various themes to obtain a detailed explanation or observation on the interviewees’ perception toward e-commerce. The themes included the (1) the four-stage model.

Table 3 Findings

No.	Information	Questions	Interviews’ Transcription
1	Four stages model	How long has your firm adopted e-commerce into the business?	“My firm has adopted e-commerce for less than one year.” [R1] “I have been in the doing online business for more than two years.” [R2] “My firm has not yet adopted e-commerce but I do use WhatsApp and google meet to communicate with my clients. I am also planning on building my company’s official website in the future.” [R3] “I have been using e-commerce for less than a year.” [R4] “My business has been adopting e-commerce for the past two years.” [R5] “I have been using e-commerce for four years.” [R6] “My firm has adopted e-commerce for two years.” [R7] “My firm has used e-commerce for three years.” [R8]
2.a		You state that you firm has adopted e-commerce, can you share with us what aspect of e-commerce has your business adopted in terms of: Presence	“We promote our menu on Instagram and Facebook so that our customers can know the dishes we offer for the day.” [R1] “I promote my products on Instagram.” [R2] “I have only used WhatsApp and telegram to communicate with my clients.” [R3] “Instagram is mostly used to advertise my snacks or products.” [R4] “My products are promoted on Instagram.” [R5] “I usually promote my desserts on Instagram and Facebook.” [R6] “We use Facebook to promote our company’s services.” [R7] “Our services are promoted on the company’s website and Facebook page.” [R8]

(continued)

Table 3 (continued)

No.	Information	Questions	Interviews' Transcription
2.b		<p>You state that you firm has adopted e-commerce, can you share with us what aspect of e-commerce has your business adopted in terms of: Portal</p>	<p>“We have been using the Foodpanda app to boost our sales especially during the first MCO when in-dining was still prohibited.” [R1] “Most of my customers contact me via WhatsApp but my products are also available on the Shopee App.” [R2] “I have been using google meet during the MCO to hold meetings with clients but only brief meetings because the courts have been closed until very recently.” [R3] “My snacks are ordered and sold through direct messaging via WhatsApp. The snacks are then personally delivered to the customer’s homes.” [R4] “My customers are able to purchase my products through WhatsApp.” [R5] “My customers can reach me through WhatsApp or call my handphone number to make their orders.” [R6] “During the MCO, meetings are held with clients through google meet.” [R7] “Communications are carried out through phone call and virtual meetings via zoom app during the MCO.” [R8]</p>
2.c		<p>You state that you firm has adopted e-commerce, can you share with us what aspect of e-commerce has your business adopted in terms of: Transaction</p>	<p>“Normally our customers would pay in cash when they dine in the store however during the MCO we encourage our customers to use online banking instead.” [R1] “I prefer to use online banking when it comes to transactions, but cash is also acceptable.” [R2] “I always use online banking for payments and other transactions because it normally involves large amount of fees for the services my firm offers therefore cash is not an option.” [R3] “I prefer Maybank2u for online payments but cash on delivery is also accepted.” [R4] “I prefer online banking when receiving payment.” [R5] “Most payments are made by cash or Maybank2u.” [R6] “Payments are always made via online banking.” [R7] “All transactions are carried out via online banking.” [R8]</p>

(continued)

Table 3 (continued)

No.	Information	Questions	Interviews' Transcription
		<p>You state that you firm has adopted e-commerce, can you share with us what aspect of e-commerce has your business adopted in terms of: Enterprise</p>	<p>“Our management operates based on the traditional concept that focuses on providing quality to our customers rather than depending on digital interactions. We take full responsibility of the quality of food we serve to our customers.” [R1] “I sell products which are factory manufactured hence I emphasize more on the quality of my products to ensure customer loyalty rather than consistent digital interactions.” [R2] “My firm focuses on client management where I am required to physically communicate and provide legal support to my clients therefore may not be suited to digital management.” [R3] “Stocks are ordered from the main headquarters in Kuala Lumpur depending on the number of pre orders received locally.” [R4] “I am not familiar with formal management systems. Most of my customers are family, close friends and friends of friends and the college staff I am currently studying at.” [R5] “My business approach may be closer to digital CRM. I interact frequently with my customers and encourage them to give feedback on the quality of my products or desserts.” [R6] “As a construction firm, our main focus is on the quality of our service to ensure the safety and satisfaction of our clients.” [R7] “Our business is focused on customer relationship management as we deal with variety types of individuals every day. Our business requires equal amount of trust between us and our clients and maintaining those relations is crucial because we deal with people’s lives and they depend on our insurance policies to ensure the sustainability of their livelihood.” [R8]</p>

7 Discussion

E-commerce Adoption

The implementation of MCO and its lockdown had basically stop consumers going to businesses stores and which directly cut off the business’ revenue. This is generally why most companies are rushing or very eager to adopt e-commerce especially during the pandemic when the MCO regulated a highly emphasized social distancing protocol to stop the spread of the pandemic. However, most respondents have already seemed to have perceived to adopt e-commerce even before the pandemic. Only one of the respondents mentioned that their business was relatively new to e-commerce

stating that “My firm has adopted e-commerce for less than one year.” [R1]. The next interviewee however had a bit more experience than the first saying that “I have been in the doing online business for more than two years.” [R2].

Meanwhile, there was also one respondent who have said that they had yet to board on the e-commerce train stating that “My firm has not yet adopted e-commerce but I do use WhatsApp and Google Meet to communicate with my clients. I am also planning on building my company’s official website in the future.” [R3]. This is interesting as the shows that the respondents have its own definition of e-commerce in which WhatsApp and Google Meet which they had used did not qualify as e-commerce. The fourth respondent had a similar experience to the first respondent mentioning that “I have been using e-commerce for less than a year.” [R4]. The fifth respondent said “My business has been adopting e-commerce for the past two years.” [R5]. There were also SMEs who have each shared that they have more experience in e-commerce than the rest stating that “I have been using e-commerce for four years.” [R6], “My firm has adopted e-commerce for two years.” [R7] and “My firm has used e-commerce for three years.” [R8].

(a) Theme 1: Four Stage Model

The four stages model is a framework which comprises the respondents’ view on e-commerce adoption, the portals their businesses often used, transaction and enterprise integration into their businesses. The model suggests that if companies can adapt their organizations to accommodate the use of e-commerce within their existing business processes, the potential gain from e-commerce will increase.

Presence

Innovative e-commerce firms have redefined what is possible and changed the way we shop today. Many store owners are feeling the strain to become specialists in digital marketing as a result of the fierce competition for customer attention. Mastering the nuances of online marketing can be a daunting, often paralyzing challenge for SMEs who rarely have dedicated marketing departments or budgets to employ consultants. Most of the respondents perceived e-commerce as digital adoption whereas they regard that by engaging in social media, they have successfully adopted e-commerce, although there were some respondents who have successfully established themselves on online platforms to sell their products. A respondent revealed that “We promote our menu on Instagram and Facebook so that our customers can know the dishes we offer for the day.” [R1]. Another respondent preferred only to use communication applications revealing that “I have only used WhatsApp and telegram to communicate with my clients.” [R3]. From the responses in Table 3, it was found that Instagram and Facebook are the most popular social media used by the respondents to promote their products stating that “I promote my products on Instagram.” [R2], “Instagram is mostly used to advertise my snacks or products.” [R4], “My products are promoted on Instagram.” [R5], “I usually promote my desserts on Instagram and Facebook.” [R6], “We use Facebook to promote our company’s services.” [R7] and “Our services are promoted on the company’s website and Facebook page.” [R8].

This is an interesting finding in that without the need for website, e-commerce platform or other presence that was recorded in the Four Stage Model, Malaysian SMEs can establish their businesses well online through social media especially Facebook and Instagram to help pull them through the pandemic. This shows that freely accessible social media is also a viable platform for SMEs to help SMEs build their businesses online and it is an update to the Four Stage model based on Malaysia' Sabah context.

Portals

Although there are numerous marketing resources and technology available to assist merchants in developing, analyzing, and optimizing strategies, many of which are also accessible and affordable to smaller retailers, determining where to begin the marketing journey often stalls the process before it even begins. One business in particular has gone to an app platform as to fully utilize e-commerce potentials that have been offered by online food order and delivery applications stating that “We have been using the Foodpanda app to boost our sales especially during the first MCO when in-dining was still prohibited.” [R1]. Another respondent also shared that they open multiple avenue to increase market penetration by saying that “Most of my customers contact me via WhatsApp but my products are also available on the Shopee App.” [R2].

Meanwhile others have preferred social media platforms and online meeting to connect with their customers stating that “I have been using Google Meet during the MCO to hold meetings with clients but only brief meetings because the courts have been closed until very recently.” [R3], “My snacks are ordered and sold through direct messaging via WhatsApp. The snacks are then personally delivered to the customer's homes.” [R4], “My customers are able to purchase my products through WhatsApp.” [R5], “My customers can reach me through WhatsApp or call my handphone number to make their orders.” [R6] “During the MCO, meetings are held with clients through Google Meet.” [R7] and “Communications are carried out through phone call and virtual meetings via Zoom app during the MCO.” [R8].

This is also an interesting finding in that more easier and affordable portals are available for adoption among SMEs. The availability of free and affordable if not free Apps such as WhatsApp and Instagram provide a low barrier of entry into online businesses. This has allowed them to establish a digitalized Customer Relationship Management that aid them to stay in contact with the consumers and allowing sales generation through taking orders online and making deliveries.

Further the availability of e-commerce platform such as Foodpanda and Shopee to SMEs helps further expands the SMEs penetration and exposure of products beyond their own network and coverage. The development of virtual meetings also allowed SMEs to better engage their clients specifically Google Meet which is used to organized meetings that go beyond calls and messaging. The above finding is interesting as it shows that Portals in the Four-Stage model also required an updates

following the development of technology and context especially the development of social media.

Transaction Integration

To boost online businesses, a seamless online shopping experience was recommended to achieve this. It also means that any retailer looking to boost sales should think about integrating an online payment gateway. This was found to be the mindset of the interviewees when asked about transaction integration. Nowadays, an increasing number of people choose to avoid wasting time on physical shopping trips and instead purchase goods or services online from the convenience of their own homes. This is an understandable behavior based on the new normal brought on by social distancing regulations and also to reduce the risk of contracting the virus. However instead of setting up their own online payment system, majority of the respondents leans towards the use of online banking in-stead, claiming that “Normally our customers would pay in cash when they dine in the store however during the MCO we encourage our customers to use online banking instead.” [R1], “I prefer to use online banking when it comes to transactions but cash is also acceptable.” [R2], “I always use online banking for payments and other transactions because it normally involves large amount of fees for the services my firm offers therefore cash is not an option.” [R3], “I prefer online banking when receiving payment.” [R5], “Payments are always made via online banking.” [R7] and “All transactions are carried out via online banking.” [R8]. Maybank2u was found to be the ultimate online banking choice for two of the businesses stating that “I prefer Maybank2u for online payments but cash on delivery is also accepted.” [R4] and “Most payments are made by cash or May-bank2u.” [R6].

The above is interesting in that SMEs does not need to invest or spend to develop a whole new payment system rather they can integrate an existing online banking system established by the banking industry to meet the purpose. It is also interesting to note that there were no mentioned of e-wallet or e-payment system here which indicates that the awareness and penetration of e-wallet still remain to be seen in the Sabah SME’s landscape or there are barriers that hinder its development.

Enterprise Integration

Most of the respondents’ consumers in this study are end-user. This business to customer (B2C) encompasses a wide range of approaches that includes both goods and services. Businesses have taken advantage of technologies such as mobile applications, native ads, and targeted marketing to sell directly to their consumers to generate better ROI on their advertising expenditures. From this study finding, it was found that these businesses also stress on the quality of their goods and services to ensure consumer loyalty. One of the interviewees added “Our management operates based on the traditional concept that focuses on providing quality to our customers rather than depending on digital interactions. We take full responsibility of the quality of food we serve to our customers.” [R1]. Others revealed to be selling services directly to their clients have said that “My firm focuses on client management where I am required to physically communicate and provide legal support to my clients therefore may not be suited to digital management.” [R3], “As a construction firm,

our main focus is on the quality of our service to ensure the safety and satisfaction of our clients.” [R7] and “Our business is focused on customer relationship management as we deal with variety types of individuals every day. Our business requires equal amount of trust between us and our clients and maintaining those relations is crucial because we deal with people’s lives and they depend on our insurance policies to ensure the sustainability of their livelihood.” [R8].

This is interesting as despite SMEs have taken the approach to create awareness of their business online among consumers. They stop short from engaging digital advertising and instead rely on their own internal content generation or their usual conventional method in engaging their which includes maintaining product quality, frequent communications, and the personal touch to build trust. This leaves room for further potential of online business adoption among SMEs and the reason that SMEs stop short from engaging digital advertising could be insistence to what they know best, lack of understanding of how digital advertising or the expense of digital advertising is beyond their means in which further studies could further investigate.

Drop shipping is a popular system that is semi e-commerce but is one of the fastest growing business models. Two of the respondents adopt the drop ship business model in this study. Drop shippers bind buyers with producers, acting as a middleman. This business model is applied by two of the respondents supported from the following statements made by the interviewees saying that “I sell products which are factory manufactured hence I emphasize more on the quality of my products to ensure customer loyalty rather than consistent digital interactions.” [R2] and “Stocks are ordered from the main headquarters in Kuala Lumpur depending on the number of pre orders received locally.” [R4].

This is an interesting finding as well as a semi e-commerce could benefit from the adoption of e-commerce but could also be taken over by full e-commerce model. As drop shipper benefits from consumers whom know of their product through other portals of communications if those portals develop their own end-to-end services from order to delivery such as through e-commerce then the services of drop-shippers would perhaps be unnecessary. Thus opportunity and risk exists depending on how integrated technology and e-commerce is in the organizations.

A respondent also claimed that their organization is run in a manner similar to customer relationship management (CRM), a technology for handling all of a company’s customer and future customer relationships and experiences stating that “My business approach may be closer to digital CRM. I interact frequently with my customers and encourage them to give feedback on the quality of my products or desserts.” [R6]. On the other hand, another respondent have countered that they are not familiar with formalized standards with the statement “I am not familiar with formal management systems. Most of my customers are family, close friends and friends of friends and the college staff I am currently studying at.” [R5].

This is an interesting finding in that despite the available of technology and app might be available publicly the effective utilization of such technology varies depending on businesses or organization understanding and strategy.

Overall, based on the respondents’ responses it would seem that digital adoption for SMEs are an easy endeavor made feasible by the availability of publicly available

and affordable (if not free) technology and social media. SMEs are also able to integrate various components necessary for online business including awareness, consumer's engagement, promotion, and payment through the various tools available in the market. However, the digital integration seems to stop at those area only as SMEs still rely on their own method in building customer relations and did not rely on digital advertising or digitization of their operations which could be an area that the Government could consider promoting and invest this aspect in SMEs to further boost their capabilities and competitiveness which is a consideration beyond the Covid-19 context as business survival is the priority.

8 Conclusion

This study provides the results of the interviews performed on each respondent. The findings are covering questions from various themes to obtain a detailed explanation or observation on the interviewees' perception toward e-commerce. The themes included the (1) the four-stage model support during the MCO.

Most of the SMEs did not fully adopt e-commerce other than social media; because e-commerce platforms to them have a cost and other processes in which case they would rather be using social media instead of e-commerce platforms. Social media have a low barrier of entry compare to an e-commerce platform whereby the e-commerce platform could have too strict of requirements or it is too complicated that SMEs see social media as the first e-commerce option to consider as they probably have tried it before. It is also a possibility that they might not have reached the conditions or situations that make it viable for them to adopt those platforms.

Research deliverables that impacting on academics, society, industry, economy and nation. There are limited studies related to SMEs' adoption of e-commerce in developing countries and this study will provide a landscape view of e-commerce adoption level among SMEs. The following result of this investigation showed this study is able to provide an analysis of the impact that COVID-19 had on online and offline businesses which could provide an indication of how much an online model would fare better against offline businesses in.

Insights on the factors that enable and discouraged SMEs to adopt e-commerce which will provide identifiable and measurable target and issues for policy makers and researcher to conduct future research. This result could enrich the understanding of SME owners about the potential benefits of online business. This research has thrown up many questions is need of further investigation. It is suggested further studies should be undertaken involving a larger sample throughout other states in the country to take into account the impact of E-commerce on Small and Medium Sized Enterprises.

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The Government Business Support Strategies, Micro SMEs and Covid-19 Pandemic



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Abstract The COVID-19 pandemic, also known as the coronavirus pandemic is today regarded as one of the largest global public health crisis. The pandemic has not only endangered people's lives, but has also jammed economic outputs of many countries the world over. As a result, different economic levels in various parts of the world have experienced a massive direct impact as a result of COVID-19. Small and medium enterprises (SMEs), in particular, had taken the worst blow, and the sectors of SMEs badly affected by this ongoing public health crisis include transportation, tourism, and food services, as well as accommodation. Government intervention is henceforth becoming increasingly important amidst the current extraordinary circumstance and are certainly required to be more comprehensive and unconventional than usual. In order to minimize the negative effects of the pandemic on SMEs, which are a vital organ of a nation's economy, a comprehensive and creative form of assistance is therefore urgently needed to save them. Hence, this study aims to identify priority assistance programs most needed by SMEs. Besides, this study also examines how the assistance programs launched by the government match the actual needs of SMEs. Last but not least, this study also explores SMEs' ability to survive the current crisis, in particular, by measuring their capacity to survive from possible risks of insolvency. Notably, this study finds that the role of government in supporting the growth of micro SMEs is becoming increasingly important and critical. Micro SMEs support programs therefore must be comprehensive and not focused on financial support programs alone. Advisory services and trainings, especially in the field of e-commerce and social media need to be made more accessible to micro SMEs. Undeniably, skills in the digital economy and social media are added values and offer great convenience for entrepreneurs to market their products more widely today. In essence, the findings of this study support policymakers in their efforts to improve current policies and at the same time, formulate new strategies related to the use of e-commerce for micro SMEs. Finally, the study also suggests that

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future researches incorporate more contextual variables into this study model and investigate those variables in more diverse geographical or cultural environments, thus revealing other relationships necessary to maintain the sustainability of micro SMEs.

Keywords Covid-19 pandemic · Government business support · SMEs

1 Introduction

The COVID-19 pandemic, also known as the coronavirus pandemic is today regarded as one of the largest global public health crisis. The pandemic has not only endangered people's lives, but has also jammed economic outputs of many countries the world over. As a result, different economic levels in various parts of the world have experienced a massive direct impact as a result of COVID-19. Small and medium enterprises (SMEs), in particular, had taken the worst blow and the sectors of SMEs badly affected by this ongoing public health crisis, include transportation, tourism, and food services, as well as accommodation. Take the supply side of the economy for example, which was vastly affected due to workers' inability to leave their homes due to strict lockdowns on top of the additional responsibilities of taking care their family members, especially their children during the pandemic. As a result, capacity utilization was severely dropped due to the shortage of raw materials and labor shortfall (Hadi 2019). Meanwhile, with regards to the demands side, the impact was notably mixed due to different intensity of the pandemic in different countries. SMEs used to supplying their goods to various European regions faced greater adverse impacts because of the greater reported number of COVID-19 cases there, coupled with the strict measures taken by their respective governments to contain the pandemic (Hadi 2019). Conversely, loss of income and decrease in the purchasing power of the general public, predominantly, the working class were the major factors in the reduction of an aggregate public demand. It is indeed common knowledge that SMEs constitute the main pulse of a national economic development by providing employment opportunities, as well as being a major contributor to the country's economy and GDP. An adversely impacted SME ecosystem will inevitably create an enormous impact on a country, both in terms of its economic strength and social well-being. An increase in the death rate of SMEs will in turn produce an increase in the unemployment rate due to the high rate of job losses within the sector. This situation can be further exacerbated by the government's failure to provide employment opportunities to new graduates, creating a deterioration in the larger societal well-being with the inevitable soaring rate of poverty. Therefore, an extensive government intervention is extremely critical amidst the economic crisis to ensure survival of the SMEs, and at the same time, revive the sector's business activities.

Indeed, there is little flexibility in the ability of SMEs to withstand such crisis for a long time, as improvisation in emergency situations do not always prove to be very cost effective for the running of their usual operations (Hadi 2019). Apart from that,

adaptation in the forms of telemarketing and online forums for business activities do not seem sufficiently feasible for such small scale companies (Bin Yusoff et al. 2018). Furthermore, heavy taxations, high rental agreements, and almost no support from debt financing institutions make up some of the biggest concerns voiced out by the small level industries (Hadi 2019; Yusoff et al. 2018). Notwithstanding, in countries where SMEs vastly contribute to the national GDP, due attention are given by the individual government towards these businesses. Policy measures taken in these countries include a provision of financial support and wages to the industries' workforce to help them survive the crisis. To ease liquidity constraints, several countries have introduced measures which include relaxation in tax returns or deferment of bill payment for electricity and fuel consumption (Saad et al. 2019). Similarly, in selected countries, a number of banks have been directed by their respective central banks to offer financial assistance to these small scale industries in order for them to successfully carry out their production cycles without any shortage of financial supply during the crisis. In addition, structural policies were also introduced to encourage SMEs to adopt new business methods like digital marketing and social media to support a stable growth of the SME sector. However, there exists no accurate measurement to how effective those initiatives had been in helping maintain the sustainability of these small scale businesses.

Without a doubt, a government intervention is becoming increasingly crucial amidst the current exceptional circumstance and certainly needs to be more comprehensive and unconventional than usual (Hadi 2019). In order to minimize the negative effects of the pandemic on SMEs, which are a vital organ of a nation's economy, a comprehensive and creative form of assistance is therefore urgently needed to save them. Thus, in the spirit of supporting the continued growth and sustainability of SMEs, the governments of most countries have launched several financial assistance schemes, specifically designed for SMEs. Yet, did the schemes meet the actual needs of SMEs? And how long could SMEs survive in this current debilitating situation? These questions still remain unanswered. Thus, this study seeks to identify priority assistance programs actually needed by SMEs. Besides, this study also examines how the assistance programs launched by the government match the actual needs of SMEs. More importantly, this study also explores the SMEs' ability to survive the current crisis, in particular, by measuring their capacity to survive from possible risks of insolvency.

2 Literature Review

2.1 Theoretical Background

This study was conducted chiefly underpinned by the Resource-based View (RBV) theory in which it stipulates that a government support is an important external source

for SMEs in order to help them balance competition with large companies (Ribeiro-Soriano and Galindo-Martín 2012). RBV has been widely used by many researchers in reviewing the use of business support services by SMEs, (Bennett and Robson 1999; Dyer and Ross 2008; Webber et al. 2010) and the effectiveness of government business support services to these businesses (Hjalmarson and Johansson 2003; Mole and Keogh 2009, Cravo and Piza 2019). On top of that, RBV is also extensively applied by many international researchers in their studies of diagnostic influence on business performance (Cravo and Piza 2019). Moreover, a study related to the use of external support services by SMEs in the UK also used the RBV theory as a basis in constructing its theoretical framework (Bennett and Robson 1999). In the Malaysian context, recent use of the RBV theory was noted in the latest studies investigating the factors of perception and awareness that influence the use of business support services by the government (Shamsuddin et al. 2020). These evidences of previous studies clearly indicates the suitability of the RBV theory as a basis for this study.

Undeniably, SMEs are the main driver of a country's economy. The important and strategic role played by SMEs has been recognized by the government and they have long become a partner to the government, together ensuring a sustainable development of the country's economy. SMEs are traditionally the backbone of a country's economic development. Many studies indicate the need for SMEs and governments to move in parallel and work together to drive greater economic development. The government's contributions and interventions in SMEs' activities are typically made in various forms. The support and assistance provided by the government to SMEs not only come in the form of financial assistance, but also include infrastructure facilities and capacity development, comprising of technical and soft skills trainings. A government intervention in the activities of SMEs occur due to the imbalances of competition in the economy where SMEs commonly face various limitations and consequently find it difficult to compete with larger companies without the support and assistance from the government. Thus, in the context of Malaysia, the Government Business Support Services (GBSS) is prepared to increase the competitiveness of SMEs in increasingly challenging markets.

The RBV theory proposes that the availability of external support is meaningless without a firm knowledge to exploit and make use of it (Park et al. 2020). Thus, before the introduction of any governmental or non-governmental intervention to any group, the level of knowledge on the functional skills of the target group should first be identified, so that development programs can be planned and arranged accordingly (Bin Yusoff et al. 2018). Moreover, the RBV model acknowledges the significance that most SME managers are also the owners of the businesses. In the case of SMEs, the owner-manager is the person best capable to analyze the VRIN ("Valuable, Rare, Inimitable and Non-Substitutable") and economic performance of the business. The argument is thus inclined to support the notion that firms and owners need special characteristics in order to achieve the desired performance and sustain their competitive advantages. Johnson et al. (2020) supported this argument by highlighting the importance of the perfect combination of a firm's internal resources comprising of an owner-manager and external resources, referring to business support, among others, in order to obtain a competitive advantage against others. Thus, this study exploits

the fact that the GBSS is one of the most valuable resources to firms and is ultimately capable of exerting a significant influence on their performances.

2.2 *Business Support*

Provision of business support emanates from a neo-classical theory rooted in the idea of imperfect markets (Shamsuddin et al. 2020). The inability of small businesses to acquire information and knowledge about the market exposes them to unfair competition (Mole and Keogh 2009). Furthermore, the lack of competitiveness and internal resources also reduce SMEs to a vulnerable and fragile state, running a real risk of insolvencies. This justifies the necessity of external intervention to ensure the survival and continuous growth of SMEs as they are the engine of a nation's economic dynamism (Kraaijenbrink et al. 2010). At present, the government, with the assistance of development agencies have produced comprehensive programs which cover advisory services, soft skills, and technical trainings, as well as financial assistance for micro SMEs (Johnson et al. 2007).

A literature on the topic reveals that there are four areas of internal resources found to be weak among SMEs, thus requiring a special attention (Bin Yusoff et al. 2018; Al Mamun et al. 2017; Kumar et al. 2018; Bates 1995; Jenssen and Havnes 2002; Kinnel et al. 1994; Hankinson 2000; Barret et al. 2007). In their study of the exporters' behavior in Portuguese firms, (Smallbone et al. 2008) argued that the glaring weakness of SMEs in identifying a potential market represented one of the major barriers to non-exporter firms in the country. In addition, the lack of qualified personnel and technical suitability further contributed to the existing barriers. As such, these barriers slowed down the growth of SMEs in the country, inevitably causing a sluggish economy. A study also found that most SMEs suffer from insufficient skills in pivotal areas of technology, management, marketing, and finance (Asri 1999). The emphasis on these four areas aims to analyze the critical decisions frequently made by SMEs' owners regarding personnel, finance, marketing, and technical issues (Pinho and Martins 2010). Each of these constructs has itself been the subject of extensive discussion in past literature. Furthermore, most SME business support service providers are immensely focused on providing extensive financial support for the SMEs since a strong financial position ultimately influences the sector's business performance. It is worth emphasizing though that the four functional areas mentioned above should not be sidelined. Financial support alone does not significantly affect the growth and development of SMEs. In fact, it needs to be complemented with soft skill trainings in order to drive a tangible development and growth (Cravo and Piza 2019). Besides, the lack of managerial and other functional skills also typically caused most financial assistance provided failed to effectively impact the SMEs' performance (Bin Yusoff et al. 2018).

Business Support and SMEs' Performance. In reality, SMEs routinely operate with a myriad of disadvantages. Being a small enterprise, the owner-manager

possesses limited resources, burdened with a multitude of financial constraints and insufficient number of highly skilled human resources. Those weaknesses hinder small firms from running their business effectively and may also possibly distort the growth of the firms (Albert and Mazumdar 1991). This means that external support is vital to ensure effective and smooth operation of the firms, directly contributing to their growth and development. The government's moves to support the firms' activities via various programs therefore symbolize the right action needed, considering that SMEs are the backbone of a country's economy (Dyer and Ross 2008; Penrose 1959), specifically in Malaysia, where the economic policy is twofold: to ensure the country's economic growth; and to improve the social economic imbalances among ethnic groups. To achieve this noble pair of objectives, the GBSS has been identified as playing an important role in supporting the activities of SMEs (Yusoff et al. 2018). In reflecting the Government's interest in supporting SMEs, one of the National Key Economic Area (NKEA) agendas is to transform developmental financial institutions (DFIs). DFIs refer to critical agencies that provide support services to SMEs nationwide. Nonetheless, transforming DFIs require several critical steps, firstly, clarify the DFIs' mandates and rationalize them where possible, secondly, improve their operations and promote self-sustainability among the institutions, and thirdly, encourage them to shift into operations that emphasize Islamic finance (Blackburn 2012). In addition, driven by the aim to further support the growth of SME entrepreneurs, the Government has identified four thousand potential female entrepreneurs which are now placed under the supervision of Amanah Ikhtiar Malaysia (Micro-credit Institution) (Bin Yusoff et al. 2018).

The internal weaknesses of SMEs always pose difficulties and risks to the initial operation of new start-up businesses. In addition, lack of good resources, in particular, knowledge, may also negatively affect the SMEs' performance. Saad et al. (2019), in rationalizing their study on the effect of guided preparation and performance over 159 new ventures in Pennsylvania, USA, posited that knowledge is of paramount importance in running a business. However, it was found that many entrepreneurs lack this important internal resource. Entrepreneurs therefore need to be equipped with external sources, like business support, prior to the establishment of their ventures as well as in the initial stage for the purpose of developing their knowledge.

In order to support their ongoing businesses, SMEs constantly seek support to improve their performance, which are measured in soft and hard benefits (Curran and Blackburn 2000; Ramsden and Bennet 2005; Wren and Storey 2002). Soft benefits refer to the ability of firms to cope with their problems and improve their management skills. Meanwhile, hard benefits denote the profits and turnovers of the firms as well as any reduction made in the costs of production. In other development theories, apart from purely motivated by the desire for growth (Wren and Storey 2002) it is found that SMEs also seek support for the purpose of ensuring their survival in the long run, not solely for growth. A large-scale study demonstrated that in drawing the need for external support, (Curran and Blackburn 2000) SMEs seek support, in particular from government-sponsored agencies, not necessarily to achieve growth, but more importantly to arrest decline. Take Business Link of the UK for example, which is regularly used by SMEs that possess poor growth and performance, Business Link

is primarily used by SMEs as a platform to address difficulties and tackle problems, instead of a key platform of support for their growth. Accordingly, the study also suggested that firms with growth orientation should seek business support and support services from private parties such as accountants, lawyers, and banks, instead of the government.

In short, the rationales behind SMEs seeking business support from the GBSS are diverse and unique. The lack of managerial expertise in which there is a huge shortage of highly skilled staff has become one of the major factors for SMEs seeking external support from the GBSS. In addition, the internal resource constraints possessed by SMEs also need intervention from an external party to fill the gaps via a diverse business support services (Penrose 1959; Curran and Blackburn 2000; Ramsden and Bennet 2005). In their study of owner–adviser relationship, (Bin Yusoff et al. 2018; Dyer and Ross 2008) argued that it that SMEs indeed need the services of business support providers. Needless to say, the accessibility of the GBSS is crucial for SMEs, not only to support their growth but also to enhance their chance of survival.

2.3 COVID-19 Pandemic Special Support Program

The GBSS—which come in many forms and shapes, such as skills trainings, asset financing, marketing, and infrastructure development—seeks to produce significant impacts upon SMEs’ entrepreneurs. It goes without saying that SMEs’ internal resources are known to be weak and full of constraints (Dyer and Ross 2008; Nakagawa 2012; Wren and Storey 2002; Yusoff and Zainol 2014). Being small in size, SMEs lack capital, and therefore are unable to employ highly skilled employees, on top of other problems they frequently face. With the myriad of disadvantages, SMEs are naturally confronted with obstacles to possess resources that could give a positive impact on their performance and create a sustained competitive advantage for their businesses (Penrose 1959). Accordingly, SMEs greatly need external resources in the form of business support as a strategic tool to run their daily activities.

At present, the COVID-19 pandemic certainly has left a huge impact on the country’s economy. Business activities are no longer running smoothly and some businesses even have had to halt their operations (Ribeiro-Soriano and Galindo-Martín 2012). This situation has resulted in many losing their jobs. Indirectly, this situation has also caused the government revenue to be affected. In the context of Malaysia, the Government has launched several aids groups to address this specific problem. Among them were Special Relief Facility (SRF), Agrofood Facility (AF), Automation and Digitalization Facility (ADF), and Micro Enterprises Facility (MEF).

SRF is a short-term cash assistance intended to help ease the cash flow burden of SMEs affected by the COVID-19 outbreak. It is in essence, a working capital financing without the need for movable assets as collaterals. This facility is covered by collaterals from the Credit Guarantee Corporation Malaysia (CGC) or Business Financing Guarantee Company (SJPP). The maximum repayment period of the loan

is 5 1/2 years with a maximum financing limit of RM1 million. In addition, this facility provides repayment flexibility by providing businesses a moratorium for 6 months. Meanwhile, the Automation and Digitalization Facility (ADF) seeks to encourage SMEs to automate processes and digitize their operations to increase productivity and efficiency, whereas the Micro Enterprises Facility (MEF) was created to increase access to collateral-free financing for micro enterprises. Furthermore, to assist SMEs' cash flows that are most likely affected by COVID-19, banking institutions offer deferral to all loans/financing repayments for a period of 6 months, effective 1 April 2020.

3 Methodology

With respect to the methodology, closed ended questionnaires used in this study were distributed via email among SMEs in the East Coast region of Peninsular Malaysia which cover three states: Kelantan, Terengganu, and Pahang. 500 respondents taken from the list of SME Corporation Malaysia formed the population of this study. In addition, the random sampling technique was used as well to select samples of 217 (Yusoff et al. 2021). In order to increase the response rate, 400 questionnaires were distributed among the population. In the end, 114 questionnaires were returned, and only 106 were eventually accounted for use due to incomplete responses from the rest.

4 Results and Discussions

4.1 Demographics

It was noted that the largest respondents of the study came from the service sector (50.9%), followed by the manufacturing sector (37.7%), and the construction sector (11.3%). The majority of the respondents operated as sole proprietorships (64.2%), private limited companies (21.7%), and partnerships (14.2%). From those, 74.6% were in operation for less than 10 years. Moreover, the majority of the respondents all had less than 6 employees (76.4%) and 69% of them operated their businesses with a capital of less than RM50,000.00. Comparatively, the characteristics of the respondents of this study were similar to those of previous studies conducted in Malaysia. Hence, chiefly for that reason, the sample used in this study was deemed to be representative of SMEs in Malaysia (Table 1).

Table 1 Information on demographics of study

	N	%
Type of business		
Restaurant and Café	15	14.2
Retailing	26	24.5
Healthcare	8	7.5
Hotel and Lodging	1	0.9
Auto Service Centre	2	1.9
Professional services	2	1.9
Food	30	28.3
Printing	4	3.8
Textiles	6	5.7
Construction	12	11.3
No. of employees		
1–5	81	76.4
6–10	8	7.5
11–20	5	4.7
20–30	2	1.9
31–50	6	5.7
51–75	2	1.9
>200	2	1.9
Designation		
Managing Director	56	52.8
Gen Manager	24	22.6
Partner	8	7.5
Operation Mgr	18	17
Capital		
Less RM20,000	51	48.1
RM20,001–50,000	22	20.8
RM50,001–100,000	9	8.5
RM100,001–250,000	7	6.6
RM250,001–500,000	4	3.8
RM500,001–1 mil	5	4.7
RM1,000,001–5 mil	7	6.6
More RM5 mil	1	0.9
Length of business		
Less 1 year	4	3.8
1–5 year	41	38.7
6–10 year	34	32.1

(continued)

Table 1 (continued)

	N	%
11–15 year	14	13.2
16–20 year	9	8.5
>20 year	4	3.8
Location		
Urban	67	63.2
Rural	39	36.8
Form of business		
Sole Prop	68	64.2
Partnership	15	14.2
Private Ltd (Sdn Bhd)	23	21.7
Sector		
Services	54	50.9
Manufacturing	40	37.7
Construction	12	11.3

4.2 Impact of Pandemic on SMEs’ Activities

Level of Impact. It was found that almost all respondents experienced some forms of adverse impacts on their business operations. 41.5% of them claimed that the pandemic gave minor impacts to their businesses, whereas 35.8% of them thought the opposite. Furthermore, 12.3% of the respondents believed that the pandemic gave critical impacts to their businesses, while 6.6% of them perceived that the impact were fatal to their business operations. In general, it was found that about 20% of respondents were critically impacted by the pandemic and with only some of them considering it fatal to their businesses (Table 2).

Changes of Income. Overall, this pandemic has exposed businesses to the risk of not being able to continue their operations. This problem has caused the majority of businesses to experience significant decline in their revenues. 52% of respondents stated that they had experience some forms of income reduction between 1–25% during the 3 months of the Movement Control Order (MCO). Meanwhile, 18% of respondents claimed that their business incomes dropped between 25–50% during

Table 2 Perceived level of adverse impacts

	N	%
No impact	4	3.8
Minor	44	41.5
Major	38	35.8
Critical	13	12.3
Fatal	7	6.6

Table 3 Changes of income

	N	%
Drop 50–75%	19	17.9
Drop 25–50%	19	17.9
Drop 1–25%	55	51.9
Increase 1–25%	3	2.8
Increase 25–50%	1	0.9
Increase 50–75%	1	0.9
Increase > 75%	3	2.8
No change	5	4.7

the pandemic. The same number of respondents also suffered a decrease in income of 51–75%. From the total number of respondents, only 7.5% of them experienced an increase in income as a result of the pandemic. This is likely because they represented a retail service that enjoyed a sharp increase in sales following the closure of hypermarkets. Of these, there was only 0.9% increase in revenue between 1–25% and 26–50% of the respondents, while 2.8% of the respondents achieved an increase of more than 75% in their income. Interestingly, only 4.7% of the respondents were not affected by the pandemic, which requires further investigations (Table 3).

Survival Period. The continued decline in income will directly expose SMEs to the risk of closing down their businesses or possibly facing a bankruptcy. 52% of respondents acknowledged that they could only survive for 5 months if the situation persisted, while 1% of the respondents believed that they will cease operations in less than a month (from the time the study was conducted). Meanwhile, 23.6% of the respondents alleged that they could only last for 2 months, while 27.4% of them could only continue their operations for 3 to 5 more months. It was noted that only 23.6% of the respondents were able to cope for more than 5 months amidst the crisis (Table 4).

The issues of survival and sustainability of SME operations are therefore seen as critical. This is because based on this study, it was found that more than half of SMEs faced insolvency problems within a short period of not more than 5 months if the pandemic persisted. Moreover, this study also found that this pandemic has affected not only the activities of newly starting-up SMEs, but a similar effect was

Table 4 Survival period

	N	%
<1 month	1	0.9
1–2 month	25	23.6
3–5 month	29	27.4
>5 month	25	23.6
No problem	26	24.5

also reported on existing SMEs. In other words, the experience or age of a business does not necessarily make an SME immune or less affected by the pandemic. Table 5 shows an evidence that there is no significant relationship between a tenure of a business and its survival period ($p > 0.05$) (Tables 6, 7 and 8).

Furthermore, it is worthy to note that a decline in income means that the round capital for all classes of SMEs will also be affected and which means that eventually, internal resources will no longer be able to finance business activities. Therefore, SMEs require urgent intervention from outside parties, especially from the government to support the sustainability of their operations.

Table 5 Tenures vs. Survival periods: Time business survive and avoid foreclosure

		<1 month	1–2 month	3–5 month	>5 month	No problem	Total
Age of business	N	0	1	1	0	2	4
<1 year	% within Age of business	0%	25%	25%	0%	50%	100%
	% within survival period	0%	4%	3%	0%	8%	4%
	N	1	12	11	11	6	41
1–5 year	% within Age of business	2%	29%	27%	27%	15%	100%
	% within survival period	100%	48%	38%	44%	23%	39%
6–10 year	N	0	6	9	8	11	34
	Year % within Age of business	0%	18%	27%	24%	32%	100%
	% within survival period	0%	24%	31%	32%	42%	32%
11–15 year	N	0	5	6	0	3	14
	Year % within Age of business	0%	36%	43%	0%	21%	100%
	% within survival period	0%	20%	21%	0%	12%	13%
16–20 year	N	0	0	2	4	3	9
	year % within Age of business	0%	0%	22%	44%	33%	100%
	% within survival period	0%	0%	7%	16%	12%	9%
	N	0	1	0	2	1	4
>20 year	>20 year % within Age of business	0%	25%	0%	50%	25%	100%
	% within survival period	0%	4%	0%	8%	4%	4%

Table 6 Chi-Square tests (Tenures vs Survival Periods)

	Value	df	Asymptotic significance (2-sided)
Pearson Chi-Square	19.245	20	0.506
Likelihood ratio	26.017	20	0.165
N of valid cases	106		

Table 7 Sectors vs. survival periods

		Survival period					Total
		<1 month	1-2 month	3-5 month	>5 month	No problem	
Services	N	–	15	13	14	12	54
	% within Sector	0%	28%	24%	26%	22%	100%
	% within survival period	0%	60%	45%	56%	46%	51%
Manufacturing	N	1	7	13	8	11	40
	% within Sector	3%	18%	33%	20%	28%	100%
	% within survival period	100%	28%	45%	32%	42%	38%
Construction	N	0	3	3	3	3	12
	% within Sector	0%	25%	25%	25%	25%	100%
	% within survival period	0%	12%	10%	12%	12%	11%

Table 8 Chi-Square tests (Sector vs Survival Periods)

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	3.930	8.00	0.86
Likelihood ratio	4.26	8.00	0.83
N of valid cases	106.00		

Support Required. This study also found that the majority of respondents’ biggest concern was on their incapability to service their loan repayments as most SMEs have some forms of loan commitments in managing their businesses. Failure to make a steady repayment will not only have significant effect on the firms’ future profits, but in a worst-case-scenario, SMEs can in fact face legal actions from financial institutions. The second biggest concern for SMEs is the salary payouts for their employees. A deteriorating performance may affect a firm’s ability to meet its financial obligations, including paying the salaries of its employees, in turn affecting their welfare. Other activities that were of concern for SMEs include their ability to pay rent, access to stock of goods, loss of customers, and also, available government-supplied health assistance (Table 9).

Table 9 Biggest concerns

	Yes	
	N	%
Loan repayment	61	57.5
Employees' salary	60	56.6
Employees' welfare	54	50.9
Rental payment	51	48.1
Access to stock and other supplies	50	47.2
Lost of project and client	47	44.3
Health assistance (covid-19 from the government)	28	26.4

Type of Support Required. The study noted that the majority of SMEs placed help to enhance their businesses' e-commerce skills and new market exploration rather than financial incentives as the top priority they required (Table 10).

Table 5 shows that over 55% respondents needed government support or programs in order to identify new market opportunities. This is because COVID-19 has radically changed the economic landscape where business cannot be done as usual. In other words, the traditional way of doing business is no longer relevant today. As a matter of fact, the majority of respondents (54%) expressed their need for social media applications trainings. Furthermore, 39.6% of respondents also required trainings in developing a website for their businesses. The MCOs imposed by the authority has shifted the practice of conventional business transactions to online transactions. It is also apparent that the pandemic has triggered a critical role of social media in typical business activities. In line with this, the majority of respondents thus believed that

Table 10 Type of support required

	Yes	
	N	%
Identify new market opportunity	59	55.7
Training on media social application	57	53.8
Financial support scheme	46	43.4
Training on website development	42	39.6
Coaching on business model re-engineering	38	35.8
Machinery and equipment scheme	36	34
Employee protection program	35	33
Advise on succession planning	26	24.5
Selling the business	24	22.6
Client protection program	23	21.7
Advise on cost and risk in providing delivery services	20	18.9
Advise on employee layoff exercise	16	15.1

they need to be equipped with digitalization skills in order to survive and sustain their businesses amidst the pandemic.

In reference to the type of business support needed, the need for financial support was the third most preferred support by the respondents. Financial issues have always been relevant to SMEs and require immediate address by the government, even if it did not top the list of the most required support. This is because 43.4% of respondents still expressed the need for a support in financial assistance from the government. Apart from that, 35.8% of the respondents chose a coaching for business model re-engineering to adapt to the changes in the current business landscape. Other forms of business support that were also required by SMEs include employees' protection program, advice on succession planning and selling the business, clients' protection program, advice on costs and risks in providing delivery services, as well as advice on employees' layoff exercises.

5 Conclusion

Indeed, the COVID-19 pandemic has had a major impact on the entrepreneurial landscape of the country, specifically among micro entrepreneurs. Micro entrepreneurs in general, were significantly affected by a decline in their incomes and faced a greater risk of halting their operations if the pandemic persisted. However, micro entrepreneurs, known for their flexibility have managed to adapt quickly to the rapidly changing environments. To continue their survival, SME entrepreneurs believed that shifting to online transactions from conventional business transactions can immediately help maintain their performance. The growing awareness on the advantages of using technology has also made e-commerce increasingly popular among SMEs. In addition, this study finds that the role of government in supporting the growth of micro SMEs is becoming increasingly important and critical. Micro SME support programs must be comprehensive and not focused solely on financial support programs. In fact, SMEs require urgent advisory services and trainings, especially in the field of e-commerce and social media. Skills in the digital economy and social media will inevitably make it easier for SME entrepreneurs to market their products and services more extensively.

This study used the RBV theory in looking at the GBSS as an important source of support for micro SMEs, especially in facing the crisis caused by the pandemic. With regards to the practical implications of this study, the study's findings are expected to support policymakers in their efforts to improve current policies and formulate new strategies related to the use of e-commerce among micro SMEs. This will enormously help micro entrepreneurs to survive and face the new norm environment. Furthermore, the use of technology in business activities can also help micro SMEs face the increasingly fierce local and international competitions. Finally, as far as future researches are concerned, the study recommends that future researches incorporate more contextual variables into this study model and investigate those

variables in more diverse geographical or cultural environments, thus revealing other relationships that are necessary to maintain the sustainability of micro SMEs.

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The Impact of Technology on Entrepreneurship, Business Success and Social Implications

Methodological Tools of Verbal Evaluation of Efficiency Enterprise's Personnel Payment Systems in the Context of Corporate Social Responsibility



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Abstract Low profitability of enterprises encourages employers to seek reserves to increase wages not by raising prices for goods and services, but by using a rational organization of the production process and the introduction of automation of production operations that increase productivity. Therefore, in modern conditions, the process of enterprises' personnel remuneration effective system formation as a complex of the actions directed on maintenance of workers motivation for the purpose of their work efficiency increase acquires special urgency. Creating an effective motivational environment at the enterprise, which will contribute to the productive activities of staff, involves the development of methodological bases for reconciling the interests of all participants in the process of providing services. Therefore, there is a need to develop new approaches to improving economic relations between employers and employees, to translate the identified reserves into possible management actions. In this regard, there is a need to expand the methods and tools for forming an effective system of the enterprise's personnel remuneration as a basis for the timely and adequate choice of available alternatives. In order to make effective management decisions, it is necessary to create modern tools that allow on unstable market conditions to choose an effective system of remuneration.

The study aims to develop methodological tools for assessing the quality of enterprises' remuneration systems for personnel on the example of motor transport enterprises of Ukraine.

The study results allow applying a methodical approach to the verbal evaluation of remuneration system effectiveness, which considers the needs of employees and

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is based on the use of different from existing practice principle of unilateral establishment of the remuneration system from the standpoint of production capacity. The application of the reciprocity principle in the formation of the remuneration system contributes to the improvement of the general economic situation in connection with the increase of effective demand and expanding the supply of services provided by the production team.

Keywords Motivation · Quality of the remuneration system · Corporate social responsibility · Quality assessment · Verbal assessment

1 Introduction

The relevance of the chosen topic is due to the fact that the objective process of formation and dissemination of working conditions at Ukrainian enterprises, adapted to modern requirements of scientific, technical and organizational progress and market relations between business entities, causes a gradual increase in the share of hourly wages in the general fund wages of the enterprise.

Analysis of the development of social and labor relations shows that in this area in Ukraine the interests of workers are not sufficiently taken into account and as a result we get different, often opposite in content relations between employers and employees compared to Western countries.

The article proposes a mechanism for reconciling the interests of employers and employees of transport enterprises to determine the effectiveness of wage systems in accordance with the requirements of corporate social responsibility, presented by a set of guidelines and regulations for assessing the quality of wages by both employers and employees, identifying inconsistencies and search for organizational and economic measures to increase productivity to form sources for resolving the existing conflict of interest. The application of this mechanism allows creating a motivational environment to improve the performance of the enterprise in combination with the necessary improvement of the socio-psychological climate in the team, as the main condition for the implementation of corporate social responsibility principles.

2 Literature Review

Such scientists as A.V. Bazyliuk, D.P. Bohynia, Yu.M. Marshavin, G.T. Zavinovska, A.V. Kalina, O.A. Grishnova, E.M. Libanova, and others have devoted their works to the organization of wages.

Decent work as a subject of corporate social responsibility was studied by foreign scientists P. Bolton, F. Bonne, G. Standing, and R. Anker, P. Barrett-Reed, D.

Bescond, F. Egger, F. Megran, J. Ritter, A. Chatenier devoted their research to the evaluation and implementation of decent work principles.

In works of Kolot (2013) reflected the social and labor relations that affect the sustainable development of the national economy. He developed recommendations for harmonizing relations between employers and employees. In the modern conditions of the enterprises' tendencies, research activity of labor relations development in the conditions of economic crisis is actual. These issues were considered in the work of Novak (2010). However, the regulation of social and labor relations in the modern economy requires further research in the direction of developing a mechanism for reconciling the interests of employers and employees at the enterprise level. It should be noted that among scientists there is still no single point of view on the mechanism of labor relations regulation, although many scientists (Bukovynska 2015; Kulikov 2006) it is characterized as a set of elements, states, and processes that function in a clear sequence, create a connection, form appropriate relations and determine the procedure for carrying out any activity. In the modern literature, leading scientists (Ilyash and Grinkevich 2010; Libanova 2008) present the economic mechanism as a system of interdependent and interconnected regulators, which cannot be replaced by a simple set of economic levers and tools.

Significant interest, in our opinion, is the proposed definition of the mechanism of social and labor sphere regulation by Melnyk (Social Responsibility of Business 2021), according to which he interprets its content as a set of consistent legal, institutional, organizational, economic, managerial means and measures that have regulatory influence, to ensure intellectual growth and spiritual enrichment of citizens, increase the quality of life, achieving stability and social harmony in society.

However, as the analysis of scientific works shows, further attention needs to be paid to the development of methodological approaches and the creation of an appropriate modern mechanism for forming an effective system of enterprise personnel remuneration, taking into account the requirements of corporate social responsibility. The relevance of such research is confirmed by the requirement of European standards to bring modern wages closer to the norms of the Decent Work Concept.

That is, when building a mechanism for regulating social and labor relations at the enterprise, it is advisable to use the theoretical model of social and labor relations already created by domestic scientists, which takes into account the interaction of the two sides of such relations through the realization of interests, principles, and tools in the context of institutional approach (The Inclusive Growth and Development Report 2017; The Inclusive Development Index 2018).

Thus, in the works of domestic and foreign scientists, the problems of assessing the effectiveness of remuneration systems in accordance with the requirements of corporate social responsibility are insufficiently disclosed and need further study.

3 Research Methodology

To achieve the goal of the study and solve the relevant problems, a set of known scientific methods and techniques was used: the method of expert evaluation, namely, the method of fuzzy logic for a small sample (Fuzzy Logic) - to create a mechanism for evaluating the quality of payroll systems; abstract-logical method - for generalization, formulation of conclusions and recommendations. The method of logical synthesis was used to theoretically substantiate the importance of studying the problems of evaluating the effectiveness of remuneration systems from the standpoint of employer and employee. The use of methods of analysis and synthesis allowed to show the peculiarities of the use in Ukraine of modern methods of evaluating the effectiveness of existing pay systems. The method of constructing schemes and models was used to visualize the results of the study and their schematic interpretation.

4 Results

The main purpose of forming an effective system of remuneration at the enterprise is to create an effective motivational environment for both employees and employers. At the same time, the system of remuneration at the enterprise should provide such differentiation of wages, which would, on the one hand, motivate employees to work effectively, and on the other - would be economically justified for the employer (Kolot 2013).

The purpose and objectives of choosing a system of remuneration at the enterprise are determined taking into account the strategy of enterprise development, but for all enterprises, the main tasks of implementing a particular system of remuneration are the following recommendations (Kulikov 2006):

- involvement in the work only those categories of employees that company needs;
- stimulating effective productive behavior of employees aimed at solving strategic tasks facing the company;
- ensuring the relationship between labor efficiency and remuneration for it;
- formation of employees' sense of confidence and security;
- retention of employees at the enterprise through the introduction of a system of remuneration that ensures their decent level of remuneration.

The main component of wage regulation at the legislative level is the mechanism for establishing the level of minimum wage. In European countries, the minimum wage is usually set at the level of the lower wage of the employee and may not even reach the subsistence level. Therefore, the European Union calls on Eastern European countries to increase the minimum wage to at least 60% of the average wage in the country (The Inclusive Growth and Development Report 2017). The minimum wage, according to EU experts, should be equal to 2–2,5 subsistence minimums, although in most countries it is 35–40% of the average (The Inclusive Development Index 2018).

In addition to determining the minimum wage, regulation by the state also consists in the introduction of a reasonable tariff system, which is based on the Unified Tariff Grid.

Modeling and operation of any system provided as the end result of ensuring the efficiency of its activities. Almost all scholars dealing with wages note that the wage system must be effective, but in modern literature, there is no method of determining its effectiveness - there are no methodological tools that would take into account the mechanism of coordination of industrial, economic, and social-oriented practice in the motivation system of the company's staff.

The system of remuneration at the enterprise is designed, firstly, to ensure the remuneration of each employee in accordance with the quantity, quality, results of his work and the cost of labor services in the labor market, and secondly, to ensure the employer achieves in the production process such result, which allow to achieve cost recovery, profit, strengthening market positions.

Therefore, we propose to determine the effectiveness of the remuneration system from the standpoint of employees (a particular employee or the entire workforce) and the employer (enterprise as a business entity). At the same time, it is advisable to give it a qualitative and quantitative assessment in terms of compliance with the principles of corporate social responsibility (CSR).

According to the results of the study, it is proposed to assess the level of CSR of the business to reconcile the interests of employers and employees for such groups of stakeholders as employees and employers. For these groups of stakeholders using logical-analytical and monographic methods, indicators were identified that characterize the level of corporate social responsibility on the part of both employees and employers. Equations (1)–(6) contain indicators that reflect the level of corporate social responsibility.

$$N_1 = \frac{ZP_s^p}{ZP_s^g}, \quad (1)$$

where N_1 —an indicator of the ratio of the average enterprise employee's salary to the average salary in the automotive industry as a whole;

ZP_s^p —the average salary of employees in the reporting period;

ZP_s^g —the average salary of employees in the automotive industry in the reporting period;

$$N_2 = \frac{\sum ZP_{nv}}{\sum ZP_v}, \quad (2)$$

where N_2 —wage arrears;

$\sum ZP_{nv}$ —the number of unpaid wages at the end of the reporting period;

$\sum ZP_v$ —the amount of accrued salary in the reporting period;

$$N_3 = \frac{ZP_z^s}{ZP_p^s}, \quad (3)$$

where N_3 —wage growth rate;

ZP_z^s —the average salary of employees in the reporting period;

ZP_p^s —the average salary of employees in the previous reporting period;

$$N_7 = \frac{PR_r^z}{\sum OV_r^z}, \quad (4)$$

where N_7 —profitability indicator of provided services;

PR_r^z —net profit of the enterprise in the reporting period;

OV_r^z —the amount of enterprise operating expenses in the reporting period;

$$N_9 = \frac{\sum ONP_z}{\sum ONP_p}, \quad (5)$$

where N_9 —indicator of volume services dynamics provided;

ONP_z —the volume of services provided by the enterprise in the reporting period;

ONP_p —the volume of services provided by the enterprise in the previous reporting period;

$$N_{10} = \frac{N_9}{N_3}, \quad (6)$$

where N_{10} —an indicator of the ratio of the service growth rate provided to the growth rate of wages;

N_9 —indicator of services volume dynamics provided;

N_3 —wage growth rate.

Table 1 provides guidelines for the use of indicators by different stakeholder groups.

Data to determine the indicators listed in Table 1, obtained from statistical reports of enterprises engaged in trucking, as well as performing maintenance and repair of vehicles (sites Smida.gov.ua (Cabinet of Information Services 2021) and YouControl (2021)). Since the information was obtained only for 19 transport companies (which is typical for a small sample), the assessment of the remuneration quality systems in the context of compliance with corporate social responsibility can be done using a mathematical apparatus of fuzzy logic (Fuzzy Logic) for a small sample (Ross 2010).

The lack of a large statistical sample of quantitative estimates of the indicators system under study leads to the use of the method of inference in fuzzy systems using the Mamdani mechanism (Mamdani). When assessing the quality of the remuneration system, it is necessary to move from quantitative indicators to qualitative ones, including three levels of system quality. The relationship between the quality of the payroll system and the factors that affect it can be represented as a base of fuzzy sets. “High”, “average” and “low” quality of the payroll system will be the parameters of the model and can be described as fuzzy variables. Levels of quality of the remuneration system in the theory of fuzzy sets are called “linguistic terms”.

Table 1 Quantitative indicators that characterize the level of corporate social responsibility on the part of both employees and employers

Quantitative indicator of corporate social responsibility level	Use of the indicator by groups of stakeholders
N_1 —an indicator of the ratio of the average enterprise employee’s salary to the average salary in the automotive industry as a whole	**
N_2 —wage arrears	**/*
N_3 —wage growth rate	**
N_7 —profitability indicator of provided services	*
N_9 —indicator of volume services dynamics provided	*
N_{10} —an indicator of the ratio of the service growth rate provided to the growth rate of wages	*

Source developed by the authors

Note: use of the indicator by groups of stakeholders: * - by employers; ** - employees

The use of fuzzy logic apparatus for a small sample involves the construction of a membership function with a description of the above linguistic terms.

Each initial fuzzy variable contains term sets consisting of characteristics such as “high”, “average” and “low” quality of the payroll system. Thus, when analyzing the system, the expert uses not only quantitative values of indicators but also verbal quality assessments. Obtaining quality assessments is carried out on two models (basic and advanced), which differ in the number of input parameters. The fuzzy Rules model allows you to verify numerically all possible relationships by identifying the strength and depth of selected factors that impact the quality of the payroll system. To Table 2 introduces numerical values of indicators for assessing the quality of the remuneration system, which are relevant for employees of these enterprises and employers.

The Mamdani algorithm was chosen to develop the basic model. The number of inputs in this model is two. A number of outputs—1. The first input is the ratio of the average salary of employees to the average salary in the automotive industry as a whole (indicator N_1). The name vidnzhprlserhaluz is chosen for the first login. The range of values for the first input, which belongs to the set of numerical segments (0,29; 0,71) (column 4 of Table 2), is determined according to the annual statistical reports of 19 motor transport enterprises of Ukraine. The coefficient N_{10} is obtained as the ratio of N_9 to N_3 . The second input (it is called vidnposlugzrpl in the model) is the ratio of the increase in the volume of services provided to the increase in the salary fund. The range of values of the second input was determined in the same way as the range of the first input values - it belongs to the set of segments (0,7; 1,34). The software module is hereinafter referred to as zrplsystem. The output with a ten-point scale of quality assessment in the model is called qualityzrpl (see Fig. 1).

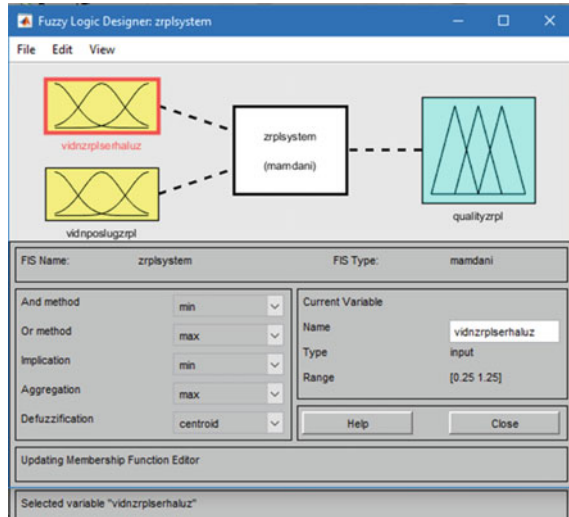
Table 2 Numerical values of indicators for assessing the quality of the wage system for employers and employees according to a number of transport companies

№	Name of company	Location	Quality assessment indicators					
			N_1	N_2	N_3	N_7	N_9	N_{10}
<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>
1	JSC “Kyiv Rapid Production Company”	Kyiv	0,706	0,07	1,06	0,016	1,05	0,99
2	PJSC “Kharkiv ATP №16363”	Kharkiv	0,575	0,048	1,35	0,016	1,17	0,87
3	PJSC “Motor transport enterprise 13555”	Kropyvnytskyi	0,305	0,036	1,66	0,003	1,42	0,86
4	PJSC “TEK” Zahidukrtrans”	Drogobich	0,603	0,039	1,26	0,197	1,13	0,90
5	PJSC “ATP 11263”	Dnipro	0,293	0,044	1,20	0,004	1,11	0,93
6	PJSC “ATP 13058”	Kyiv	0,296	0,054	1,55	0,34	1,05	0,68
7	PJSC “ATP-1”	Kyiv	0,708	0,062	1,37	0,20	1,22	0,89
8	PJSC “Kyiv ATP 13061”	Kyiv	0,308	0,064	0,93	0,44	1,25	1,34
9	LLC “Truck Service Lviv”	Lviv region	0,693	0,07	1,06	0,74	0,88	0,83
10	LLC “112 Ukraine”	Lviv	0,491	0,02	1,04	0,93	1,14	1,10
11	TDV “ATP 11262 Vzhavtotrans”	Dnipro	0,474	0,05	1,17	0,006	1,18	1,01
12	LLC “Kharkiv ATP №16363”	Kharkiv	0,536	0,13	1,12	0,327	1,04	0,93
13	LLC “West BP Group”	Dubliani	0,596	0,01	1,03	0,047	1,21	1,17
14	LLC “Divitrax company”	Rivne region	0,591	0	1,04	0,052	0,89	0,86
15	PE “Intertraffic”	Odessa	0,685	0,01	1,02	0,01	0,87	0,85
16	LLC “Ukrainian logistics systems”	Kyiv	0,536	0	1,02	0,004	0,71	0,70
17	LLC “ROMDI Ukraine”	Lutsk	0,47	0	1,04	0,02	1,26	1,21
18	LLC “Raben Ukraine”	Brovary	0,669	0,02	1,24	0,74	1,19	0,96
19	PJSC “Ivano-Frankivsk-auto”	Ivano-Frankivsk region	0,444	0,046	1,32	0,021	1,54	1,17

Source: developed by the authors

Next, in the basic model of assessing the quality of the remuneration system, we move on to the assignment of membership functions. Thus, to perform mathematical formalization, it is first necessary to construct fuzzy intervals for characteristics that can be described by numerical values on subsets of integers. After that, at the stage of fuzzification, with the help of an expert who is a specialist in the subject area, it is

Fig. 1 Initial data for the creation of a basic model for assessing the quality of the remuneration system Source: developed by the authors



necessary to form a membership function for the obtained fuzzy quantity, which is described by a linguistic variable. The number of membership functions assigned by the expert in the basic model is three for each of the inputs: low1 - low for the first input; average1 - average (sufficient) indicator for the first input; high1 - high for the first login; low2 - low for the second input; average2 - average (sufficient) indicator for the second input; high2 - high for the second input. We give the following names to three functions of belonging of an exit: lowqual - low quality; averqual - average (sufficient) quality; highqual - high quality. It should be noted that in the process of building the model, certain restrictions were applied - no extreme estimates were used, which are ideal and those that are not used to assess the actual economic entities, i.e., “0” and “10” were excluded. Triangular membership functions are assigned to the output in the basic model.

Belonging functions are configured in such a way that they do not need to display the sequence of processes that occur directly in the system under study. It is only necessary to formulate a system of the object behavior rules under study in the form of a conditional statement such as “IF ... THAT...”. When you start the project in the menu of viewing rules (View Rules) with the help of two moving cursors on the input functions, you can determine the quality of the payroll system at the output (see Fig. 2).

In Fig. 2 cursors are placed in the middle of the range of input functions. The output obtained a median value of the quality factor—5. It should be noted that we have chosen a “comfortable” mode of quality assessment, which prevents the emergence of extreme ratings. Thus, at the minimum values at the inputs we have 1,4 points at the output, and at two input maxima—8,5 points. The expert can configure the fuzzy model with certain complications and refinements, which allows him to use a flexible fuzzy logic device in the MATLAB package. The result of working with

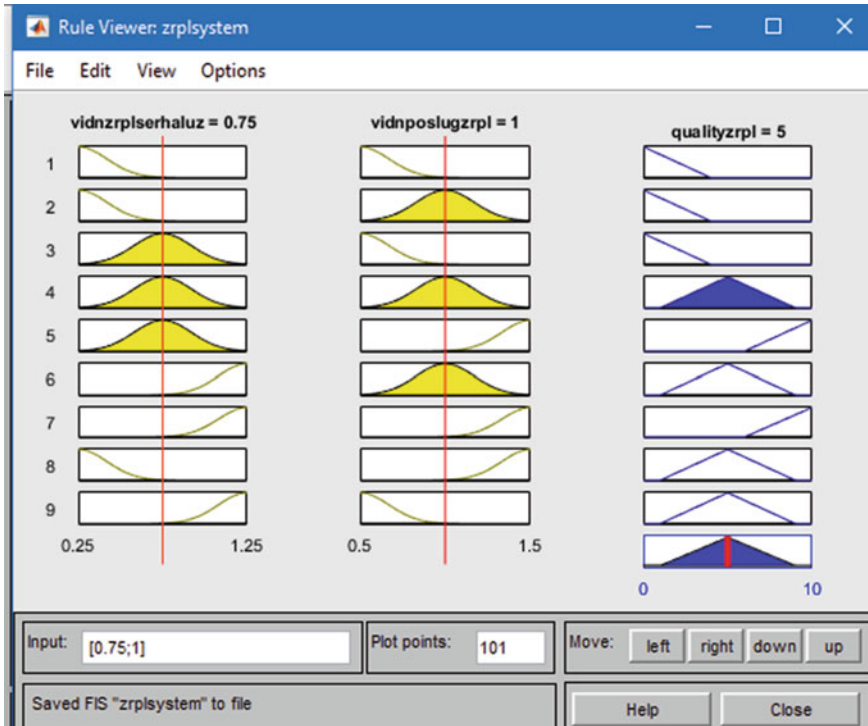


Fig. 2 Determining the quality factor of the payroll system in the View Rules menu

ursors is the numerical value of the quality factor and its location on the scale of yield: lowqual, averqual, highqual.

The created Fuzzy Logic model can be improved by adding to it the third input - zaborgov - the share of wage arrears. Since this factor has a negative impact on the evaluation results, the data are used in the form of a supplement to the maximum: the company with zero debt receives a maximum score of 0,13, and the company with a debt ratio of 0,13 - receives a score of zero. The other two inputs and outputs remain unchanged. Note that the membership functions of the third input zaborgov - low3, average3, high3 have a normal distribution.

Let's move on to an experimental study of the quality of the remuneration system in the transport industry in the Fuzzy Logic model. The basic mathematical model for the expert system of quality assessment of the remuneration system is based on two input functions: on the part of the employee and on the part of the employer. In the first case - is the ratio of wages in the enterprise with the average wage in the industry. In the second case, it is the ratio of the increase in the volume of services provided to the increase in the wage bill. The share of wage arrears became the third input function used in the improved model.

Next, we will carry out the process of defuzzification of the fuzzy logic model, the results of which we return from quantitative to qualitative (verbal) characteristics of

Table 3 The results of quality assessment of the remuneration system in the basic and improved models after defuzzification

N ^o	Name of company	Location	K_y^{base*}	Verbal assessment of the basic model	K_y^{impr**}	Verbal evaluation of the perfected model
1	JSC "Kyiv Rapid Production Company"	Kyiv	8,31	High	4,98	Average
2	PJSC "Kharkiv ATP №16363"	Kharkiv	4,69	Average	5,19	Average
3	PJSC "Motor transport enterprise 13555"	Kropyvnytskyi	2,1	Low	4,16	Average
4	PJSC "TEK" Zahidukrtrans"	Drogobich	5,36	Average	5,51	Average
5	PJSC "ATP 11263"	Dnipro	1,59	Low	4,84	Average
6	PJSC "ATP 13058"	Kyiv	1,46	Low	1,53	Low
7	PJSC "ATP-1"	Kyiv	6,5	Average/high	4,98	Average
8	PJSC "Kyiv ATP 13061"	Kyiv	5,02	Average	5,0	Average
9	LLC "Truck Service Lviv"	Lviv region	5,38	Average	4,97	Average
10	LLC "112 Ukraine"	Lviv	5,11	Average	5,13	Average
11	TDV "ATP 11262 Vzhavtotrans"	Dnipro	4,97	Average	4,99	Average
12	LLC "Kharkiv ATP № 16363"	Kharkiv	4,92	Average	4,85	Average
13	LLC "West BP Group"	Dubiani	5,66	Average	5,68	Average
14	LLC "Divitrax company"	Rivne region	4,76	Average	5,6	Average
15	PE "Intertraffic"	Odessa	5,61	Average	5,7	Average
16	LLC "Ukrainian logistics systems"	Kyiv	1,93	Low	5,01	Average
17	LLC "ROMDI Ukraine"	Lutsk	6,44	Average/high	6,51	High
18	LLC "Raben Ukraine"	Brovary	7,78	High	7,37	High
19	PJSC "Ivano-Frankivsk-auto"	Ivano-Frankivsk region	5,53	Average	5,07	Average

Source: created by the authors

Note: K_y^{base} * - quality factor of the base model; K_y^{impr} ** - is the quality factor of the improved model

the wage system at the enterprise: high - high quality (highqual); average - average quality (averqual); low - low quality (lowqual). The results of the defuzzification process are transferred to Table 3.

According to the results of the analysis of economic activity of 19 enterprises of motor transport of Ukraine in 2017–2019 we can draw conclusions about the degree of perfection of the system of remuneration introduced in them, which meets the task of reconciling the interests of employees and employers in the context of corporate social responsibility.

According to the basic model of fuzzy logic, the remuneration system used in 11 enterprises can be assessed as satisfactory (average quality). Four companies have a low quality of the involved system of remuneration, and two - high quality. For two more companies out of 19 surveyed, the quality of the remuneration system is on the verge of average and high.

For companies with low expertise can be recommended:

- to increase the level of wages in one to three quarters and bring it closer to the industry average. This proposal applies to the enterprises of PJSC “Motor Transport Enterprise 13555”, PJSC “ATP 11263”, PJSC “ATP 13058”;
- to increase labor productivity during the year and, as a consequence, to increase the ratio of the growth of services to the growth of the wage bill.

This proposal applies to the enterprises of PJSC “ATP 13058” and the enterprises of LLC “Ukrainian Logistics Systems”.

For enterprises with a predominantly high assessment of the quality of the remuneration system (JSC “Kyiv Rapid Production Company”; PJSC “ATP-1”; LLC “ROMDI Ukraine”; LLC “Raben Ukraine”), it is not necessary to interfere in the involved remuneration system. For average quality assessments (all other surveyed enterprises) it is necessary to gradually improve the system of remuneration on two indicators but without radical intervention.

Within the framework of the improved model, another lever has been added to determine the expert assessment of the quality of the remuneration system - the share of wage arrears.

A clear example of underestimation of this factor is the company JSC “Kyiv Rapid Production Company”, which lost the rating of the best quality of the remuneration system within the basic model and moved to the category of “average” in the improved model.

5 Conclusion

As a result of research, the effectiveness of fuzzy logic models for expert evaluation of the effectiveness of the motivational strategy in motor transport enterprises by two (basic model) and three (improved model) numerical criteria has been proved. Thus, a tool for qualitative assessment based on verbal (non-numerical) assessments is obtained. The initial data are the annual financial and statistical reporting of economic

entities. It is not necessary for enterprises with a predominantly high-quality assessment of the motivational system to interfere in the involved system of remuneration. For average efficiency assessments (all other surveyed enterprises) it is necessary to gradually improve the system of remuneration on two indicators but without radical intervention. Within the framework of the improved model, another lever has been added to determine the expert assessment of the effectiveness of the motivational strategy - the share of wage arrears. To determine the effectiveness of the labor organization motivational strategy motivating factors, it is proposed to assess its effectiveness in the enterprise as a whole with the help of the proposed program MATLAB Fuzzy Logic.

The obtained research results can be used in the process of finding and implementing a mechanism for reconciling the interests of enterprises' employers and employees to determine the effectiveness of wage systems in accordance with the requirements of corporate social responsibility.

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The Importance of Using Profiling Tools in Personnel Management



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Abstract The article reveals the essence of HR (personnel) profiling. HR profiling includes not only the establishment of truthful, honest information provided by the candidate, but also determines its characteristics, the leading psychotype with the basic emotion, motivation. The main tools of profiling are described, in particular in the field of personnel management. Knowledge of HR profiling is needed in many areas as an additional specialization, namely: for staff and coaches, for entrepreneurs, for managers. The possibilities of HR profiling are determined. The use of profiling technologies is a powerful tool for psychodiagnostic work. They are indispensable in the field of personnel management and are the most successful tools for research and analysis of the reliability of information in the implementation of personnel inspections and interviews. For recruitment and evaluation professionals, profiling skills are indispensable, as it allows not only to select and hire the best candidates,

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but also to build harmonious and long-term relationships within the organization. Attention is focused on the step-by-step algorithm of using profiling technologies to work with staff. Personnel profiling also allows to implement a set of measures to minimize the possible risks associated with the dismissal of employees who are in critical positions, namely: to prevent possible harm to the interests of the organization and the development of reputational risks, to maintain possible ties with the previously dismissed employees, to assist in its possible employment, forming a positive reputation of the organization. The practice of applying knowledge in the field of personnel profiling is expanding every year, which indicates the need to introduce in the staff of organizations and enterprises specialists in personnel profiling.

Keywords Profiling · Personnel · HR profiling · Personnel work · Personnel selection · Human resources

1 Introduction

The main competitive advantage of an effective organization aimed at strengthening its own position in the domestic and international markets is a unique professional core of human resources. There is no denying the fact that in the XXI century—a century of unpredictable and often chaotic changes in a market economy—the key to successful entrepreneurship are highly mobile, focused on continuous professional development employees, which greatly increases the requirements for human resources in organizations. And most employers today already know that business success depends directly on the employees, who work for them. But many are not yet aware of how to find the best candidates for the organization, how to develop and what actions to take to keep them in the same place. Personnel profiling helps to solve these and other issues.

Personnel profiling allows you to use human capital effectively, relying solely on the strengths of people's characters, without relying on them what they deliberately do not do or can not do well enough.

2 Literature Review

Profiling in the scientific literature is often called a method, system of methods, technology, or scientific technique. In addition, there are definitions of profiling (R. Resler, 2006) as “the process of identifying the psychological characteristics of the individual” (Douglas et al. 2006). In turn, K. and S. Dern, A. and W. Horn considered that profiling is “a complex and scientifically sound criminal practice” (Bartol and Bartol 2013; Dern et al. 2009).

The methodological principles of profiling are the results of research by T. Vetrova, A.V. Dormidontova, IA Semenova. etc. (Vetrova 2019; Dormidontov and Semenova 2011).

However, the vast majority of scientific works need a radical rethinking from the standpoint of the possibilities of their use under fundamentally new economic conditions in Ukraine.

3 Methodology

The purpose of the article is to clarify the essence of the concept of “profiling”, the study of its main tools, its meaning and features of application in personnel work. In accordance with this goal, the article aims are: to reveal the essence and features of personnel profiling, its main elements; to investigate the step-by-step algorithm of using profiling technologies to work with staff.

Methods of studying human being are not rigidly fixed regulations, but a system of “soft” principles and techniques which have the character of abstraction. This study is based mostly on psychological aspects. The symptomatic, social and social commitment of the described phenomena is used in the study. The world of abstractions is based on specific words and influences, which in one way or another act as a theoretical basis for understanding the vectors of movement of consciousness as a person and society as a whole. Also general scientific methods such as analysis, synthesis, abstraction, comparison, systematization are used in the study.

4 Results

The term “profiling” means a combination of different assessment technologies to understand people’s actions based on the analysis of a set of signs, characteristics of verbal and nonverbal behavior, as well as features of appearance. From the point of view of HR (*human resources*) compiling a human profile will help identify the applicant, prone to deception, fraud and even theft. Modern profiling allows not only to assume, but also to prove, and also to offer system of practical use. When compiling a profile, the methods of operative psychodiagnostics and analysis of human behavior are used. To make assessments determine the desired personal characteristics (<https://marketing.wikireading.ru/41234/>).

It is worth noting that with the help of questions you can find out whether a person is calm or aggressive, how he treats difficult tasks, how to “relieve stress”, whether he trusts people and is ready or not to work in a team. This allows you to determine the type of personality and way of thinking. It is important to see your place in the organization in a year, three or five years. The answer will tell about the candidate’s career preferences. HR-profiling is most often used to:

- a) identify the best contenders, help interest and retain them;
- b) increase professional and improve personal communication;
- c) help to identify what inspires and demotivates the team;
- d) understand how to get the most out of your workplace;
- e) create and maintain strong teams.

It should be noted, that HR practitioners pay the most attention to business and personnel profiling. Having these skills allows the HR manager to participate in business negotiations, development plans and become a full-fledged HR-business partner.

In a broad sense, the following elements are included in the profiling tools (Fig. 1). Consider them in more detail.

1. Operational psychodiagnostics means the ability to determine a person's appearance (how he dresses, moves, interacts with others, answers questions, the presence of certain external reactions), who he is, what he thinks, what actions he is capable of, and what not inclined. Possession of the skill of operational psychodiagnostics allows to conduct investigations in organizations where thefts occur, to reveal fraudulent schemes, information leakage.
Only by describing what happened, operational psychodiagnostics helps to make a fairly accurate profile of the person to be sought. Since the term "profiling" is derived from the words "profile", "profiling", the main purpose of operational psychodiagnostics—to make a profile of a person who shows how he thinks.
2. Lying recognition and reading emotions—is essentially a toolless lie detector. When through different channels—facial expressions, gestures, language, manifestations of the autonomic nervous system, based on certain tools and skills (because to work with each channel there are techniques and tools), you can determine whether a person is cheating or not.
3. Tough negotiations, work with manipulations—the so-called "black rhetoric" associated with certain negotiation techniques that help convince a person that you are right, make him agree with you, as well as measures against it. The profiler accompanying the negotiations often has to deal with people who translate the interaction into a "hard" format, which requires the skills to stop it. With the help of a profile prepared in advance by photography and handwriting, the profiler manages to select tools for effective influence on a person, identify his weaknesses and strengths, give recommendations on how to present information—so that he perceives it loyally.
4. Trance and hypnotic technologies are used mainly when working with law enforcement agencies, when you need to help the witness remember the circumstances and details of a long-committed crime.
5. Recruitment and networking (the art of networking) is the mastery of communication skills, the ability to understand a person in order to agree with him. It is important to learn to be able to see how people can be useful to each other. Communicating with a large number of people every day, you can often not be aware of what each of them can be useful.

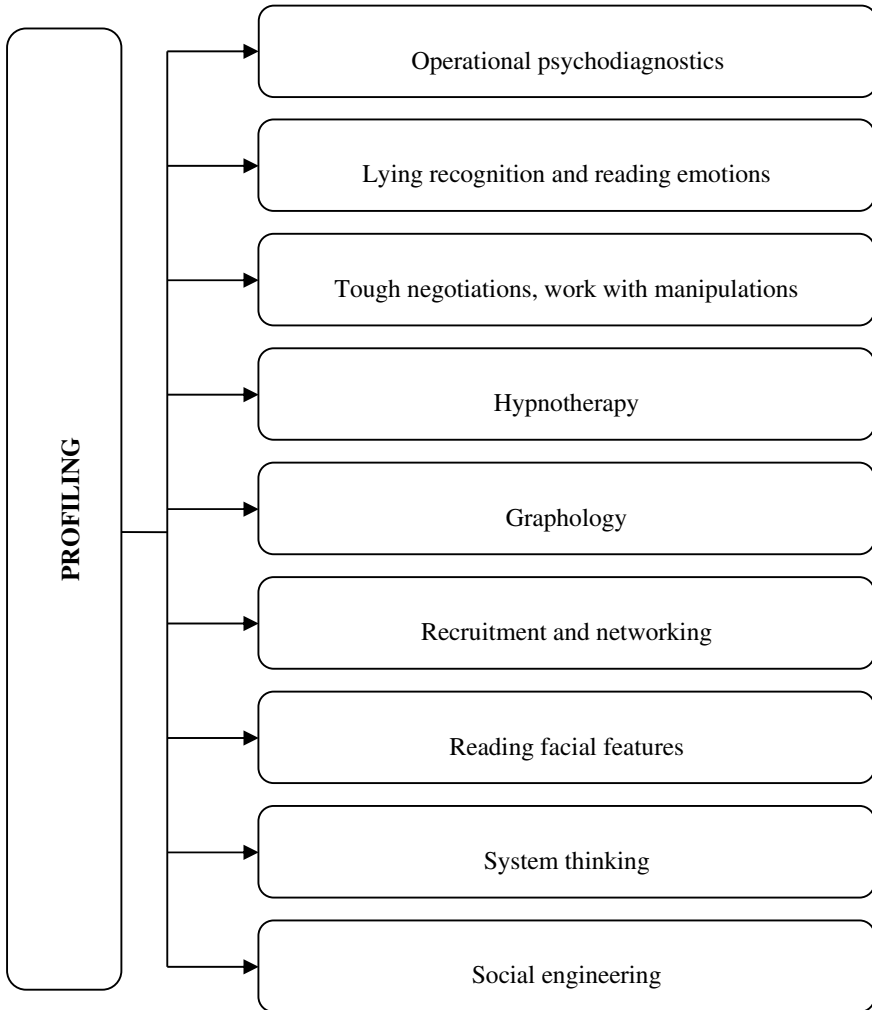


Fig. 1 Profiling tools (<https://marketing.wikireading.ru/41234/>)

6. Graphology. You can also write a person’s profile, identify his emotional state and determine intelligence, psychological characteristics and other elements that have a positive or negative impact on a person’s profile. Complementing the data of operational psychodiagnostics, graphology allows you to create a holistic image of the subject.
7. Reading facial features is a compilation of craniofacial profile, which, incidentally, has nothing to do with physiognomy. It is based on a technique developed by Soviet scientists, who, based on experimental data, determined the basic rules of reading by facial features.

8. System thinking means that a profiler cannot be considered a professional if he does not have the skills to systematize a large amount of information, does not know how to think correctly, does not train his memory, does not develop observation.
9. Social engineering includes “cold” and “hot” reading. It is known that a large amount of knowledge about a particular person today can be easily obtained from open sources. In the age of “social networks”, people post a lot of information about themselves on the Internet, but what got there at least once—even if it is already removed—remains there forever (<https://marketing.wikireading.ru/41234/>; <https://blog.studyie.ru/kadrovyy-profajling-3/>).

With the effective use of open sources, you can get up to 80% of the necessary information about a person. When conducting work on personnel selection, many companies resort to such methods of obtaining information (<https://marketing.wikireading.ru/41234/>; <https://searchinform.ru/kontrol-sotrudnikov/profajling/napravlenie-profajlinga/profajling-v-hr/>).

Profiling technologies allow managers, employees of personnel departments quickly assess the psychological profile of the individual, identify and analyze the hierarchical structure of his values, orientation and motivation, habits, attitudes and beliefs, goals and behavioral patterns. For recruitment and evaluation professionals, profiling skills are indispensable, as it allows not only to select and hire the best candidates, but also to build harmonious and long-term relationships within the company, when existing employees become truly loyal and interested in the development and success of the organization (Fig. 2).

Personnel profiling (profiling) includes not only the establishment of truthful, honest information provided by the candidate, but also determines his characterological features, the leading psychotype with the basic emotion, motivation.

A specialist who has profiling technologies and is able to obtain information during the interview with the candidate for the position, which allows to draw conclusions, which include:

- metaprogram profile of the individual with recommendations in the field of forecasting and management of his behavior in significant contexts and situations;
- a list of basic personality traits (basic psychotype) and the current structure of the value hierarchy;
- emotional profile of the individual;
- leading features of thinking and speaking;
- main and secondary character traits and their “masks”;
- map of motives and motivators of employees;

Recently, the personnel management structures of enterprises and organizations of various forms of ownership are showing considerable interest, and in some cases are beginning to use the technology of personnel profiling. Knowledge of personnel profiling is needed in many areas as an additional specialization, namely: for staff and coaches, for entrepreneurs, for managers, for managers.

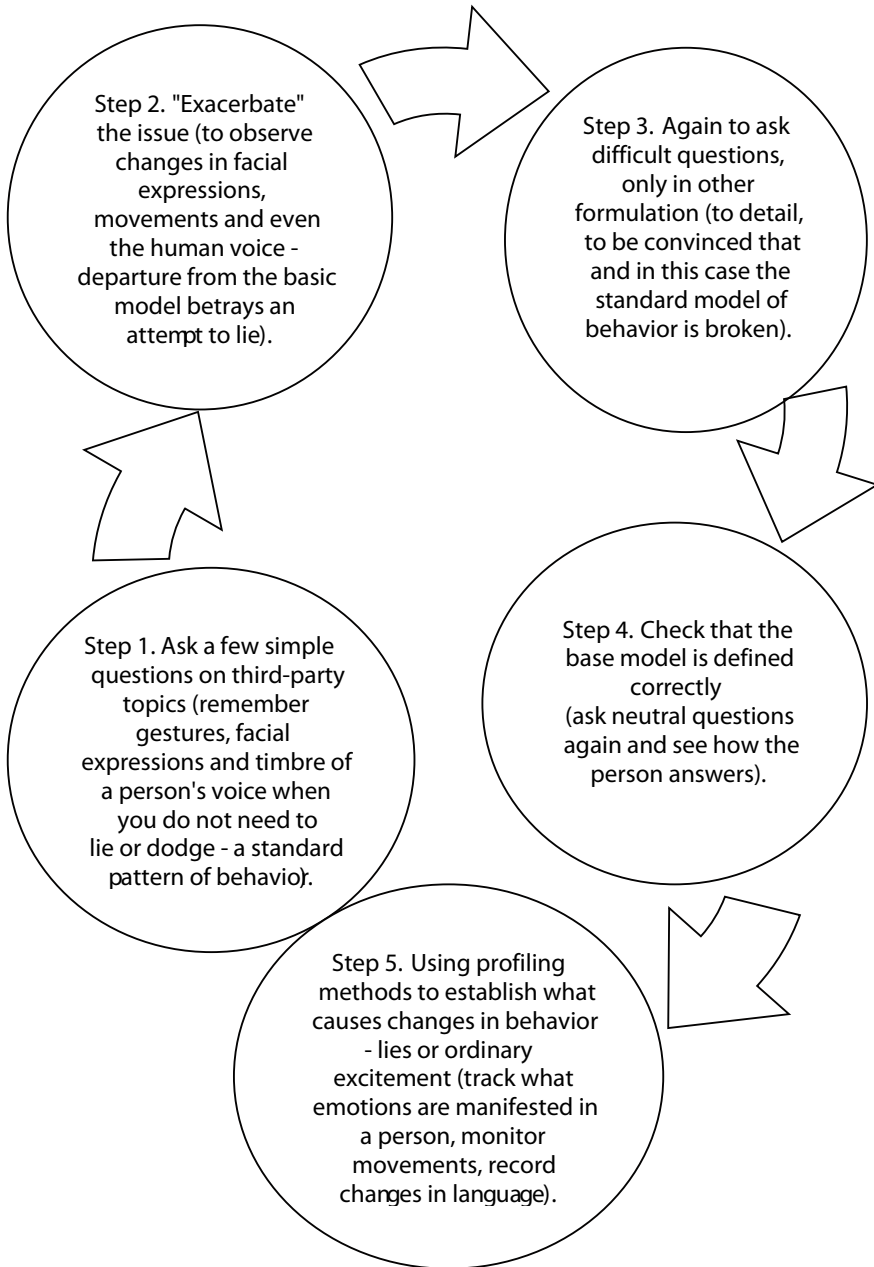


Fig. 2 Step-by-step algorithm of using profiling technologies for work with personnel (<https://searchinform.ru/kontrol-sotrudnikov/profajling/napravlenie-profajlinga/profajling-v-hr/>; <https://verificator.by/tehnologii-verifikacii-i-profajlinga>)

In the process of selection of personnel for the given positions personnel profiling allows:

- correctly develop the job profile, find out whether the selected candidate corresponds to it;
- determine how the candidate can fit the standards of corporate culture of the organization, interact with members of his team, management team;
- to verify the information received from the candidate, as well as to form an initial idea of the loyalty and reliability of the candidate, the possible threats associated with the employment of this person (<https://blog.studyie.ru/kadrovyj-profajling-3/>; Dern et al. 2009).

Personnel profiling will help in individualization of the plan of adaptation of the new employee, definition of efficiency of his concrete points and terms, a choice of the possible mentor.

First, it allows you to predict how successfully this person can be adapted to this organization in general, the existing socio-psychological climate, leadership styles. It also allows you to clearly identify the individual system of personality motivators and make a practical map of motivators in relation to a real person (<https://blog.studyie.ru/kadrovyj-profajling-3/>; <https://www.integrityandvalues.com/leadership-profiling/>; Bartol and Bartol 2013).

Professional selection and placement of personnel goes beyond traditional management and includes in its content methods and technologies that allow to solve the problem of staffing professional activities, as well as, integrating into the management process, to qualitatively influence the result.

It is proved that the effectiveness of professional activity is determined by a set of specific personal qualities. It includes personal characteristics (psycho-physiological, psychological and socio-psychological levels), optimal for the individual organizational conditions and a system of work incentives. The presence of relevant developed personal tools and their relationship with the conditions of professional activity requires complex psychodiagnostic work (<https://verificator.by/tehnologii-verifikacii-i-profajlinga>; Vetrova 2019; <https://nlp.by/features/biznes-treningi/340-profajling-effektivnosti-biznes-kommunikatsiya-otnosheniya>).

Drawing up a professional-psychological profile of a specialist differs significantly from traditional methods of personnel management, which include studying the resume of a candidate/employee (in which he is closer than ideal), his appearance, moral, ethical and cultural level, external criteria of corporate compliance.

This procedure requires both proven techniques and specialized knowledge, but almost completely eliminates the possibility of an uncertain forecast of the degree of effectiveness of the specialist, allows you to model organizational activities in general, based on objective quantitative and qualitative characteristics of the team, to manage these activities without control, and by setting specific tasks, etc.

Professional selection as a comprehensive measure is a study of socio-demographic characteristics of the individual, the level of his general and special training, medical information (because a number of specialties require this type of diagnosis: law enforcement, educational activities, professions related to driving

etc.), psychodiagnostic examination. The presented areas of study of the specialist often act as independent types of selection, which, however, are closely related and mutually complementary.

In the field of personnel management, the most popular in psychodiagnostic work with candidates for positions, with the staff of the organization or work teams are a variety of testing using objective methods and techniques. Psychodiagnostic techniques allow in a short time to assess the level of development of certain personality traits, its psychological properties, socio-psychological climate in the team, the presence of conflict situations.

Despite the convenience of the testing method, it should be noted that this method has a number of very serious shortcomings, which indicate the utopian nature of the idea of knowing all the diagnostics of abilities and knowledge exclusively before testing. Such disadvantages include: the probability of automatic errors; reproduction (standard application of ready knowledge); lack of opportunity to reveal individuality; lack of trust; stressful circumstances, which leads to loss of originality; loss of individual approach (<https://verificator.by/tekhnologii-verifikacii-i-profajlinga>; Turvey 2011; Dormidontov and Semenova 2011; <https://www.unirate24.ru/kadrovyy-profajling/>).

Therefore, the use of profiling technologies is a powerful tool for psychodiagnostic work. They are indispensable in the field of personnel management and are the most successful tool for research and analysis of the reliability of information in the implementation of personnel inspections and interviews.

Profiling is also very useful when conducting a socio-psychological study of the organization. As a result of its application, important information for the personnel management process will be obtained, which includes information:

- about the current socio-psychological climate in the team, the mood of employees;
- about the processes that are clearly occurring in the team and hidden, positively and (or) negatively affect the effectiveness of professional activities;
- about the potential of each specialist and his role and the degree of influence on the processes taking place in the team.

Thus, profiling—is an effective method of psychodiagnostic work that allows you to instantly determine the psychological profile, personal qualities, features of the motivational sphere and values of the specialist, as well as accurately predict his behavior and identify the facts of lies.

5 Conclusions

Note that in the field of personnel evaluation, personnel profiling allows you to build an effective system of evaluation, planning and forecasting of specific results; is especially effective in career planning of the employee as gives the chance to choose that direction of development in which the given person can be as much as possible successful and effective.

During the dismissal of personnel profiling allows a set of measures to minimize possible risks associated with the dismissal of employees who are in critical positions (in the confrontational version of the dismissal—to prevent possible harm to the interests of the organization and the development of reputational risks, possible connections with the previously dismissed employee, to assist in his possible employment, forming a positive reputation of the organization).

Thus, the practice of applying knowledge in the field of personnel profiling is expanding every year, which indicates the need to introduce in the staff of organizations and enterprises specialists in personnel profiling, which determines the prospects for further research.

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Improving Safety Performance in SMEs Through Safety Climate, and Safety Motivation: A Conceptual Framework



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Abstract The millions of fatal accidents and work-related diseases occurred due to workplace accidents and injuries globally, emphasizing the importance of safety research in small and medium enterprises (SMEs), known as the accident-prone industry. Although safety research has contributed to identifying antecedents of safety performance, a limited study was conducted on why and how safety motivation to turn employee to react safely at the workplace and how safety climate factors interact to promote respectable safety performance. Using a systematic literature review based on the following themes; safety motivation, intrinsic motivation, extrinsic motivation, safety climate, safety performance, and safety behaviors. This present study investigates the usefulness of safety motivation on safety performance and identifies the most common antecedents, consequences of safety motivation, dimensions, and links to safety performance. The study's hypothesis development was based on a proposed framework on safety motivation role in the indirect relationship between safety climate and safety performance. Finally, this study adds to the understanding of the mechanisms behind the extensive effects of safety climate on

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safety motivation and safety performance and help to reduce injuries and accidents and enhance occupational safety performance in small and medium enterprises.

Graphical Abstract



Keywords Safety climate · Small and medium enterprise · Safety motivation · Safety participation · Safety performance

1 Background of the Study

According to International Labor Organization (International Labor Organization 2020), fatal accidents in small and medium enterprises two times higher than large and estimated global occupational and work-related diseases caused over 2.78 million fatalities, 374 million workers are affected by non-fatal occupational accidents each year. Safety research has identified occupational accidents and injuries can be reduced by enhancing safety performance and safety motivation (Curcuruto et al. 2019; Smith et al. 2020; Sawhney and Cigularov 2019).

Over a few decades ago, a number of scholars had investigated the role of safety motivation in supporting improved safety performance or safety outcome, as linked to workplace accidents, as demonstrated by Guo et al. (2018). A meta-analysis study on workplace safety motivation has identified as a distal factor of safety performance (Singh and Verma 2018). A recent study by Lu et al. (2020) identified safety motivation as the most strongly related factor to workplace safety behavior.

Despite a number of evidences on the significant role of safety motivation on safety performance. A study on safety at work highlighted that more safety research is required to test safety motivation from divergent forms of safety motivation (Hanscom 2020). In addition, several researchers advised assessing extension models of safety that comprise other antecedents to safety motivation and safety performance (Smith et al. 2020; Alareeni 2018; El Khoury et al. 2021). Several researchers suggested focusing on safety motivation, its processes, and the relationship between safety motivation and diverse safety behaviors (Curcuruto et al. 2019). Despite calling for more research on safety motivation and safety performance links, there is limited similar study in small and medium enterprises (Kvorning et al. 2015; El Khoury

et al. 2021), especially in Malaysia context from the authors' knowledge. Therefore, this study set out to investigate the usefulness of safety motivation on safety performance and identify the most common antecedent, a consequence of safety motivation, dimensions, and links to safety performance.

The structure of this article is as follows:

- i. Background of the study
- ii. Literature review
 - a. Definition of safety motivation
 - b. Safety motivation
 - c. Dimensions, Antecedents and consequence of safety motivation
- iii. Research methodology
- iv. Hypothesis development
 - a. Safety climate to Safety motivation
 - b. Safety motivation to safety performance
 - c. Safety motivation mediated the relationship between safety motivation and safety performance
- v. Framework
- vi. Conclusion

2 Literature Review

2.1 Definition of Safety Motivation

The term safety motivation was introduced by Neal and Griffin (2006) in her study. Safety motivation is "an individual's willingness to exert effort to enact safety behaviors and the valence associated with those behaviors." There are multiple definitions of safety motivation available in safety research. For Curcuruto et al. (2019), safety performance means an individual's willingness to work safely. The term 'safety motivation' will be used solely when referring to an employee's willingness to participate in safety activities and to comply with safe working practices (Griffin and Curcuruto 2016). Griffin and fellow researchers (Griffin and Curcuruto 2016) have been conceptualized safety motivation as a key determinant of safety performance in different organizational contexts and various types of industries (Griffin and Curcuruto 2016).

Motivation from work safety perspective has been referred as an assembly of psychological processes that cause in initiation, direction, intensity, and persistence of acts or behaviors (Panuwatwanich et al. 2017). This definition is close to those of Sawhney and Cigularov (2019) and Xia et al. (2019) who define safety motivation as employees' intentions to perform their work in a safe manner as indicated by their willingness to exert effort to accomplish work tasks safely and the valence associated with those behaviors. While a variety of definitions of the term 'safety motivation'

have been suggested, this paper will use the definition provided by Neal and Griffin (2006).

2.2 Safety Motivation

In recent years, there has been an increasing interest in safety motivation safety at work. Previous evidence consistently suggests that employees with higher safety motivation levels also frequently engage in safety compliance work procedures and actively participate in safety activities (Fleming and Natasha 2012). Researchers suggested that behavior-based safety and promoting a safety culture are two main psychological approaches to effectively improving workplace safety. According to Bunner et al. (2018), organizational climate changes, especially safety climate, have an intense influence on safety motivation. Indeed, researchers revealed that safety motivation showed a direct positive relationship with safety performance dimensions: safety compliance and safety participation. Therefore, to increase employee safety performance, it is essential to understand factors to make employees motivated to work safely.

The existing body of research on safety performance suggests that managers can apply four tools to encourage motivation, namely: 1) negative reinforcement and 2) positive reinforcement, 3) extinction and 4) punishment (Panuwatwanich et al. 2017). These motivational tools were verified in one study, and findings were surprisingly demonstrated that workers who 'do not care' about working safely to be more safety-aware and only three tools are useful, which are positive reinforcement, negative reinforcement, and punishment. A study on attitudes, norms, and perceived control over safety behavior found that the impact of leader behavior and safety motivation is significant (Sawhney and Cigularov 2019). Several researchers also agreed that attitude is an important factor in influencing behavior change (Abdullah et al. 2020). Besides that, many scholars indicate that safety motivation higher when internal regulation is stronger (Kvorning et al. 2015). Surprising incentives effectively promoted employees' safety performance (Ghasemi et al. 2015). Safety assessment in the organization does not necessarily improve employee safety knowledge but motivates employees to act safely (Lu et al. 2020). The previous study demonstrated that employees' safety motivation and safety performance could be increase through appropriate training (Vinodkumar and Bhasi 2010).

A study on the safety crisis found that inspirational leadership act as a positive motivational effect on employee behavior in the workplace (Donovan et al. 2018). By understanding the boosting mechanism of safety motivation, a manager could avoid factor demolish employee safety motivation. Manager those who are demonstrated less priority of safety at workplace crises can affect safety climate and thus, decline their employees' motivation to work safely (Bunner et al. 2018). This view is supported by Sawhney and Cigularov (2019) who reported that some leadership style shows less attention toward safety issues is likely to create

employee's frustration and role ambiguity concerning appropriate safety performance, consequently decreasing their safety motivation. Researchers identified that management-by-exception passive and laissez-faire leaders were not supported safety motivation.

Generally, safety literature divided motivation into two groups, which are intrinsic and extrinsic (Kvorning et al. 2015; Panuwatwanich et al. 2017; Zohar et al. 2015). Some studies have classified safety motivation into four categories: intrinsic, identified, introjected, and external (Fleming and Natasha 2012; Wen Lim et al. 2018). Based on Panuwatwanich et al. (2017) study, intrinsic motivation denotes behaviors that happen in the deficiency of external control. In contrast, extrinsic motivators are similar to external motivation when employees believe that their behaviors will be central to specific outcomes. As explained in Hanscom (2020), many empirical studies have shown that intrinsic motivation is more influential than extrinsic motivation. In that study, Honscom noted that (Wen Lim et al. 2018) established a significant relationship between intrinsic safety motivation on safety performance dimensions, safety compliance, and participation, respectively. Jiang and Tetrick (2016) found the relationship between intrinsic safety motivation and safety behavior.

Safety motivation is an essential component in the safety management system and plays a key antecedent of safety performance. However, uncontrolled external motivation could lead to a negative effect on the dimensions of safety performance. Moreover, external motivation activity needs to control the internal to initiate and continuously maintain a high level of safety performance. Therefore, employees tend to carry out work safely or comply with safety rules when they receive internal pressure or willingly to aid others in becoming wisdom of self-worth (Jiang and Tetrick 2016).

2.3 Dimensions, Antecedents and Consequences of Safety Motivation

A literature review on 20 safety studies identified that safety motivation is the most common predictor of two established safety performance dimensions: safety participation and safety compliance. The literature review findings show that most of the studies tested the safety climate and its dimensions (management commitment, attitude, and norms) as a critical antecedent of safety motivation. The most common measurement tools are adopted from Neal et al. (2000), and the updated vision by Neal and Griffin (2006) is used to measure safety motivation. These items have been used eleventh times in workplace safety research, as presented in Table 1.

Table 1 Dimensions, antecedents and consequences of safety motivation

Authors	Safety motivation	Original scale	Antecedents	Consequences	Country
Bunner et al. (2018)	Safety motivation	Braunage et al. (2015)	Work intensification Safety climate	Safety performance - safety participation - safety compliance	European Austria
Mariani et al. (2017)	Safety motivation	Toderi et al. (2015)	Safety climate LMX	Safety performance - safety participation - safety compliance	Italy
Lu et al. (Lu et al. 2020)	Safety motivation	Neal et al. (2000)	Management commitment Promotion of employee involvement Safety training Compensation	Safety performance - safety participation - safety compliance	China
Sawhney and Cigularov (2019)	Safety motivation	Neal and Griffin (Neal and Griffin 2006)	Leadership attitudes, norms, and perceived control over	-	USA
Panuwatwanich et al. (2017)	Safety motivation	Fey (2005)	Safety climate	Safety behavior Safety outcome	Saudi Arabia
Thanajirachot et al. (2019)	Safety motivation	-	Risk management Organizational support safety Safety climate Safety knowledge	Safety performance - safety compliance - safety participation	Thailand
Curcuruto et al. (2019)	Proactive safety motivation	Neal et al. (2000)	-	Safety behavior - compliance - helping behavior Safety initiative	Europe country

(continued)

Table 1 (continued)

Authors	Safety motivation	Original scale	Antecedents	Consequences	Country
Hascom (2020)	Safety motivation -(i.e., valence of safety outcomes, instrumentality of safety outcomes, and expectancy)	Curcuruto et al. (2019)	Perception of time	Safety performance - safety compliance - safety participation	
Wen Lim et al. (2018)	Safety motivation (intrinsic, identified, introjected, and external)	Fleming and Natasha (2012)	Safety climate	Safety performance - safety compliance - safety participation	China Malaysia
Jiang and Probst (2016)	Safety motivation	Neal et al. (2000)	Safety knowledge	Transformational Leadership Passive Leadership Safety participation	Unites Stated
Xia et al. (2019)	Safety motivation	Vinodkumar and Bhasi (2010)	Risk perception Coworker Safety climate Employee safety climate	Safety behavior - safety participation - safety compliance	China
Laurent et al. (2020)	Safety motivation	Neal et al. (2000)	Personality factor	Safety knowledge Safety behavior - safety citizenship behavior-individual - safety citizenship-organization	Belgium
Braunger et al. (2013)	Safety motivation	Neal and Griffin (2006)	Safety climate	Safety knowledge Safety performance - safety compliance - safety participation	Austria

(continued)

Table 1 (continued)

Authors	Safety motivation	Original scale	Antecedents	Consequences	Country
Guo et al. (2018)	Safety motivation	Guo et al. (2016)	Management commitment to safety Social support	Safety knowledge Production pressure	New Zealand
Kvorning et al. (2015)	Motivation	Qualitative study	Regulation	Intention to participate in safety program	Denmark
Smith et al. (2020)	Safety motivation	Neal and Griffin (2006)	Safety specific transformational leadership	- safety compliance on PPE	United States
Zohar et al. (2015)	Employee engagement (- intrinsic, extrinsic motivation)	Schaufeli et al. (2006)	Safety climate	Driving safety Road injury	United States
Xu et al. (2014)	Safety motivation	(Neal and Griffin 2006)	Attention bias Perceive safety climate	Safety behavior - safety compliance - safety participation	China
Lu and Yang (2011)	Safety motivation	Neal and Griffin (2006)	Safety training Safety communication Safety policy Emergency preparedness	Safety behavior - safety compliance - safety participation	Taiwan
Kath et al. (2010)	Safety motivation	Neal and Griffin (2006)	Management attitudes toward safety Upward communication Job satisfaction	Turn over intention	New England

3 Research Method

The systematic literature review goes through a rigorous, in-depth analysis of the existing literature relating to published studies representing safety motivation, instinct motivation, extrinsic motivation, safety climate, management commitment, safety performance, and safety behaviors. The literature searched comprises of published articles from 2000 until 2020. Further, the review depends on high-tech keyword searches in the central management source databases of Emerald, EBSCOhost, Taylor & Francis Group, ProQuest, and ScienceDirect.

Safety motivation and its dimensions, antecedents, and consequences are the main focus of this article. Researchers started exploring the concept of motivation from a workplace safety angle. Then 46 related literatures were reviewed in the research groundwork of this article, searching, analyzed, and synthesizing what they had to discuss about motivation in safety discipline. This study aims to identify the most common antecedent, a consequence of safety motivation, dimensions, and links to safety performance.

4 Hypothesis Development

4.1 *Safety Climate to Safety Motivation*

Safety climate is essential in environmental work factor and has been extensively established to affect safety performance (Novie et al. 2018; Rahlin et al. 2020; Masi and Cagno 2015; Wang et al. 2018; Ansori et al. 2018; Unnikrishnan et al. 2015; Tremblay and Badri 2017) in accident-prone industry settings so-called small and medium enterprise. Empirical evidence has never been misleading the fact on the role of safety climate in forecasting safety motivation. According to Panuwatwanich et al. (2017), a meta-analytic path model shows that safety motivation was correlated with psychological safety climate and group safety climate and strongly connected to safety performance. A comparison study on safety performance in New Zealand found that the safety climate's primary dimension is that management commitment to safety has a significant relationship with safety motivation (Guo et al. 2018). Results indicated that large companies' employees have higher motivation compared to small companies (Guo et al. 2018).

Several studies have postulated similar results that safety climate positively impacted safety motivation (Thanajirachot et al. 2019; Xu et al. 2014; Barbaranelli et al. 2015). Beyond that, some researchers argued that safety attitudes influence variance in employee safety motivation via appropriate leadership styles (Sawhney and Cigularov 2019). A previous study confirmed that safety climate perceptions are interrelated for over five years (Neal and Griffin 2006). Conversely, one study found that the positive effect of a critical dimension of safety climate on safety motivation was only existed among employees by the intervention of good piece-rate pay (Lu

et al. 2020). In all the studies reviewed here, the safety climate is recognized as a predictor of safety motivation. Thus, it when to postulated that:

Hypothesis1: Safety climate has a significant effect on safety motivation

4.2 *Safety Motivation to Safety Performance*

Most commonly in behavior-based safety literature, safety performance is described base on safety compliance and safety participation. These two safety performance dimensions can be described through an example. Safety compliance refers to safety behavior in the workplace directly related to internal regulation, such as using personal protective equipment and complying with standard work practices. Safety participation is actions toward safety activities and can be dedicated to safety citizenship behaviors, such as attending occupational, health, and environmental meetings. Griffin and Neal (2000), noted that safety participation is more similar to contextual performance and consists of flexible behaviors that go beyond safety compliance.

Researchers attempted to evaluate the impact of safety motivation on safety compliance and participation. The empirical study revealed that safety motivation has a significant relationship with safety performance dimensions: safety compliance and participation (Bunner et al. 2018; Xu et al.2014) and specific type of safety performance indicator (Guo et al. 2018). In an investigation into safety performance, Jiang and Probst (2016) found that safety motivation was positively related to safety participation. Detailed results show that safety motivation is strongly related to safe participation in the high level of transformational leadership and low passive leadership level. These findings are supported by Thanajirachot et al. (2019), who discovered that climate factors and safety motivation offered a positive influence on safety compliance and safety participation (Thanajirachot et al. 2019). Many studies found that safety motivation is a determinant of safety behavior (Braunger et al. 2013; Barbaranelli et al. 2015).

Adding to this knowledge, one study conducted on the effect of safety motivation and safety compliance among firefighters has confirmed that safety motivation positively influences PPE compliance behavior (Smith et al. 2020). Researchers indicated that safety motivation could foster active measures and self-protective behavior compliance. On the one hand, a study conducted in an Australian hospital has demonstrated that intrinsic safety motivation forecasts safety compliance and participation. On the other hand, a study on employees' safety behavior in the USA's food-processing plant revealed that extrinsic safety motivation positively affects safety compliance (Probst and Brubaker 2001). This result was further supported by Mariani et al. (2017) considered safety motivation as a determinant of safety performance and also a mediator between safety climate and safety performance. By drawing on the concept of safety performance, Lu et al. (2020), in a recent study on safety, has shown that safety motivation has a strong positive relationship with safety performance. Overall, these studies highlight the need for safety motivation in predicting safety performance. Therefore, the researcher proposes the following:

Hypothesis 2: Safety Motivation has a significant effect on safety performance

Hypothesis 2a: Safety Motivation has a significant effect on safety participation

Hypothesis 2b: Safety Motivation has a significant effect on safety compliance

4.3 Safety Motivation Mediated the Relationship Between Safety Climate and Safety Performance

Existing literature has shown that safety climate encourages individual motivation and improve safety performance through several divergent mechanisms, such as intrinsic and extrinsic motivation. Many researchers have proven that safety motivation is an essential direct predictor of safety behavior (Smith et al. 2020). Some studies revealed that motivation mediated the relationship between safety climate and safety performance (Mariani et al. 2017; Xu et al. 2014). Several attempts have been made to prove that safety motivation mediated the relationship between management commitment and production pressure (Guo et al. 2018). These results are similar to Barbaranelli et al. (2015), who found the effects of safety climate on safety motivation, which consequently positively related both incensement of safety compliance and safety participation. Another safety study illustrated that safety motivation partially mediated the links between higher-order factors of safety climate and safety performance (Lu et al. 2020). Besides that, a group of researchers indicated that the links between psychological and safety behavior were mediated by safety motivation (Laurent et al. 2020). In contrast, a longitudinal study observed that safety motivation had not been related to subsequent changes in one of the safety performance dimensions known as safety compliance (Neal and Griffin 2006). These studies have underscored the motivational and psychological factors that may explain the psychological safety climate's effect on overall behavioral work safety.

Hypothesis 3: Safety climate has a significant effect on safety performance

Hypothesis 4: Safety motivation mediates the links between safety climate and safety motivation.

5 Framework

By drawing this model in Fig. 1, safety motivation is a mediator in the relationship between safety climate and safety performance.

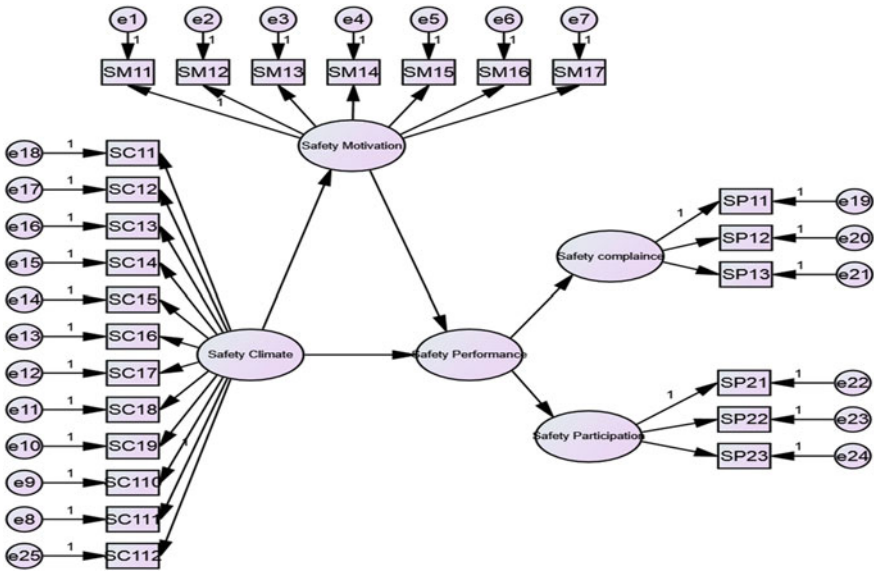


Fig. 1 Framework of this study

6 Conclusion

This study demonstrated safety motivation support for safety activities in a safety management system as a boundary condition that strengthened the safety climate’s effect on safety performance. Safety motivation, which verifies that it is normatively appropriate, encourages employees to foster acceptable safety practices, which led to improved safety performance.

This study makes two contributions. First, this is the first study that has systematically review the definition, dimensions, antecedents, and consequence of safety motivation. Second, this study provided the latest support of a direct and indirect relationship between safety climate and safety performance. This study showed that safety climate positively relates to safety performance components, which are safety compliance and safety participation. This study explains the critical factor of safety motivation in the indirect safety climate that affects safety performance. By drawing a specific safety performance model, further understanding the mechanisms behind the extensive effects of safety climate on safety motivation and safety performance is revealed that their impact on enhance occupational safety performance as well as reducing injuries and accidents. This study is a kind of innovation to avoid emergency, unexpected disaster management for the small and medium enterprise and provided the importance of strategic agility to business survival in the Covid-19 Pandemic (Al Kurdi 2021; Elali 2021; Aminova and Marchi 2021). Finally, we recommend that the national institute of occupational safety and health, social security organizations, small and medium enterprise corporations, and regulatory bodies with a mandate

to monitor and report on small and medium enterprise operational safety incorporate the specific safety performance measures proposed in this study. Additionally, the structuring of information on behavior-based safety enables safety performance comparisons that offer evidence on which safety policy decisions may be made.

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Sustainable Retirement Village Establishment; The Possible Challenges



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Abstract The world is revolving, and populations are expanding. Communities all around the world are surviving to live peacefully. SDG has underlined 17 goals which aim for the nations in the world sharing responsibility moving towards the world's sustainability agenda. Goal 3 promotes better well-being and life for all generations that include the older generations. These elderlies are one of the keys to help younger generations to develop future needs sustainably. One important issue that seems to become a persistent challenge for the elderly after their retirement is the care and support in managing their daily life. Ageing affects people in different ways. There is a wide range of attitudes among the elderly. Requirements, goals, and resources. Thus, this paper will look into the potential of the sustainable retirement village establishment as to provide care and support for the elderly and the challenges in introducing the new concept to the local community. The outcome of this paper can help to path a way for more discussion among academicians and the community.

Keywords Elderly · Sustainable · Retirement village

1 Introduction

The older generation is an important part of society as they hold more life experiences and knowledge needed by the community. The SDG agenda aim not to include everyone, but the focus is given to the vulnerable group, including the elderly. By

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2050, the older generations will dominate the majority of populations of all generations (UNSDN 2017). In Asia, the elderly will be about 17% of total population by 2030 (Dugarova 2017).

With the current demanding lifestyle even in Asian countries, younger generations are struggling to balance the work, personal & family matters. In the common culture in Asian countries and beyond, taking care of an adult in the nucleus family is the responsibility of the young generations in the family. Some elderlies are left alone at home without any proper support and worse case when the elderly has started to deteriorate the ability physically. The retirement village is the new concept introduced to support the family that required extended assistance to take care of the elderly. The SRV in Asia always mistaken as the old folks' home but rather a residential option designed to provide older people with accommodation, services, and facilities to meet their unique requirements (Hu et al. 2019). While the studies related to support towards the elderly after retirement are gathering pace, the focus on SRV remains elusive. Also, studies in developing countries such as Malaysia is very limited. The concept of SRV is still in its novice stage, and therefore, the awareness of it is limited to the communities. A new and profound concept such as SRV might be alarming, and thus, some of them refrain from the idea of relocating to the SRV. Limited views of picturing living in the SRV psychologically instill fears of residing in a new environment and possible isolation, hence sequentially affecting the whole idea of relocating.

With the crucial demand for better lifestyles caters for their parents in the retirement villages, the primary initiative is to introduce a sustainable retirement village as a potential alternative to provide healthcare support and assisted daily lives activities for the elderlies. Sustainable development has been an essential global notion to produce a livable environment (Hu et al. 2018; Xia et al. 2015b). A comprehensive systemisation is required to create a sustainable society and environment. To instill the idea and adopt sustainable features in a retirement village involves coordinating different disciplines. Sustainable features highlight three primary notions economic, environmental, and social sustainability (Xia et al. 2015a, b). With SRV, the elderlies can live in a space tailored to their ergonomic needs comprised of activities, services, tranquilities and facilities (Gardner et al. 2005; Hu et al. 2018).

The idea of relocating ageing parents into a retirement village is still a challenge to accede. It is a prevalent culture, especially in Asian countries, to take care of ageing parents and residing with the children (Hu et al. 2019; Ren and Treiman 2015; Silverstein et al. 2006). With the transient lifestyle to cope with the rapid economic shift, the younger generations are occupied with their respective commitments, so taking care of the elderly puts them into a hurdle situation. Therefore, the demand for a better lifestyle and social interactions for their elderly parents is rising.

The economic factor is another aspect that needs to be looked upon, especially for those elderly who might be experiencing a financial constraint in their twilight years. As Finn et al.'s (2011) suggested, the development of a retirement village emphasized affordability as a primary factor. Interestingly, some elderly are not confronted by these issues and are more than willing to splurge more to enjoy the facilities and services provided (Crisp et al. 2013a, 2013b). This act is justifiable as they invested

a good amount of money in catering to their needs, such as a better lifestyle and conducive environment.

2 SRV the New Approach for Elderly

A retirement village is a customised property for a certain age group. In the literature, a certain age group is referred to as retired people (Broad et al. 2020), age-segregated community (Hu et al. 2018), older people (Hu et al. 2019), and growing aging population (Xia et al. 2014). In other words, a retirement village is a new form of a home designed for people of a certain age group which is the elderly. It is an option for the greying people to live their later phase of life in comfort and with care needed. The improved design of social, economic, and environmentally sustainable features (Hu et al. 2018) can be adopted to meet with the current goals of healthier lifestyle for the aging population. The future landscape for retirees, especially among new generations, is slowly changing as the would-be elderly would want to see themselves as more than just grandparents who stay home to look after their grandchildren (Lim et al. 2019). It is because the future elderly may look forward to live in a more productive life in their retirement years.

In this day and age, current younger generations lead a hectic lifestyle, preoccupied with life obligations, making it difficult for them to care for their old parents, leading this tradition to move to new ways of ageing in a retirement village (Lim et al. 2020; Ng et al. 2019 and Wenyi 2014). The development of a retirement village is one of the living arrangements commonly acknowledged as a realistic living option for older adults. Retirement villages are communities specifically intended for the elderly. A retirement village's main qualities are independent living, institutionalisation, and an age-friendly atmosphere (Hu et al. 2017).

An ideal retirement village strives to offer residents with an ideal living environment by first meeting the fundamental requirements of the aged, followed by sustenance needs (Hu et al. 2015; Xia et al. 2015a). To begin, meeting the residents' fundamental requirements is one way to convince older individuals to embrace the notion of living into a retirement village. It covers the design of the entire village's physical environment, which refers to the village's location, available facilities, and accessibility, as well as the outdoor and indoor space design. All required health-care services are made inexpensive and available to citizens. Incentives should also be provided by a suitable retirement village such as the low interest rates, income tax rebates and exemptions from stamp duty (Lim et al. 2020).

Despite the fact that the retirement village is anticipated to provide a nice home for the elderly, the support of friends and family members will keep them going. The location also has an impact on family visitation and attentiveness. As a result, it is advised that the retirement village be located within a fair distance and not too far away. According to Broad et al. (2020) research performed in New Zealand, the degree of satisfaction in terms of social support is extremely content with living in the village. Contributing variables include a supportive family, participation in

social activities, leaving the unit/apartment on a regular basis, and a belief in God or spiritual elements of life, which affected how they lived.

3 The SRV Models

Economic sustainability is one of the considerations that these residents will take into account where they come with different socio-economic backgrounds. These include the entry contribution, ongoing costs and departures fees on how they can afford their village life (Hu et al. 2015). Sustainable retirement villages may be expensive, but their affordability is made feasible by a variety of factors, including procedures that prioritise the welfare of residents before profits (Zuo et al. 2014). Lim et al. (2020), highlighted that affordability is essential on the development of retirement village. Thus, it is important to the under the SRV models available in the international market.

The two models are more common and they are the continuing care retirement community (CCRC) and village model. CCRCs have grown and varied considerably since their inception and the provision of housing and care is combined in CCRCs (Rogers 2011). CCRCs provide its residents with a broader range of service packages and entry-fee alternatives. CCRCs often offer a mix of independent living apartments and/or cottages and nursing care, and many also include assisted living, memory support care, and other speciality care options. They also offer 24-h security, social and recreational events, appealing food selections, cleaning, transportation, and health and fitness programmes to residents.

On the other hand, the village model is a non-governmental strategy. Villages are a new consumer-driven social support model that strives to improve the social engagement, independence, and well-being of community-dwelling elders through a mix of social events, volunteer opportunities, service referral, and direct help. The retirement village can be a donor-funded communities or resident-financed villages. For the later, as the name implies, are villages in which the whole capital investment is supported by inhabitants through incoming payments for the “purchase” of self-care units, with such incoming payments recoverable in full or in part in line with the resident’s contract at the time of purchasing.

4 Methodology

The challenges related to the establishment of retirement village identified through literature review. To guide the systematic review of this paper, the question posed throughout the search was “What are the challenges to introduce retirement villages to the community?” All articles are in English language and fifteen main articles were selected to be reviewed as the pilot articles. Then, the snowball technique was adopted to find more evidence to support the main findings (Centre for Review &

Dissemination 2009). The keywords for the challenges are suggested in the literature are identified and summarised in Table 1.

Following this, pilot survey were conducted to explore the research area further and obtain a better understanding of current practices among elderly within the research context. Early consultation with actual respondents mainly to confirm the appropriateness of the factors involved (Meng 2011).

A pilot survey was done for this study, using questionnaires issued to measure the respondent's pattern and make required changes to the research. Purposive sampling was utilised, with the major criteria of respondents being individuals from generation X. At the time of data collection, Generation X was defined as those aged 42 to 56. The pilot sample size was chosen using an estimation by Viechtbauer et al. (2015) with a 95 percent confidence level, and the minimal chance of identifying the problem is 10%. A number in the range of 5% to 10% is acceptable. The survey gathered 36 more respondents than the required sample size.

5 Findings and Discussion

This section analyses and discusses the major findings that emerged from the literature review and the open-ended questions in the questionnaire. There are six main challenges identified. For question related to the challenges of the retirement village, open ended used to gauge opinion from the respondents. The respondents opinion has been recorded and clustered based on the six main challenges identified.

5.1 *Issue Related to Affordability*

The retirement village is reported associated with high investment costs and other associated living costs (Osei-kyei et al. 2020). Some retirement village reported to charge the non-refundable entry contribution, service costs and maintenance fees. Elderly has reduced their financial capability after their retirement (Zuo et al. 2014). Although some are able to secure great of saving through personal effort, government pensions and retirement remuneration scheme, but there some still struggling with managing financial after retirement. The most important concern for residents residing in both pre and post relocation phases is financial consideration (Crisp et al. 2013a, 2013b; Finn et al. 2011; Kennedy and Coates 2008). Affordability remains a top priority for the elderly, even though they aspire to live in an eco-friendly living environment (Barker et al. 2012; Zuo et al. 2014).

One of the respondents highlighted '*Savings after retirement need to be planned properly*' and another respondent quoted '*Retirement village here is very limited, really depends on the one's affordability*'.

Table 1 Keywords of challenges of a retirement village

Challenges	References																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Unaffordability	*					*		*	*	*		*									
Lack of interaction					*		*		*					*							
Loss of freedom and privacy				*					*		*					*	*	*	*		
Stressful decision									*						*						
Negative perception			*						*												
Lack of awareness		*																			*

1. Osei-kyei et al. 2020, 2. Lim et al. 2019, 3. Malta et al. 2018, 4. Yeung et al. 2017, 5. Bohle et al. 2014, 6. Zuo et al. 2014, 7. Chandler and Robinson 2014, 8. Zuo et al. 2014, 9. Crisp et al. 2013a, 10. Barker et al. 2012, 11. Brownie and Horstmannshof 2012, 12. Finn et al. 2011, 13. Kennedy and Coates 2008, 14. Buys et al. 2006, 15. Cheek et al. 2006, 16. Gardner et al. 2005, 17. Meddaugh and Peterson 1997, 18. Ice 2002, 19. Bowers et al. 2009, 20. Stimson 2002

5.2 *Lack of Interaction*

Lack of interaction with family is a drawback factor restricting older people relocating into a retirement village (Buys et al. 2006). The elderly commonly will need the support and will be taken care of first-hand by their children and extended family. The perception of the institution segregate and isolate elderly people from society (Bohle et al. 2014). Chandler and Robinson (2014) mentioned the challenges is also related to secluded from wider community can lead to a sense of no longer being needed or noticed by society or younger generations.

Quoted from one the respondents that related the importance to stay close to the family members '*We believe that living with family members is vital since it is a religious priority*'. Another respondents mentioned that children support is very important by quoting '*when seniors retire, they require the affection of children*'.

Furthermore, familiarity with the current neighbourhood and not wanting to lose current neighbour also identified as the challenges to further establish the retirement village for elderly (Crisp et al. 2013a). About three respondents highlighting that they prefer to return to their villages and enjoy their retirement there. Quoted from the respondent '*I'll return to my village because I own a home there*'.

5.3 *Loss of Freedom and Privacy*

Residents are deprived of their choice and freedom due to the demands to comply with the retirement village rules and regulations (Gardner et al. 2005).

As mentioned by one of the respondents '*I want to travel after retirement, not be confined to a retirement home*' and another respondent quoted '*whether the person is willing to live in shared living space (for e.g., Share/rent a room)—this will relate to costs*'.

Privacy and freedom are lost due to the village design (Crisp et al. 2013a) for example shared room and common areas (Gardner et al. 2005). Lack of personal control and autonomy leads to the emotions of impotence, indecisiveness, sadness, and apathy (Meddaugh and Peterson 1997). Harper Ice (2002) stated that increased reliance on the nurses and staffs contributes to the feeling of helplessness thus resulting in the functional inactivity among the residents. This is due to the residents' loss grasp of the autonomy and they still desire to have control of their lives and to be able to actively engage in choices that impact their daily lives (Bowers et al. 2009).

5.4 *Stressful Decision*

Relocating to resident aged care are viewed as a stressful decision because it is often unplanned due to an acute medical crisis. Transitioning into resident aged care is treated as a last resort and according to studies, older people frequently feel angry and powerless, while their caregivers or family members may feel guilty or depressed after the transition (Cheek et al. 2006).

The respondent mentioned '*If there is no other option*' and another respondent's feedback '*If staying at kampung house is no longer possible, and if special care that is not available in the kampung area*'. These two statements reflecting moving to retirement village when they have no other option. The retirement home seems to be regarded as the place to seek for daily care whereby another respondent has quoted '*If no one or I myself can't take care of me*'. Crisp et al. (2013a) reported 'having to change doctors' as the discouraging factor for the relocation to the retirement village.

5.5 *Lack of Awareness*

Studies from Lim et al. (2019), revealed that awareness pertaining SRV in Malaysia is relatively low compared to other developed countries. The role of media and online social network should be utilised as it is positively influencing the intention to move to a retirement village. Retirement villages are a viable option for elderlies and the development of the industry continues to expand at a quick pace however, Zuo et al. (2014) stated that it is still in its infancy and requires more research and direction. Studies highlighting into the market of a retirement village particularly on the topic where it has been unclear how much the retirees willing to spend for the retirement village features are still lacking (Stimson 2002). As mentioned by one of the respondents '*Depending on the "attractiveness" of the village, I have lack of knowledge pertaining retirement village*'.

5.6 *Negative Perception/Stigma*

There are negative perceptions lingering among the wider community that perceptions that the retirement villages are 'just for older people' (Crisp et al. 2013a). A stigma mentioned here refers to a mark of disgrace associated with a particular circumstance, quality, or person. The stigma is when sending elderly to the retirement village means relinquish the responsibility of taking care of the elderly in the family and regarded as irresponsible. The expectation from elderly and society where children and extended family are responsible to provide care to their elderly. More than three respondents mentioned '*To be with family members*'. The complexity of agreements and the lack of resident power also has drawn the potential residents

away (Malta et al. 2018). The common legal problem in related to retirement home such as complex contracts, excessive fees and charges and also breached of law and contract also provide negative perception towards retirement village.

6 Conclusion

Retirement village is the future needs for elderly to complement the current support system by the children and extended family. However, to persuade elderly to move to retirement village is not easy and challenging. The challenges highlighted in the paper has been identified from the literature from Malaysia and abroad should be considered and tackled wisely. The challenges in relocating into SRV shows that investment costs and other living expenses become the main challenges. Regarding social aspects, factors such as loss of privacy and the fear of lack of interaction are alarming, and this needs to be further investigated. Moreover, the negative notion of relocating into the retirement village is still deeply instilled in some Malaysians' minds, making it more challenging to come to a concrete conclusion and decision to relocate. There is still a gap in the awareness of the retirement villages in Malaysia. This paper will help the reader to underline the challenges faced related to retirement village derived from literature review and respondents' point of view. This paper aims to path a way for a better way in providing the retirement village for the elderly. The establishment of this new concept of housing is an innovative approach but there are more study need to be conducted to find suitability to establish the retirement village based on local context.

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Perceptions of Existing Small Business Retailers on the Emerging Modern Stores Design in Malaysia; Case Study Existing Small Fashion Retail Store in Georgetown, Penang



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Abstract The retail industry is going through a transformation and the emerging market is witnessing a significant change in its growth pattern; modernization and post pandemic Covid-19 recovery safety SOP. Both existing and new players are experimenting with new retail formats without neglecting the health safety SOP by the government. Customers are also in favor of these retail formats; for trendy shopping environment and safety. This study was conducted to assess the impact of the emerging modern fashion stores design mainly regarding store environment attributes towards existing small local business fashion retails. Also the actions needed to remain competitive. A qualitative approach was chosen by performing interview with several existing small local fashion store retailers. The study used structured questionnaires for collecting primary data followed by data analysis and interpretation. The early findings revealed that there was gaps that existing small local fashion retailers faced. Lacking on the knowledge and guidelines on creating good fashion store environment design mainly after the post-pandemic strategies left them with little information in deciding which store design attributed more appropriate for their operations in an attempt to stay competitive without set aside the safety SOP. Therefore to survive into and through the next decade, it is important for the existing small local fashion business retailers to repositioning themselves by upgrading providing an exciting store environment shopping experience with comply to the current post-pandemic issued health safety (SOP). Thus this study underlines the dilemma that existing small store retailers faced due of modernization and after pandemic.

Keywords Retail format · Existing small local retailers · Modern store design · Malaysia

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1 Introduction

The support act of making less strict of the economy policy, rise in per capital income, improve infrastructure, and growing consumerism have lead the modern large and foreign business retailers to enter the country (Kiran and Jhamb 2011). These set up of modern retails have affected the existing nearby small local retailers in competition.

The retail market in Malaysia is mainly consisted of small and medium business companies; unorganized, traditional, independent and family run shop (Khan and Khalique 2014). New retail formats in Malaysia are showing very interesting trends. These included in term of the type of store format that retailers are bringing into the market. The modern retail formats provided wide varieties to customers and offer ideal shopping experiences. The modern customers is seeking more value in the form of improve quality option such as shopping environment. The store environment can serve the critical role of crafting and reinforcing the desired store image which than lead to customer perception. This has created a rapid growing opportunity for modern retail formats to emerge in recent years.

With growing of modern retail, constantly provide by exciting environment leads the traditional; existing small local business fashion retailers to be fiercely competitive and innovatively oriented. Without modifications and innovations in working style, their existence will be at the stake. Therefore, this study was carried out to evaluate on the characteristics of the existing small local fashion retailers and to evaluate their perception regarding the important of modern store environment design factors in today market without neglecting the post pandemic health safety SOP by the government.

2 Literature Review

2.1 *Malaysia Retail Market*

As stated above retail is one of the rapid growing sector in Malaysia. A report done by AT Kearney (Kearney 2014) showed that Malaysia has been ranked as ninth in its Global Retail Development Index. The rank has increased four places from 2013. Based on Businesscircle (Businesscircle 2015) the Malaysia's whole sale and retail sector in 2013 has grown from RM9.3 billion in 2009 to RM13.3 billion with an increased of 43%. Retail fashion is among the main contribution to the total income of whole sale and retail. Retail fashion is defined as business that involved sales ranges of clothing and accessories that cater for all gender and ages (PricewaterhouseCoopers 2013). For the Malaysia's fashion retail industry, based on ReportLinker (ReportLinker 2015) between 2010 and 2014 has posted revenue of RM7.6 billion, an increased growth of 9.9%. It was forecast that for the year period of 2014 to 2019 the industry will increase by bringing value to RM12.3 billion.

The Malaysia's retail market comprises of modern and small/traditional retail sectors. According to Khan and Khalique (Khan and Khalique 2014) the Malaysia's retail markets were mostly under the governs of Small and Medium Enterprise (SME). Studied done by Khan and Khalique, (Khan and Khalique 2014) which referred to Census report indicated that the majority of Malaysia's stores total establishments was about 662,939 or 97% were SMEs. Although there is a growth pattern in modern retailing and in its consumption made by the customers, still the current small and medium retailers have still been acknowledged as majority of today's country total retail establishment.

2.2 Emerging Retail Formats; Store Environment

Modern customers have made the shopping pattern to become more sophisticated. They expect high level of services and merchandise quality (Jhamb and Kiran 2012). Due to globalization, improvement in infrastructure, financial income, new formats and age related merchandising changes are the consequence of retailing trends. Customers are no longer shopping from the local small/traditional store but rather the place of modern improves shopping quality (Jhamb and Kiran 2012). Retailers need to customize retail model as per the taste and preferences of the customers.

The principle behind the growth of modern retail is that it offers an experience and not just goods. It is important for retailers to identify the target shoppers as well as the prime factors of enjoyment in shopping.

2.3 Attributes and Choice of Retail Formats

The changing in retail structure has provided the customers with more option in the form of format and services. According to Jhamb and Kiran (Jhamb and Kiran 2012), image attributes importance for customers. They stated that the customers indicated a number of images attributes of multiple retailers, which are important for them and make a great impact on store selection. These image attributes play important key roles including product quality, products displays and assortment variety, product price, advertising, and store environment.

As for the fashion retail, retailers need to take into account two sets of attributes; loyalty and shopping enhancers (Jhamb and Kiran 2012). The loyalty drives are mixed merchandise, sales promotion, price, and recommendation/relationship meanwhile the shopping enhancers are store reputation/advertisements, return policy, and store environment conditions. Enjoyable, pleasant, and attractive store shopping environment increases the chance of impulse buying among customers.

2.4 Background Details

Georgetown the capital city of the Malaysia state of Penang, situated at the north-eastern tip of Penang Island. It is also well known for the country among major projects in modern retails. Georgetown area comprises several shop lots; modern and small/traditional retails with various types of retail business such as food stores, electronic stores, sundry shops and also include fashion stores. The emerging of the modern fashion retails, in the area would be in direct competition with these already exists small local fashion retail that already operating in the catchment area. Therefore this distribution shows the fact that Georgetown, Penang is the most suitable location for sampling that would be considered in the present study.

3 Methodology

3.1 Research Objective

- To study the existing small local fashion store retailers characteristics in the catchments area.
- To assess the perception and understanding of the existing small fashion retailers on the emerging modern fashion retail formats; store environment design attributes.
- To suggest marketing strategies; store environment design attributes to the existing small local fashion store retailers for better management.

3.2 Research Design, Sample and Data

A qualitative; an interview method was utilized to achieve the objectives of the study. The interview method was done on random by selecting the existing small local fashion store retailers within the catchments area in Georgetown, Penang. Total respondents of 25 retailers participated in the study.

One set of structured questionnaire was specifically designed for the study. The managerial interview questionnaire was divided into two parts. Part A consisted of statements related to the characteristics of the retail outlets such as types of outlet, and operational period. Part B seeks the profiles of the retailers and their perceptions on the gaps that appear in retail segment mainly regarding emerging modern retail formats; store environment design attributes. Based on the findings obtained, all information were gathered and categories to identify possible.

Table 1 Summary of fashion retailers participants respondent catchment area

Random retailers within the catchments area in Georgetown, Penang	
Retailers area	Frequency (%)
KOMTAR Mall	32.00 (8)
Penang Times Square Mall	32.00 (8)
Prangin Mall	36.00 (9)
	25

4 Results and Discussions

4.1 Retailers Respondents Demographic

4.1.1 Retailer Establishment Catchment Area

From the analysis in Table 1, most of the existing small local fashion store retailers responses were gathered from Prangin Mall with score of 9 (36.00%). Followed by responses from Penang Times Square Mall and KOMTAR Mall with each score 8 (32.00%).

4.1.2 Types of Retailers

According to Table 2, 14 (56.00%) of respondents were indicated that they operate small business retail with company turnover between RM 300, 000 to less than RM3 million, whereby 11 (44.00%) of respondents were grouped as micro retailer with turnover less than RM 300, 000. Overall all the retailers can be grouped as a small business retailer.

Table 2 Summary of participants respondent retailers category

Retail business	Frequency (%)	Summary
Big retailers (More than RM 20 mil)	0.00 (0)	Big retails 0.00 (0)
Medium retailers (RM 3mil to not exceeding RM 20 mil)	0.00 (0)	
Small retailers (RM 300,000 to less than RM 3 mil)	56.00 (14)	Small retails 100.00 (25)
Micro retailers (Less than RM 300,000)	44.00 (11)	
	25	

Table 3 Summary of participants respondent year establishment

Years operating	Small retails
1–5 years	12.00 (3)
6–10 years	48.00 (12)
Above 10 years	40.00 (10)
	25

These results were qualified as this research aims were to focus on the dilemmas that faced by the existing small local fashion retailers on emerging modern retail formats.

4.1.3 Shops Establishment

Table 3 shows the retailer’s information regarding years of establishment retail outlets. From the data, majority of the retailers stated their business operation were established between 6 to 10 years with score of 12 (48.00%), followed by operated more than 10 years, with 10 (40.00%). Only 3 retailers stated that their business were newly opened store between 1 to 5 years.

The results unveiled that majority of the sampled retailers were among the pioneer early established fashion retail stores in Georgetown area. This is important since the existing retails who face intense competition; impact of the changing emerging modern retail format.

4.2 *Perceptions and Understanding of the Existing Small Local Fashion Retailers on the New Modern Retail Formats; Store Environment Attributes*

4.2.1 Understanding of Modern Retail Formats; Store Environment Attributes

Table 4 shows the overall retailer’s responses perception regarding the important modern retail formats; store environment attributes. Ten statements were used to measure the retailer’s perceptions ranging from the important of store environment in today retails business, knowledge in store design strategies, and problems in transforming store design.

a) Opinion on Store Environment Design

From the results, majority of the retailer respondents did understand the import of the store environment attributes on today retail business success.

Most of the statements were rated as “Agreed” followed with large number of respondent selected as very agreed. Only few respondents selected as neutral. The

Table 4 Perceptions of retailers on modern formats; store environment design attributes

Understanding of store environment design					
Statements	Frequency (%)				
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Comfortable store environment attracts more customers to the store and sales	0.00 (0)	0.00 (0)	4.00 (1)	52.00 (13)	44.00 (11)
Enjoyable store environment attracts more customers to the store and sales	0.00 (0)	0.00 (0)	4.00 (1)	56.00 (14)	40.00 (10)
Pleasant store environment effects customers decision	0.00 (0)	0.00 (0)	0.00 (0)	60.00 (15)	40.00 (10)
Good store environment separate the competitiveness in retail selection	0.00 (0)	0.00 (0)	8.00 (2)	64.00 (16)	28.00 (7)
Proper merchandise stocked and presentation can influence consumers impulse buying	0.00 (0)	0.00 (0)	0.00 (0)	56.00 (14)	44.00 (11)
Good merchandise quality and variety can influence consumers impulse buying	0.00 (0)	0.00 (0)	4.00 (1)	52.00 (13)	44.00 (11)
Challenges towards upgrading retail store					
Statement	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I do have strong capital to upgrade my existing store	68.00 (17)	24.00 (6)	8.00 (2)	0.00 (0)	0.00 (0)
I can engaged a specialist to redesign my store	64.00 (16)	28.00 (7)	8.00 (2)	0.00 (0)	0.00 (0)
I do have the knowledge in store environment design strategies	76.00 (19)	8.00 (2)	4.00 (1)	12.00 (3)	0.00 (0)
It is easy for me to find guideline on store environment design in Malaysia context	80.00 (20)	12.00 (3)	8.00 (2)	0.00 (0)	0.00 (0)

highest agreed selected by the respondents was regarding good store environment can separate the competitiveness in retail selection with score of 16 (64.00%). Followed by pleasant store environment can effects the customers outcome; decision with 15 (60.00%). Two statements were rated with the same score; enjoyable store environment attracts more customers to the store and sales, and proper merchandise stocked and presentation can influence consumers impulse buying with both score of 14 (56.00%). Also rated with the same results were; comfortable store environment attracts more customers to the store and sales, and good merchandise quality and variety can influence consumers impulse buying with 13 (52.00%).

b) Problems Transforming Existing Store Design

In current scenario, the changing in retail format needed for retailers to provide a unique and interesting store environment which would increase the store performance. However, from the interview there were few problems that faced by the retailers. The main problem that was found was that, it was hard for them to gain information on fashion store environment design references within the Malaysia context with rated scored of 20 (80.00%). Followed by they did have little knowledge about transforming their own store with 19 (76.00%). Other dilemma included they also had difficulties regarding company finance; 17 (68.00%) and lastly due to low company revenue they cannot engaged designers to modernize their store with score of 16 (64.00%).

The results showed that the biggest gap found from the data was regarding lacking on access the information; references towards provides a good store environment design strategies. Even though the retailers did understand the important of store environment in retail success, but they were lacking in implementation or skill on how to create a good store environment, and this left them with hard time to poses questions regarding the value of the store design strategies.

4.3 Findings

Table 5 concludes the findings within the perceptions and dilemmas by the existing small local fashion retailers regarding on the emerging of modern retail environment design aspects.

Table 5 Summary perceptions of retailers on the emerging modern retail; store environment design attributes

Statements	Small retailers		
	Low	Medium	High
Understanding of the general important store environment		✓	
Understanding of the store environment design strategies attributes; implementation on how to create	✓		
Challenges Towards Revamp Existing Retail Store	✓		

Therefore there is a call for a greater understanding reference in a holistic view of the store environment design factors in fashion retail stores towards customer behavior in Malaysia.

5 Conclusion

This study investigated how existing small local fashion retailers respond to the important of modern formats; store environment strategies and how applying it could benefit them. Previous study had already proven that new modern store formats is a major factor in success of store, but this study focused primarily on the store environment that were more specific for fashion retail businesses. The findings from this study indicated that the existing small local fashion retailers within the catchments area in Georgetown, Penang would continue be affected by the trend in modern retail format, if actions such as improving store environment are not to be taken. Furthermore, lacking on store design guideline of Malaysia context and poor knowledge would left them with little direction in deciding which store environment design strategies are more appropriate for their operations.

In future it is important for the existing small local fashion retailers to have knowledge/guidance in store environment design and improved by uniquely created a strong store environment shopping experiences through store designs strategies and the adaptation today new norm post-pandemic health safety (SOP). It is vital for them to differentiate themselves from the competitor and influence customer buying intention as it is part of the store marketing strategies. Therefore, basic references on how to design good fashion retail store environment in Malaysia's context need to be established urgently.

5.1 Recommendations

Throughout this study there were certain things mentioned that could help improve if needed for existing small local fashion retailers in Malaysia. The suggestions of this report, according to the primary and secondary data are the following:

- Retailers should focus more upon retention strategies, store environment/image strategies and competitive strategies without neglecting the health safety SOP by the government for better management of their businesses.
- Retailers also need to focus upon advertisement and promotion strategies as may help to enhance store environment and sales.
- Retailers should be strategically displayed/presentation and stocked merchandise to meet the buying needs of customers. All the store glass windows and door handle were regularly sanitized by the staff to keep the store clean and safe.

- Retailers need to provide variety and quality merchandise which can also be used as an effective marketing tool to differentiate one store from another stores/competitors, and to attract customers' attention.

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Product Distributional Mechanism as an Asnaf Entrepreneurship Support: A Case Study in Wilayah Persekutuan Kuala Lumpur, Malaysia



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Abstract Many zakat institutions have introduced asnaf entrepreneurship program as a mechanism to empowering productive asnaf in generating income. Various methods of entrepreneurship support have been introduced by the institution such as training, coaching, mentoring, financing and many more. However, the effectiveness of the programs are subjective as a few of the asnaf are successful while others are vice versa. The aim of this study is to explore the types of the entrepreneurship support which are being considered effective by the asnaf entrepreneur toward her own business performance. This study found that the non cash assistance by way of product distribution is among the good entrepreneurship support that enabling asnaf entrepreneur to capture bigger market size of the business. On top of that, it also enhanced the entrepreneurship spirit, skills and experience through the real practice of the business activities. A qualitative approach was implemented in this study by intervieweing a successful asnaf entrepreneur who received assistance from one of zakat institutions in Malaysia. This study suggested that the zakat institutions and researchers to explore a few methods other than training and financing in supporting the asnaf entrepreneurs.

Keywords Asnaf · Asnaf entrepreneur · Products · Zakat and zakat assistance and SMEs · Poor and needy

1 Introduction

The zakat institutions have introduced the economic upgrading program which is known as ‘Skim Bantuan Ekonomi’ under MAIWP (Majlis Agama Islam Wilayah Persekutuan 2018) by giving away the capital assistance, advisory and business support to the asnafs who are eligible for it (Abdul Ghafar et al. 2017).

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Abdul Hamid (2013) highlighted that the conversion successful rate from the whole asnaf entrepreneurs were between 30 to 60% or 3 to 6 (participants) from 10 participants were exited (graduated) from the asnaf status. This percentage was meaningful as the impact of one entrepreneur may give a chain of benefit for others. Among the benefits are the employment opportunity, infaq, economic development and community support. It is a local multiplier effect which benefits the local economy through the linkages of expenditure (Karlsson et al. 2015). This is a good program that the success is not measurable based on the conversion rate from asnaf to muzakkis only but also the other indirect impact to the economy (Yusoff et al. 2019). However, based on the research done by Kayed and Hassan (2011) that despite of the entrepreneurship to unlock the future economy, the actual impact is totally depending to the capable entrepreneurs (Tomczyk et al. 2013), sustainable business and supportive environment (Nasir 2013).

The capable entrepreneur is defined as the one with a higher level of motivation to reach his target, a good planner, impassioned, the goal executor, problems adaptor and the one with higher level of confidence and endurance (Abdul Halim et al. 2012). These are among the elements required for the entrepreneur to success in the business and thus, the asnaf entrepreneurs (Bin Yusoff et al. 2018).

The purpose of this study is to explore the types of entrepreneurship support provided by zakat institutions toward asnaf entrepreneur. It looks into the effectiveness of the support that can enhance the entrepreneurship skills, spirit and experience. Therefore, it can provide a guidance for the zakat institutions to delve further as regards to the types of non-cash entrepreneurship assistance with dual edges i.e. to create a business opportunity and to promote the business sustainability.

2 Literature Review

Shiyuti and Al-Habshi (2019) highlighted that Lembaga Zakat Selangor (one of the zakat institutions in Malaysia) has used two types of entrepreneurship support for their asnaf entrepreneurs which are cash and non-cash assistances. Furthermore, LZS also collaborate with many agencies in providing other entrepreneurship supports (Yusoff et al. 2021a, b) such as knowledge, promotion and many more.

On the other hand, Ibrahim and RuziahGhazali (2014) divided the zakat recipient into three (3) categories which are (1) the one who is not capable to do anything except to continue his own life, (2) the one who need one off assistance in order for him to face or exit the situation and (3) the one who is currently in the hardship but has a potential to develop, grow and graduate from the asnaf status (Ibrahim and RuziahGhazali 2014). The second and third category are identified as potential candidates for this asnaf entrepreneurship program. However, Abdul Halim et al. (2012) suggested that the third group as the right candidate for this program.

However, Rahman and Ahmad (2011) questioned about the potential of this program to be successful. Any failure of the program may put the pool of zakat

fund in risk. Hence, the right selection of the productive asnaf with the right support may reduce the risk of the failure (Azman et al. 2016).

As regard to the entrepreneurship, Banerjee & Duflou (2011) and Largoza (2016) mentioned that a person used to overestimate his entrepreneurial capability which at the end resulted to the business failure. On the other hand, Largoza (2016) opined that the entrepreneurship is not only determined by physiological character (Yusoff et al. 2021a, b) but related to the cognitive and reasoning function of the mind. The success of the entrepreneur is measured by the qualitative and quantitative result which called as a business achievement.

Meanwhile, Muhamat et al. (2013) highlighted that the asnaf entrepreneur is a category of trait handicapped person who is basically has no basic criterion to become an entrepreneur. He is not bankable, lack of knowledge, limited in business experience, and lack of businessman image (Ismail et al. 2019). However, it is not the end as there were cases many asnaf entrepreneurs who were successful in business and became the zakat payers.

3 Methodology

This study used qualitative approach as suggested by Creswell (2014) that the qualitative approach is suitable in exploring and analyzing the concept and theme related to social science matter. The paradigm of the qualitative research will expand concurrent to the exploration and studying process which involve directly with the real subject at the real time of the research itself. In another words, the researcher dealt directly with the sample of the research itself. In this study, there is no hypothesis to be developed prior to the research procedures as available in the most quantitative researches.

A single case study approach is being used in this research as to have deeper understanding (Gustafsson 2017) on the non-cash entrepreneurship assistance given by zakat institution in Wilayah Persekutuan toward this asnaf entrepreneur that her products reached an international market (United Kingdom, France, Brunei, Singapore and a few other countries.). Hence, the purposeful technique is being used in selecting the informant.

This research used structured interview as a data collection technique. The interview was conducted face to face. Once the data collected, the researcher transcribed the interview and re-forwarded it to the informant for the confirmation and validation. This forwarding method to be done as a way of triangulation process i.e. to collect data in various ways for the same phenomenon (Jick 1998).

Once the data compiled, it was analyzed based on two steps i.e., (1) case study analysis and (2) thematic analysis.

There are three (3) main goals to be reached throughout the in-depth interview session. In the first section of the interview session, the study was to identify the challenges of the asnaf entrepreneurs in Wilayah Persekutuan. Then followed with the

identification of the alternative entrepreneurship support received by the informant and finally the important elements that made the business success.

4 Data Analysis

4.1 Informant Profile

Ms M is a female business owner of a cookie's trader in Setapak, Gombak, Kuala Lumpur. She was born in 1978. The highest education she had was a Degree from Universiti Teknologi Malaysia. She started her career as an educator after graduating from university in 2006. It began with the opening of her kindergarten named Smart Reflesia. This business had expanded compounded from one unit to four units. At the same time, she was appointed to the education supervising committee for KAFKA, Jerantut. In 2011/2012, she was appointed as a principal of a vocational training center known as Wayland Training Center by her friend (she was an owner of this center). This center which was based in Kepong, Selangor was focused on French culinary techniques and skills. In order to become competitive, IN9 was trained with the same skills until she conquered it. Currently, this skill has enabled her to survive and continue with life.

In 2014, she was diagnosed with serious endometriosis which led to her being bedridden for almost 6 months. Due to this situation, she was terminated from her post as a principal in the Wayland Training Center. Subsequently, in 2015, she decided to let go of all her kindergarten in order to get the cash to cover the cost of medication. Her takaful and insurance were not covered this disease as it categorized under period pain. It required an operation which was very costly to be done in a private hospital and a long waiting period if it was to be done in the government hospital. She has exhausted all of her savings to pay bills for the private hospital. However, with the support from Baitulmal MAIWP, she was referred to the government hospital and finally the operation was successfully done at the end of 2019.

In 2018, she started to bake and sell cookies for her survival. She felt embarrassed to request assistance even from her own family. Until now, her cookies business has reached the United Kingdom and Brunei. While in Malaysia, her agents are scattered throughout the countries and also reachable via post and courier.

- Aged: 43 years old
- Gender: Female
- Marital Status: Married
- Ethnicity: Malay
- Nationality: Malaysian
- Highest Level of Education: Degree, Universiti Teknologi Malaysia
- Organization's Name and Location: Setapak, Kuala Lumpur
- Work Position: Business Owner

- Job Tenure (in current organization): 3 years (Current Business), 15 years (whole experience)

4.2 The Challenges

Ms M highlighted that she never feels minimized to learn the basics of business education provided by Baitulmal even though she was an experienced business-woman. It is a requirement for all participants' despite their background to attend a two days' business program provided by Baitulmal. This program is expected to provide entrepreneurs with knowledge of business that to be implemented when they are operating their own businesses. As an experienced business woman, this program has supported her to realign the understanding about business and to guide her for better business strategies. Therefore, she is very committed to attending any business educational program provided by Baitulmal MAIWP. Not only that, she also committed to implement all the business knowledge that she learnt in her business operation.

Ms M mentioned that it is a challenge for her to capture the market especially with the new products. She was very aggressive when doing the marketing, the aim is to create awareness among prospect customers as many as she can. She portrayed it based on her experience when she marketed her cookies in Giant Ulu Klang some years ago, she approached and chased almost all prospective customers who passed by her booth to try the cookies. She allowed the customers to try as much as they wanted even if they had not intended to purchase it at the beginning. But at the later stage, they finally purchase it due to the taste and uniqueness of the product itself. This action received various comments which among them were felt pity to her when knowing of her previous status. However, she was very objective in her action and believed that marketing is not easy and can be done only with struggle, full effort and tremendous commitment.

The next challenge highlighted by Ms M is the capacity and capability of herself to meet the demand of her products. Once the products were well accepted by the customers therefore the demand started to tremendously increase. At that time, she only had a small oven and worked alone. This capacity has limited her capability and thus disrupted the supply of the products. As a result, to this situation, Ms M received support from Baitulmal for as much as RM4000 which she used to purchase a bigger industrial oven. This new equipment has enabled her to produce more production and fulfilled all the demands. This equipment together with the old one has enabled her to deliver the products to Amsterdam, United Kingdom, Brunei and France. Baitulmal has basically supported her in facing this challenge.

Health is the core challenge faced by Ms M. She has changed herself from a successful business woman who owned 4 kindergartens to a woman who has nothing to survive. A year in hardship was very difficult and may lead to depression if it was not controlled in a proper way. Luckily, Ms M was supported by good family members who have decided to stay together and collectively faced that struggle. All

of her siblings decided to rent a big house purposely to stay together for almost years. They were collectively taking turns to take care of her when warded and even when she was totally bedridden for about 6 months in the house. All the costs of living were collectively shared by her siblings. While in the process of recovery, she started baking from this house then after that transferred to the proper location which currently uses as a central kitchen and also a small café. Health was a real challenge for her but luckily family and Baitulmal were the real heroes that helped her out from the struggle and to carry on with her life.

Ms M revealed that, it is not easy for the one who was successful before to come forward to Baitulmal and request for the assistance. Her pride may be demolished and tested. Most probably she was a zakat contributor before but recently her status was changed and become a zakat recipient. Ms M mentioned that she felt not much guilty to receive the zakat as she was the contributor before and probably, she will feel different if she was not a contributor before even, she was entitled to do so. Therefore, Ms M urged those who are eligible to pay zakat needs to do so before the circle changed. It is a real challenge for an individual to have this zakat awareness.

4.3 Alternative Entrepreneurship Support

IN9 agreed with the action taken by Baitulmal which prefers to assist with business opportunities instead of giving cash, capital or equipment. She was offered by Baitulmal to supply as much as 6000 containers of cookies. She was given a month period to complete this order and then to be distributed to various organizations. She believed that this mechanism would enhance her capabilities in production and running the business. She also believed that her products will be properly distributed and dispersed to wider coverage and thus many customers will be aware about the existence of her products. She believed that the networking owned by Baitulmal were strong enough to expand her business market. Rather than to get support in terms of cash or capital, this mechanism has partly improved her productivity and marketing strength, capacity and capability. As a result, Ms M received many orders even from those who have never bought her product before.

Secondly, Ms M highlighted the importance of having a good supporting family. She was lucky as all of her siblings has decided to rent a big house for them to stay together while she struggled with her health. Her siblings cooperatively looked after her and the parents while she was bed ridden. Once partly recovered, she pushed herself to start her cookies business. At the early stage, they also supported her in financing, marketing and operation of the business. She believed that it would be difficult for her to physically, economically and mentally recover without the strong support from her family.

Thirdly, Ms M mentioned the importance of having proper monitoring and supervision from zakat authority toward asnaf entrepreneurs. This activity will bind the entrepreneurs to concentrate and focus on doing business. Thus, they will be more responsible for the performance and results. If otherwise, they may think that zakat

money is their absolute right and can be utilized as they wish. Ms M highlighted about the asnaf entrepreneurs who were active at the beginning but at the later stage, the businesses came to the nonexistence. Thus, the monitoring and supervision can support asnaf entrepreneurs to be on the right track. The zakat institutions can react accordingly if there is any requirement to do so.

Subsequently, Ms M stressed on the importance of having good business networking. She believed that a business cannot work alone but must be in a team. She has successfully proved that her cookies reached international level through the network that she built from the early years of business involvement. The network consists of full and part time entrepreneurs in various backgrounds and locations. Hence, her business is not about her alone but the team. The success of the business means the success of the team as a whole. Other than the marketing network, Ms M also kept a good relationship with other people who were not even her customers. They feel comfort and trust in the relationship.

Ms M also stressed out that it is important for the asnaf entrepreneurs to be creative and innovative. It is not limited to the products only but also in marketing and selling activities. As for Ms M, she always grabs any available opportunity to market her product be it free or with charges. If she opens a booth in the supermarket or in any trade show, she does not mind giving away dozens of canisters of her cookies as long as she can reach as many people as she can to try her products. She believed that to get some significant sales, she needs to reach a bigger number of prospects. A bigger number will lead to the bigger opportunities. Concurrently, Ms M suggested that asnaf entrepreneurs need to own business branding which make their business more excellence.

4.4 Important Element that Made Business Success

Ms M believed that entrepreneurs should be bold and confident. They do not care much about others' perception and expectations. Their focus is to make sure that their businesses are workable and profitable. There were people who were surprised with Ms M's appearance in the sales events who looked like an anxious promoter chasing the customers. Her friends knew her as a successful business woman who owned a successful brand of kindergarten but transformed to become a cookies promoter. This was quite surprising for them but not for her. She is strong and willing to do anything as long as it is within the shariah boundaries. She does not deny that the negative feeling is there but she managed to control it. Ms M highlighted that this is the important element for an entrepreneur and it is one part of Al-Qawiyun.

Secondly, Ms M mentioned that it is important for asnaf entrepreneurs to have patience in facing the challenges of daily life. This attribute helps the entrepreneurs to be in the positive conditions and alert on the next move to take. The patience is an enabler to keep calm while in the challenges condition that if without it, a person may depart from its original purpose. In the worst scenario, the challenged reaction of a person may go out of control and probably disturb others. In the case of Ms M,

she managed to control her emotions properly and furthermore to keep moving for the betterment of herself. The patience has helped her to keep strong while facing the health problem even though she was bedridden for half a year. She believed that patience is one of the important elements inside the *Al-Qawiyyun*.

As regards to integrity and trust, Ms M revealed that these elements are very important in making entrepreneurs successful in their business. In the case of *asnaf* entrepreneurs, the fund that they received is from the trust fund given for a specific purpose with a certain target i.e. for business activities. They have trust specifically from zakat institutions and generally from the *muzakkis*. By upholding this trust, the integrity of the *asnaf* entrepreneurs will be increased. As for Ms M, she has been entrusted by *Baitulmal* to deliver 6,000 canisters of cookies. Basically, it was beyond her personal capacity to deliver that order especially when she was working alone but based on the trust given by *Baitulmal* she managed to do that within the time frame. Based on this performance, she has received subsequent orders and business visits not only from *Baitulmal* but also from other agencies and communities. She believed that this is *Al-Amin* that she has in becoming a successful entrepreneur.

Another perspective with regard to *Al-Amin*, Ms M emphasized the importance of the total surrender to Allah SWT (*tawakkal*). She believed that we are responsible to strive at our level best, to pray wholeheartedly and finally to total surrender to Allah SWT on the outcome. She believed that a good Muslim entrepreneur should accept whatever result determined by Allah SWT. And at the same time, she also believed that a good effort will generate a good result as it is also part of the Islam.

5 Conclusion

This program is a newly invention that attached to zakat distribution method to enable the productive *asnaf* in becoming the active income generator for themselves, family and also society. Various methods have been introduced which among them are through financing, training, mentoring and many more. Some of them were very efficient in generating results while others were difficult to access.

This study highlighted that health may become the main challenges toward the hardship of an individual. The good position and stable income may be jeopardizing when an individual facing the health issues. Good and strong family relationship helps her while in difficulty. At the same time, zakat institution plays an important role in settling the financial issues especially related to the medication and treatment.

On top of that, zakat institution has used an interesting approach in supporting her business. The bulk order given by them has opened up a bigger and wider market opportunity. The margin from this bulk order has created a financial buffer for her to reinvest in capital expenditure and to increase the production capacity. The zakat institution has distributed the order to the top government officials, diplomats, executives and zakat payers. The purpose of this distribution is solely to promote her product that resulted to the subsequent orders and the spread of word of mouths. The

new production capacity matched with the bigger order made her business successful, expanded and sustained.

The future research may focus into other types of non-cash entrepreneurship support that probably may give a good impact to the business performance. However, the limitation of this research is the difficulty to replicate the same mechanism by different zakat institution to the different asnaf entrepreneurs.






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Entrepreneurial Competencies and Women's Business Performance in Malaysia



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Abstract According to empirical studies on women entrepreneurs, women have made significant contributions to the area of entrepreneurship. According to relevant research, entrepreneurial skills have an effect on a firm's performance. Despite the growing popularity of female entrepreneurs, there are currently few studies examining the relationship between entrepreneurial skills and female entrepreneurs' performance. A questionnaire-based study of female entrepreneurs was undertaken under the aegis of Amanah Ikhtiar Malaysia. As a result, this research examined the four aspects of entrepreneurial skills-opportunity, organization and leadership, commitment, and personal competencies related to company success. The scales used to assess the above-mentioned variables were adapted from those found in the literature. Although 230 questions had been received by mail, only 184 surveys qualified for analysis. The results indicate that three entrepreneurial skill categories, namely commitment, organization, and leadership, as well as personal, are significantly associated with women entrepreneurs' company success. According to this research, women entrepreneurs and relevant skills are critical components of women's business performance. As a result, the purpose of this research is to complement the prevailing body of knowledge about women entrepreneurs and the relationship between their skills and company success. The results are applicable to financial institutions, academics, and women's micro-enterprises in terms of entrepreneurial financial management, entrepreneurial management, and entrepreneurs' personality. Apart from that, this research demonstrated the need to further explore the concept of entrepreneurial talents within the context of women entrepreneurs in many ways.

Keywords Women · Entrepreneur · Entrepreneurial competencies · Business performance

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1 Introduction

Women are increasingly acknowledged as significant participants in the business world, and they have contributed positively to society. In 2012, more than 126 million women entrepreneurs established or operated new companies in 67 countries, while women controlled about 30% of US businesses, a number that has continued to grow at double the rate of all US business firms (GEM 2012). While the numbers continued to rise in 2019, roughly 252 million female entrepreneurs exist throughout the globe, with another 153 million women running recognized businesses (GEM 2019). Despite the critical role played by women entrepreneurs, academic research has not traditionally had a primary focus on them. Several research on women entrepreneurs has looked at important aspects that impact their success, such as personal traits and motivations as performance predictors. (Khan et al. 2021) claimed that abundant research has been done to determine the impact of different variables on women entrepreneurs' success, though some areas remain mostly unknown. Furthermore, research exploring characteristics that impact women entrepreneurs' business performance in Asia is rare, as the majority of studies have been conducted in Western nations (Teoh and Chong 2007). Despite this, gaps still exist in the evidence on the problems of women entrepreneurs, as the topic has been overlooked for the most part (Man et al. 2002a; Mitchelmore and Rowley 2010; Solesvik 2012; Schneider 2017).

Considering the low rate of women's entrepreneurship in Malaysia, the Malaysian government recognizes the potential economic benefits of women's involvement in business (Mutalib et al. 2015). (Gibb 2015) asserted that an entrepreneur's unique contribution may significantly influence a business's performance. Furthermore, (Bird 1995) and (Man and Lau 2005) established that the person in control of an organization or company has an effect on the success or failure of the enterprise. As a consequence, this study intends to ascertain whether the success of women-owned businesses is largely reliant on the entrepreneur's competence. In the previous literature, a small number of empirical studies examined the entrepreneurial abilities of female business owners (Lerner and Almor 2002). Although entrepreneurial abilities are essential for the growth and success of businesses, significant discussion of these competences in the entrepreneurial literature is still in its infancy (Mitchelmore and Rowley 2013; Brinckmann 2008), and research on women's competency has been similarly scarce (Solesvik 2012; Lerner and Almor 2002; Mitchelmore and Rowley 2013). Because thorough studies of women entrepreneurs' skills are rare, this study is required to delve deeper into the specific competencies that women entrepreneurs possess, as stated by Brinckmann (2008).

2 Literature Review

2.1 Dimension of Entrepreneurial Competency (EC)

Entrepreneurial competency was described by Man et al. 2002a as higher-level qualities such as knowledge, skills, and personality traits, all of which may be considered as an entrepreneur's total capacity to execute one's duties successfully (Li 2009). According to Bird (1995), entrepreneurs acquired entrepreneurial skills as a result of their responsibility for establishing, changing, and adding value to companies, the latter of which was accomplished via the utilization of the firms' resources and opportunities. The argument about the competencies that managers and entrepreneurs need is still ongoing. Managerial and entrepreneurial competences may differ, according to Busenitz and Barney (1997), since entrepreneurial competencies may be more complicated. Entrepreneurial and managerial competencies, according to Hodgetts and Kuratko (2001), are two distinct sets of behaviors that complement each other and can influence a company's performance. In the meantime, (Sadler-Smith et al. 2003) pointed out that until recently, studies had not differentiated between entrepreneurial and management skills. Since the work of Boyatzis (1982), the competence method has been widely utilized to analyze management performance, and it has become more commonly employed in the realm of entrepreneurial performance (Teoh and Chong 2007). In their examinations of small and mediumsized business performance, (Ahmad and Halim 2010) and (Sarwoko et al. 2013) both agreed that entrepreneurial skills had a significant effect on company success in SMEs. As a result, defining particular entrepreneur skill requirements remains a popular study subject (Ahmad 2007).

Previous studies on the scope of EC yielded mixed findings. Because the research settings might change in terms of the types of firms and demographic characteristics, it is challenging to pinpoint the optimal set of competences necessary for enterprise success. Most studies on women entrepreneurs' competence have concentrated on particular areas of the subject, such as personality traits and talents. According to the (Man 2001) model, four aspects of competences were chosen: (1) opportunity, (2) organizing and leading, (3) commitment, and (4) personal (Ahmad 2007; Man 2001). In addition to being one of the most inclusive models in terms of its broad range of skills, the latter is a popular starting point for the majority of academics when developing their own models of entrepreneurial competence (Ahmad 2007). Additionally, the model originates in Asia instead of in the West, which is highly appropriate for this research.

2.2 Opportunity Competency (OC)

Entrepreneurs must have the capacity to seek out and act on market opportunities, which is known as opportunity competency. This skill is connected to an

entrepreneur's capacity to pursue, create, and evaluate high-quality possibilities of the marketplace (Man 2001). This ability is linked to an entrepreneur's ability to recognize, generate, and assess high-quality market opportunities (Man 2001). The capacity to recognize and capitalize on opportunities may allow a company or organization to operate better. Entrepreneurs' prompt action in seizing market opportunities and continually producing new product and service concepts might result in a positive result (Vijay and Ajay 2011; Ahmad et al. 2010). (Solesvik 2012), from a study on Ukrainian women entrepreneurs, concurred with prior research that opportunity skills are a critical need for businesses to gain competitive advantage and success (Mitton 1989; Chandler and Hanks 1994; Murray 1996). (Koning 2003) who supported these numerous studies, concurred that the major components of entrepreneurial activity are opportunity, acknowledgment, and progress. According to Wang and Ang (2004) and (Thompson 1999), entrepreneurs who are able to identify fresh opportunities and create innovative ideas, possess opportunity competency, which may have an advantageous effect on a company's performance. Hence, Hypothesis 1 (H1) is developed as follows:

Hypothesis 1 (H1): There is a strong correlation between opportunity competence and female entrepreneurs' business performance.

2.3 Organizing and Leading Competency (OLC)

As part of their organizational and leadership skills, entrepreneurs must be able to manage resources, lead subordinates, organize people, motivate others, supervise dependents, allocate work effectively, and coordinate projects (Ahmad and Halim 2010). According to some, it is critical to keep workers "synchronized with oneself" by guiding and helping them in comprehending and obeying instructions (Man 2001). According to Al-Mamun et al. (2012), entrepreneurs with the ability to organize and lead their businesses may help decrease the frequency of SMEs failing. (McClelland 1987) recommended that entrepreneurs review their company operations on a frequent basis to ensure that they can function efficiently. Entrepreneurs, as business owners, must be able to coordinate a variety of resources, including human resources, in order to guarantee that their business functions smoothly. They are responsible for organizing company operations and supervising their employees. According to Man (2001); Man et al. (2008), based on studies of SMEs in China, the organizational, relational, and conceptual skills of entrepreneurs are positively linked to the organizational capacities of SMEs. (Al-Mamun et al. 2012) claimed that earlier research has revealed a range of organizational abilities that are connected to business performance, including managerial competence (Chandler and Hanks 1994), human resource management competence, and financial management competence (Brinckmann 2008). Additionally, the capacity to organize was shown to be positively associated with the success of Thai SMEs (Thongpoon et al. 2012).

Entrepreneurs must also be capable of planning and scheduling work, as well as leading, commanding, facilitating, controlling, managing, supervising, delegating,

motivating, and organizing the company's internal and external resources, such as budgets, materials, and human resources (Man et al. 2002b; Competency 2013). Thus, the subsequent Hypothesis 2 (H2) is proposed:

Hypothesis 2 (H2): There is a strong correlation between organizing and leading competence and the business success of female entrepreneurs.

2.4 Commitment Competency (CMT)

According to Man (2001), commitment competency is demonstrated by displaying a strong desire to compete, a strong ambition to succeed in a venture, the ability to make a difference, and individual motivation and dedication. Entrepreneurs' commitment to competency is important for motivating them to pursue their objectives despite the obstacles and constraints imposed by the environment (Vijay and Ajay 2011). Entrepreneurs are completely accountable for the success or failure of their business since they own it. As a result, they must arm themselves with complete dedication and devotion to their business. Entrepreneurs that possess this skill set will have a strong sense of purpose, a sense of urgency, and a determination that borders on obsession (Mitton 1989), as well as the ability to take proactive action with regard to their obligations and tasks (Vijay and Ajay 2011).

According to Sorenson et al. (2008), entrepreneurs with a high degree of dedication tend to expand their businesses despite deficient economic performance. Entrepreneurs with a solid sense of dedication will remain inspired in the face of both failure and success (Chandler and Hanks 1994; Thompson 1999; Chandler and Jansen 1992). From her interviews with female entrepreneurs in Ukraine, (Solesvik 2012) discovered that one of the most critical factors for a business to succeed is commitment and competence. On the basis of the previous arguments on commitment competence and business success, the ensuing Hypothesis 3 (H3) is formed:

Hypothesis 3 (H3): There is a strong correlation between commitment competence and the success of female entrepreneurs.

2.5 Personal Competency (PC)

Consistent with (Man 2000), personal competency is a collection of important personal characteristics and abilities that may aid in the development of skills and improve an individual's effectiveness while doing particular tasks, such as operating a company. As a critical domain that underpins all entrepreneurial duties (Man 2001), personal competency is anticipated to increase entrepreneurs' efficiency in completing all tasks, which will benefit the business (Vijay and Ajay 2011). Personal skills of entrepreneurs include their capacity for decision-making and self-belief (Thompson 1996), emotive intelligence and self-awareness (Man 2000; Goleman 1998), self-confidence and persistence (Man 2000), self-motivation (Man 2000;

Martin and Staines 1994), self-management (Winterton 2002) and positive mind-
edness (Man 2000). Prior study has concentrated on the entrepreneurial skills of
women-owned companies, examining particular characteristics of their abilities or
talents, and concluding that women's entrepreneurial capabilities are desirable and
similar to those of men-owned enterprises (Mitchelmore and Rowley 2013). Based
on this argument, it can be hypothesized that:

Hypothesis 4 (H4): There is a strong correlation between personal competency
and the commercial success of female entrepreneurs.

3 Methodology

A cross-sectional design was employed in conjunction with a probability sampling
technique, with samples drawn from various geographical regions across Malaysia.
Due of the limited availability to AIM data, basic random sampling was used instead.
This research is limited to women entrepreneurs who are members of Amanah
Ikhtiar Malaysia (AIM), a micro-financing agency for women. A systematic sampling
method was also utilized in this study. Microsoft Excel 2016 was used to choose
samples at random from the AIM database (which was given by AIM's headquarters).
Following that, every k^{th} element was chosen from the sample frame's list (Malhotra
2006). Each seventh name was drawn from the list of female entrepreneurs in every
AIM branch included in the sample frame (Malhotra 2006; Bordens and Abbott
2002). The population list's initial point entry was created by means of a customized
random calculator generator, and the sample's next number was determined by adding
seven to the starting point. Only 230 of the 500 surveys that were distributed were
returned, whereas only 184 surveys were left after that for further analysis. The
response rate for this study was 36.8%, which is higher than the average response
rate for postal surveys in Malaysia, which varied from 15 to 25%, also more than the
acceptable rate of 30% (Sekaran and Bougie 2010).

4 Data Analysis

Data analysis was done using the Statistical Packages for Social Science (SPSS)
version 21. SPSS was chosen because it is a flexible program that can handle a wide
range of analyses, data transformations, and output formats. The use of SPSS was
more than appropriate in achieving the study's goals. Pearson correlation coeffi-
cients were utilized to evaluate and assess the strength of connections between inde-
pendent and dependent variables in this research. Correlation analysis was applied
to evaluate the relationship between entrepreneurial skills (opportunity, organizing
and leading, commitment, and personal competencies) and the business success of
female entrepreneurs. The results of the study of the four aspects of entrepreneurial

Table 1 Correlation between independent variables and dependent variables

	<u>BP</u>	<u>OC</u>	<u>OLC</u>	<u>CMT</u>	<u>PC</u>
OC	0.60	1			
OLC	0.302**	0.344**	1		
CMT	0.151*	0.141	0.360**	1	
PC	0.316**	0.330**	0.520**	0.460**	1

Note: * Correlation was significant at a 0.05 level (2-tailed)

** Correlation was significant at a 0.01 level (2-tailed)

BP = Business Performance

OC = Opportunity Competency

OLC = Organizing and Leading Competency

CMT = Commitment Competency

PC = Personal Competency

skills are summarized in Table 1. Only three skills showed a substantial connection with company success, namely organizing and leading competency ($r = 0.302$, $p < 0.01$), commitment competency ($r = 0.151$, $p < 0.05$) and personal competency ($r = 0.316$, $p < 0.01$), all of which showed a modest positive correlation with company success among female entrepreneurs. The research revealed that the connection between opportunity competency and company success is very poor. According to this interpretation, women entrepreneurs with few chances have a poor degree of business performance. As a result, only H2, H3, and H4 were important, as they had a substantial connection with the business success of women entrepreneurs.

5 Discussion and Conclusion

According to (Lucky 2011), entrepreneurs’ performance should not be dissociated from their companies, for if the company is successful, the owner prospers as well. Managers, partners, and people in charge of the business are all involved in the performance process, which is ongoing and adaptable. This is also the conclusion of the strategic management process and the final result of business operations. Performance management is a constant and adaptable process that includes managers, partners, and those responsible for the management of the company (Armstrong 2006). Additionally, this is the consequence of company operations and the strategic management process (Agha et al. 2012). According to the study, just three skills are associated with female entrepreneurs. The results of this study corroborated earlier research by Muzychenko and Saeed (2004); Mitchell and Shepherd 2010; Jain 2011), which concluded that the majority of female microentrepreneurs were unable to identify market possibilities. This may be a result of their anxiety of the dangers inherent in operating their companies. Organizing and leadership skills are required to manage resources and personnel, lead and monitor subordinates, inspire staff, distribute tasks efficiently, and organize operations, all of which allow entrepreneurs

to preserve and maintain their companies' existence and performance. (Thongpoon et al. 2012) showed that organization is favorably linked to the fiscal performance of Thai SMEs. According to Man et al. 2002b, entrepreneurial skills require the capacity to manage, direct, oversee, systematize, and acquire external and internal resources in support of the firm's abilities through the entrepreneur's organizational competency in many aspects. These findings corroborated (McClelland 1987) recommendation that entrepreneurs should carefully monitor their company operations to guarantee their efficiency and smooth operation.

There was also a connection between commitment competence and women entrepreneurs' company success in the study. This is consistent with (Vijay and Ajay 2011) conclusion that entrepreneurs must have commitment competency in order to remain motivated in the face of environmental challenges and obstacles. In the face of failure and success, entrepreneurs with a strong dedication will remain motivated (Chandler and Jansen 1992; Thompson et al. 1997). (Solesvik 2012) also discovered that commitment competence was one of the most significant elements in company success.

Personal competence has also been proven to have a substantial impact on the business performance of women entrepreneurs. The conclusion is in line with (Man 2001) previous research, which found that personal strength had a substantial impact on performance. As a result, personal skills are thought to assist entrepreneurs in overcoming hurdles and problems, as well as completing numerous tasks that would ultimately lead to greater performance. Personal competency also improves the efficacy of AIM's women micro-entrepreneurs in executing entrepreneurial activities, according to this study. Their confidence and self-belief may be amongst the variables that contribute to the constructive impacts on their business that allow for accomplishment or enhanced performance.

Finally, men and women entrepreneurs are thought to misunderstand and interpret entrepreneurial abilities differently. The topic of entrepreneurial competence should be extensively discussed, and more studies on women's entrepreneurial abilities should be taken into account. Furthermore, this study added to the body of empirical evidence by demonstrating that entrepreneurial competencies enable female entrepreneurs to prepare themselves with the aptitudes and capabilities necessary to implement business decisions and procedures, ultimately resulting in improved business performance. Apart from Man (2001) and (Ahmad 2007), very few Asian studies on entrepreneurial skills have been undertaken; the majority of them have taken place in Western nations. As such, this research is considered a useful contribution to the current body of knowledge. Moreover, the results provided a comprehensive picture of Malaysian women entrepreneurs, especially women micro-enterprises that operate under the auspices of a financial institution that provides modest amounts of monetary support. Besides, future entrepreneurial studies should explore comparing male entrepreneurs' success to that of female entrepreneurs, whether at the Malaysian or worldwide level.

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Income Inequality Between Men and Women in Malaysia



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Abstract Their increasing participation in the labour force has also seen women making impressive inroads into occupations in the secondary and tertiary sectors of the economy. However, despite these advances, the wage differentials in favour of men appear to be persisting. The data used here were drawn from the Department of Statistics and covers the 10-year period, from 2010 to 2019. Increased educational attainment by women has not been large enough to be the major drivers to close the gender wage gap entirely. This paper examines the gender earnings distribution in numerous submarkets in the Malaysian labour marketplace and discusses a few policies aimed toward decreasing earnings disparities therein. Most of the previous studies did not cover a 10 year period when examining gender earnings disparities in Malaysia.

Keywords Gender · Earnings · Disparities · Malaysia

1 Introduction

Since the second half of the twentieth century, the participation of women has increased significantly. Women are also working longer hours and pursuing better training in larger numbers. However, notwithstanding this progress, significant earnings differential among women and men persist (Bleiweis 2020). The gender earnings gap is defined as the average difference between the remuneration of men relative to women who are working (Barnes 2021; Workplace Gender Equality Agency 2021). According to the International Labour Organization, the worldwide gender wage gap is averaging at 20% (ILO 2021). Across the EU, the earnings differential differs extensively; in 2019, it stood at 21.7% in Estonia, 21.2% in Latvia, 19.2% in Germany,

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18.9% in the Czech Republic, 18.4% in Slovakia and 18.2% in Hungary. The smallest gaps were recorded in Poland (8.5%), Slovenia (7.9%), Belgium (5.8%), Italy (4.7%), Romania (3.3%) and Luxembourg (1.3%) (European Parliament 2020). In contrast, in countries like Syria, Lebanon, Algeria, Egypt, Saudi Arabia, Yemen and Pakistan the gap can be as great as 90% (Minion 2019).

Women have recorded considerable gains in the Malaysian labour market. Their rate of participation, though still below that of males, has maintained a rising trend whereas that of males appears to have levelled off. Their increasing participation in the labour force has also seen women making impressive inroads into occupations in the secondary and tertiary sectors of the economy. However, despite these advances, the wage differentials in favour of men appear to be persisting, at least when mean and median figures are compared. The average monthly salaries for men has remained higher than women. Women's earnings increased by about 17.4 percentage points between 2019 and 2020 (RM2370 from RM2019), while earnings of men decreased by 15.5 points between 2019 and 2020 (from RM2477 to RM2093) in Malaysia (DOSM 2021). Interestingly, in a recent survey of Malaysians by market research firm Vase showed 42% of the respondents attributed the earnings gap to the assumption that a "particular gender" is unable to carry out certain tasks. Significantly, more women (44%) than men (40%) held this view (Lim 2020).

In reality, many elements have contributed to the narrowing earnings differential along with the growth in female's job-associated capabilities and experience. More females now have careers which are uninterrupted by a lengthy absence for child-rearing, which have a tendency to diminish wages in US (Barnes 2021). Data presented at the World Economic Forum (2021) demonstrated the effect of the motherhood wage penalty and the wage premium associated with fatherhood. While the gender gap has been narrowing, women in high-managerial positions have seen the most progress. It should come as no surprise, then, that the Covid-19 pandemic has intensified the gender wage gap, primarily due to the childcare and educational requirements imposed on women by COVID-related closures and lockdowns. Zalis (2019) argued that having a child (or having the capability to have children) is the number one reason for the earnings differential between men and women.

"Glass ceilings" have also been cited as barriers hampering women from advancing their careers. The OECD concluded that approximately 60% of the earnings differential between men and women is the end result of a glass ceiling and 40% of the difference was attributed to "sticky floors" that keep women in critical but low-paying, low-mobility positions. Regardless of the reasons, they remain hard to address (Spiggle 2021).

In Malaysia, efforts to reduce the earnings gap found expression in the 11th Malaysia Plan (11MP) with a promise to ensure the greater involvement of women in the job market. The target was to ensure a participation rate of 56.5% by 2020. Strategies and initiatives have been devised to ensure that women continue to contribute to the economic growth of the country and receive equitable returns. But the COVID-19 pandemic has thrown a spanner in the works.

This paper sheds light on the potential role played by age, state, educational attainment, and occupations in perpetuating gender earnings disparity in Malaysia,

using a dataset provided by the Department of Statistics Malaysia. This contributes to our understanding of the overall gender earnings gap in Malaysia. This paper is structured into five sections. The next sections review the methodology, while Sect. 3 illustrate the source and description of data and Sect. 4 describes and discusses the results, while the last section summarizes the main findings, discusses the limitation of the present study and suggests the direction for future studies.

2 Data Source

The data used here were drawn from the Department of Statistics and covers the 10-year period, from 2010 to 2019. The available data provide gender earnings (measured by the median monthly earnings of the employed), disaggregated by age, educational attainment, and occupations.

3 Gender Earnings Disparities in Malaysia Over the Past Decade (2010–2019)

Differences by Age-Group

The data indicate that the median monthly salaries and wages of males was higher than that of their women counterparts, across all age categories (except 30–34), during the period under evaluation. The overall earnings figure reflects a small difference between the two, with the widest disparity being RM200, in favor of males, in 2013, but with the difference diminishing since then. However, a review by years and age categories' tells a different story.

The overall view by gender and age categories shows that the greatest differences in median monthly salaries & wages were recorded in 2019, with male median monthly salaries & wages exceeding that of women by RM779 in the 60 to 64 age group. The highest median monthly earnings in favor of women was in 2016 for the 25 to 29 age group, and in 2017, for 30 to 34 age group, where the difference was RM200 higher, in favour of men. By age groups, differences in earnings are marked among those aged 45 and above; it is noteworthy that the median earnings of females did not exceed that of males for any age category equal to, or exceeding, 40 years. In fact, the differences in median earnings favouring males were two to three times greater than those found among those aged below 44 years (Table 1).

Differences by States

A view by states shows mixed results but also a positive prospect in attaining wage equality among gender (Table 2). The highest difference in median salaries & wages in favor of men was found in Perlis (RM1111) in 2013 while the highest difference in favor of female was also found in Perlis (RM495) in 2017. If we are to observe trends over a few years by states we will see that a few states where female earnings

Table 1 Median monthly salaries & wages of employees by age group and gender, Malaysia, 2010–2019

Age	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
15–19	650	720	700	800	900	900	900	1,200	1453	1476
20–24	1000	1000	1030	1200	1200	1,200	1300	1400	1623	1672
25–29	1500	1500	1500	1660	1760	1,800	1800	1987	2115	2186
30–34	1750	1750	1800	1995	2000	2,125	2200	2300	2451	2646
35–39	1800	1875	2000	2000	2200	2,345	2500	2500	2663	2940
40–44	1840	1970	2000	2000	2215	2,400	2500	2695	2764	2996
45–49	2000	2000	2000	2278	2500	2,500	2500	2500	2648	2875
50–54	2000	2000	2095	2300	2500	2,500	2720	2750	2933	3150
55–59	1717	1800	1800	2000	2125	2,500	2695	3000	3199	3285
60–64	1000	1200	1200	1320	1500	1,500	1522	1850	2213	2339
Male	1500	1500	1600	1800	1888	2,000	2000	2170	2342	2477
15–19	600	740	700	800	900	900	900	1100	1365	1318
20–24	1000	1000	1000	1050	1100	1200	1200	1400	1499	1473
25–29	1500	1500	1550	1623	1698	1800	2000	2145	2108	2261
30–34	1800	1714	1875	2000	2065	2200	2350	2500	2520	2732
35–39	1900	1820	1915	2000	2300	2400	2500	2515	2586	2840
40–44	1700	1695	1800	2000	2300	2500	2500	2525	2695	2960
45–49	1700	1610	1700	1814	2000	2200	2350	2365	2603	2875
50–54	2000	1900	2000	2000	2200	2500	2200	2750	2658	2850
55–59	1400	1300	1500	2000	2000	2295	2200	2260	2494	2522
60–64	800	780	800	750	900	1000	1050	1300	1676	1560
Female	1498	1476	1500	1600	1700	1855	2000	2145	2227	2370

Source Department of Statistics Malaysia (2021)

are frequently higher than that of males; these are Kelantan, Terengganu, and Sabah. Also, it is worth mentioning that in 2019, Wilayah Persekutuan Kuala Lumpur also managed to record female median earnings exceeding that of men (by RM83). While overall we observe improvements in terms of a narrowing of the gap in earnings between men and women there is also noticeable stagnation of progress towards this end in the states like Selangor, Terengganu, Sarawak, and Wilayah Persekutuan Labuan. Given that jurisdictions like Selangor and Wilayah Persekutuan Labuan are rapidly growing areas, the gender earnings disparities may, in fact, widen unless conscious policies are in place to prevent this from happening.

Differences by Educational Attainment

Differences in median earnings by educational attainments reflect a clear but stark reality (Table 3). Irrespective of the level of education attainment, female median salaries & wages were steadily lower than male earnings in every year, throughout

Table 2 Median monthly salaries & wages of employees by gender and state, Malaysia, 2010–2019

STATE	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
JOHOR	2300	2200	2400	2556	2646	2300	2200	2400	2556	2646
KEDAH	1500	1600	1650	1760	1812	1500	1600	1650	1760	1812
KELANTAN	1200	1225	1400	1604	1601	1200	1225	1400	1604	1601
MELAKA	1700	1800	2170	2382	2489	1700	1800	2170	2382	2489
NEGERI SEMBILAN	2000	2080	2250	2442	2513	2000	2080	2250	2442	2513
PAHANG	1700	1682	1865	2140	2260	1700	1682	1865	2140	2260
P. PINANG	2000	2000	2170	2241	2481	2000	2000	2170	2241	2481
PERAK	1560	1703	1760	1935	2013	1560	1703	1760	1935	2013
PERLIS	1410	1630	1650	2011	2070	1410	1630	1650	2011	2070
SELANGOR	2000	1990	2000	2200	2400	2500	2600	2745	2888	3169
TERENGGANU	1200	1150	1200	1200	1300	1500	1600	1680	1860	1911
SABAH	1150	1115	1100	1300	1379	1500	1600	1750	1947	1980
SARAWAK	1100	1200	1200	1475	1472	1440	1600	1750	2063	2081
W.P. KUALA LUMPUR	1965	2000	2000	2400	2500	2500	2500	2800	2963	3096
W.P. LABUAN	1800	1500	1685	1850	1800	2000	2100	2250	2513	2841
W.P. PUTRAJAYA	2300	2440	2847	2735	2640	3015	3500	3535	3849	3985
MALE	1500	1500	1600	1800	1888	2000	2000	2170	2342	2477
JOHOR	1200	1280	1475	1480	1600	1700	1685	1800	2104	2254
KEDAH	950	900	1000	1100	1200	1200	1200	1550	1533	1670
KELANTAN	1210	1325	900	1000	1155	1300	1600	1800	1605	1670
MELAKA	1200	1200	1330	1420	1540	1500	1680	2000	2154	2158
NEGERI SEMBILAN	1350	1350	1300	1600	1527	1850	1800	2015	2137	2261
PAHANG	1200	1269	1200	1500	1500	1500	1650	2000	1967	1980
P. PINANG	1466	1368	1500	1500	1600	1700	2000	2160	2082	2206
PERAK	1000	1000	1100	1100	1200	1200	1500	1650	1640	1650
PERLIS	1125	1240	900	900	1200	1500	1600	2145	1959	1900
SELANGOR	1800	1650	2000	2000	2050	2500	2500	2515	2549	2788
TERENGGANU	1200	1174	1200	1000	1000	1300	1300	2145	1903	1853
SABAH	1200	1200	1200	1400	1450	1400	1542	1800	1964	2060
SARAWAK	1100	1141	1100	1300	1250	1500	1500	2145	1952	2070
W.P. KUALA LUMPUR	1800	2000	2000	2050	2350	2500	2420	2500	2930	3179
W.P. LABUAN	1324	1459	1360	1500	1500	1500	1762	1800	2024	2261
W.P. PUTRAJAYA	1989	2240	2514	2347	2775	3000	3250	3500	3563	3710
FEMALE	1498	1467	1500	1600	1700	1855	2000	2145	2227	2370

Source Department of Statistics Malaysia (2021)

Table 3 Median monthly salaries & wages of employees by educational attainment and gender, Malaysia, 2010–2019

EDUCATION	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
NO FORMAL EDUCATION	800	800	900	850	1000	970	1150	1200	1539	1600
PRIMARY	1000	1000	1100	1120	1200	1298	1400	1500	1680	1725
SECONDARY	1357	1400	1500	1500	1577	1600	1760	1850	2039	2147
TERTIARY	2800	2940	3000	3000	3200	3395	3500	3550	3866	4227
MALE	1500	1500	1600	1800	1888	2000	2000	2170	2342	2477
NO FORMAL EDUCATION	500	500	550	700	700	792	900	900	1016	1150
PRIMARY	600	700	700	775	900	900	900	1100	1182	1295
SECONDARY	1066	1100	1140	1200	1200	1250	1390	1550	1599	1711
TERTIARY	2455	2500	2505	2743	3000	3000	3120	3150	3465	3570
FEMALE	1498	1467	1500	1600	1700	1855	2000	2145	2227	2370

Source: Department of Statistics Malaysia (2021)

Table 4 Median monthly salaries & wages of employees by occupation, Malaysia, 2010–2019

OCCUPATIONS	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
MANAGERS	4000	4449	4500	5000	5000	5500	5700	6000	7139	7159
PROFESSIONALS	3500	3500	3680	4000	4275	4516	4800	4910	5328	5578
TECHNICIANS AND ASSOCIATE PROFESSIONALS	2190	2200	2340	2500	2675	2740	2856	2950	3119	3308
CLERICAL SUPPORT WORKERS	1500	1600	1715	1800	2000	2000	2331	2350	2212	2525
SERVICE AND SALE WORKERS	1314	1200	1300	1500	1500	1545	1600	1675	1892	1896
SKILLED AGRICULTURAL, FORESTRY, LIVESTOCK, AND FISHERY WORKERS	600	960	1100	1100	1305	1500	1350	1480	1576	1852
CRAFT AND RELATED TRADES WORKERS	1200	1200	1200	1300	1500	1500	1630	1680	1818	1911
PLANT AND MACHINE-OPERATORS AND ASSEMBLERS	1200	1200	1400	1500	1500	1600	1703	1800	1891	2070
ELEMENTARY OCCUPATIONS	900	935	950	1008	1100	1180	1200	1330	1544	1560
MALE	1500	1500	1600	1800	1888	2000	2000	2170	2342	2477
MANAGERS	3000	3500	3400	3790	4500	4100	5000	5000	5687	6832
PROFESSIONALS	3081	3000	3171	3500	3839	4000	4125	4200	4527	4798
TECHNICIANS AND ASSOCIATE PROFESSIONALS	2000	2142	2240	2415	2600	2700	2750	2800	2851	3143
CLERICAL SUPPORT WORKERS	1415	1500	1500	1595	1700	1780	1950	2000	2054	2261
SERVICE AND SALE WORKERS	800	900	888	972	1000	1020	1050	1300	1353	1422
SKILLED AGRICULTURAL, FORESTRY, LIVESTOCK, AND FISHERY WORKERS	432	650	600	748	830	910	1450	1450	1396	1436
CRAFT AND RELATED TRADES WORKERS	650	830	700	810	900	960	960	1200	1182	1283
PLANT AND MACHINE-OPERATORS AND ASSEMBLERS	850	900	950	1040	1200	1196	1200	1300	1410	1463
ELEMENTARY OCCUPATIONS	600	600	600	700	800	900	900	1000	1123	1208
FEMALE	1498	1467	1500	1600	1700	1855	2000	2145	2227	2370

Source: Department of Statistics Malaysia (2021)

the decade. Paradoxically, the highest differences were among those with tertiary education in the latest year (2019), a difference of RM657 in favor of men. The median gender earnings were closest among those with no formal education, in 2013, when men received RM150 exceeds than women. The McKinsey (2015) study reveals the substantial difference in earnings between men and women in the workplace. It records that women are unlikely to be hired into entry-level jobs as compared to men, even when they have bachelor's degrees and have the similar attrition rates.

Differences by Occupations

Regardless of occupational category, female median earnings were lower than male earnings all through the decade with one exception: skilled agricultural, forestry, livestock and fishery workers where the median salaries and wages were in favor of females (by RM100) in 2016. The highest median earnings in favor of men were found in the Manager category (RM1,452 in 2018) while the lowest (excluding the exception noted previously) were in the skilled agricultural, forestry, livestock, and fishery workers occupation (RM30) in 2017 (Table 4).

Generally, it is evident that the disparities in earnings across occupations is becoming more severe, particularly in occupation groups like professionals, clerical support worker, skilled agricultural, forestry, livestock and fishery worker, craft and related trade workers, plant and machine operators and assemblers, and elementary occupations. This highlights that, at least in Malaysian context, there was no occupation where women earned more than men. This points to the need for some form of intervention to address the structural flaws of the market, comprising of hurdles ranging from cultural or traditional strictures to outright discrimination.

4 Discussion and Policy

Variations in median earnings is at best a rough proxy to captures earnings variations arising from numerous factors. While they do highlight earnings disparities, they may be not be conclusive proof of gender discrimination. Some key factors rising from the facts above are however worth highlighting. The data on age indicate that gender variations in median salaries & wages are in large part to be found among those aged forty five and above. This can suggest variations are larger because men stay on for an extended length of time in the labour market than women do. The latter are pressured to drop out on account of marriage, childbirth or the need to take care of relatives. Even if they rejoin the labour market, they lose on the extra returns associated with experience and uninterrupted service.

Although we did not examine the labour force participation rates (LFPR) of women in detail, their low rate, compared to men, is another indication of hurdles they confront in getting into or staying in the labour market. In 2020, the female LFPR of 55.35% was far behind the comparable male rate of 80.55%, and lagged behind men in all age groups (DOSM 2020). The female LFPR in Malaysia compared poorly

against women in neighbouring countries like Thailand (59%), Singapore (61%), Vietnam (63.8%) in 2019, and Cambodia in 2017 (76.4%) (World Bank, no date).

Gender biases can create obstacles to hiring, raises, referrals, promotions, and leadership. Due to the social expectations placed upon women to be mothers and caregivers, women often step out of the workforce and are penalized later on when they return to their careers. The overall differences in the earnings of men and women, and career outcomes go beyond gender preferences and can only be explained holistically through an examination of more detailed data.

Occupational segregation can be influenced by gender and racial stereotyping. As an example, women are often perceived as good caregivers or as poor in math. Such perceptions can lead to a lack of confidence and steer life decisions at a young age. For example, research shows that women consistently receive undeservedly lower scores in math than men, which could ultimately serve to discourage them from pursuing careers requiring an intensive use of math. Likewise, women face conscious and unconscious bias. This can include the false perceptions that women are less efficient than men or a woman is more likely to take advantage of parental leave. Because of these biases, employers are sometimes less likely to provide the same career-advancing opportunities to female employees. Women quit their jobs because of family responsibilities; women are more likely to face expectations of caring for children or elders within a family or community. Motherhood is a common source of disruption, where a new mother will be more likely to take time off from work than a new father. Or because they took parental leave, a mother is less likely to strive for a promotion (or less likely to get it).

This can stall any long-term improvements to bringing equal pay to women. When these women decide to return to work, they will have the disadvantage of having a gap in their employment history. So it can be harder to find a new job, which can make it more likely that they will accept lower pay. And the time away from work also means lost experience that might otherwise justify higher pay later in their career. Women may be more likely to look for flexible jobs that possess certain non-wage benefits. Due to career disruptions, women have greater difficulty building up their experience and other soft skills.

Several policy initiatives suggest themselves, as discussed below.

Improving the Regulations of Maternity Leave

Maternity leave should be paid by the employer for female employees. For example, in Denmark, Malta, Romania and the UK, maternity leave is paid by the employer. In some countries, mothers are entitled to receive 100% of their usual earnings throughout the entire leave period (Strang and Broeks 2017). In China, the Law on the Protection of Women's Rights and Interests have stipulated that enterprises may not exploit a women's right to have maternity leave and deduct their wages or even dismiss their female employees during paid leave. Women have a more positive view of child birth, have greater levels of concern for their children, and often motherhood leaves a positive effect on their self-esteem and marriage. Besides, longer maternity leave has been associated with improved work adaptation (Plotka and Rosnagel 2018).

Increase Leadership and Support for Decision Making Women

Adapting to the changing environmental and business needs of stakeholders allows many people to change from one leadership style to another. Women in leadership value support from their organizations. In contrast, negative stereotypes and perceptions of women as leaders and their abilities may influence women to decline positions of leadership. Women in leadership and decision-making roles can bring fresh ideas to policies and directions of organizations.

Provide the Upgrading of Skills of Women via Training

The intra-occupational earnings disparity between men and women is most likely also an indication that women dominated lower ranking jobs within these occupational categories and are generating lower earning as compared to men. The policy recommendation here is to upgrade the skills of women via training so that they can move up the job ladder and benefit from better remuneration, increments and promotions that are based on unbiased methods of evaluating job performance (Cheong and Fernandez 2014).

Reconsidering Discriminatory Laws

To close the gender earnings disparity, women in Malaysia need protection through updated and more comprehensive equal pay legislation, such as found in the Paycheck Fairness Act 23 that will enhance current protections and fight discriminatory practices (Bleiweis 2020). All enterprises should implement the “equal pay for equal work” concept as established in the European Union (European Union 2020). Laws must prohibit gender pay disparities that exist such that men and women doing the same work, with the same experience and capabilities, and delivering the same results should be paid identically.

Promoting Family-Friendly Policies and Flexible Working Hours

According to Doaa (2021), COVID-19 underscored the need for more flexible work arrangements, especially for women. This could help reduce the gender pay gap wherein working mothers can manage time for work and childcare. Companies hiring women can help by increasing childcare support, tutoring programs, and other assistance (Huang et al. 2021). Companies could also help women who are facing job losses and declining incomes by providing them access to unemployment benefits. This could be done through the review of rules and regulations regarding the distribution of benefits (OECD 2020).

Argentina is a good example of a country that has implemented a large number of gender-sensitive policies, owing to the high number of women in key ministerial positions. They help women to balance work and family responsibilities and increase access to health care and family planning. Paid leave was also extended to a variety of groups, including pregnant women, those with dependent children in need of care, and women in the informal economy, such as domestic workers. Additionally, those working remotely and are caring for children under the age of 13, or disabled

people, have been given the right to reasonable schedules that correspond to their care responsibilities.

Promote Work-Family Policies and Encourage Unionization

Work-family policies are also crucial to truly combating the earnings gap between men and women so that women—who disproportionately assume much of the caregiving responsibilities in their families—are not unfairly disadvantaged by taking time to address care needs. For instance, access to paid sick days and a comprehensive paid family and medical leave program are just two of the essential policies that would safeguard economic security for all workers (Bleiweis 2020).

Unionization can also aid reduce the gap because workers collectively have greater leverage to push for workplace changes, fight discriminatory practices targeting specific groups of workforces, especially women. Unionized workers can bargain better for improved working conditions and remuneration, and more (Bleiweis 2020; Barnes 2021).

5 Conclusion

We conclude that the wage differentials in favour of men appear to be persisting in Malaysia labour market, at least when mean and median figures are compared over a ten-year period. Increased educational attainment by women has not been sufficient to close the gender wage gap entirely. Women most often take on the majority of the caregiving jobs, housework, and other unpaid responsibilities that men do not. This motherhood penalty or the childbearing penalty deny them increased earnings associated with experience and promotions. Other factors that disadvantage women exist as well, and this paper simply serves as a starting point for further research on policies and practices that are effective in narrowing the gender gap in earnings. Governments can strengthen anti-discrimination laws and policies to reduce differences between average earnings of men and women. Besides that, greater access to childcare facilities, more paid maternity leave in the private sector along with tax reliefs for childcare charges will help. In short, societies should do more to address the long established cultural reasons that result in the persisting gap. This means promoting gender neutral choices of individuals at all stages and in all aspects of their lives.

The major limitation of the study is that it has focused on a limited number of factors. More variables such as ethnicity, number of children, marital status and regional differentials may help to understand the sources of gender earning disparities better. Also, this study is limited to earnings differentials in Malaysia. Future work could be expanded to focus on Asian countries.

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Measuring the Government Business Support Services and Performance of SMEs



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Abstract In essence, the government business support services (GBBS) were first initiated with a primary aim to help many small and medium-sized enterprises (SMEs) overcome various obstacles and constraints that are unique to them. Therefore, this study was set out to empirically investigate the influence of the business support services provided by the Malaysian government on the overall performance of Malaysian SMEs.

The resource-based view (RBV) theory was used as a basis for the development of the theoretical framework of this study. Plus, this study employed a deductive approach which saw primary data that were collected being administered on a cross-sectional study design through structured interviews using questionnaires on a sample population of 335 randomly selected SMEs representing all business sectors from each state in Malaysia. Subsequently, data analysis was carried out using the partial least squares structural equation modelling (PLS-SEM) to empirically test this study's proposed hypotheses.

Results from the data analysis revealed that only three of the four hypotheses proposed by the study were eventually supported. These findings significantly indicate that not all business support services sourced by the government had a significant impact on the performance of SMEs. On top of that, the study's findings also suggest that technical support services do not contribute significantly to the achievement and progress of SMEs. This means more proactive measures need to be taken in order to increase awareness and promote the use of technology among SMEs in Malaysia.

Keywords Government business support · SMEs · Performance

1 Introduction

A government intervention in SMEs, mainly through business support services, has undoubtedly never been more relevant and timely amid the deteriorating business

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environment due to the COVID-19 pandemic which has badly hit the global economy. There is no denying that the SME sector is a major contributor to a country's GDP and a source of employment opportunities, contributing more than 70% of the country's employment opportunities. The role played by SMEs is therefore very important in ensuring and maintaining a sustainable economic growth and a sound social wellbeing in a country (Yusoff et al. 2021; Prasanna et al. 2019). Simultaneously, SMEs also act as a catalyst for the cultivation of innovation in a society. An innovative society forms the core of a developed country (Park et al. 2020; Sternberg and Wennekers 2005). As a result of the aforementioned arguments, the Malaysian government is highly sensitive to the development of Malaysian SMEs as well as towards any environmental elements deemed to pose a risk to their performance. Consequently, various business support services were developed by the Government in order to support the growth and sustainability of local SMEs. These support services cover all business functions, namely, technical support services, human resources, marketing and finance. In order to increase the effectiveness of these support services, the government has classified SMEs into three categories based on their size, namely micro, small and medium respectively.

Although considerable government intervention have been initiated through external business support, researchers and practitioners are still compelled to determine the reasons as to why there is only a few, if any at all, local SMEs that seek to improve their business performance. In order to gain a competitive advantage and sustain their growth, SMEs are required to maintain a deployment of business support, in particular, skilled management of human resource, as this business division is infamous for experiencing a high shortage of semi-skilled and highly-skilled workforce in recent years. Nevertheless, to date, the challenges facing SMEs has become more daunting with regard to human resource due to the fact that a large proportion of the SME workforce consists of unskilled workers (Martinez and Choi 2012; Horvat et al. 2019). The lack of adequate skilled workforce compounds the need for SMEs to demand external support for their day-to-day business operations. In the context of the resource-based view (RBV) theory, the impact of government intervention has generally improved the performance of many firms (Park et al. 2020; Yuliarmi et al. 2012). There indeed exists a popular assumption that any form of government business support will be rendered ineffective and will in fact, impede the growth of SMEs once they have reached their full utilization level of the support services in order to counter their myriad of business challenges. Using this popular assumption as a principle, business support services will do well to observe the diverse characteristics of SMEs and subsequently find the best fix to pursue knowledge transfer on firms' productivity. However, as the study shall highlight, there are limited evidence regarding which interventions actually work best for SMEs. This therefore suggests that significant resources from the Government are to be directed to SMEs to maximize the socioeconomic impact of its intervention.

Based on the aforementioned discussion, one question remains unanswered in the previous studies of the topic: What is the effect of the government business support services (GBBS) on the business performance of a firm? Hence, the objective of this study is to determine the impacts of GBBS on the business performance of

Malaysian firms. By looking closely within the Malaysian context, it was found that there is surprisingly, little business performance by local SMEs comparative to their counterparts in other countries despite the wide range of support services provided by the Government through the GBSS. Ignoring the positive relationship that exists between the usage of the business support services and a firm's performance (obtained from the mixed results of the effects), this situation implicitly highlights the issue of the effectiveness of the GBSS. Nevertheless, based on the aforementioned arguments, an assumption can also be made that perhaps the local SMEs did not effectively utilize the business services offered, unlike their counterparts in other countries. And indeed if they did utilize the services, another question inevitably arises: did the services exert a significant impact on the overall performance of firms?

Hence, the present study was designed to investigate the relationship between the utilization of the GBSS, focusing on technical support, human resources support, marketing support and the performance of firms among SMEs in Malaysia. This study is intended to contribute to the depth of empirical studies on the GBSS, adding quantitative dimensions and approaches. Consequently, findings from this study are hoped to be tremendously beneficial to future GBSS suppliers as they can use the information to enhance further the quality of their services by understanding the wide-ranging characteristics and idiosyncrasies of SMEs.

2 Literature Review

2.1 *Resource-Based View Theory*

In principle, the resource-based view (RBV) theory prescribes organizational resources as the primary drivers of superior enterprise performance. The theory assumes that a firm is a significant place for the collection of resources. More importantly, The RBV theory is concerned with competitive advantages with respect to resource possession and offers two assumptions: first, firms are heterogeneous in their control of strategic resources; and second, resources are not perfectly mobile across firms. The focus of the theory is chiefly on the use of the firm's resources, internally and externally, to sustain their competitive advantages (Kraaijenbrink et al. 2010). For the purpose of gaining competitive advantages, the theory suggests that a firm that possesses resources that are valuable, rare, imperfectly imitable, and not substitutable (VRIN), together with an organizational capability—which refers to the skills and knowledge to use the resources—is more likely to succeed (Barney 1991; Leiblein 2011). Barney, Wright (Barney et al. 2001) further argued that the VRIN resources are only meaningful when an organization has the capability to transform those resources into competitive advantages. Besides VRIN, Barney argued that in order to gain competitive advantages, a firm's resources must be valuable, rare, imperfectly imitable, and that the organization must be capable of exploiting

the resources (effectively VRIO). The firm's ability to possess, control and organize resources explains the reason behind the ability of some firms to outperform others (Leiblein 2011). Thus, a firm's resources—which can be obtained internally and externally—are the central focus in the RBV theory. Internal resources refer to the physical resources within a firm, represented by its fixed assets and managerial capacity. In contrast, external resources refer to business support, suppliers, clients, competitors and business associates of a firm, among others.

From the standpoint of the RBV theory, external support consists of resources that can help build the internal capabilities of a firm. In addition, the RBV theory also proposes that the availability of external support is meaningless without a the firm knowledge of a firm on how to exploit and make use of them (Kraaijenbrink et al. 2010). Thus, this study exploits the fact that the GBSS are one of a firm's valuable resources that are able to exert significant impact on its performance and entrepreneurial orientation and that they are also one of the variables that moderate the relationship between the usage of the GBSS and the firm's performance.

2.2 *Business Support*

Business support are often essentially defined as elements of support services with shared cultural values that function to support entrepreneurial activities in order to maintain the sustainability of an entrepreneurial venture (Malecki 2018). The provision of business support emanates from the neo-classical economic theory on the basis of imperfect markets (Johnson et al. 2007). The inability of small businesses to acquire information and knowledge about the market naturally exposes them to unfair competition. In addition, lack of competitiveness and internal resources also typically reduce SMEs to a state of vulnerability and fragility. But more importantly, is it worthy to note that the demand for business support is in fact in line with a firm's objective to grow and increase its size threshold (Mole 2016). In this study, four attractive areas of internal resources were found to be weak among SMEs and need special attention (Shamsuddin et al. 2020; Cravo and Piza 2019; Hankinson 2000; Moha Asri 1999; Smallbone et al. 2008). In their study on the behaviour of exporters in Portuguese firms, (Pinho and Martins 2010) argued that the weakness of SMEs in maintaining qualified personnel contributes to the already existing growth barriers of SMEs. As such, these barriers slow down the growth of the said SMEs. This thus places the supreme importance of business support for SMEs so as to create a positive impact on the performance, employment creation and labour productivity of firms (Cravo and Piza 2019).

Technical Support Services and Performance of SMEs. In essence, technical support services are programmes used to develop and enhance the ability of firms to use technology in their business operations. The lack of usage of technology may consequently affect the technical efficiency of firms. The usage of state-of-the-art technology can enhance the efficiency of firms and in turn, increase their

productivity, potentially reducing their cost of operation. However, considering the scarce resources possessed by SMEs, a large number of them are unfortunately unable to take advantage of the use of technology, leading to the problem of inefficient operations among them (Prasanna et al. 2019). SMEs in the manufacturing sector have largely been identified as frequently facing problems with regard to technical matters in their respective production processes. The problems they encounter are especially related to processes and infrastructures. In terms of processes, SMEs often face logistical problems due to a lack of high-technology machineries, leading to difficulties in meeting the production targets, lack of research and development, unreliable sources of suppliers and problems with maintenance services (Khairudin 2007a).

The study by John et al. (1995) revealed that the external technical support available in the market is not fully utilized by SMEs. The finding supports another previous study by Wignaraja (Wignaraja 2002), conducted in Mauritius which found that the low utilization level of support services had a significant adverse effect on the performance of the firms under study. Based on the findings, Wignaraja (Wignaraja 2002) thus concluded that the lack of technical efficiency by SMEs was closely related to their low utilization level of the technical support services. However, the findings are far from being generalizable due to the study's small sample size and the narrow focus it placed on a specific industry, which was the Mauritian garment export. Indeed, the findings from previous studies showed that the issue of the low level of utilization of improved technologies among SMEs is very critical. This observation inevitably prompts this study to investigate the impact of technical support services on the performance of firms, similar to how it has influenced the usage of the technical support services among SMEs. Therefore, this study hypothesizes that:

Hypothesis 1: The technical support services significantly influences the performance of SMEs

Human Resources Support and Performance of SMEs. The shortage of semi-skilled and highly-skilled workers is undoubtedly a major problem faced by many SMEs in regard to the discussion surrounding the human resources challenges faced by SMEs. This challenge has become more daunting in light of the fact that a large proportion of the workforce in SMEs consists of mostly unskilled workers (Martinez and Choi 2012; Mole 2016). The challenge of having too many unskilled workforce needs to be tackled in order for Malaysia to become a high-income economy. Furthermore, the shortage of talent becomes more acute especially when SMEs have to face intense global competitions to which they lead the country to subsequently experience a brain drain when some of its highly-skilled, talented workers move abroad to take advantage of more attractive employment opportunities (Martinez and Choi 2012).

This problem is further compounded when SMEs also face a difficulty in retaining qualified workers and quality managers. Other reasons identified for the augmentation of this issue are low level of education and lack of experience in related jobs among the workforce of SMEs. One question that needs to be asked however is whether the current business support services are adequate to equip SMEs with

competent workers or whether the services are not effective enough? Alternatively, are there other reasons that contribute to the behaviour of SMEs that cause them to fail to use the support services effectively? Therefore, to answer the questions raised above, this study seeks to investigate the influence of human resource support services on the performance of firms. Therefore, this study hypothesizes that:

Hypothesis 2: The human resources support services significantly influences the performance of SMEs

Marketing Support Services and Performance of SMEs. It is indeed a popular notion that good marketing practices, specializing in identifying and satisfying customer needs and wants ultimately lead to business success (Dzogbenuku and Keelson 2019). However, marketing skills and competencies are still one of the critical issues stagnating the development and growth of SMEs. This is chiefly attributed to SMEs in being equipped with limitations and lack valuable resources, two points that have been widely discussed and recognized by past scholars (Walsh and Lipinski 2009). (Lussier and Halabi 2010) and (Izvercian et al. 2016) found that SMEs usually fail to compete, especially with big businesses, due to their lack of marketing skills and government support, among others.

Given that SMEs have a number of internal limitations, some of them have taken bold steps to improve their marketing competencies by seeking external support. (Carson and Gilmore 2000) asserted that SMEs are typically focused on two areas of marketing competencies: first, technical competencies, which are related to a product's technical dimensions, craft, or other specialist trainings; and second, decision making in management. Furthermore, Carson and Gilmore (2000) found that many SMEs use local government support agencies as one of their sources of assistance. Based on the argument above, this study intends to investigate the relationship between marketing support services and the performance of SMEs. Therefore, this study hypothesizes that:

Hypothesis 3: The marketing support services significantly influences the performance of SMEs

Financial Support and Performance of SMEs. Financing is often deemed as one of the important issues, if not the most important issue, surrounding SMEs, especially during their starting up period (Doh and Kim 2014). The failure of SMEs to raise capital continuously often contributes to their eventual decline (Moeuf et al. 2020). Being SMEs, their weaknesses extend far beyond financial matters. Thus, external intervention in the form of financial facilities is much appreciated by SMEs. Indeed, the positive impact of financial assistance on SMEs has been widely discussed and supported by a number of past studies. Xiang and Worthington Andrew (Xiang and Worthington 2017) posited that the financial support provided by the Government has positively influenced the performance of firms. The study found that an overwhelming 83.3% of respondents gained more than 20% in profits after enjoying financial support from government agencies. Comparatively, the returns were found to be much higher than before the businesses acquired the financial facilities from the Government.

A significant effect of financial support on the operation of SMEs was found in a study conducted by Khairudin 2007b. The study found that 93.6% of SMEs being studied were having problems maintaining a sufficient working capital to finance their day-to-day operations. This situation creates a negative chain effect on other business activities, such as the ability to provide sufficient training services and to arrange adequate marketing activities (Deakins and Philpot 1995). (Bohatá and Mládek 1999) argued that insufficient funding to finance business expansion is one of the barriers hindering the growth of SMEs in the Czech Republic. The issue of ‘finance gap’ among SMEs, particularly regarding bank financing, and the actions taken to close the gap have been acknowledged by academics and practitioners alike. The Government is in fact aware of the ‘gap’ and the difficulties faced by SMEs in raising capital to finance their daily business activities. Despite the myriad of services available for and enjoyed by SMEs, their overall performance do not show a significant positive growth. Therefore, this study seeks to investigate the impact of the government financial support services on the performance of SMEs. Therefore, this study hypothesizes that:

Hypothesis 4: The financial support services significantly influences the performance of SMEs

3 Methodology and Data Collection

This study used a cross-sectional design for the purpose of data collection. Moreover, with reference to the sample of the study, an exclusive focus was placed on Malay SMEs throughout Malaysia, registered in the SME portal under the supervision of the SME Corporation. The respondents comprised of owners of firms or individuals who represent the top level of their businesses’ management hierarchy, verified by a demographics question related to the respondents’ position in the company. According to a list obtained from the SME Info Portal, derived from www.smeinfo.gov.my, 22.65 and 77.35% of the total population were identified as Malays and non-Malays respectively; both groups had a respective ownership of the firms. From the two aforementioned groups, 22.65% of the study’s respondents represented 1,500 SMEs from all business sectors from each state in Malaysia.

Multiple tiers of the systematic, stratified, random, and purposive sampling method was applied throughout the study in which respondents were selected using a table of random numbers and where the sample size was kept at 650, as suggested by Krejcie and Morgan (1970). In order to gauge the effectiveness of the government business support assistance, the study performed 335 personal interviews in order to gather data from the sample. The measurement scale used to investigate the impact of the services on the performance of the firms was adapted, adopted and developed to suit the purpose of this study. In addition, the study used the five-point Likert scale to measure items of both exogenous and endogenous constructs (Fig. 1).

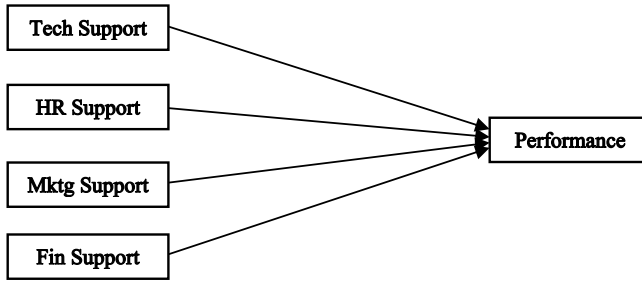


Fig. 1 The study's conceptual framework

4 Results and Discussions

4.1 Demographics Characteristics

Table 1 succinctly presents the characteristics of the Malay SMEs' demographics. Out of the 335 respondents surveyed, a majority of the respondents were recorded as males (228; 68.1%) against females (107; 31.9%). Among them, 261 (77.9%) of them were business owners, followed by 72 (21.5%) as chief executive officers. Meanwhile, the remaining 2 (0.6%) of the respondents were general managers of the companies they represented. In the context of age, a majority of them were between the age of 36 to 55 years old (219; 65.3%), followed by those who were below 36 years old (70; 20.9%). Meanwhile, the remaining 46 (13.7%) of the respondents were found to be more than 55 years old. With respect to the respondents' education level, a majority of them were diploma holders (76; 22.7%), followed by SPM holders (74; 22.1%), Bachelor's Degree holders (73; 21.8%), Certificate holders (52; 15.5%), Master's Degree holders (32; 9.6%) while the rest of the respondents had obtained the SRP certificates (23; 6.9%).

Table 2 exhibits the demographics characteristics of the Malay SME organizations under study. Of the 335 organizations surveyed, it was found that a majority of the organizations came from the service sector (153; 45.7%), followed by the manufacturing sector (123; 36.7%) and the construction sector (59; 17.6%). On the other hand, location-wise, a majority of the organizations were located in urban areas (225; 67.2%) against their rural counterparts (110; 32.8%). Among the organizational cohort, the study established that a majority of the respondents had a business experience of at least 5 to 10 years (90; 26.9%), followed by 11 to 15 years (75; 22.4%), less than 5 years (71; 21.2%), 16 to 20 years (64; 19.1%) and 21 to 25 years (26; 7.8%). Meanwhile, it is also significant to note that a small number of organizations studied were found to have a business experience spanning more than 25 years (9; 2.7%). In reference to the length of business operation, a majority of organizations had conducted their businesses between a period of 6 to 10 years (101; 30.1%), followed by 1 to 5 years (83; 24.8%), 11 to 15 years (60; 17.9%), 16 to 20 years (45; 13.4%), more than 20 years (33; 9.9%), while the remaining of the respondents were found

Table 1 Respondents' profile

Demographic	Frequency (f)	Percentage (%)	Demographic	Frequency (f)	Percentage (%)
Gender			Designation		
Male	228	68.1	Owner	261	77.9
Female	107	31.9	CEO	72	21.5
			General Manager	2	0.6
Age			Education level		
<25	17	5.1	SRP	23	6.9
25–35	53	15.8	SPM	74	22.1
36–45	101	30.1	Certificate	52	15.5
46–55	118	35.2	Diploma	76	22.7
56–65	42	12.5	Degree	73	21.8
>65	4	1.2	Master	32	9.6

Table 2 Organizations' profile

Demographic	Frequency (f)	Percentage (%)	Demographic	Frequency (f)	Percentage (%)
Location			Age of firm		
Urban	225	67.2	<1	13	3.9
Rural	110	32.8	1–5 y	83	24.8
			6–10 y	101	30.1
Sector			11–15 y	60	17.9
Manufacturing	123	36.7	16–20 y	45	13.4
Service	153	45.7	>20 y	33	9.9
Construction	59	17.6			
Business experience			No of employees		
<5 y	71	21.2	1–5	116	34.6
5–10 y	90	26.9	6–19	108	31.9
11–15 y	75	22.4	20–35	60	17.9
16–20 y	64	19.1	36–50	17	5.1
21–25 y	26	7.8	>50	35	10.4
>25 y	9	2.7			

to have only operated their businesses for less than 1 year (13; 3.9%). On the other hand, with regard to the number of employees, a majority of the organizations being studied had hired 1 to 5 employees (116; 34.6%), followed with 6 to 19 employees (108; 31.9%), 20 to 35 employees (60; 17.9%), 36 to 50 employees (17; 5.1%) and more than 50 employees (35; 10.4%).

4.2 Measurement Model

Reliability and Validity. For this study, the instrument reliability test was performed to confirm the consistency of the instrument used. Validity tests were initially made to measure if the instrument used really measures the intended concept (Hair et al. 2011). The test results presented in Table 3 show that no indicator had a loading value of less than 0.7. This therefore confirms the reliability of the instrument used. Meanwhile, the cross-loading values indicate that no item under a particular construct was inferior to an item in another construct. This indicates that no specific construct shares the same type of measurement with other constructs, which therefore means that their measurements do differ conceptually (Chin 2010).

Table 3 Loading, composite reliability and ave values

Model construct	Item	Loading	CR	AVE
Fin Support	FIN1	0.833	0.916	0.686
	FIN2	0.851		
	FIN3	0.876		
	FIN4	0.739		
	FIN5	0.836		
HR Support	HR1	0.865	0.929	0.724
	HR2	0.820		
	HR3	0.841		
	HR4	0.847		
	HR5	0.880		
Mktg Support	MKTG1	0.849	0.927	0.719
	MKTG2	0.801		
	MKTG3	0.884		
	MKTG4	0.888		
	MKTG	0.815		
Performance	PERF1	0.847	0.939	0.753
	PERF2	0.892		
	PERF3	0.869		
	PERF4	0.827		
Tech Support	TECH1	0.769	0.911	0.671
	TECH2	0.813		
	TECH3	0.832		
	TECH4	0.853		
	TECH5	0.827		

Table 4 Discriminant validity: Fornell-Larcker Criterio

	Fin Support	HR Support	Mktg Support	Performance	Tech Support
Fin Support	0.828				
HR Support	0.434	0.851			
Mktg Support	0.523	0.477	0.848		
Performance	0.437	0.540	0.486	0.868	
Tech Support	0.270	0.218	0.236	0.242	0.819

In addition, Table 3 also shows that all constructs exceeded the cut-off value of 0.6 for the Composite Reliability (CR) and complied with the recommendations of Henseler et al. (2009). This test describes that all of the items used were reliable and confirms that the measurements used were in line with the theory mentioned earlier. The test results also revealed that AVE passed a cut-off value of 0.5 as suggested by Hair et al. (2011).

Discriminant validity is typically employed to assess the differences between the items used in the measurement of each construct. This form of validity is obtained by examining the correlation between the measurements of constructs so as to detect the existence of overlapping constructs. According to Compeau et al. (1999) and (Fornell and Lacker 1981), the item for each construct must load more in its own construct than any other constructs in the model. The results in Table 4 show that the squared correlation is lower than the average variance extracted for construct items, reflecting acceptable discriminant validity. Overall, the measurement model showed adequate convergence validity and discrimination validity.

Besides, discriminant validity was also used to check for the existence of a common method variance in the model. A loading value above 0.9 indicates a common method variance (Podsakoff et al. 2003). The results in Table 4 show that no common method variance was detected in this model (Table 5 and Fig. 2).

Table 5 Inner VIF values

	Fin Support	HR Support	Mktg Support	Tech Support	Performance
Fin Support					1.500
HR Support					1.389
Mktg Support					1.550
Tech Support					1.101
Performance					

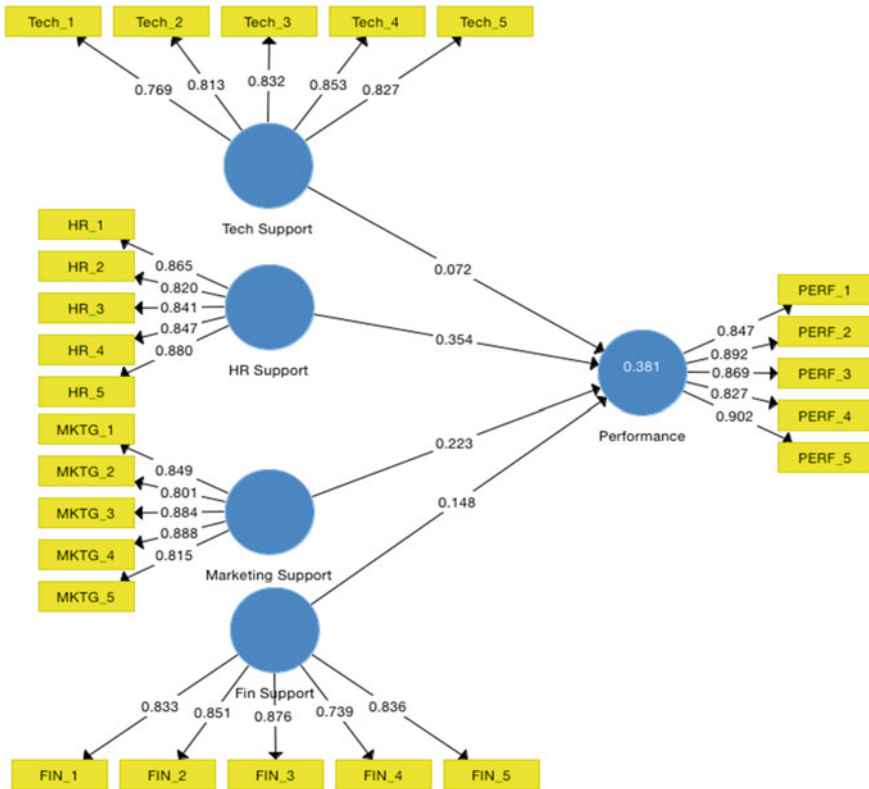


Fig. 2 The study’s path analysis

4.3 Structural Model and Perspective Variables

The goodness of fit (GOF), also known as the mean geometry average communality and the average of R2 (Tenenhaus et al. 2005) was designed to test the suitability of a model used in a study. The GOF is obtained by multiplying the average of R2 and the average communality. The number of multipliers is in the range of 0 to 1 where a higher value indicates a more reliable estimate path modelling. There are three levels of cut-off values; 0.10 (Alvarez and Busenitz 2001), 0.25 (medium) and 0.36 (high) as suggested by Wetzels et al. (2009). For this model, the results of the study in Table 6 show that the GOF value is higher than 0.36. Therefore, this model is deduced to have a sound predictive relevance.

The R2 value obtained for the firms’ performance is 0.466. This indicates that technical support services, human resource support services, marketing support services and financial support services contributed 46.6% to the performance variant. In the case of this study, the performance value is categorized as large as it exceeded 0.27 (Cohen 1988).

Table 6 Goodness of fit

Construct	R ²	Communality
	0	
FSS	0	0.701
HRSS	0	0.579
MKTSS	0	0.726
PERF	0.466	0.757
TSS	0	0.671
Total	0.466	3.433
Average	0.466	0.686
$\sqrt{\text{Ave R}^2 \times \text{Ave communality}} = 0.517$		

Table 7 presents the path coefficient for the study’s hypotheses. It is established that all of the study’s hypotheses were supported by the findings except for the relationship between technical support services and a firm’s performance. Thus, the study found that with the exception of the relationship between technical support services and a firm’s performance, all of the relationships were significant and had positively influenced the performance of the firms under study.

Meanwhile, a hypothesis testing found that all support services were significant predictors of the performance of firms with the exception of technical support services. In regard to the first hypothesis, human resources support services were found to be positively related to the hard performance of firms ($t = 2.207, p < 0.01$). Meanwhile, the second hypothesis was supported by the revelation that marketing support services indeed had a positive relationship with the performance of firms ($t = 3.139, p < 0.01$). As for the third and final hypothesis, the study indicated that the financial support services offered also had a positive relationship with the performance of firms alongside a significance level of 0.01 ($t = 7.813, p < 0.01$). Further analysis found that the financial support services were the most significant and influential predictor for the performance of firms, followed by marketing support services, human resources support services and technical support services. The results show that 47.6% of the variance in performance could be explained by the financial support services whereas 19.2% of the variance could be attributed to the marketing support

Table 7 Path coefficients

Hypothesis	Causal path	B	T	Sig.	Decision	r ²	Q ²
H1a	TSS -> PERF	0.017	0.450	0.038	Not supported	0.466	0.517
H1b	HRSS -> PERF	0.105	2.027**	0.052	Supported		
H1c	MKTSS -> PERF	0.192	3.139***	0.061	Supported		
H1d	FSS -> PERF	0.476	7.813***	0.061	Supported		

Notes Significant at $p > 0.10^*$, $p > 0.05^{**}$, $p > 0.01^{***}$

TSS: Technical Support Services; HRSS: Human Resources Support; MKTSS: Marketing Support Services; FSS: Financial Support; PERF: Performance of SMEs

services. The human resources support services, which account for the highest usage level among all of the services, were recorded to have a slightly lower beta value than the financial and marketing support services respectively. Simultaneously, the human resources support services explained the 10.5% variance found in the performance of the firms being studies. Interestingly, the technical support services were revealed to be the least significant among the three services and contributed only 1.7% variance in the hard performance of the firms.

In short, the analysis found that the usage of the GBSS had a positive impact on the overall performance of the firms with the exception of the technical support services (Fig. 3).

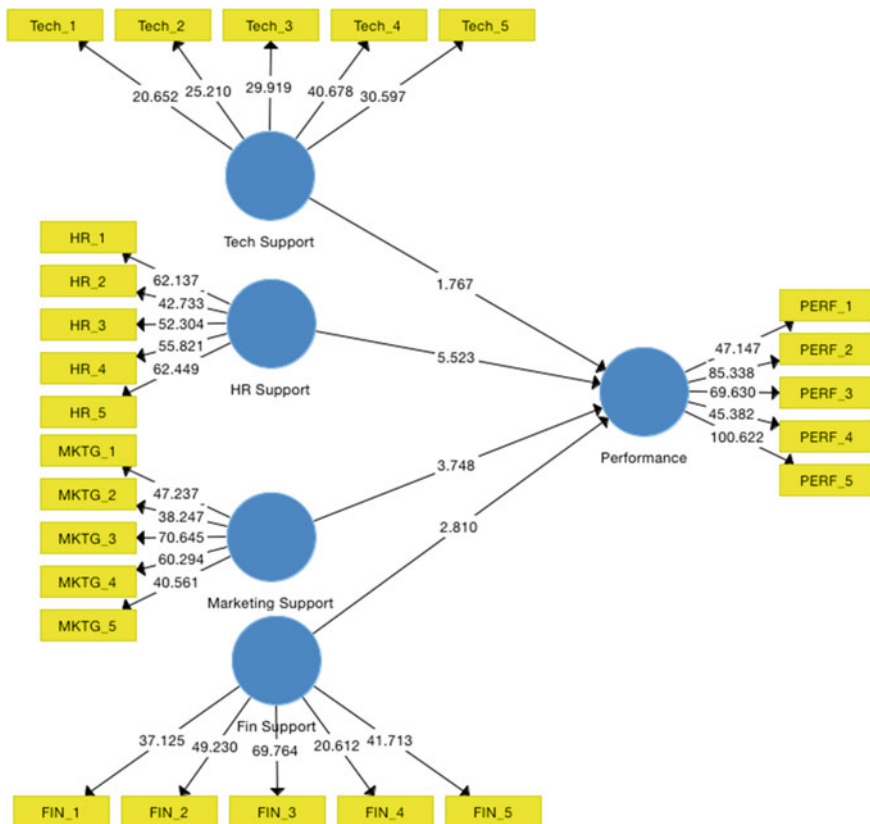


Fig. 3 Hypothesis testing

5 Discussion

Based on the results obtained, it is evident that three hypotheses of the study were supported while one of them was not. The utilization of technical support services was found not to be significantly associated with the performance of the firms. It is revealed that only the utilization of three other forms of support services were found to have a positive relationship with the performance of the firms. These services included: human resources support services; marketing support services; and financial support services. The findings of the study failed to support the notion that technical support services have a positive impact on the performance of SMEs. As a matter of fact, only the utilization of human resources, marketing and financial support services were found to influence the overall performance of the firms under study.

In general, it can be therefore be deduced that the results of the study failed to fully support the concept of external resources and the performance of firms based on the RBV theory which claims that the resources of firms are the sole determinants of their performance (Penrose 1959). It is hence suffice to say that one form of the support services, the technical support services, contributed the least amount of benefits to the SMEs under study and were found not to be associated with their performance. This particular result obtained through the study can be deemed quite alarming given that it disclosed the failure of a major government-subsidized programme (technical support services) to support the performance of SMEs, as though the programme had little to no interaction with the development of the internal soft skills of the firms and their ability to generate income and earnings.

6 Conclusion and Implications for Future Research

This study was performed in order to discuss the whole spectrum of the GBSS so as to gain further understanding on their impact towards the performance of SMEs. In a theoretical sense, this study provides a brief understanding on the role of external resources like the GBSS have on the performance of SMEs. In general, this research provides three important theoretical implications. First, this research allowed for the expansion of the GBSS literature. This literary expansion paves the way for a more thorough investigation on the joint effects of the variety of external services offered to SMEs which are seldom examined despite the importance of doing so. Furthermore, among the many services available in the market, little is known about the services that really produce a significant impact on the performance of SMEs and which that do not. This study thus provides a timely insight into the importance and impact of the services on SMEs and their overall performance. The findings of this study is highlight the fact that the interaction between the four GBSS constructs in light of their effects on the performance of SMEs in fact did produce contradictory results. On one extreme, one of the services, technical support services, did not significantly

affect the performance of the SMEs under study. The nature of the business activities of the firms, which is concentrated on service activities as well as their size, may contribute to this unique finding. To summarize, the new setting of the business support model in this study theoretically demonstrates that one of the variables, i.e. technical support services, does not work well in the environment of SMEs. It is apparent that this particular finding opposes the concept of the RBV theory which proposes that the resources of a firm can positively influence its overall performance.

Second, save for the technical support services, the findings of this study refute the results of past research, which were mostly conducted in Western countries, claiming that the GBSS have little impact on the performance of firms, not to mention some studies that have argued that they have no impact at all. It is evident from the findings that the results painted an opposite picture in the Malaysian setting. This is probably due to the fact that the respondents were all Bumiputera—a group of people made up of mostly the Malay ethnic group alongside various indigenous peoples who are under the Malaysian government's special close supervision. Given that SMEs in Malaysia receive an extensive variety of support from various government agencies, the results indicate that the services do in fact highly influence the performance of SMEs; therefore refuting previous findings claiming that the services are ineffective.

To conclude, this study has proven that the GBSS indeed play a significant role in further increasing the performance of SMEs in various dimensions, such as human resources support services, marketing support services and financial support services. Thus, study validates the arguments of existing studies positing that external support services are in fact able to enhance the performance of firms (Berry et al. 2006; Dyer and Ross 2008; Webber et al. 2010). Nevertheless, this study equally brought into attention what role, if any, technical support services play to enhance the performance of SMEs, in which the study has found to be very little. Hence, it is worthy to note that further research with longitudinal data is needed to further explore this particular phenomenon in the future.

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Factors Affecting Socioeconomic Performance of Informal Micro and Small Enterprises in Senegal



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Abstract This study aimed to empirically examine the mediating effect of competitive advantages between entrepreneurial competencies and socioeconomic performance as well as the direct effect of entrepreneurial competencies and access to financial, social and human capitals on the socioeconomic performance of informal micro and small enterprises (MSEs) in Senegal through the lens of a resource-based view (RBV) theory. Utilizing a cross-sectional design, data for the study were randomly gathered from 356 micro and small entrepreneurs operating in the informal sector. The outcomes of the study indicated that opportunity-recognition competency, relationship competency, commitment competency, financial capital and competitive advantages all have a significant and positive impact towards the socioeconomic performance of Senegal's informal economy. On the contrary, organizing competency, conceptual competency and social capital displayed a positive but insignificant effect on the socioeconomic performance, whereas strategy competency and human capital have both a negative and insignificant effect on the socioeconomic performance of Senegal's informal economic sector. The results highlight the importance of entrepreneurial competencies and access to capital towards improving the socioeconomic performance of informal MSEs across developing countries. The paper ended by presenting the discussion and implication of the study.

Keywords Competitive advantage · Entrepreneurial competency · Financial capital · Human capital · Social capital · Socioeconomic performance

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1 Introduction

In reality, a large bulk of micro and small businesses are found to operate in the informal sector of the economy. The informal sector appeared to cover over 70% of the overall informal business segment in Sub-Saharan African nations (ILO 2009, 2011), with 91% found in Ghana (Turkson et al. 2020) and 97% found in Senegal (ASND 2017). As a matter of fact, throughout francophone Africa, the informal sector dominates, accounting for over half of the countries' GDP and provide more than 90% employment (Mbaye and Gueye 2018). Moreover, in many low-income countries, many SMEs and informal companies represent more than 60% of GDP and 70% of total employment. Meanwhile, in middle-income countries, the same type of companies contributes more than 95% of total employment and approximately 70% of GDP (Zafar and Mustafa 2017). Many entrepreneurs use the opportunities replete in the informal businesses' market to navigate their socio-economic challenges (Musara and Nieuwenhuizen 2020). In fact, the informal sector is considered by many as a source of vitality and entrepreneurial ingenuity defined by persistence, adaptation, job creation and economic expansion (Khan and Quaddus 2020).

Despite the fact that micro, small and medium enterprises are the driving forces of economic stability (Aminova and Mareef 2020) and particularly informal small businesses which contribute significantly to economic growth and job creation in most developing economies, specifically in Senegal (ENSIS 2011; DPEE 2018), a substantial number of micro entrepreneurs still face various challenges associated with entrepreneurial competencies (Ibidunni et al. 2019), competitive strategies (Fazal et al. 2019), access to financial (Quartey et al. 2017; Alareeni 2018; El Khoury et al. 2021; Alareeni and Hamdan 2020; Alareeni and Branson 2013) and human capital resources (Yadav et al. 2018) as well as lack vigour in their overall business performance (DPEE 2018). Ultimately, lack of entrepreneurial skills, competencies and competitive advantage strategies (Fazal et al. 2019; Zainol and Al Mamun 2018) as well as limited access to financial, social and human capital resources (ILO 2018; Fowowe 2017) play a significant role in the success or failure of small firms (Fatoki 2014; Omri et al. 2015). Compounded by the lack of skills and managerial expertise as well as equipped with inadequate competencies (Jamie and Rebecca 2020), small businesses are thus inevitably unable to sustain their competitive advantages (Fazal et al. 2019). In addition, limited access to financial, social and human capitals is often cited as one of the main reasons for the high failure rate of small businesses (Agyapong et al. 2017; Fatoki 2012). Thus, microentrepreneurs are required to equip themselves with the necessary competencies (Jamie and Rebecca 2020; Zainol and Al Mamun 2018) and competitive strategies (Fazal et al. 2019) as well as to actively acquire access to financial, social, and human capitals (Yadav et al. 2018; Omri et al. 2015) in order to compete in the contemporary business environment. Likewise in Senegal, most small business owners/managers typically lack the necessary competencies and strategies in order to sustain their business performance (Basse 2015). They also face major scarcity of crucial entrepreneurial competencies especially in

the areas of spotting prospective opportunities, forming partnerships, effective organization, and in general, lack a high level of commitment (DPEE 2018; ILO 2018). Again, access to financial, social, and human capitals is a critical factor that can significantly enhance the performance and viability of micro businesses (Atmadja et al. 2016; Omri et al. 2015).

In Senegal, most of the few studies that have been conducted related to the topic of the study have only focused on the activities of informal enterprises, conducted by the National Agency of Statistics and Demographics (DSP 2003; ENSIS 2011; RGE 2017) and the Direction of Prevision and Economic Studies (DPEE 2018). Furthermore, a review of literatures revealed that despite their significant contribution to the national economy, informal businesses receive far less attention from the government, and how the government's support in encouraging the generation of entrepreneurial competencies and access to financial, social, and human capitals only affect the socioeconomic performance of small businesses. Moreover, there also appears to be very little research on the socioeconomic performance of informal small firms when entrepreneurial competencies, competitive advantages and access to financial, social, and human capitals are combined. This deficiency in literature must be addressed in order to improve the socioeconomic performance of informal enterprises as they all have different areas of competency, coupled with unique competitive advantage strategies as well as access to financial, social and human capitals. The objective of this paper is thus to examine the mediating effect of competitive advantages in the relationship between entrepreneurial competencies and socioeconomic performance and the direct effect of financial, social, and human capitals as well as entrepreneurial competencies and competitive advantages have towards the socioeconomic performance of informal micro and small enterprises in Senegal through the lens of a resource-based view (RBV) theory. The literature on entrepreneurial competencies, access to financial, social, and human resources, as well as competitive advantage and socioeconomic performance of informal MSEs is discussed in the following section. The research methodology is presented in part 3, and the data analysis is presented in Sect. 4. The study's discussion and implications are presented in Sect. 5. The last section concludes with a discussion of future research possibilities.

2 Literature Review

2.1 *Entrepreneurial Competencies*

Entrepreneurial competencies can be defined on a wide variety of spectrum—from general to their specific characteristics (Baum and Locke 2004; Bird 1995), and also from the different categorical aspects of competencies (Man et al. 2002; Tehseen et al. 2020). The general characteristics of entrepreneurial competencies refer to the

generic and specific knowledge, skills, motivation, attitude, social roles and self-image of a business (Mitchelmore and Rowley 2013; Bird 1995), whereas the categorization of entrepreneurial competencies is generally viewed as the entrepreneur's entire ability to perform a task efficiently and successfully (Man et al. 2002). Man et al. (2002) established six key competency areas namely opportunity-recognition, organizing, strategic, relationship, commitment and conceptual competencies. These competencies—which are related to capabilities, knowledge, skills, and experience—can be acquired through practical and theoretical learning (Jamie and Rebecca 2020; Kaur and Bains 2013). This study thus adopts this categorization of competencies developed by Man et al. (2002) due to its succinctness, effectiveness, and completeness.

2.1.1 Opportunity-Recognition Competency

The ability of an entrepreneur to explore and exploit (Yeh and Chang 2018), recognize, develop, and identify better existing market prospects is known as opportunity-recognition competency (Man et al. 2002). The ability to detect and seize opportunities has become a significant part of the entrepreneurial responsibilities, (Jamie and Rebecca 2020) in particular, becoming one of the most important competencies in measuring an enterprise's success (Suhaimi et al. 2018). This form of competency is also linked to an entrepreneur's capacity to pursue, develop, and evaluate available opportunities in the market and in his/her surroundings (Akhigbe and Onuoha 2020). The ability to analyze and take advantage of available opportunities is a distinguishing feature of an entrepreneurial charm. This competency is quantified by the entrepreneur's ability in deciding various many behaviours for him/herself, including recognizing the products or services desired by consumers (Kaur and Bains 2013), perceiving unmet consumer wants, seeking out useful products and services for customers (Ahmad et al. 2010), and taking advantage of the best possible opportunities (Al Mamun et al. 2019). Micro entrepreneurs that have a unique ability to restore market balance by discovering and seizing opportunities are expected to gain a competitive advantage and achieve better socioeconomic performance (Fazal et al. 2019; Jamie and Rebecca 2020). Empirical evidences have demonstrated that an opportunity-identifying competency improves business performance via competitive advantages (Zainol and Al Mamun 2018; Summual et al. 2019). Based on the aforementioned arguments, this study formulates that:

H1a: Opportunity-recognition competency has a positive and significant effect on the socioeconomic performance of MSEs.

2.1.2 Organizing Competency

Organizing competency can be defined as the entrepreneur's ability to perform tasks such as deploying internal and external resources including human and financial resources, building start-up teams, and directing employees (Yeh and Chang 2018;

Man et al. 2002). Planning and organizing entails allocating necessary resources such as financial, human, technological, information, and facilities (Ahmad et al. 2010) to carry out a particular business plan. Micro entrepreneurs usually take on a number of tasks and manage multiple organizational functions (Jamie and Rebecca 2020). This means that an owner/manager of a small business must possess the capacity to manage and acquire the indispensable competencies of planning, organizing, coordinating, communicating and leadership (Asenge and Richard 2018). Furthermore, microentrepreneurs should always be able to efficiently manage their employees within their own businesses in order to smoothly coordinate their businesses' internal activities (Al Mamun et al. 2019) as well as supervise and guide others under a strong collaborative spirit (Yeh and Chang 2018). In other words, microentrepreneurs that possess the competencies of leading, delegating, evaluating, and mentoring (Ahmad et al. 2010) are expected to create a competitive advantage for their businesses and consequently improve their business performance (Fazal et al. 2019). Thus, this study formulates the following hypothesis:

H1b: Organizing competency has a positive and significant effect on the socioeconomic performance of MSEs.

2.1.3 Relationship Competency

Relationship competency is primarily concerned with interactions and connections of microentrepreneurs (Yeh and Chang 2018), such as collaborations and partnerships that they build with their surroundings and stakeholders through their arts of persuasion, communication, and interaction (Akhigbe and Onuoha 2020). This form of competency basically denotes the ability of entrepreneurs to acquire, develop, and maintain interactions and communication between stakeholders (Man et al. 2002). In order to create strong relationships and collect more helpful information and resources, microentrepreneurs must deal with a variety type of stakeholders, either formal or informal (Suhaimi et al. 2018), which include customers, suppliers, workers, public authorities, and competitors (Jamie and Rebecca 2020). Furthermore, establishing positive relationships with all stakeholders will only help to boost the company's success (Akhigbe and Onuoha 2020). Thus, micro entrepreneurs must skillfully manage relationships with their business partners and employees, resolving cognitive issues, and avoiding emotional problems that may arise between them (Yeh and Chang 2018). This means that informal micro entrepreneurs must have a competency in building and sustaining permanent, relevant, and successful relationships in order to gain a competitive advantage for their businesses which ultimately leads to their improved business performance (Zainol and Al Mamun 2018). Based on the foregoing discussion, the following hypothesis is proposed:

H1c: Relationship competency has a positive and significant effect on the socioeconomic performance of MSEs.

2.1.4 Commitment Competency

It is indeed a well-established fact that most successful entrepreneurs have a significant proficiency in committing, determining, and taking good initiatives towards fulfilling their various obligations and tasks (Ibidunni et al. 2018). This represents a distinguished entrepreneurial attitude that drives many organizations to success (Jamie and Rebecca 2020). Entrepreneurial-commitment competency refers to the ability of microentrepreneurs to taking important steps in their businesses, achieving long-term goals with a positive attitude (Kaur and Bains 2013), demonstrating great drive for competitions, and the burning desire to make a significant difference (Man et al. 2002). Entrepreneurs with a high level of extrinsic and intrinsic motivation (Joseph Ekhayemhe and Oguzie 2018) will improve a firm's competitiveness against their competitors (Akhigbe and Onuoha 2020). Since running a business is not an easy endeavour, micro entrepreneurs must possess exceptional qualities in taking on responsibilities (Jamie and Rebecca 2020), committing themselves towards them and taking proactive measures as well as maintaining a high level of energy that propels their businesses to success (Yeh and Chang 2018). Consequently, micro entrepreneurs with positive ambitions and hard work (Fazal et al. 2019), coupled with a lot of patience, persistence, dedication, and enthusiasm can better explore, assess, and gain a competitive advantage over their competitors (Man et al. 2008) as well as enhance their business performance (Zainol and Al Mamun 2018). Based on the foregoing discussion, the following hypothesis is thus formulated:

H1d: Commitment competency has a positive and significant effect on the socioeconomic performance of MSEs.

2.1.5 Strategic Competency

Strategic competency entails creative planning, which represents the capacity of a leader of an organization to build a future vision (Tehseen et al. 2020) and take strategic decisions that goes beyond his/her business' day-to-day operational activities (Jamie and Rebecca 2020). This type of competency refers to an entrepreneur's ability to imagine, create, and execute his/her company's business strategies (Man et al. 2002). In order to ensure the sustainability of their businesses, microentrepreneurs must consequently create a clear vision by formulating and delivering on formal or informal strategies (Zainol and Al Mamun 2018), establishing defined priorities and goals (Ibidunni et al. 2018), and estimating the economic repercussions of executing a particular business strategy (Jamie and Rebecca 2020). Understanding this vision enables microentrepreneurs to concentrate on their actions and decisions more strategically (Tehseen et al. 2020), giving their businesses a substantial competitive advantage (Fazal et al. 2019). Since the owner/manager is the only decision maker at a micro enterprise, he/she must be able to identify the company's strategic directions and design appropriate plans and strategies (Yeh and Chang 2018). However, micro entrepreneurs which are generally necessity-driven entrepreneurs (Gholami and Al Tahoo 2021) are frequently confronted with complicated challenges, (Suhaimi

et al. 2018) including lacking analytic capabilities and improvisation (Al Mamun et al. 2019), misunderstanding complex information, and undertaking risks (Yeh and Chang 2018) and limited vision (Gholami and Al Tahoo 2021). In essence, strategic competency necessitates an entrepreneurs' mastery of the larger picture, the establishment of particular action goals, and the effective implementation of strategies in order to achieve his/her competitive advantage and boost their enterprises' performance (Fazal et al. 2019). Hence, the study formulates the following hypothesis:

H1e: Strategic competency has a positive and significant effect on the socioeconomic performance of MSEs.

2.1.6 Conceptual Competency

The ability to think differently and analytically is described as conceptual competency (Tehseen et al. 2020), also typically defined as the ability to create and develop new concepts that may necessitate deviating from the norm (Ahmad et al. 2010; Jamie and Rebecca 2020). Furthermore, conceptual competency can also refer to an entrepreneur's ability to analyze, solve problems, innovate, make good decisions, and take risks (Man et al. 2008). Microentrepreneurs, particularly those engaged in a context of small businesses, often have to confront multiple circumstances that require them to make swift decisions (Ibidunni et al. 2018). Therefore, having the ability to perform a high degree of conceptual operation is crucial to the success and survival of their businesses (Al Mamun et al. 2019). An entrepreneur with adequate conceptual skills can examine a market environment and explore different business angles from others (Fazal et al. 2019), and find alternative ways to solve problems (Zainol and Al Mamun 2018). Thus, the following hypothesis is proposed:

H1f: Conceptual competency has a positive and significant effect on the socioeconomic performance of MSEs.

2.2 Access to Capital

2.2.1 Financial Capital

Financial capital is a necessary requirement in entrepreneurship (Yadav et al. 2018) and constitutes one of the fundamental elements in the positive performance of small businesses (Fatoki 2014; Sensini 2020). Access to financial capital for micro, small, and medium-sized enterprises is crucial for their long-term viability (Bongomin et al. 2018) and that they permit entrepreneurs to innovate (Omri et al. 2015), increase productivity (Quartey et al. 2017), improve their socioeconomic conditions (Al Mamun 2016), and strengthen the economy by creating more employment opportunities which can consequently help to reduce poverty (Turkson et al. 2020). Small firms in developing economies can use financial capital to grow their enterprises

(Nguyen and Canh 2020), build sustainable enterprises, and reduce their susceptibility to disasters (Okello et al. 2017). Small enterprises with more access to financial capital (Adomako et al. 2016) are found to be more willing to initiate, operate, and engage in innovations that promote their overall performance (Omri et al. 2015). It is thus critical for both the government and the banking institutions to encourage the success of small companies by engaging and supporting them through providing an easier access to financial capital (Turkson et al. 2020). Often, small businesses require financial support from the financial institutions at a reasonably low interest rate in order to strengthen their competitive edges and performance (Quartey et al. 2017). Therefore, encouraging easy access to financial capital is essential for the promotion, growth, and the overall socioeconomic performance of small businesses. Thus, the study proposes the following hypothesis:

H2a: Financial capital has a positive and significant effect on the socioeconomic performance of MSEs.

2.2.2 Social Capital

Social capital refers to the current and potential resources embedded in a network ties that business managers can access and exploit (Acquaah et al. 2014). In the context of this study, social capital is defined as a special form of capital that results from investing in relationship building, which subsequently generates social networks, shared norms, and trust, all crucial factors in the effort of collaborating with other types of capitals (financial and human), which results in helping microbusinesses to achieve their socioeconomic success (Akintimehin et al. 2019). The dominant norms, culture, and habits that exist in a society or community always come together to determine the establishment of social capital (Analia et al. 2020). Entrepreneurs usually create social capital through building a strong network with industry players, having recurring transactions with partners and sustaining a high degree of trust among all of their stakeholders (Analia et al. 2020). Meanwhile, microentrepreneurs create social capital networks with their key stakeholders, such as their family members, friends, and employees as part of their internal social capital (Akintimehin et al. 2019), and their customers, suppliers, business colleagues, the local community, and political leaders as well as regulators forming part of their external social capital (Acquaah et al. 2014; Islam et al. 2018). Social capital facilitates a more convenient access to information (Agyapong et al. 2017), administrative support (Fatoki 2012), information on technologies and markets (Pratono 2018), and access to finance and non-finance resources (Villanueva et al. 2018). According to previous studies, social capital—as assessed by trusts, networks, and norms—are particularly significant and crucial for the performance of small businesses (Analia et al. 2020; Ozigi 2018). Based on the aforementioned arguments, this study therefore formulates that:

H2b: Social capital has a positive and significant effect on the socioeconomic performance of MSEs.

2.2.3 Human Capital

Human capital is simply the acquisition of knowledge, skills, and attitude that individuals and organizations accumulate through trainings, experiences, and formal or informal education which facilitate and increase the socioeconomic performance of a particular enterprise (Ma et al. 2019; Adom and Asare-Yeboah 2016; Felício et al. 2012). Furthermore, the concept of human capital refers to an investment made by an organization investment in its people through rigorous form of entrepreneurial activities-related education and trainings (Indarti 2020) in order to increase the company's economic productivity and business performance (Fatoki 2012). The fundamental component impacting a real business success is indeed human capital in the form of an individual's education and experience (Hosseininia and Ramezani 2016; Yadav et al. 2018). This effort of investing in human and social capital will ultimately result in a significant improvement of a company's entrepreneurial performance as the combination of human and social capitals will inevitably create human capabilities that will positively impact the overall business performance (Yadav et al. 2018). In addition, it is argued that microentrepreneurs with additional human capital have a further advantage of being better at making good business decisions than those with less human capital as the extra manpower can help them strategically seize relevant market opportunities (Felício et al. 2012) and take advantage of innovations that can lead to a firm's improved performance (Omri et al. 2015). Based on the arguments above, the following hypothesis is thus formulated:

H2c: Human capital has a positive and significant effect on the socioeconomic performance of MSEs.

2.3 Competitive Advantages

The competitive advantage concept is essentially based on an economic approach that emphasizes on the success of an organization in attaining competitions (Summual et al. 2019). Competitive advantage refers to a strategy employed by a company that seeks to generate values for their products or services with an added advantage that is valuable, inimitable, and non-substitutable than those of their rivals (O'Shannassy 2008). Competitive advantage encompasses all aspects of a company's operations, including design, production, pricing, and delivery (Su et al. 2017). The two primary strategies that companies can use in order to gain competitive advantage over their rivals are: a differentiation strategy; and cost or price advantage (Anwar 2018). A cost strategy refers to a company's deliberate attempt and strategic advantage in manufacturing products at a lower cost than its rivals (Acquaah 2011), whereas differentiation refers to a company's business strategy of providing products or services that distinguish itself from its competitors in different ways (Summual et al. 2019). A product differentiation exercise includes product creation and development, emphasis on manufacturing greater quality and unique products, provision of a memorable customer service as well as the generation of other unique specifications that will

give a company a competitive edge in comparison to its business rivals (Danso et al. 2019).

In reality, small businesses are better suited to adopt the cost-advantage approach in order to reap above-average profits due to their tendency to supply the same goods for lower prices for than their competitors (Acquaah 2011). Furthermore, since most developing countries have low-level of revenues, the price strategy chosen by small enterprises will ultimately be seen as a major influencing factor in customer choice and their subsequent purchase decision (Danso et al. 2019). Businesses that lack competitive advantages in their product differentiation or cost strategy will not be capable of surviving the ever-dynamic business environment (Hosseini et al. 2018). Thus, the acquisition of competitive advantage is a fundamental prerequisite for sustaining a microenterprise's business performance in today's competitive market (Summul et al. 2019). The effort to gain competitiveness and acquire a distinguished success in the business market is also a form of entrepreneurial competencies and strategies (Hosseini et al. 2018). Microentrepreneurs that possess entrepreneurial competencies will develop several types of strategies that will generate substantial impacts on their company's competitive advantages (Fazal et al. 2019) and socioeconomic performance (Buul and Omundi 2017). In other words, competitive advantage is more likely to respond as a mediating factor in the relationship between entrepreneurial competencies and a firm's socioeconomic performance. Hence, the following hypotheses are formulated:

H4: Competitive advantage has a positive and significant effect on the socioeconomic performance of MSEs; and

H5: Competitive advantage positively mediates the relationship between entrepreneurial competencies and the socioeconomic performance of MSEs.

2.4 Socioeconomic Performance

The socioeconomic performance of micro, small and medium-sized businesses is a critical component in defining any forms of economic development. From an entrepreneurship standpoint, the performance of small businesses is described as an enterprise's ability to survive, develop, and contribute to the nation's socioeconomic activities (Hashim et al. 2018; Ismail 2012). Business performance, either formal or informal, can be evaluated in terms of their financial, economic, social, and environmental impacts (Analia et al. 2020; Danciu 2013). In this study, socioeconomic performance is measured as a combination of the economic and social performance of a business. Economic performance refers to the financial performance of a business including its profits, sales growth, return on investment, and customer retention (Fatoki 2014; Zainol and Al Mamun 2018). Meanwhile, social performance is described as the business practices that impact the needs of members of a society such as employees, communities, customers, and the larger societies (Adeola et al. 2019; Danciu 2013). The society-related issues of small businesses such as the health

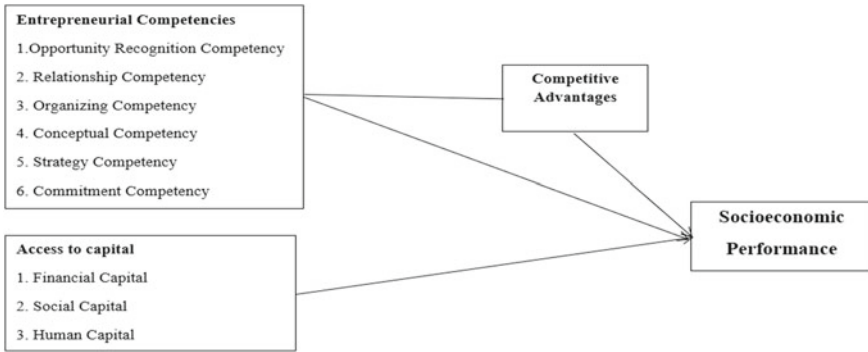


Fig. 1 Research model

and safety of employees and customers as well as the employees’ working conditions can indeed have an impact on the enterprise’s overall performance. The following research model in Fig. 1 represents the hypotheses tested.

3 Research Method

The data collection method selected for this study was structured questionnaire interviews as it is the most suitable and effective approach to study small businesses operating in the informal sector. Meanwhile, the sampling procedure chosen for this study was the cluster sampling technique. Cluster sampling involves a geographical stratification of an entire country into areas dominated by the activities of informal enterprises. The survey curated for this study has adopted the definition of informal enterprises as devised by the National Agency for Statistics and Demographics. Plus, the researcher ensured that the enterprises selected were not registered in the NINCA and did not maintain the accounting system that complied with the requirements of WAAS. This study collected data from 356 informal entrepreneurs across three regions in Senegal via structured questionnaire interviews to avoid any possible complications due to its small sample size. For the purpose of forming the questionnaire items, categories of entrepreneurial competencies were taken from Man et al. (2008), and Zainol and Al Mamun (2018). On the other hand, competitive advantage items were retrieved from Anwar (2018) and Danso et al. (2019). Meanwhile, items that measure access to financial capital were adopted from Adomako and Danso (2014) and Memon et al. 2019. Items from Khan (2018), and Al Mamun et al. (2018) were obtained to measure access to social capital among the microentrepreneurs. In order to measure human capital and the socioeconomic performance of the MSEs, items were derived from Khan (2014), and Zainol and Al Mamun (2018). This

research used the Smart-PLS software 3.1 for the purpose of performing an empirical analysis of the study’s model using the partial least squares structural equation modelling (PLS-SEM).

4 Data Analysis

The study’s constructs had satisfied both the requirements of both reliability and convergent validity. The results indicate that discriminant validity is satisfied with the constructs of the study. Table 1 represents the demographic profiles of respondents of the study.

Table 1 Profiles of the respondents

	n	%		n	%
Gender			Age Group		
Male	276	77.53	18 to 29 years of age	41	11.51
Female	80	22.47	30 to 44 years of age	216	60.67
Total	356	100	45 to 59 years of age	96	26.96
			60 years and above	3	0.008
Firm Size			Total	356	100
1 to 5 employees	263	73.9	Education		
6 to 10 employees	74	20.8	No Formal Education	13	3.65
10 and more employees	19	5.3	Primary School	96	26.96
Total	356	100	Arabic Level	31	8.70
			Junior High School	127	35.67
Firm Age			Senior High School	37	10.39
3 to 6 years old	66	18.53	Vocational	42	11.79
7 to 10 years old	214	60.11	University Degree	10	2.80
11 years old and more	76	21.35	Total	356	100
Total	356	100	Marital Status		
Location			Single	41	11.52
Dakar	186	52.24	Married	266	74.72
Thies	92	25.84	Widowed	21	5.89
Diourbel	78	21.91	Divorced	28	7.86
Total	356	100	Total	356	100

4.1 Results

Table 2 presents the path analysis coefficients of entrepreneurial competencies on competitive advantages as well as the path analysis coefficients of entrepreneurial competencies, access to capital, and competitive advantages on the socioeconomic performance of the informal MSEs. The path coefficient's values for the entrepreneurial competencies of opportunity-recognition ($\beta = 0.330$ and $p\text{-value} = 0.000$), relationship ($\beta = 0.116$ and $p\text{-value} = 0.030$), and commitment ($\beta = 0.282$ and $p\text{-value} = 0.000$) exerted positive and significant effects on the socioeconomic performance of informal MSEs being studied. In addition, the f^2 value of 8.1% obtained shows a small effect of opportunity-recognition competency on the informal MSEs' socioeconomic performance. Equally, the f^2 value of 3.9% recorded indicates that commitment competency had a small effect on the socioeconomic performance of the informal MSEs. Notwithstanding that, the $p\text{-value}$ of the path coefficient for organizing competency ($\beta = 0.047$ and $p\text{-value} = 0.249$) and conceptual competency ($\beta = 0.011$ and $p\text{-value} = 0.412$) both had a positive but insignificant effect on the socioeconomic performance of the informal MSEs. On the other hand, strategy competency ($\beta = -0.011$ and $p\text{-value} = 0.409$) was revealed to have a negative and insignificant effect on the socioeconomic performance of the selected microenterprises. Furthermore, the path coefficients obtained indicate that financial capital ($\beta = 0.016$ and $p\text{-value} = 0.040$) and competitive advantages ($\beta = 0.250$ and $p\text{-value} = 0.000$) both had a significant and positive effect on the socioeconomic performance of the MSEs. Conversely, human capital ($\beta = -0.023$ and $p\text{-value} = 0.341$) was found to have a negative and an insignificant effect on the socioeconomic performance of the MSEs, while social capital ($\beta = 0.035$ and $p\text{-value} = 0.282$) had a positive and insignificant effect on the socioeconomic performance of the informal MSEs.

The r^2 value for socioeconomic performance is 0.557, indicating that 55.7% of the variation in the socioeconomic performance of the selected informal microenterprises can be explained by opportunity-recognition competency, commitment competency, relationship competency, organizing competency, strategy competency, conceptual competency, financial capital, social capital, human capital and competitive advantages of the MSEs under study. Furthermore, the Q^2 value of 0.306 was more than zero, indicating that entrepreneurial opportunity, relationship, organizing, conceptual, strategy and commitment competencies as well as financial, social, and human capitals and competitive advantages, all had sufficient and moderate predictive relevance for the socioeconomic performance of the informal MSEs (Hair et al. 2019).

Referring to the same table of path coefficients, entrepreneurial competencies for opportunity-recognition ($\beta = 0.124$ and $p\text{-value} = 0.018$), organizing ($\beta = 0.105$ and $p\text{-value} = 0.004$), relationship ($\beta = 0.253$ and $p\text{-value} = 0.000$), and commitment ($\beta = 0.376$ and $p\text{-value} = 0.000$) all exerted a positive and significant impact on the competitive advantages of the informal MSEs. In addition, the f^2 values for both opportunity-recognition and organizing competencies ($f^2 = 0.015$) indicate that they almost had no effect on the MSEs' competitive advantages, while commitment

Table 2 Path coefficients

		Beta	Mean	SD	t-values	p values	r ²	f ²	Q ²	Decision
Factors affecting socioeconomic Performance of MSEs										
H1a	OPP -> SEP	0.330	0.325	0.090	3.646	0.000	0.557	0.081	0.306	Accept
H1b	ORG -> SEP	0.047	0.050	0.069	0.677	0.249		0.000		Reject
H1c	REL -> SEP	0.116	0.114	0.061	1.887	0.030		0.002		Accept
H1d	COM -> SEP	0.282	0.279	0.070	4.037	0.000		0.039		Accept
H1e	STR -> SEP	-0.011	-0.011	0.048	0.231	0.409		0.000		Reject
H1f	CON -> SEP	0.011	0.013	0.048	0.221	0.412		0.000		Reject
H2a	FIN -> SEP	0.106	0.111	0.060	1.755	0.040		0.013		Accept
H2b	SOC -> SEP	0.035	0.033	0.061	0.577	0.282		0.001		Reject
H2c	HUM -> SEP	-0.023	-0.020	0.056	0.411	0.341		0.001		Reject
H4	CAD -> SEP	0.250	0.247	0.058	4.333	0.000		0.068		Accept
Entrepreneurial Competencies on Competitive Advantages										
H3a	OPP -> CAD	0.124	0.123	0.059	2.093	0.018	0.489	0.015	0.276	Accept
H3b	ORG -> CAD	0.105	0.105	0.040	2.649	0.004		0.015		Accept
H3c	REL -> CAD	0.253	0.254	0.062	4.090	0.000		0.053		Accept
H3d	COM -> CAD	0.376	0.375	0.056	6.691	0.000		0.160		Accept
H3e	STR -> CAD	-0.026	-0.025	0.058	0.447	0.327		0.001		Reject
H3f	CON -> CAD	-0.026	-0.026	0.052	0.501	0.308		0.001		Reject

Note OPP: Opportunity-Recognition Competency; ORG: Organizing Competency; REL: Relationship Competency; STR: Strategic Competency; CON: Conceptual Competency; COM: Commitment Competency; FIN: Financial Capital; SOC: Social Capital; HUM: Human Capital; CAD: Competitive Advantages; SEP: Socioeconomic Performance

competency ($f^2 = 16\%$) and relationship competency ($f^2 = 5.3\%$) respectively had a medium and small effect on the competitive advantages of the MSEs. Nevertheless, conceptual competency ($\beta = -0.026$ and $p\text{-value} = 0.308$) and strategy competency ($\beta = -0.026$ and $p\text{-value} = 0.327$) both were revealed to have a negative and insignificant effect on the competitive advantages of the MSEs. Similarly, the f^2 value of conceptual and strategy competencies also were recorded to have no effect on the competitive advantages of the MSEs.

The r^2 value obtained for competitive advantages was 0.489, demonstrating a 48.9% variance, which can be explained through the lens of entrepreneurial, opportunity-recognition, relationship, organizing, conceptual, strategy and commitment competencies. Meanwhile, the Q^2 value of 0.276 was more than zero, indicating that entrepreneurial opportunity-recognition, relationship, organizing, conceptual, strategic, and commitment competencies all had sufficient and moderate predictive relevance for the competitive advantages of informal micro and small enterprises in Senegal (Hair et al. 2019).

Table 3 exhibits the mediating effects of competitive advantages on entrepreneurial competencies and the socioeconomic performance of informal micro and small enterprises. In the presence of a competitive advantage, commitment competency ($\beta = 0.094$ and $p\text{-value} = 0.000$), opportunity-recognition competency ($\beta = 0.031$ and $p\text{-value} = 0.030$), organizing competency ($\beta = 0.026$ and $p\text{-value} = 0.011$), and relationship competency ($\beta = 0.007$ and $p\text{-value} = 0.312$) all positively influenced the informal socioeconomic performance of the selected microenterprises. However, in the same presence of a competitive advantage, conceptual competency ($\beta = -0.063$ and $p\text{-value} = 0.002$) and strategic competency ($\beta = -0.006$ and $p\text{-value} = 0.331$) both were recorded to have a negative and insignificant effect on

Table 3 Mediating effects

		Beta	Mean	SD	t Values	p Values	Decision
H5a	OPP -> CAD -> SEP	0.031	0.030	0.017	1.882	0.030	Mediation
H5b	ORG -> CAD -> SEP	0.026	0.026	0.011	2.289	0.011	Mediation
H5c	REL -> CAD -> SEP	0.063	0.063	0.022	2.931	0.002	Mediation
H5d	COM -> CAD -> SEP	0.094	0.093	0.027	3.456	0.000	Mediation
H5e	STR -> CAD -> SEP	-0.006	-0.006	0.015	0.437	0.331	No Mediation
H5f	CON -> CAD -> SEP	-0.007	-0.007	0.013	0.490	0.312	No Mediation

Note OPP: Opportunity-Recognition Competency; ORG: Organizing Competency; REL: Relationship Competency; STR: Strategic Competency; CON: Conceptual Competency; COM: Commitment Competency; FIN: Financial Capital; SOC: Social Capital; HUM: Human Capital; CAD: Competitive Advantages; SEP: Socioeconomic Performance

the socioeconomic performance of the selected microenterprises. This indicates that competitive advantages did not mediate the relationship between entrepreneurial competencies (conceptual and strategic) and the socioeconomic performance of the informal MSEs. As a result, it can be concluded that competitive advantages had only partially mediated the relationship between the informal socioeconomic performance of MSEs and the entrepreneurial competencies (commitment, organizing, relationship and opportunity-recognition). In other words, both direct and indirect effects of entrepreneurial competencies were positive and significant towards the socioeconomic performance of the informal MSEs.

5 Discussions and Implications

The direct effects of entrepreneurial competencies and access to capital as well as the mediating effect of competitive advantages on the relationship between entrepreneurial competencies and the socioeconomic performance of informal micro and small enterprises were empirically examined in this study. The findings of the analysis on the study's first objective showed that entrepreneurial competences in relationship, commitment, opportunity-recognition, competitive advantages, and financial capital all had a significant positive influence on the socioeconomic performance of informal microenterprises. This result is in line with the study performed by Ibidunni et al. (2018) and Suhaimi et al. (2018) which found that entrepreneurial competencies in opportunity-recognition, relationships, and commitment had a substantial positive impact on the performance of informal women's microenterprises that they studied. Additionally, Fazal, et al. (2019) and Kabir et al. (2017) showed that entrepreneurial competencies of commitment, the ability to identify opportunities and to organize had vital and significant beneficial effects on the microenterprises' success. In the same way, Khan et al. (2020) and Yadav et al. (2018) revealed that access to financial capital had a significant and positive impact on the performance of small businesses. Nevertheless, this study had discovered that strategic competency and human capital were statistically irrelevant and negatively correlated with the MSEs' socioeconomic performance, whereas conceptual competency and social capital had a conversely positive but insignificant impact on the performance of the same type of enterprises. The most logical reason for the negative and minimal effects of strategic competency and human capital on the socioeconomic performance of microenterprises is the fact that these competencies and skills are associated with a company's long-term planning success. However, a majority of informal small firms only tend to focus on short-term planning and that their owners are generally not considered as knowledgeable and professional managers. It is important to note that the insignificant effect of human capital may however not be deemed as a totally insurmountable obstacle for the performance of informal businesses as their financial or social capitals could instead serve as a bridge or an interim alternative (Mallon et al. 2018) for them. Indeed, small businesses and start-ups in general, rarely have

all of the resources they require to remain competitive. They must cover and compensate for this particular deficiency by honing their entrepreneurial competencies and strategies or having to seek alternative ways to obtain the resources they require.

On the other hand, the findings also indicated that competitive advantages partially mediated the relationship between entrepreneurial competencies (relationship, organizing, commitment, and opportunity-recognition) and the informal microenterprises' socioeconomic performance. This finding is consistent with previous research that show that competitive advantages did had a significant mediation effect on the relationship between entrepreneurial competencies and business performance (Anwar 2018; Zainol and Al Mamun 2018; Wirda et al. 2019). This means that informal entrepreneurs ultimately have the potential to attract and satisfy a significant proportion of lower-income customers in a country like Senegal.

This research presents a significant implication for both government authorities and informal microentrepreneurs. With reference to informal microentrepreneurs, the findings send a strong message about the need to acquire a more diverse type of entrepreneurial competencies in order to gain a competitive advantage and access to financial capital that will ultimately result in the improvement of their overall socioeconomic performance. In order to ameliorate and improve their socioeconomic performance, the study has established that informal microentrepreneurs need to focus on their ability to recognize entrepreneurial opportunities, build robust and lasting relationships, and organize and engage deeply in their entrepreneurial activities. In addition, they must also concentrate on gaining a competitive advantage over their rivals and diligently seek access to financial capital as these are highly significant to the overall socioeconomic performance of informal microenterprises. Making these courses of action their top priorities will only result in the strengthening of their informal business activities. With regards to policy recommendations, this study suggests that more practical approaches for policymakers are urgently adopted, particularly across government agencies, to develop effective microentrepreneurial training courses in the areas of entrepreneurial competencies, competitive advantage strategies as well as providing access to financial capital in order to improve the socioeconomic performance of informal microenterprises.

6 Conclusions

The outcomes of the study revealed that competitive advantages had a partial mediating effect between entrepreneurial competencies and the socioeconomic performance of informal MSEs. In addition, the results also indicate that entrepreneurial competencies such as opportunity-recognition, relationship, and commitment competencies as well as financial capital and competitive advantages had a positive and significant effect on the socioeconomic performance of informal MSEs in Senegal. On the other hand, organizing and conceptual competency and social capital both showed a positive but insignificant effect on the socioeconomic performance of informal microenterprises while strategy competency and human capital indicated

both a negative and insignificant effect on the socioeconomic performance of informal microenterprises. In addition, the findings of this research lead to the expansion of the RBV theory while simultaneously improve our knowledge on the competitive advantage's mediating function in the relationship between entrepreneurial competencies and the socioeconomic performance of informal microenterprises. On top of that, this research also highlights the importance of entrepreneurial competencies and access to financial capital in enhancing the socioeconomic performance of informal MSEs in developing countries. Future studies are highly recommended to extend this research model to larger enterprises and to implement multi-method and longitudinal approaches for data collection in order to improve both the outcome and reliability of the study.

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The Demography and Business Profiles of Etak Salai Women Vendors in Kelantan, Malaysia



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Abstract Sustaining heritage foods is fraught with obstacles due to the changing of consumers' demographic landscape and modernization which have changed living styles across the globe and Malaysia is not spared from this onslaught. On the other side of the coin, as for some providers and vendors of heritage foods, they are grappling and facing inescapable issues to keep their business afloat. Notwithstanding with the close connection of women who are considered as the guardians of heritage foods, research pertaining to women vendors are often neglected, rendering them as less important than heritage foods. The same thing has been observed in Malaysia. This study surveys the demography and business profiles of Etak Salai Women Vendors in Kelantan. The findings of the survey provide valuable insights into both the demography and profiles of women entrepreneurs who run the business. Judging from the information gathered in the study, it is not exaggerated to claim this heritage food of Kelantan is here to stay as it provides a steady income to the women vendors. Financially, though, it is not much earned by them, as long as they continue the business, the said heritage food can be sustained.

Keywords Sustaining heritage foods · Women vendors · Malaysia

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1 Background of Study

Sustaining heritage foods is fraught with obstacles due to the changing of consumers' demographic landscape and modernization which have changed living styles across the globe (Zulhazman et al. 2019). These changes include eating habit, diet, preferences for fast foods, as well as craze of international cuisines amongst populace. On the other side of the coin, as for some providers and vendors of heritage foods, they are grappling and facing inescapable issues to keep their business afloat amongst others due to the difficulty in securing uninterrupted supply of raw materials, no or little interest of younger generation to continue business which is passed down from generations. With the dwindling numbers of customers, hardly to earn profit. With a plethora of issue, seemingly keeping their business afloat is almost impossible to say the least. One important aspect pertaining to heritage foods is about its long preparation and tedious cooking process which inevitably shuns away younger generation to learn and continue their forefather's heritage. This is further compounded with the lure of other 'glamour' types of business and lucrative incomes. Due to the above-mentioned issues, the very survival and sustainability of traders and vendors in heritage foods is in the precarious stage, many already threw the towels, abandoning their businesses that they inherited from their forefathers, and not a few are thinking to do so as the business could no longer give an adequate financial means to put foods on tables. All their hard efforts to preserve their heritage foods, seemingly got a lukewarm support from stakeholders.

The loss of heritage foods is not all about the loss of a business for any particular entrepreneur or any family per se but it is rather an irreplaceable loss of one's particular culture which has its far-reaching impacts. Sadly, rich and diverse heritage foods of their culture become rather homogenous, gradually disappearing, replaced by the same types of foods. When the world is alike cultures lose their distinct features. As heritage food represents one unique culture, the absence of it, means cultural lost for a nation. Hence, heritage foods must be preserved and conserved whatever it takes to do so.

In some countries, heritage foods have been proudly preserved as there originally are and, in some cases, they are given new lights or new breaths to suit with the current demands and needs from the society. By so doing, they couldn't deny the current reality, blending with contemporary needs of foods is anticipated, rendering their survival over time. One successful case is Korean heritage food-Kimchi. According to the result of a survey the Corea Image Communication Institute (CICI) based on its surveyed 280 foreigners and 344 Koreans from June 24 through July 8. Big firms (40.7%) and Kimchi (22%) represent Korean image. South Korean has brought its heritage from humble kitchen to international arena. More often than not, due to their very nature and culture of society, women play a crucial role to preserve to heritage foods. They inherited skill set of cooking from their mothers and in turn will pass down to their own daughters. While some women prepare heritage foods for family consumption, some who are entrepreneurial and enterprising earn a living by selling.

One way to conserve and preserve heritage foods to future generation is to ensure they are always available in the market. In so doing, it is paramount importance to ensure sustainability of heritage foods sellers or vendors. Kelantan is well-known as a Malay Cradle; its unique foods attract tourists to savor and taste them. One of them is smoked Etak or locally known as Etak Salai. Against the above discussion, the aim of this paper is to survey demographic and business profiles of Etak Women Vendors in Kelantan. As far as the researchers were concerned none of the such study was conducted in the past. The first-hand data gathered in this survey can provide valuable information about women vendors in the industry which deemed useful for other researchers, policy and decision makers and interested stakeholders. Over-time the data can also be a historical evident.

2 Etak Salai—The Heritage Food of Kelantan

Etak is a Malay name for an Asiatic Clam (*Corbicula* species) which thrives in sandy and/or muddy riverbeds and lake throughout South East Asia. In Kelantan, Smoked Etak or known as Etak Salai is a popular snack where it is usually consumed on its own or can be eaten as a side-dish with rice. This type of food is an exotic food, the heritage of Kelantan where it is widely sold and consumed by its folks from all walks of life. Unlike other Kelantan's heritage foods like Nasi Kerabu, Nasi Tumpang and Nasi Dagang and varieties of local cakes or kuih, Etak Salai is not in the limelight and often overlooked as the state heritage food of Kelantan despite its popularity by the locals. It does not come as a surprise as many non-Kelantanese do not know it, they only come across with this food when they set foot in the state. If one's drive around Kota Bharu and its vicinity districts ones can easily see Etak Salai stalls along roadsides. Etak Salai business provides entrepreneurship opportunities and in Kelantan, overwhelmingly, as like other micro and small business, women play an active role. They sit behind a small mound of Etak Salai, and a few cone-shape packs which in Kelantan is known as Klosong. Used newspapers are used as wrappers. While Etak Salai has its regular customers who continuously enjoy eating it, some have abstained eating it, as they perceived Etak Salai is as unsafe because it's uncooked and contained harmful bacteria. Unsurprisingly, they discourage their children from eating Etak Salai.

Since there is no historical record and past studies about this food, its origin is rather obscure. Apart from Kelantan, Etak Salai can be found in Pattani, a Malay Province is Southern Thailand. In Kelantan it is preserved because it has been passed down from one generation to another. Furthermore, since the process of Etak Salai is not complicated where the said clams are marinated with a basic blend of lemon grass, shallots and salt for about an hour before it is evenly placed on bamboo platform above medium heat of wood fire for 1 to 2 h. Its juicy-sweet and salty taste is irresistible temptation and difficult for those who consumed it to stop eating until the last drop of it. Apart from being passed-down from one generation to another, Etak Salai sustains until today due to sufficient demand from customers as well as the

presence of Etak Vendors who sell this heritage food for customers. Although one can debate customers or vendors which the most important to ensure sustainability of this tradition, this chicken and egg kind of question should be interpreted in a slightly different way. In the context of Etak Salai both customers and vendors play their own roles to preserve this heritage food, one couldn't exist without each other.

3 Literature Review

When the researchers browsing on a few academic search engine online platforms using the keywords “heritage + food + Malaysia” and “traditional + food + Malaysia” a numbers of publications surfaced pertaining to the search. They can be classified into four groups. First group and the largest of research related with tourism and tourists-both national and international. In a recent study Siti Radhiah Omar et al. (2019) investigated the effects of subjective knowledge, attitude, and satisfaction of international tourists' food cultural experience in Malaysia. Omar et al. (2015) investigated the importance of perception on Malaysian Halal and authentic heritage food and purchase intention behaviour amongst International Muslim's tourists. Ismail et al. (2016) studied perception of Malaysian chefs on effectiveness of heritage food's promotion for the star rating hotel in Klang Valley. Nabsiah (2015) explored local tourists' food expectations when bahulu (a traditional cake) was treated as a tourism product. In a further study, Siti Radhiah Omar (2014) verified the factors affecting the intentional loyalty on Malaysian heritage food consumption on international tourists. Second group of study paid attention towards customers knowledge, perception and behaviors toward heritage foods. Meanwhile, Omar et al. (2011) in their research related to sustainability of traditional food investigated consumers' perception on physical characteristics of Krupuk Lekor or fish snack. Ramli et al. (2016) empirically examined the knowledge and awareness of the food heritage from Malaysian genders' perspective in Klang Valley. In a recent study, Mohd Rafi et al. (2021) investigated consumers' consumption and buying behaviors of Etak Salai, the heritage food of Kelantan. Third group narrated ingredients and process, also heritage food packaging. Recently, Rak et al. (2021) narrated traditional processing method of Etak Salai in Kelantan. In a further study, Ismail et al. Mohd Nazri et al. (2017) studied past and present practices of the Malay heritage and culture in Malaysia. (2016) investigated the usage of modern cooking technology without compromising authenticity of heritage foods in Hotel Industry in Malaysia. Muhizam et al. (2012) investigated traditional food packaging using natural materials including bamboo, rice straw, hemp twine, paper and leaves. Ismail et al. (2016) investigated the usage of modern cooking technology where at the same time can preserve authenticity of heritage foods in Hotel Industry in Malaysia. Fourth group looks at sustainability model of heritage foods. Mohd Nazri et al. (2021), Ismail et al. (2021) and Zulhazman et al. (2019). All these studies focused on Etak Salai, the heritage food of Kelantan.

Notwithstanding with the contribution of women in heritage food as well as those actively engaged in entrepreneurship, as far as this literature review is concerned none

of such related studies in Malaysia have paid considerable and paramount concern about it. Studies about women entrepreneurship in heritage foods leave much to be desired and academic lacuna needs to be closed.

4 Method

In this study, a focus group interview with a few selected Etak Salai vendors and relevant stakeholders and a pilot study preceded sampling and fieldwork. The former was conducted in the end of 2016 and the latter was employed in the early 2017, involving 32 Etak Vendors populated districts in Kelantan—Kota Bharu, and Tumpat, Pasir and Bachok. Proportionately, these four districts where majority of population of Etak Salai vendors. The inputs from the both exercises were taken duly consideration and after further deliberations amongst the group members, the final research questionnaire was improved and refined to suit the research aim.

In total seven Graduate Research Assistants (GRAs) were used as enumerators in assisting, distributing and collecting data. Since no sampling frame of Etak Salai vendors in Kelantan, the approach of the research was non-probability sampling where there researchers and with the help of graduate assistants and under graduate students of Universiti Malaysia Kelantan who were hired as enumerators who travelled around the state and collected data from Etak Salai Vendors that came across during the field trip. Altogether, nine enumerators were used to facilitate data collection. They were divided into 3 different teams, each group which consist of two individuals was assigned to collect the data from different districts in the state. Each group was then given enough sets of questionnaires to complete in 1 months' time, the survey was conducted in the middle of 2017. Prior to the field work they attended briefing and training session which amongst others was related to scope of their task, tips during the survey and the contents of the questionnaire. During the fieldwork, the researchers closely monitored the assignment and a special WhatsApp group was created for communication. If problems arose during the fieldwork, the enumerators could text on the said social media platform to the researchers in-charge for help and opinions before suitable action could be taken to address the problem. At the same time, the process helped researchers to ensure validity and reliability of the data collected for the study.

5 Data Analyses and Discussion

All in all, 78 Etak Salai women vendors voluntarily participated in the survey. Except one Siamese vendor, the rest are Malay vendors. In terms of age, the majority of them were above 40 years old (53.8%), followed by those in age bracket between 31 to 40 years old (23.1%) and 21–30 years old (15.4%) years old. Those age less than 20 years old only less than 4 per cent. Judging from the age's distribution, majority

of them are matured individuals, supposedly to have wide experiences in life. Since almost 90 per cent of the vendors married with children (the majority had between 4 to 6 children), selling Etak Salai was their means for their children upbringing. As far as educational levels were concerned, majority of the vendors were in the category of low education, where 34.6 per cent did not have formal education and only achieved primary education and almost 60 per cent only completed their secondary level education. Regarding place of origin, women Etak Salai vendors in the study came from various districts in Kelantan, mainly from 3 districts- Pasir Puteh, Pasir Mas, Tanah Merah and Tumpat (Table 1).

When the question posed either they inherited their petty trades from their families or not, more than half (51.3%) admitted their families passed the business batons to them. The rest, less than 50 per cent (48.7%) ran their business without prior family involvement in the said business. As for the former, majority of them learned the skill in the business from their mothers and followed by mother-in laws. As for the latter, they started their business due to their own initiatives as they found this business offered them profit. Since the skill of processing Etak is not complicated enough (Rak et al. 2021) and since this food is shared by all the community and not to any particular families, it's nothing secret about its recipe so those who interested in the business can jump into the bandwagon without previous family background in the said business (Table 2).

Table 1 Demography of Etak Salai women vendors

Age in years	F	%	No. of children	F	%	Education	F	%
<20	3	3.8	0	13	16.7	Informal &	27	34.6
21–30	12	15.4	1–3	22	28.2	Primary School		
31–40	19	24.3	4–6	29	37.2	SRP/PMR/LCE	22	28.2
Above 40	42	53.8	7–9	10	12.8	SPM	23	29.5
			>10	4	5.1	Tertiary	7	7.7
Total	78	100		78	100		78	100
Race	F	%	Marital Status	F	%	District Origin	F	%
Malay	77	98.7	Single	7	9.0	Gua Musang	4	4.5
Siamese	1	1.3	Married	69	88.5	Pasir Mas	15	17.0
			Divorce	2	2.6	Tumpat	11	12.5
						Tanah Merah	15	17.0
						Rantau Panjang	2	2.3
						Bachok	8	9.1
						Machang	6	6.8
						Kuala Krai	4	4.5
						Pasir Puteh	19	21.6
						Jeli	4	4.5
Total	78	100		78	100		88	100

Table 2 Business profiles of Etak Salai women vendors

Years in business	F	%	Business nature	F	%	Inherit business	F	%
<5 years	24	32	Full-time	66	86.8	Yes	40	51.3
6–10 years	11	14.7	Part-time	10	13.2	No	38	48.7
11–15 years	9	12.0						
16–20 years	12	16.0						
More 20 years	19	25.3						
Total	75	100		76	100		78	100
Place of stall	F	%	Local source of Etak	F	%	Outside source of Etak	F	%
Road side	40	51.3	Kelantan	16	20.5	Thailand	22	28.3
Wet Market	16	20.5	Pahang	13	16.7			
Evening Market/pasar malam	12	15.4	Perak	8	10.3			
Farmer market/pasar tani	14	17.9	Terengganu	9	9.0			
Mobile	4	5.1						
Total	86	-		46	-		22	100
Stall location	F	%	Etak preparation techniques	F	%	Type of Etak sold	F	%
Gua Musang	4	4.5	Smoked/Salai	72	81.8	Traditional	27	34.6
Pasir Mas	15	17.0	Sun dry	7	8.0	Special	7	9.0
Tumpat	11	12.5	Raw	9	10.2	Spiced	44	56.4
Tanah Merah	15	17.0				Hot Spicy	9	11.5
Rantau Panjang	2	2.3				Fresh	6	7.7
Bachok	8	9.1						
Machang	6	6.8						
Kuala Krai	4	4.5						
Pasir Puteh	19	21.6						
Jeli	4	4.5						
Total	88	100		88	-		93	-
Initial capital (RM)	F	%	Daily sales (RM)	F	%	Net profit (RM)	F	%
<500	63	80.8	<100	46	59.0	<100	57	73.1
500–1500	10	12.8	100–200	12	15.4	100–200	10	12.8
>1500	5	6.4	>200	20	25.6	>200	11	14.1
Total	78	100		78	100		78	100

(continued)

Table 2 (continued)

Type of packages	F	%	Promotion	F	%	Promotional method		
Used newspaper	62	79.8	No	62	80	Banner	13	50
Paper wrapper	23	29.5	Yes	26	20	Signboard	11	42
Plastic bag	5	6.4				Facebook	6	23
						Instagram	1	3.8
						WhatApps	3	11.5
Total	90	-		78	100			

Figure 1 shows the geographical distribution of the stalls owned by the said vendors. This heritage food business concentrates along Kelantan River in the flood-plain. A heavy concentration of vendors along the river is justified as Kelantanese settle along the river and many roads in Kelantan run parallel with it. In addition, a heavy concentration is observed in Pasir Puteh, in the upstream of Semerak River. In Kelantan, harvesting Etak is still being practised by locals.



Fig. 1 Distribution of Location of Stalls Etak Salai In Kelantan

Regarding the locations of Etak Salai stalls, the majority of them preferred to locate their business at roadsides (51.3%), this is followed by an equal percentage of other places—wet market (17.9%), flea market (17.9%) and evening market (15.4%). A small percentage (5%) of vendors did not want to attach to any specific place but preferred to move from one location to another. The majority of women vendors chose roadsides because they could sell more Etak Salai. It is easy for customers to see and locate them, and convenient enough for them to buy it (Table 2).

While Kelantanese preferred Etak Salai from local clam due to its taste and its attractive physical appearance of its shell-golden yellowish in color and relatively smaller, the biggest portion of suppliers of Etak (about 70%) came from outside Kelantan, mainly from Pahang, Perak and Terengganu. About 30 per cent of suppliers were from Thailand. This finding shows rather a disproportion of the demand and supply of Etak in Kelantan due to high level consumption. Consequently, Etak needs to be bought from other states in Malaysia—Pahang, Perak and Terengganu and Thailand to fulfil the demand. As far as the researchers were concerned in the past supplies of Etak came from Kelantan River and other rivers in the state. However, due to uncontrol of sand mining activities along Kelantan river, supply of Etak is significantly dwindling as Etak natural habitat is destroyed. Another plausible reason why Etak come from outside is due to increasing demand for Etak Salai proportionately with numbers of population in the State. Knowing a significant amount of Etak Salai eaten by Kelantanese come from Thailand is another topic of interest.

As far as the analysis was concerned close to 85% women vendors in this survey run full-time business, leaving only 15 per cent on part-time basis. The data shows overwhelming majority of women vendors eke their family living from this business. Apart from steady income, Etak Salai business, like any other micro and petty traders it gives flexibility of doing business and women vendors have time to look after their children and family. Interestingly, the analysis also shows almost an equal proportions (more than 40%) of those run the business less 10 years and those who ran the business more than 15 years. An equal size of new comers and existing players in this business can be interpreted in two ways. First, it shows the market pie of Etak Salai in Kelantan is yet saturated so the market for Etak Salai is still growing, there is still a room for everybody. Second, this is not a sunset business, attracting young women to jump into this business bandwagon.

Starting Etak Salai business required a small amount of money, more than 80 per cent of women vendors spent less than RM500 as financial start-up their business. Majority of their daily revenues (59%) less than RM100, however a significant percentage, more than quarter raked RM200 above. And proportionate with small daily sales, the majority of them (73.1%) earned net profit less than RM100. Popular price for small pack was RM2 and RM5 for medium size pack. Overall, we can say, those in this business earn very little from their enterprise. “To live from hand to mouth” is the appropriate phrase to them.

As far as packaging is concerned, the majority of women vendors (close to 80%) preferred to use old newspaper for wrapping, this is followed food wrap paper (29.5%) and plastics (6.4%). The main reason of using used or recycling newspaper to wrap the food is due to no or little cost incurred by the vendors. Yet, according to a

medical expert usage of newspaper is risky and unsafe to customers because ink or carbon contains carcinogenic solvents. Ones who consumed Etak Salai which mixed with these chemicals put them at risk of getting illnesses (The Star, 27 May 2013). Perhaps, Etak Salai women vendors were unknowledgeable about it. After all, they had been in this business for many years and not stipulated by the local authority or the Department of Health of Kelantan to ban usage of recycled or used newspapers as food wrapper. For those who aware about this unhealthy practice they not only shun away of eating Etak Salai but also discourage their family and friends.

When it comes to advertisement, the majority of them (80%) did not apply any sorts of advertisement, but for those who did, majority used colorful PVC banners with printing of glossy picture of Etak Salai associated with a few attractive and informative words on it. A few resorted to social media platform where advertisement on Facebook was preferable to WhatsApp and Instagram (Table 2). Absence of paid advertisement amongst these vendors is understandable because they didn't have money to do so. After all, this food is already well-known in Kelantan and not much variation of product with one another vendor. A small percentage of them use unpaid social media advertising but the researchers had no knowledge about its effectiveness.

6 Conclusion

This survey provides valuable insights into of the demography and business profiles of Etak Salai Women Vendors in Kelantan, Malaysia. Judging from the both factors, it is not exaggerated to say this heritage food is likely to sustain, considering a significant number of young vendors in the said business. However, as other micro business ran by women entrepreneurs, not much they gained from the business, at least the business still afloat and provides a steady income for them. After all it provides job employment.

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How Social Capital Activates the Entrepreneurial Orientation of SMEs Performance in an Emerging Country in Covid-19 Pandemic



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Abstract The ability of small to medium enterprises (SMEs) to effectively carry out their business activities within and without their business social capital networks in Covid-19 pandemic in no doubt will increase their entrepreneurial orientation and performance especially in emerging countries like Ghana. The aim of this study is to investigate how social capital activates the entrepreneurial orientation (EO) of SMEs performance in an emerging country in Covid-19 pandemic. Through simple random sampling technique, data was obtained from 369 SME-owners and the analysis of the measurement and structural model performed by PLS-SEM approach. The findings demonstrated that social capital has significant effect on SMEs performance and proactiveness as well while autonomy, competitiveness, innovativeness and risk-taking though had positive effect were insignificant. The findings reveal that proactiveness had positive and significant mediating effect on social capital and SMEs performance relationship but the remaining four EO dimensions though demonstrates positive mediating effect but were not statistically significant. This study contributes to theoretical building on the role of social capital on EO and SMEs performance relationship especially in this global pandemic of Covid-19. The study focused on the need for SMEs to consider EO and social capital as pivotal to their performance based on the RBV and social capital theories with more emphasis on SMEs effective use of their internal and external resources to outperform their counterparts. The

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last section of the study further provides suggestions for SME-owners and future researchers.

Keywords Entrepreneurship · Entrepreneurial orientation · Social capital · SMEs/Firm performance · Resource base view · Emerging country · Covid-19 pandemic · Ghana

1 Introduction

Healthy and performing SMEs are vital to the development of every country and are always expected to meet their performance objective. Performance though crucial have been viewed by researchers to mean differently and in various strands of study such as entrepreneurship, business, and management research as the benefit that SME-owners and customers obtain from the firm. Based on this, performance have always been studied differently by scholars to be relative to the area of study. In management, performance is considered as performance appraisal and to SMEs, performance include the profitability, growth, market value, return on capital, value addition, customer satisfaction, leadership style and sales growth of firms (e.g. Aladejebi 2018; Mihaela 2017; Gupta and Batra 2016; Zimon 2018; Gopang et al. 2017). This, therefore, makes it difficult to arrive at a definite definition and way of measuring performance of SMEs (Combs et al. 2005; Nasip et al. 2017) and researchers at times use subjective and or objective measures to connote performance (Zaato et al. 2021).

SMEs performance can be considered the topmost priority of SME-owners decision making because of their vital role in creating more jobs, reducing of unemployment and their significant contribution of nations GDP which are usually at the informal level. It is also at these informal levels that pave way for entrepreneurial activities to take place. Regardless of SMEs immense contributions and how nations and individuals benefit from them across the world, they faced a host of performance issues especially in Ghana such as; scarce access to finance; little or no market opportunities; feeble institutional capacity, little level of technology adoption among others which at times lead to limited demand for local products and services (Ezie and Danjuma 2016; Abor and Quartey 2010; Abdullahi et al. 2016; Owusu 2019). The need for the performance of SMEs is an ongoing concern since as almost all firms in the world are SMEs making substantial contributions of over 60 per cent of informal jobs and particularly in the OECD countries (OECD 2017; Hongyun et al. 2019; Nasip et al. 2017).

More so, as was accounted by the ILO (2017), SMEs caused an increased in the employability of people from 2003 to 2016 involving 132 nations that resulted in 79 to 156 million permanent employees. However, with Covid-19 pandemic, the employment figures likely to decrease by 5.3 million to 24.7 million or more (OECD 2020). The literature indicates that about 90% of SMEs can be found in Africa and 92% of them are in Ghana having employees from 1 to 5 that contributes to the nation's economy in several ways (e.g. Abor and Quartey 2010; Adjei 2012). Although, SMEs

are crucial to the development of developed and emerging economies like Ghana to achieve their developmental goals, they easily fail out in relation to large businesses (Bloch and Bhattacharya 2016; Lo et al. 2016), and discourages many prospective entrepreneurs. Again, there is low social capital among SMEs in Ghana, and they are also not able to build good social capital networks with other businesses to meet other resource constraints compared to large businesses (Egena et al. 2014; Alimo 2015). It is evident that high social capital networks, will enable SMEs manage every business hardship that may come their way and aid more innovative products/services development, shape their decision-making processes, and have access to required resources than their competitors. This will happen as they utilise their internal and external social capital networks to create value for their customers and have influence on their performance (Moreno and Casillas 2008; Fadda 2018; Lumpkin and Dess 2006; Soininen et al. 2012). The more SMEs imbibe social capital, the more it will reflect in their entrepreneurial activities to become proactive, reduce their risk level and support innovative ideas to attain performance (Wiklund and Shepherd 2005; Chen et al. 2007).

Continuous changes in globalization and especially this current Corona virus pandemic with several unpredictable changes to businesses and lives require firm owners, managers, and people in political spheres of life to be more creative, innovative and critical to SME-owners to turn the crisis into business prospects (Elali 2021). This further require SMEs that have high social capital and the ability to network rather than simply competing their opponents (Hongyun et al. 2019), in view of that, SMEs that embrace social capital (SC) as a vital resource become more entrepreneurial oriented and can achieve their performance targets much faster and better than their competitors. For SMEs to attain performance, financial capital and human capital are not the only resources instead, they need to develop and incorporate more acceptable forms of social capital into their business activities (Tundui and Tundui 2013). This shows that with social capital, SMEs will be able to access requisite resources from within and outside their SC networks that will inure to their advantage and boost performance. The social capital (SC) theory compared to the resource-based view (RBV) theory provide SMEs the knack to use their rare and valuable resources that may be difficult for their competitors to copy and make substitute (Barney 1991), helps SMEs to use the resources that are within and outside their social capital networks to augment their performance (Brush and Chaganti 1999). High level of SC by SMEs will make them more EO of SMEs better and is vital for entrepreneurial activities to take place.

Similarly, entrepreneurship may be considered as a socio-economic activity that depends on social context and entrepreneurs emerged from social environments and the presence or otherwise of social capital will adversely obstruct SMEs performance as they seek to meet their resource and performance needs (Anderson and Miller 2003; Kanini and Muathe 2019). Some studies revealed that SMEs with high SC enhances their EO and performance than their counterparts with low level of SC (Acheampong et al. 2018; Barr 2000; Boohene et al. 2019; Chirico and Salvato 2008), though some studies had varied results of SC on the EO of SMEs (e.g. Rowley et al.

2000; Lee et al. 2001) and other studies also treated SC and EO separately (Quinetta and Williamson 2012; Uzzi and Lancaster 2003; Hongyun et al. 2019).

The issue of EO however, is made of various viewpoints thus, the three construct or uni-dimensional and five or multi-dimensional views of Miller (1983) and supported by Covin and Slevin (1986, 1989) which involves innovativeness, proactiveness, and risk-taking and Lumpkin and Dess (1996) five model made of innovativeness, proactiveness, risk-taking, competitive aggressiveness and autonomy. Some scholars have also used one or two constructs to connote EO with varied empirical results on how EO influence SMEs performance, with several prior studies based on the uni-dimensional view of EO on SMEs performance (Rezaei and Ortt 2018; Rauch et al. 2009).

Several studies have indicated that more studies are required on EO either as a mediator or with other variables acting as mediators or mediators of EO and SMEs performance like social capital and SMEs performance relationship particularly using the five dimensions of EO (e.g. Lumpkin and Dess 2001; Wiklund and Shepherd 2005; Arshad et al. 2018; Ibrahim and Abu 2020). This makes it imperative to conduct this current study with EO as a mediating variable that will provide more meaning to the ongoing discussion on SMEs performance. As a result, this study examined how social capital may enhance the entrepreneurial orientation of SMEs performance in an emerging country amid Covid-19 crisis which may have effect on the SC and EO of SMEs.

2 Literature Review

2.1 Theoretical Foundations

2.1.1 Resource Base View (RBV) Theory

The aim of the RBV is to encourage firms to maximize their unique internal resources that will place them at a better advantage over their competitors and is applicable to all fields including entrepreneurship and strategic management (Barney 1991). Emphasises in this study on the use of the RBV is that SMEs should focus on their resources or competences seen as valuable, inimitable, rare or difficult for competitors to find, and well organized to enable SMEs achieve the intended value from those resources. The RBV theory encouraged SMEs to be competitive within and outside their local business environments, shift their focus from external resources but to rather concentrate more and take advantage of their internal resources (Otolá et al. 2013). For SMEs to always strive to be ahead of their competitors, lead the market rather than been reactive, confront their competitors aggressively in doing business that will enhance their performance, then the concept of RBV plays a major role. The RBV has gained much interest in entrepreneurship management since SMEs that adopts RBV together with their unique capabilities that include their material and

non-material resources like, skills and learning prowess will be able to distinguish them from their counterparts, and enhance their performance, since the resources of a firm are considered as the assets and capabilities as well as firms ability to combine resources in carrying out business activities (Brush and Chaganti 1999; Agyapong et al. 2016; Angulo-Ruiz et al. 2018; Roostika 2019).

The RBV is therefore related with EO, since EO is a strategic capability and resource of SMEs and when utilised well, it will influence their performance (Pratono and Mahmood 2015). These resources are what RBV theory consider as capabilities that are unique, valuable, and rare that cannot be copied or substituted within an organisation that serve as their basis for a sustainable competitive advantage in terms of SMEs performance.

Furthermore, SMEs scarce and valuable resources are those resources that help to reduce the external threats as they position themselves to exploit the external opportunities around them to have competitive advantage against their competitors and prevent their competitors from imitating and replacing their resources (Barney and Hesterly 2012; Kozlenkova et al. 2014). This study expects that SMEs are constantly alert for alternate resources and capabilities that will put them far ahead of their competitors rather than reacting to or imitating other businesses and be ahead in terms of competition. The use of the RBV theory in this study further stressed the need for SMEs to expand their resource capabilities which EO is part and with the proper use of their SC networks, they will be able to make maximum use of their internal and external resources to attain competitive advantage especially in turbulent business terrains like this Covid-19 pandemic to their benefit.

2.1.2 Social Capital Theory

Historically, scholars admit that social capital theory has been used for several studies such as family, community life, government and non-governmental organizations, performance of firms, entrepreneurship and business management and in other similar studies (e.g. Bourdieu 1977; Coleman 1990; Granovetter 1995; Putnam 2000), and has been considered to be centred on trust relationship, friendship and mutual understanding. Social capital theory can be defined as the resources that subsist within social relationships that when utilised well will lead to the benefit of the parties involved in the relationship thus, either individuals or businesses.

In this study however, SC theory is believed to be specifically applicable to SMEs, concentrating on the trust relationships that exist within and outside them, since that will help SME-owners with good social capital networks to have access to new opportunities, increases their rate of turnover and improve upon their performance (Gedajlovic et al. 2013; Adler and Kwon 2002). Again, SC helps SMEs to reduce the cost of doing business through proper utilization of their SC networks to have access to and sharing of vital information (Bolino et al. 2002; Light and Dana 2013), and boost the entrepreneurial nature of SMEs (Anderson and Miller 2003; Taylor et al. 2004; Doh and Zolnik 2011; Al Mamun et al. 2016).

In summary, RBV and social capital theories are considered more suitable to achieve the aim of this current study as SMEs need to imbibe SC as a resource into their businesses which will enhance their EO leading to improved and sustained performance in accessing and acquiring of resources that are within and outside their social capital networks. The awareness and use of these vital resources will also help SMEs in an emerging country to have access to more resources and strengthen their social capital networks based on trust relationships to beef up their performance.

2.2 SMEs Performance

Performance of SMEs although, is very important to every firm owner, the debate continues about the best definition and way of measuring performance since it means differently not only in business and managerial studies but also varies in terms of measurement on how SMEs achieve their performance standards. According to Wu (2009), performance is the maximum benefit that owners and customers get from the firm. Or, performance is the reward that owners get from the firm while other researchers have defined performance to mean how SMEs achieve their interest in business than their competitors, how efficient and effective SMEs are in achieving their performance goals and some authors have also used business performance measurement criteria, namely, how reliable the firm owner is, quality of products and services, product/service cost, and how flexible the firm is in carrying out its activities (Gathungu et al. 2014; Atalay et al. 2013; Kombo et al. 2015).

In other related studies, performance has been measured solely based on financial or non-financial while to SME-owners, performance is at times measured based on its profit level, the sales and advancement level, the firms share in the market, return on investments, how they are meeting customer's needs, as well as its leadership style (e.g. Mihaela 2017; Gupta and Batra 2016; Zimon 2018; Anggadwita and Mustafid 2014; Wiklund 1999; Gopang et al. 2017). This has paved way for most researchers to define and measure performance relative to the business and many researchers are encouraged to use the multidimensional approach of combining the various factors that relate to the performance of SMEs (Zimon 2018; Anggadwita and Mustafid 2014). This study therefore adopted objective and subjective measures deemed appropriate on SMEs performance such as sales level, level of profit, number of employees, turn over, growth in market share, customer satisfaction and retention in line with past studies (Dess et al. 1997; Covin and Wales 2012).

2.3 Social Capital and SMEs Performance

Social capital (SC) is said to have originated from sociology with varied meanings in sociology, politics, and entrepreneurship on how it enhances the EO of SMEs (Alguezaui and Filieri 2010; Salehuddin 2009). SC can be regarded as the way

SMEs can take advantage of the existing resources that are found exclusively in and without their SC networks based on their trust relationship (Fukuyama 1995; Nahapiet and Ghoshal 1998). Nasip et al. (2017, p. 382) viewed SC to consist of ‘norms, values, orientations, networks, and social relations that guide groups and individual on how they should live and interact among themselves’. In as much as SC is within businesses, not many of them maximize SC to enhance their entrepreneurial actions and their performance. Again, the use of SC also differs from one society and country to the other as well as business level to another (Rutten et al. 2010).

Despite the diverse definitions of SC, it has proved to contribute immeasurably to the performance of firms that realise it as vital resource to their entrepreneurial activities. With SC, SMEs will have free channels of communication, build relationships with various kinds of people and business partners as well as reputable people in either public or private institutions like politicians, and with financial and non-financial institutions within or outside their firm’s SC networks and will enhance their performance (Franco et al. 2016; Jordan 2015). This can be achieved based on the trust relationships of SMEs/firms; hence this study discussed the effect of SC on SMEs performance based on trust relationships.

2.3.1 The Relationship Between Social Capital and SMEs Performance

Some studies believed that social capital influenced SMEs performance differently and may be because of the type of business, level of growth, location among other factors that may determine how social capital influenced the performance of SMEs (Pratono and Mahmood 2014; Chen et al. 2007). Accordingly, SC may be dubbed as “the sum total of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit” (Rodrigo-Alarcón et al. 2018, p. 9). Similarly, a study by Lins et al. (2017) on trust relations in social capital and SMEs performance in the 2008–2009 financial crunch, showed that the social capital of SMEs can sometimes be regarded as an insurance for SMEs and other stakeholders even in trying and difficult moments like this Covid-19 pandemic for assistance. Likewise, social capital networks may assist SME-owners to identify other business offers and also make judicious use of infrequent resources through the allocating of resources to their fellow business members within similar SC networks (Davidsson and Honig 2003).

Social capital has been perceived by some researchers to be an important resource that boost SMEs performance and allow them to take advantage over their competitors and may be regarded as vital alternative source of or form basis for starting new businesses faster than others (Elfring and Hulsink 2003; Adler and Kwon 2002; Manev et al. 2005; Shane and Venkataraman 2000). This is apparent that proper use of SC will give SME-owners the opportunity to have sustained network relationship with their customers and suppliers in terms of mobilizing of resource and plays an important role on performance (Davidsson and Honig 2003).

Some prior studies demonstrates that with high level and use of SC by SMEs, they are more likely to obtain new competencies and apply their EO well to enhance

their performance (e.g. Zheng 2010; Boso et al. 2013; Daud and Yusoff 2010; Carey et al. 2011), and have high influence on involvement with formal and informal SC networks than those that only concentrate on their informal networks (Saha and Banerjee 2015). Though, SC helped to explain the EO and performance of SMEs, it may at times have negative effect on SMEs performance under unstable business environments (Pratono and Mahmood 2014), and the cost of creating and maintaining SC networks may also have negative influence on performance. Again, an extensive start-up' devotion of time and other resources toward creating and strengthening SC networks may lead to poor performance (Alguezaui and Filieri 2010; Pirola and Presutti 2010). The study of Ahmadi (2011) also revealed that the more SMEs are involved in SC, the more it may have undesirable result on their performance. With the above discussion on SC, the study assumes SC will provide a positive and significant impact on SMEs performance and posits that:

Hypothesis 1: Social capital has a positive effect on SMEs performance.

2.4 Entrepreneurial Orientation and SMEs Performance

Entrepreneurial orientation (EO) is a construct that has an enormous importance on the performance of SMEs/firms in the field of entrepreneurship and business management. It has also been widely acknowledged by scholars of entrepreneurship and management as the appropriate way of describing and measuring the entrepreneurial actions of SMES (Wiklund et al. 2009; Morris et al. 2008; Kreiser et al. 2002). According to Miller (1983) EO means the level of innovativeness, risk-taking, and proactiveness of SMEs in their attempt to introduce new products and services or businesses, and to Lumpkin and Dess's (1996), EO is defined in terms of SMEs competitive aggressiveness, and autonomy in addition to Miller's three constructs of EO thus, innovativeness, proactiveness, and risk taking which are needed by SMEs in their entrepreneurial activities. According to Moreno and Cassilas' (2008:508) EO is referred to as "the organisational decision-making proclivity favouring entrepreneurial activities." Yusof et al. (2007) also defined EO as "the set of psychological traits of SME-owners, values, attributes, and attitudes strongly associated with a motivation to engage in entrepreneurial activities", while Zahra et al. (2006) considered EO to include the procedures SMEs engage themselves when making strategic business decisions. These varied views in defining EO existed since the official launch of EO by Miller (1983) and varies from one discipline to the other in which EO is applied.

Entrepreneurial orientation is at the heart of our understanding of entrepreneurship and SMEs performance where prior studies suggest that EO connotes the strategic nature of SMEs and is essential for undertaking any business procedures and entrepreneurial activities that will enable SMEs to create value to customers as they undertake entrepreneurial ventures (e.g. Wales et al. 2013; Lumpkin and Dess 1996; Piirala 2012; Wales et al. 2011; Rauch et al. 2009). In relating EO to the performance of firms, a great number of studies proved that EO has a positive and

significant influence on SMEs performance and at different environments, stage of development of businesses and the industry of the business (Pett and Wolff 2010; Covin and Slevin 1989; Fadda 2018), and influenced the performance of new and existing SMEs throughout the world (Kraus et al. 2018; Sok et al. 2017; Lumpkin and Dess 2006).

In addition, other studies revealed that the higher the EO of SMEs, the better their ability to take advantage of business opportunities faster than their competitors and enhance their performance (Lumpkin and Dess 1996; Covin and Slevin 1991; Mahmoud 2011; Palmer et al. 2019). Nevertheless, two views emerged regarding EO thus, the composite led by Miller 1983 and Covin and Slevin (1989) which argued that EO represents three dimensions thus proactiveness, innovativeness, and risk-taking and the multidimensional viewpoint of Lumpkin and Dess (1996) who added competitive aggressiveness and autonomy to bring the list to five. From the perspective of Lumpkin and Dess, EO dimensions should be treated separately. The extant literature has revealed that Miller and Coven and Slevin (1989) viewpoint of EO has received huge attention by researchers specifically in developed countries (Lumpkin and Dess 2001; Covin et al. 2006; Robinson and Stubberud 2014; Rezaei and Ortt 2018) with less studies focused on the multidimensional concept of EO in Africa and emerging economies (Rauch et al. 2009; Hongyun et al. 2019). This among others is a research gap that this study seeks to fill on SMEs performance using the five dimensions of EO.

2.4.1 Innovativeness in SMEs

Innovativeness can be defined as the readiness of SMEs to embark upon value addition to existing products and services, embrace the use of technology and are also actively involved in developing new products and services. Innovativeness has been considered as one of the major constructs of SMEs that seeks to grow, by acquiring new skills and resources for their growth and survival and some prior studies have attributed innovativeness to have significant effect and is also a vital forecaster of SMEs performance (Rhee et al. 2010; Ndubisi and Iftikhar 2012; Choi and Williams 2016; Nasip et al. 2017). As SMEs adopt innovativeness, they will also not be scared of taking calculated risk to implement their innovative actions, a unique feature of entrepreneurship and influence performance. This study, therefore, suggest that:

H2a: Innovativeness has a positive consequence on SMEs performance.

2.4.2 Risk-Taking by SMEs

Risk-taking can be regarded as the commitment of SMEs in undertaking risk while launching into a new or an already existing business and by also committing the essential resources without been afraid of taking risk to carry out any venture. The business environment is full of uncertainties and owners of SMEs or their managers are daily expected to make wise decisions which makes risk-taking an integral aspect

of entrepreneurial actions with no known returns (Morris et al. 2008; Walter et al. 2006; Lyon et al. 2000). Risk-taking is an important element of EO and is at times considered as basis to measure the level of entrepreneurship of SMEs in terms of their penchant to making new entry into markets through the use of new technological tools (Lumpkin and Dess 1996; Piirala 2012; Dess and Lumpkin 2005). In addition, SMEs that possess high risk-taking ability are able to achieve high performance than SMEs with low level or are afraid of taking risk (Kreiser et al. 2002; Otieno et al. 2012). The idea of risk-taking by SMEs agrees with the belief that SMEs that are engaged in taking risk can easily attain high growth and meet their performance targets than those that are scared of risk-taking (Yang 2008; Wang and Poutziouris 2010; Ahimbisibwe and Abaho 2013). Therefore, this study, envisions risk-taking to influence SMEs performance and hypothesised that.

H2b: Risk-taking has a positive influence on SMEs performance.

2.4.3 Proactiveness of SMEs

Proactiveness can be defined as the propensity of SMEs to make appropriate efforts to become a leader by taking actions that are not common to their competitors in business rather than just reacting to the initiatives of other businesses as they meet customers' needs (Miller 1983). Proactiveness or the need for firms to be more agile especially in this Covid-19 pandemic may enable SMEs to garner opportunities through inquiries and are forward lookers to be ahead of their competitors in coming up with new products/services that is required to perform well under any business terrain (Elali 2021; Lumpkin and Dess 2001; Ndubisi and Iftikhar 2012). This shows that proactiveness is cardinal to entrepreneurs or SMEs entrepreneurial actions since initiative taking is important for SMEs to introduce new products and/or services towards meeting changing customer needs (Schumpeter 1934). The proactive nature of SMEs can make them market champions to come out with new products and services uncommon of their competitors. Therefore, the study proposed that:

H2c: There is a positive effect of proactiveness on SMEs performance.

2.4.4 Competitive Aggressiveness in SMEs

Competitive aggressiveness of SMEs is their readiness to challenge their competitors intensely and directly as they quickly respond to them and make advances to thwart their efforts (Lumpkin and Dess 2001). Past studies demonstrated that competitive aggressiveness in SMEs connotes their ability to “beat their competitors to the punch” and is a characteristic required from all businesses (Lumpkin and Dess 1996:139; Lumpkin and Dess 2001; Chen and Hambrick 1995). This suggests that SMEs competitive aggressiveness proved to be a characteristic that they can use to compete well in the market and aid them to easily overtake them. SMEs with rapid response to competitive aggressiveness with other entrepreneurial actions have better chances of surviving in any form of competitiveness with their rivals and promote

SMEs performance (Shan et al. 2016). This study expects high level of competitiveness by Ghanaian entrepreneurs as they adopt actions to counteract their competitors' initiatives in launching new products and services. As a result, it has been posited:

H2d: Competitiveness aggressiveness has a positive effect on SMEs performance.

2.4.5 Autonomy in SMEs to Business

Characteristics of autonomy relate to the ability to independently develop the business. Autonomy in SMEs can also mean how SMEs allow individuals to execute and authenticate business ideas to the benefit of the firm (Lumpkin et al. 2009). Studies revealed autonomy help to promote entrepreneurial behaviour as it boosts idea generation and has positive and significant influence regarding SMEs performance (Lumpkin and Dess 1996; Awang et al. 2009; Duru et al. 2018; Omisakin et al. 2016), though other studies like Casillas et al. (2010) and Hughes and Morgan (2007) had reported mixed results. Again, autonomy in SMEs provide the opportunity for all members in the firm towards achieving the firm's objective through their own imagination and ingenuity and with the full support of the firm owner (Arshad et al. 2014; Coulthard 2007). This makes autonomy to become an essential feature of EO and SMEs performance since it recommends novel ideas that may lead to the development of new products and or services within firms. Therefore, this study posed the following hypothesis that:

H2e: Autonomy has a positive effect on SMEs performance.

2.5 The Mediating Effect of EO on the Relationship Between Social Capital and SMEs Performance

The effect of social capital on SMEs entrepreneurial orientation and performance relationship is an ongoing examination where some studies revealed that SC helped to explain the EO of SMEs (e.g., Zheng 2010; Boso et al. 2013; Saha and Banerjee 2015; Pratono and Mahmood 2014), and is substantial for EO and SMEs performance relationship (Huang 2016; Jordan 2015). The presence of a mediator is meant to further explain the indirect effect of another variable on the relationship between independent and the dependent variable (MacKinnon and Fairchild 2009). This study seeks to determine the mediating effect of EO on the relationship between social capital and SMEs performance, which is part of theoretical contribution to the body of knowledge on the factors that enhance SMEs performance relationship using the five (5) dimensions of EO as explained below.

2.5.1 The Mediating Effect of Innovativeness on Social Capital and SMEs Performance

Traditionally, it is believed that firms that imbibe innovative spirit will have enormous resources and capabilities to their advantage, respond to market demands, skills acquisition and come up with new products or services to satisfy their customers' as they compete with them and are also capable of handling any volatile market situations (Tsao and Chen 2012; Acar and Özşahin 2018; Choi and Williams 2016). Again, high EO among SMEs make them more innovative as they use their SC well, they become more creative and innovative in carrying out their business activities (Zahra and George 2002). Also, SC is believed to facilitate innovativeness and SMEs performance (Wu et al. 2008). This indicates that, higher level of SC have significant outcome on SMEs innovativeness in their entrepreneurial activities as it offers open-mindedness to embrace new ideas and work with other firm members to achieve their objective (Hsieh and Tsai 2007; Lavado et al. 2010; Subramaniam and Youndt 2005).

Furthermore, some past studies also revealed that SC explained or mediates the growth and innovativeness of SMEs performance and enhances the innovative capabilities of SME-owners to inspire their staff into more innovative actions that will make SC have a significant effect regarding EO and the performance of SMEs (Maurer et al. 2011; Farsi et al. 2013) and hypothesised that:

H3a: Innovativeness positively mediates social capital and SMEs performance.

2.5.2 The Mediating Effect of Risk-Taking on Social Capital and SMEs Performance

The risk-taking of SMEs is often referred to SMEs/firms that enter unknown ventures. Thus, apart from entrepreneurs loosing or risking with their lives and money which constitute social risk as they execute their business ideas (Gasse et al. 1982; Lumpkin and Dess 1996). SME-owners are sometimes regarded as not risk averse and are involved in taking of risk since their firms are less structured thus, making them operate under high level of risk with little survival options (Owoseni and Adeyeye 2012). This means that through the use of SC, SMEs are able to take calculated risk through their SC networks before investing their resources into projects they may not be sure of any immediate reward, and also venture into markets that their competitors are not aware of because of their risk-taking capability using their SC networks to leverage resources as well as gain more insight before carrying out any venture that their counterparts may shun and has influence on SMEs performance. In line with the discussion, this study posits that there is a mediating effect of risk-taking on the relationship between SC and SMEs performance with the hypothesis that:

H3b: Risk-taking positively mediates Social capital and SMEs performance.

2.5.3 The Mediating Effect of Proactiveness on Social Capital and SMEs Performance

According to prior studies of Chen et al. (2007) and Dai et al. (2015), social capital plays a vital role on proactiveness and performance of SMEs since SC will make SMEs more committed to proactive ventures to be able to forecast their prospective customers' needs and gather the necessary resources that will be enough to cater for their market demands quicker compared to their rivals (Lumpkin and Dess 1996). This means that SMEs that invest in broadening their social capital networks, it goes a long way to make them apply their EO like proactiveness can quickly and easily identify business prospects based on their SC networks to promptly meet their customers' needs (Yudha 2019). Additionally, SMEs that have high level of SC networks can influence policy makers and obtain the necessary support for the advancement of their entrepreneurial activities, lead the market in which they operate, and integrate the use of technology before their competitors (Tang et al. 2014; Hao and Song 2016).

In view of that, the social capital of SMEs serve as a suitable means of sharing important messages and resources within and outside the social capital networks of SMEs and make them more proactive and innovative in terms of acquiring resource and serving customers' needs as well as attaining their performance goals (Luo 2003; Walter et al. 2006). Another aspect that will make SMEs more proactive with the use of social capital is the free sharing of vital information and exchange of ideas regarding the use of technology, and other resources that their competitors do not know (Walter et al. 2006; Rajenn 2016). Therefore, this study, predicts that proactiveness mediates SC and SMEs performance in Ghana and hypothesis that:

H3c: Proactiveness positively mediates Social capital and SMEs performance.

2.5.4 The Mediating Effect of Competitiveness on Social Capital and SMEs Performance

With regards to how competitive aggressiveness mediate the association between social capital and SMEs performance, some studies agreed that SC enhances the competitive aggressiveness of SMEs performance with a positive effect between SC and competitive aggressiveness of SMEs performance (Mason et al. 2015; Le Roux and Bengesi 2014; Lyon et al. 2000; Justine et al. 2005). Again, with SC based on trust relationship, there will be free sharing of vision among stakeholders, which will help SMEs to be able to obtain resources, and other forms of assistance they hitherto had no access. The easy access to resources and information through SC will make them more competitive than before (Saha and Banerjee 2015). Nonetheless, other studies disagreed with SC having any positive and significant consequence on competitive aggressiveness and SMEs performance (Casillas et al. 2010; Qamariah and Muchtar 2019). This study, therefore, hypothesised that:

H3d: Competitive Aggressiveness positively mediates Social capital and SMEs performance.

2.5.5 The Mediating Effect of Autonomy on Social Capital and SMEs Performance

Despite the enormous role of social capital in elucidating the EO of SMEs, there is however, little empirical studies that explored or examined the mediating effect or the role of SC in explaining the autonomy and SMEs performance. Available studies of Chen et al. (2007), Prato and Mahmood (2014) and Liu and Lee (2015) however, revealed that SC has positive and significant influence on the autonomy of SMEs performance and that the effect of SC on the EO of SMEs can be attributed to several reasons and factors. Among some of the justifications that accounted for discrepancies on the effect of social capital on the EO dimensions like autonomy includes, the type and level of growth as well as geographical location of the business to act in autonomy and make use of social capital networks which paved way for further studies like this study in other countries and sectors of the economy.

Again, Cooke (2007) proved that there is a positive and significant effect of social capital on SMEs autonomy and on their performance. This is because, social capital is based on the resources that exist within and without SMEs SC networks and when used aptly, will enhance SMEs ability to launch other ventures as they seek to work towards a common goal and motivate them to operate in autonomy as they discover other business ventures using those social capital networks. In that regard, autonomy is envisaged to have positive mediating impact on social capital and SMEs performance in an emerging country like Ghana and therefore, posited that:

H3e: Autonomy positively mediates Social capital and SMEs performance.

3 Methodology

As an explanatory study, quantitative research design was used to assess how social capital activate EO and SMEs performance using survey questionnaire. SME-owners from the services and manufacturing sector were the respondents whose statistics was extracted from the GSS (2016) report of SMEs of Ghana, an institution mandated to conduct census of businesses. The researcher then accessed the SMEs through the help of the National Board for Small Scale Industries (NBSSIs) offices in Ghana working towards the development of SMEs.

3.1 Sample Selection

The researcher determined the sample size of the study using G-Power version 3.1 software together with Krejcie and Morgan (1970) formula for determining the required number of respondents. The parameters designed to arrive at the sample size are the power of 0.95, confidence level or an error probability of 0.05 and 0.15 as the

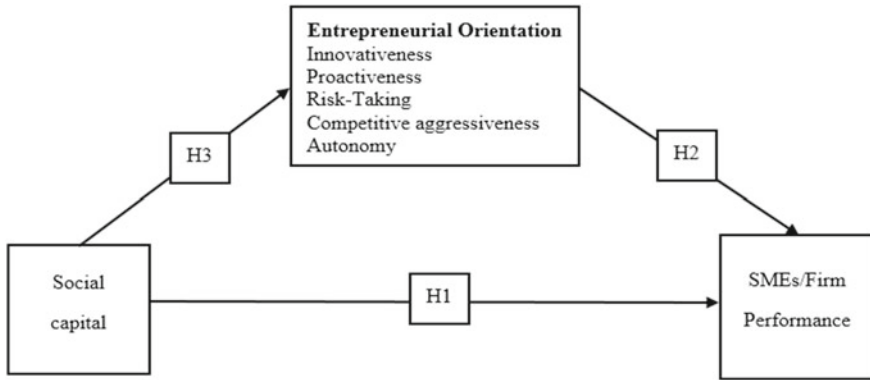


Fig. 1 Research model

medium effect size before finally inputting the number of predictor variables or the independent variables. This study used six (6) predictors for the outcome thus performance and finally obtained an effective sample size of 181 which is deemed adequate for sample size using the PLS- SEM. Nevertheless, as suggested by Lengnick-Hall et al. (2011) that to choose a sample size while using the PLS-SEM, the sample size should not be less than 10 times that of the paths in the SEM model hence, the need to further adopt Krejcie and Morgan (1970) method which yielded a sample size of 380 out of the 23,988 registered SMEs chosen from the services and manufacturing sector of Ghana representative enough to obtain relevant data from the SMEs owners. To achieve a high response rate, 500 questionnaires were distributed to the SME-owners out of that, 369 questionnaires were retrieved and considered suitable for this study representing 73.8% response rate and the data was analysed using the PLS-SEM software version 3.2.9 with the hypothesis tested and exemplified as follows (Fig. 1).

3.2 Research Instrument

The research instruments or questionnaire for this study was designed in the English language and were answered by SME-owners or their key staffs. The questions were designed in simple language using words that respondents can easily understand in answering the questions. The questionnaire items were adapted from previous studies with slight changes for their suitability and applicability in the study area. The adapted items for all the five (5) entrepreneurial orientation dimensions were from Oni et al. (2019), Shu et al. (2019), Cao et al. (2015), Nasip et al. (2017) and Alvarez-Torres et al. (2019), while the items for social capital were obtained from Rodrigo-Alarcón et al. (2018), Lee et al. (2019), Okello (2017), and Cai et al. (2010) and the items that measured SMEs performance came from Oni et al. (2019), Sidik (2012) and Nasip et al. (2017) studies.

3.3 Common Method Variance

Though several methods abound used in detecting and reducing the presence and effect of common method variance (CMV), the researcher ensured that the unit of analysis of this study, namely, SME-owners were made aware of issues relating to their confidentiality stressing the need for them to be candid and use their own discretion in answering the questionnaires. Respondents were also made aware that in this study, there were no correct or wrong answers to the stated questions but rather questions that is interested in their express views regarding what pertains in their firms (Podsakoff et al. 2003). Again, this was further stated in the statement of consent that sought for the willingness of respondents to participate in providing answers to the questionnaire.

More so, the researchers used Harman's one-factor test to further detect the effect of Common Method Variance, which falls within the acceptable CMV which Fuller et al. (2016) reiterated that reliability of data becomes an issue when the presence of CMV is up to 70% or more before a considerable concern inflated relationships would arise. This study CMV is 40% which is less than the alarming 70% unacceptable presence of variance and proved that the effect of CMV in this study was of less effect.

3.4 Multivariate Normality

Regarding the multivariate normality of this study, online Web Power was used to evaluate the presence of multivariate normality as reported by Peng and Lai (2012). Again, the multivariate Mardia tool was also used to compute for the skewedness and kurtosis coefficients which Cain et al. (2017) suggested that where the p-values of the constructs are less than the minimum threshold of 0.05, it signified that there were non-normality issues with the data. This is however not a major concern of this study since the use of the PLS-SEM allowed the use of non-normal data.

3.5 Data Analysis Method

This study data has been analysed using the PLS-SEM software version 3.2.9. The PLS-SEM accordingly is required establishing relationship between independent and dependent variables, explanatory and descriptive studies, variance structure analysis, and studies that require model path analysis. The PLS-SEM software is also appropriate to analyse normal and non-normal as well as small data in any given study (Hair et al. 2019). After the analysis of data, the following have been described under this study thus, the variables, indicator loadings, internal consistency and reliability

studies which involved Cronbach's alpha, DG-rho, composite reliability, convergent validity with average variance extracted (AVE), cross loadings, effect size (f^2), path coefficient estimates, and the predictive relevance (Q^2) of the study. Finally, a discussion was done on the results in line with existing literature and inferences for SME-owners, policy makers and academia highlighting the important role social capital play in activating the entrepreneurial orientation and performance of SMEs.

4 Analysis of Results

4.1 Descriptive Statistics

The results obtained regarding the respondents and their business information as illustrated by Table 1 proved that there were more males (55.3%) than Females (44.7%), with their age group in years ranging from 29 or less (7.3%), 30 to 39 (42.3%), 40 to 49 (39.0%), and 50 or more (11.4%). In terms of respondent's highest level of education, JHS or less recorded (25.5%), SHS or O/A level (32.5%), Diploma (13.3%), Undergraduate (23.0%), Masters (5.7%), and none of the SME-owners obtained a PhD. Again, as noted in Table 1 on the firm age, majority of the SMEs were 6 to 10 years (36.6%), 11 to 15 years (26.6%), 16 years or more (21.4%), and 5 years or less made of (15.4%). Concerning the number of staffs employed by SMEs, 71.0% employed 6 to 29 staffs while 29.0% had 30 to 99 employees. In relation to the management experience of SME-owners 5 years or less (21.1%), 6 to 10 years (37.4%), 11 to 15 years (22.5%), and 16 years or more (19.0%). The SME-owners with past work experience for those with 'Yes' response (65.9%) and 'No' of (34.1%) and on the reasons for quitting their first work, the responses are as follows; Closed down (22.2%), Operating (27.6%), 'To set up my own' (20.3%), Merger (4.3%), and those with Other reasons were (25.5%).

4.2 Validity and Reliability

The reliability of this study was achieved using the PLS model which attained the acceptable values of Cronbach's Alpha, Composite Reliability, Dillon-Goldstein rho (DG rho), Average Variance Extracted (AVE) and the Variance Inflation Factors (VIFs). Table 2 below demonstrates that the Cronbach's Alpha, AVA, and CR values for each of the constructs exceeded 0.60, 0.50, and 0.70 which are the minimum satisfactory values (Hair et al. 2012; Henseler and Chin 2010). Again, the DG rho for each of the constructs was above 0.80 and indication that all the items were reliable (Hair et al. 2016). The results obtained on the validity and reliability signified that the study constructs had satisfied both reliability and convergent validity requirements. Finally, the variance inflation factors (VIF) of each of the variable items used for this

Table 1 Respondents biodata

Variable	N	%	Variable	N	%
Gender			Age Group in Years		
Male	204	55.3	29 or below	27	7.3
Female	165	44.7	30 to 39	156	42.3
Total	369	100.0	40 to 49	144	39.0
			50 and above	42	11.4
			Total	369	100.0
Highest Level of Education			Firm Age		
JHS or less	94	25.5	5 years or less	57	15.4
SHS or O/A level	120	32.5	6 to 10 years	135	36.6
Diploma	49	13.3	11 to 15 years	98	26.6
Undergraduate	85	23.0	16 years or more	79	21.4
Masters	21	5.7	Total	369	100.0
PhD	–	–			
Total	369	100.0			
Number of Employees			Management Experience		
6 to 29 employees	262	71.0	5 years or less	78	21.1
30 to 99 employees	107	29.0	6 to 10 years	138	37.4
Total	369	100.0	11 to 15 years	83	22.5
			16 years or more	70	19.0
			Total	369	100.0
Prior Work Experience			Reasons for quitting First Work		
Yes	243	65.9	Closed down	82	22.2
No	126	34.1	Operating	102	27.6
Total	369	100.0	To set up my own	75	20.3
			Merger	16	4.3
			Others	94	25.5
			Total	369	100.0

study were lower than the generally acceptable maximum value of 5 as posited by Hair et al. (2014), which proved that there were no multi-collinearity issues of this study.

The discriminant validity for all the cross-loading values of the constructs exceeded the minimum acceptable value of 0.708 as reported by Hair et al. (2014). The loadings of the indicators were higher on their own construct, and lower on the other constructs. This finding suggested the existence of discriminant validity among all the constructs, that makes them distinct from each other. This study established the presence of discriminant validity among the constructs of this study. As illustrated by Table 3 below, all the constructs attained the satisfactory discriminant

Table 2 Reliability analysis of the study

Variables	Items	α	DG rho_A	CR	AVE	VIF
AT	5	0.759	1.091	0.819	0.520	1.048
CA	5	0.826	0.823	0.839	0.514	1.189
IN	5	0.864	0.921	0.897	0.638	1.049
PR	6	0.808	0.804	0.861	0.510	1.024
RT	4	0.783	0.872	0.849	0.588	1.166
SC	7	0.796	0.885	0.861	0.534	
SP	6	0.911	0.918	0.931	0.693	

AT-Autonomy, CA-Competitiveness, IN-Innovativeness, PR-Proactiveness, RT-Risk-Taking, SC-Social Capital, SP-SMEs Performance, α -Cronbach's Alpha, CR-Composite Reliability, AVE-Average Variance Extracted, VIF-Variance Inflation Factors

Table 3 Fornell-Larcker Criterion and Heterotrait–Monotrait Ratio (HTMT)

Variables	Fornell-Larcker Criterion						Heterotrait–Monotrait Ratio (HTMT)							
	AT	CA	IN	PR	RT	SC	SP	AT	CA	IN	PR	RT	SC	SP
AT	0.721													
CA	0.199	0.717						0.169						
IN	0.060	0.164	0.799					0.098	0.156					
PR	0.058	0.019	0.110	0.714				0.133	0.075	0.130				
RT	0.125	0.350	0.153	0.106	0.767			0.145	0.354	0.210	0.164			
SC	0.409	0.257	0.143	0.169	0.185	0.731		0.413	0.200	0.153	0.217	0.207		
SP	-0.021	0.059	0.024	0.343	0.061	0.008	0.832	0.094	0.094	0.060	0.390	0.084	0.075	

Note: AT-Autonomy, CA-Competitiveness, IN-Innovativeness, PR-Proactiveness, RT-Risk-Taking, SC-Social Capital, SP-SMEs Performance,

validity values under the Fornell–Larcker criterion where the square root of the AVE is expected to be higher than the correlation values for all the other constructs.

To further authenticate the discriminant validity of the constructs, the Heterotrait–Monotrait (HTMT) was also estimated as in Table 3 which suggests that all the values had satisfied the criterion of Heterotrait–Monotrait (HTMT) with their maximum values lower 0.90. Therefore, based on the results obtained from the HTMT criterion, it showed that the confidence interval did not show the value of 1 for any construct, thus confirming discriminant validity of the constructs (Kline 2015).

4.3 Path Analysis

Table 4 established the path coefficients of social capital on the entrepreneurial orientation and SMEs performance. As shown, the path coefficients revealed the coefficient value for proactiveness was 0.347 (p-value = 0.000), while the effect of

Table 4 Path coefficients

Constructs	Beta	Mean	STDT	T- value	P-value	R ²	F ²	Q ²	Decision
AT -> SMP	-0.054	-0.055	0.051	1.050	0.147	0.167	0.201	0.061	No
CA -> SMP	0.062	0.064	0.058	1.069	0.143	0.066	0.070	0.011	No
IN -> SMP	-0.023	-0.016	0.061	0.385	0.350	0.021	0.021	0.010	No
PR -> SMP	0.347	0.349	0.047	7.436	0.000	0.029	0.029	0.010	Yes
RT -> SMP	0.013	0.013	0.062	0.213	0.416	0.034	0.036	0.016	No
SC -> AT	0.409	0.419	0.034	12.122	0.000				Yes
SC -> CA	0.257	0.262	0.082	3.145	0.001				Yes
SC -> IN	0.143	0.157	0.051	2.788	0.003				Yes
SC -> PR	0.169	0.175	0.060	2.823	0.002				Yes
SC -> RT	0.185	0.195	0.048	3.855	0.000				Yes
SC -> SMP	0.052	0.053	0.031	1.654	0.049	0.124		0.081	Yes

social capital on autonomy also recorded 0.409 (p-value = 0.000), which implied that both proactiveness and social capital had significant and positive effect on the SMEs performance. Likewise, the F² values of proactiveness on SMEs performance which registered 0.029 meant they had small influence on SMEs performance. Furthermore, the F² values of 0.201, 0.070 and 0.021 which represented the relationship between autonomy, competitive aggressiveness, and innovativeness respectively on SMEs performance also showed small effect though insignificant on SMEs performance and autonomy and innovativeness revealed negative coefficient values of -0.054 and -0.023 with p-values 0.147 and 0.350 on SMEs performance.

From the above Table 4, the findings revealed that there is a positive and significant relationship between social capital and autonomy, competitive aggressiveness, innovativeness, proactiveness, and risk-taking of SMEs and further proved a positive and significant relationship between social capital and SMEs performance. The R² value for proactiveness was 0.029 which indicated that about 2.9% of the variance in SMEs performance can be explained through proactiveness. The Q² value of proactiveness 0.010 which is above zero (0) signified that proactiveness have attained moderate predictive importance on SMEs performance (Zumbo 2009). Finally, although the p-values (p-value ≠ 0.05) of the other variables like competitive aggressiveness, innovativeness, risk-taking on the outcome variable were not statistically significant, their Q² which symbolized the structural model's level of predictive relevance, proved that the Q² values for autonomy, competitive aggressiveness, innovativeness,

Table 5 The effect of EO on the relationship between social capital and SMEs Performance

Constructs	Beta	Mean	STDT	T-value	P-value	Decision
SC -> AT -> SMP	-0.022	-0.023	0.021	1.033	0.151	No
SC -> CA -> SMP	0.016	0.016	0.016	1.026	0.152	No
SC -> IN -> SMP	-0.003	-0.003	0.009	0.352	0.363	No
SC -> PR -> SMP	0.059	0.061	0.021	2.763	0.003	Yes
SC -> RT -> SMP	0.002	0.002	0.012	0.203	0.420	No

and risk-taking on SMEs performance thus, 0.061, 0.011, 0.010 and 0.016 respectively demonstrated a moderate predictive relevance of the independent variables as against the outcome variable.

4.4 *The Mediating Effect of EO on the Relationship Between Social Capital and SMEs Performance*

Table 5 presents the indirect effect of EO on the relationship between social capital and SMEs performance. These results suggested that proactiveness has positive and significant relationship from social capital and SMEs performance with a T-value of 2.763 which is greater than 1.96 and p-value of 0.003 that is not also greater than 0.05 as indicated by Table 5. The results further demonstrated that, in the presence of EO on the relationship between social capital and SMEs performance, though the relationship between social capital with autonomy, competitive aggressiveness, innovativeness, risk-taking and the SMEs performance had positive mediating effect on social capital and SMEs performance, but their T-values and p-values are less than 1.96 and 0.05 respectively and are not significant.

In a nutshell, this study extends our knowledge and understanding on the social capital and EO and SMEs performance relationship by exploring how social capital influenced EO and SMEs performance in Ghana signified that proactiveness has positive and significant relationship with social capital and SMEs performance with a T-value of 2.763 which is greater than 1.96 and p-value of 0.003 that is not also greater than 0.05 as shown in Table 5.

5 Discussion, Conclusion and Recommendations

From the results of the analysis, the first hypothesis that suggests that SC has a positive effect on SMEs performance has been accepted (H1 confirmed). Thus, the result revealed that there is a positive and significant effect of social capital and SMEs performance ($\beta = 0.052, t = 1.654, p = 0.049$) at the 0.05 level of significance. This result agrees with some past studies on the effect of SC on SMEs performance (e.g.

Chen et al. 2007; Felício et al. 2014; Dai et al. 2015). This further suggests that the more there is trust relationship among SME-owners through judicious use of their SC networks especially this Covid-19 pandemic, the more they will share resources and ideas among themselves which will lead to a mutual benefit and thereby improve the performance of their businesses.

With regards to the second objective of the study that examined the effect of the five EO dimensions (i.e. innovativeness, proactiveness, risk-taking, competitive aggressiveness and autonomy) as proposed by Lumpkin and Dess (1996) on SMEs performance, the result from the PLS-SEM indicates that there was a positive and significant relationship between proactiveness and SMEs performance. This finding supports other prior studies like Nasip et al. (2017) and Palmer et al. (2019) that shows that there is a positive and significant relationship between proactiveness and SMEs performance. On the other hand, the remaining four constructs of EO thus, innovativeness, risk-taking, competitive aggressiveness and autonomy, the study result revealed that there was a positive effect of autonomy on SMEs performance (AT -> SMP, $\beta = -0.054$, $t = 1.050$, and $p = 0.147$), competitive aggressiveness on SMEs performance (CA -> SMP, $\beta = 0.062$, $t = 1.069$, and $p = 0.143$), innovativeness and SMEs performance (IN -> SMP, $\beta = -0.023$, $t = 0.385$, and $p = 0.350$), and risk-taking on SMEs performance (RT -> SMP, $\beta = 0.013$, $t = 0.213$ and $p = 0.416$). However, there was no statistically significant relationship between the four EO constructs and SMEs performance. This result however varies from other past studies that suggest that there is a positive direct effect and significant relationship between autonomy, competitive aggressiveness, innovativeness, and risk-taking on SMEs performance (Palmer et al. 2019; Nasip et al. 2017; Wiklund and Shepherd 2005).

On the mediating effect of EO on the relationship between social capital and SMEs, the results signify that there is a positive and statistically significant mediating effect of proactiveness on the relationship between social capital and SMEs performance (SC -> PR -> SMP, with $\beta = 0.059$, $t = 2.763$ and $p = 0.003$). The result supports Yudha's (2019) earlier findings that suggest that proactiveness plays a mediating role on the relationship between social capital and SMEs performance. In terms of the mediating effect of the other constructs of EO, the findings proved that a positive relationship exists between the relationship between social capital and SMEs performance in the presence of innovativeness, risk-taking, competitive aggressiveness, and autonomy nevertheless, there was no significant mediating effect between the relationship. This result concurs Pratono, and Mahmood's study, (2014) that found that social capital may not have a significant effect on the entrepreneurial orientations of SMEs performance specially during unsteady business environmental factors like this current COVID-19. However, this result disagrees with Rodrigo-Alarcón et al. (2018) previous studies which demonstrate that there is a mediating effect of EO on SC and SMEs performance relationship.

6 Conclusion

The study results proved that social capital has positive and significant influence on SMEs performance and signify that the performance of SMEs in an emerging country like Ghana and in crisis period like Covid-19 can be influenced by SMEs consciously working on their social capital network based on trust relationship which will play a major role on their entrepreneurial orientation and performance. The results further revealed that the proactiveness of SME-owners has positive and significant effect on SMEs performance and indicate that it is very paramount in their pursuit to attain their performance goals by been more innovative, take the necessary risk, compete well with their competitors and act in autonomy. Nonetheless, the EO of SME-owners may have been hindered because of Covid-19 pandemic. Additionally, the result summarised that there is a mediating effect of proactiveness on the relationship between social capital and SMEs performance while the remaining four EO dimensions such as innovativeness, risk-taking, competitive aggressiveness, and autonomy had positive mediating effect but no significant mediating effect between social capital and SMEs performance relationship.

7 Recommendations

In view of the study results, for SMEs in an emerging country to thrive to meet their performance targets, and specially in this crisis period, they need to invest more on their social capital networks and also device more strategies that will enable their employees to have the liberty and duty to come up with new business ideas to the interests of the firm, allow them to make improvements in the way they do things, and paramount among everything is to make good use of their internal and external social capital networks which will have significant influence on their entrepreneurial orientation and performance.

Again, based on the results of the study, SMEs need to be more proactive or agile, willing to adapt new ways of operating in business, flexible with current changes, and make predictions of possible unforeseen circumstances that may militate against their performance and respond timely to them (Elali 2021). This will bring about improvements on their entrepreneurial orientation thus, improve upon their innovativeness, be bolder to take risk since risk-taking is part and parcel of every business endeavour, compete well with their competitors, and act in autonomy which will collectively increase their EO. By increasing their level of EO, it will have positive and significant effect on the performance of their businesses as they work towards sustaining and creating new social capital networks. Again, high level of EO will enable SMEs to understand and manage their risk levels well since they will be able to cope and adapt to any crisis like the menace of Covid-19 on nations and SMEs performance (Al Kurdi 2021).

The result of this study supports the theoretical stand that EO should be considered in terms of the multi-dimensional approach rather than the uni-dimensional perspective of Miller (1983) and Covin and Slevin (1989) for better understanding and interpretation of the effect of the EO dimensions on SMEs performance thus, SMEs application of each of the EO dimensions differs from one firm level to the other; and under varied environmental conditions which may not make EO have significant influence on SMEs performance. This suggests that SMEs should concentrate more on the EO dimensions that helped them to meet their performance targets while working towards improving on those EO dimensions they are disadvantaged. In the same manner, the effect of EO as a mediating variable on SMEs performance relationship with other variables may at times differ like this study where EO served as a mediating variable on the relationship between social capital and SMEs performance. More so, with the Covid-19 pandemic and its effect on lives and businesses, SME-owners need to imbibe financial technology where they can still transact their businesses at the comfort of their homes with more innovative ways like the use of social media and other related technologies to reach out to their loyal as well as attract new customers. This will keep SMEs in business during and after this pandemic (Elali 2021). In sum, future researchers can increase the sample size, adopt different research design with other mediating or moderating variables for validation and extension of theoretical building in terms of SMEs/firm performance related studies.

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Safety Practices and Babysitter Traits in Malaysian Childcare Setting



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Abstract This research aims to examine the nature of childcare safety practices and their babysitter traits from the childcare practitioner's perspective. Moreover, this research study investigates the significant relationship between childcare safety practices and babysitter traits in the Malaysian childcare context based on the theory and concept of organizational culture. Thus, this research study adopts a quantitative questionnaire survey method for data collection purposes among childcare practitioners in Malaysia. A total of 37 organizations of the unit of analysis were involved as respondents through the online survey form. The research finding found a significant relationship between the childcare safety practices towards the babysitter traits based on the regression and correlation analysis performed by the SPSS software, 26th version. The result reveals that the traits of the babysitter are positively influenced by the childcare safety practices of management commitment, safety training, workers involvement, communication and feedback, rules and procedures, and promotion policies. Hence, the results finding will provide empirical evidence for childcare stakeholders, especially for authorities, the childcare industry, society, for continuous safety improvement in the childcare business setting.

Keywords Childcare safety practices · Babysitter traits · Quantitative

1 Introduction

Childcare in Malaysia can be categorized as an institution-based childcare center, work-based, community-based, and home-based childcare centers. However, each childcare category must register with the Department of Social Welfare, Ministry of Women, Family, and Community Development as enacted in Akta Taman

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Asuhan Kanak-Kanak 1984 (Act 308) (Akta Taman Asuhan Kanak-Kanak 1984). Based on the Ministry of Women, Family, and Community Development data, with a total of 4,770 registered childcare all over Malaysia, most of the registered childcare is institution-based (3,555), followed by home-based childcare center (878), workplace-based (297), and community-based (40) respectively (Jabatan Kebajikan Masyarakat 2016).

The selection of childcare centers is a complex decision among parents. Parents want the best for their children. They will give total trust towards the childcare center to look at their children. However, their difficult decision needs to balance out based on various factors of childcare quality, teacher or babysitter quality, children's experiences and learning, fees, the flexibility of operation time and distance, and safety factors (Hanafi 2015; Haziq et al. 2020; Zaida et al. 2017; Abashah and Taib 2021). More importantly, parents seek childcare services for their children's emotional, intellectual and spiritual development (Abashah and Taib 2021). Meanwhile, frequently reported cases in media regarding the issues of the accident and injuries in the childcare institutions (Astro Awani 2015; Sinar Harian 2019; Berita Harian 2019, 2019, 2020) lead to anxiety in the community, especially among the parents.

Perhaps, the quality of the babysitter or teacher in the childcare setting is the main element in ensuring the children are taking care of in a reasonable manner of their excellent well-being (Abashah et al. 2021). In addition, the babysitter is the first person who spent time together with children along the time in this premises. However, the empirical research by (Morris 2018) proved that their emotional stability is uncertain when facing different characters of children that would lead to a stressful environment (Morris 2018; Sarnon et al. 2017). Thus, (Taylor 2019) suggests the traits of babysitters to be responsible, patient, and kind.

Equally important is the childcare practices themselves. Prior to this, the researcher believed that the practices apply by the childcare management slowly will influence or mold the babysitter's traits indirectly. This significant influence is because an organization's practices can be an organizational culture that will automatically absorb the organization's employees' characters.

Hence, based on the above issues identified, this present research study will examines the nature of childcare safety practices and their babysitter traits from the childcare practitioner's perspective, specifically to sustain childcare safety. Moreover, this research study will investigate the significant impact between childcare safety practices and babysitter traits in the Malaysian childcare context.

2 Literature Review

The works of literature will explain the babysitter traits as a childcare frontline with characters of good self-esteem, locus of control, and self-monitoring.

Furthermore, continue with the childcare safety practices literature consists of 1) management commitment, 2) safety training, 3) workers involvement, 4) communication and feedback, 5) rules and procedures, and 6) promotion policies.

2.1 Babysitter Traits

The empirical research proves that a babysitter position is stressful and challenging. Besides, this position is nominated by females where their emotions are uncertain, where women's depression is a massive burden for them (Morris 2018; Lessard et al. 2020; Christiane et al. 2021). Despite this, (Morris 2018) proposing a kind of help for their burnout issues.

Subsequently, an outstanding trait among them is a must to perform their challenging job scope. Individual characters are mold by personal enforcement itself, organizational, or social enforcement (Ghavifekr and Adewale 2019). It has been shown that someone's self-esteem (believed in their capability), locus of control (internality and externality to reflects someone's belief towards their action), and self-monitoring (adaptation of the environment) (Fandt et al. 2016) is the main criteria for personality traits. Thus, based on the concept and theory of organizations culture, the childcare organization practices will impact someone's traits and characters in the workplace for mutually shared safety aims in the childcare setting.

2.2 Childcare Safety Practices

Management commitment (Vinodkumar and Bhasi 2010; Loosemore et al. 2019; Jaafar et al. 2017; Cheng et al. 2018), safety training (Vinodkumar and Bhasi 2010; Jaafar et al. 2017; Cheng et al. 2018; Khawam and Bostain 2019), worker's involvement (Vinodkumar and Bhasi 2010; Jones 2014; Hadjimanolis et al. 2015), communication and feedback (Vinodkumar and Bhasi 2010; Khawam and Bostain 2019; Jones 2014; Keffane 2014), rules and procedures (Vinodkumar and Bhasi 2010; Loosemore et al. 2019; Jaafar et al. 2017; Keffane 2014), and promotion policies (Vinodkumar and Bhasi 2010; Jaafar et al. 2017; Keffane 2014) are part of the safety performance measurements in an organization. It has been shown that the management practices will be useful to sustain and improve the safe environment, thus will benefit the children in the childcare setting. In the same way, by having the good traits of babysitters, safety can be achieved successfully with aims for zero accidents, injuries, and hazards with a basis of the theory and concept of culture in organizations.

2.3 *The Theory and Concept of Organizational Culture*

The theory of culture explains the culture in its broadest sense of the society's unique ideas, beliefs, values, and knowledge. Besides, it shows the ways humans interpret their environments. Likewise, they are committed to an ethical evaluation of social action and able to be constrained and enriched by the more influential cultures in which they are located (Serrat 2016).

Moreover, the culture theory may strengthen the Markets are expected to function not because they are made up of independent people free from social consequences, but because they are propelled by social beings and their unique ideas, beliefs, values, and knowledge that can aid in comprehending and boosting the development (Serrat 2016).

(Fandt et al. 2016) explains that the culture influences how people act in organizations, where the culture develops within organizations as their employees communicate and share management practices, leading, and doing. Thus, any practices initiated to lead to the staff shared values of good traits.

In the same way, a strong culture shared values, and beliefs create an organizational setting that will increase collective commitment, establish a robust social structure, and decrease the need for formal and bureaucratic controls (Fandt et al. 2016).

3 Research Design

This study aims to address two key research questions. The first question is as follows:

RQ1. What is the nature of childcare safety practices and their babysitter traits among childcare practitioners?

The research assumes that the childcare practitioners are aware of their responsibility by having the best childcare safety practices and good babysitter traits with the higher mean score and standard deviation based on the underpinning theory of culture.

Subsequently, the second research question is as follows:

RQ2. Does the childcare safety practices significantly have an impact on the babysitter traits in the Malaysian childcare context?

Therefore, the hypothesis is that there is a significant impact between childcare safety practices and babysitter traits in the Malaysian childcare context.

Thus, the research framework illustrated in Fig. 1:

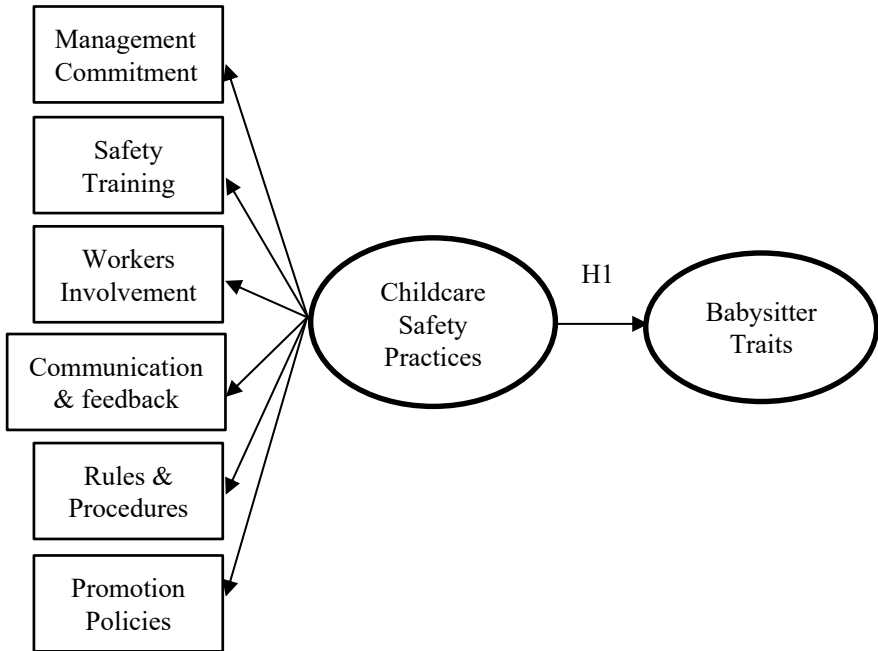


Fig. 1 Research framework

4 Methodology

This paper seeks to provide empirical evidence towards both research aims where the result derived from the primary data analysis, quantitatively. In brief, an online questionnaire survey with Multi-language, Malay, and English was applied to investigate the: 1) respondent profile with a nominal measurement item, and 2) babysitter traits, and 3) childcare safety practices, disputes second and third parts with interval scale of “1” refer to disagree strongly, and “7” refer to agree strongly in separated section A, B, and C respectively.

The data were collected on June and July 2021 during the Malaysian Movement Control Order period. Thus, a web-based questionnaire named Google Forms had been used, with an introductory letter containing a survey link was sent to registered childcare centers. The survey link was sent to the childcare owner based on the Ministry of Women, Family, and Community Development official database, through the WhatsApp application. Each response data will represent their childcare organization and leads to a 22.98% (37/161) response rate through the simple random sampling method.

5 Results

This part begins to presents the respondent’s profiles among the childcare centers practitioners who are volunteered to respond to the web questionnaire survey. Next, to answer the research questions and further test the hypothesis, numerous analyses are performed in the following sections, including the reliability and validity testing, descriptive, correlation, and regression analysis.

5.1 Respondent Profile

The respondent profile among the 37 respondents representing their childcare organization consists of their position in the childcare center, the childcare category, and their experience period in the childcare industry. It was presented below in Figs. 2, 3, and 4, respectively.

Figure 2 illustrates the respondent’s position in the childcare centers. Among a total of 37 respondents who participated, a number of 25 are the childcare owner (67%) as to compare to childcare manager respondents, seven (20%), and five of them are in positions of a senior babysitter (13%) to represent their respective childcare. Their commitment to participate in the present research study to represent their

Fig. 2 Respondent profile: position

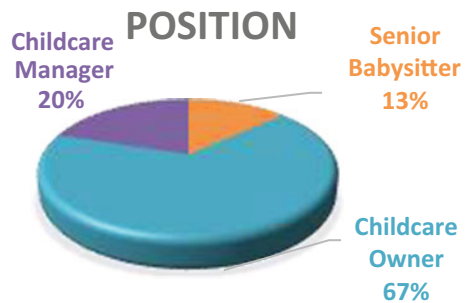


Fig. 3 Respondent profile: childcare category

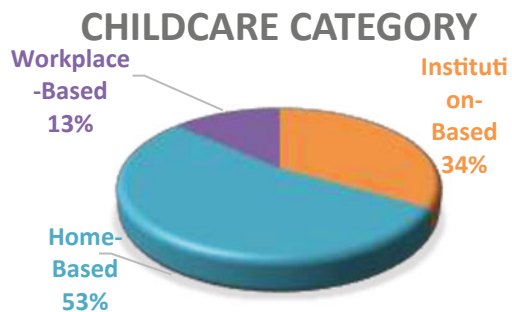
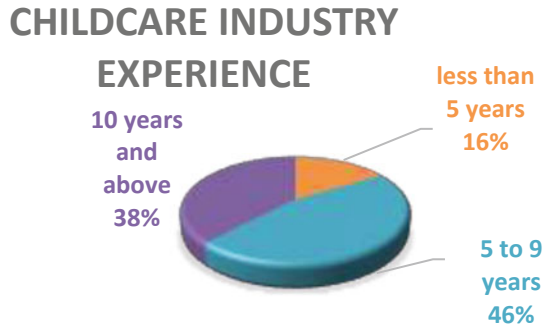


Fig. 4 Respondent profile: childcare industry experience



childcare institutions are appropriate due to their direct involvement in the daily childcare routine operations. Thus, they are considered mature and most knowledgeable in the childcare safety practices and evaluating the traits among their hired babysitters.

The respondents from the home-based childcare centers constituted slightly above half of a total number of 37 respondents (53%, 20), followed by institution-based childcare centers (34%,12) and workplace-based childcare centers (13%, 5), respectively, as presents in Fig. 3.

Next, Fig. 4 illustrates the childcare experienced in the particular childcare industry (in years). More than half of the childcare participants can be considered an expert in the industry with five to nine years experienced (46%), and 38% are more than ten years experienced. Only 16% of them are in a range of fewer than five years experience in the industry.

5.2 Reliability and Validity Analysis

Reliability is used to test for the stability, validity, and reliability of a research instrument item used. The items analysis demonstrated that reliability or Cronbach’s Alpha value of variables ranged from 0.984 to 0.985 (refer to Table 1). The α -value of the dependent variable: babysitter traits, was at 0.985, and α -values for independent variables: childcare safety practices, were 0.984. All of the variables are considered as excellent or very good due to its’ Cronbach’s Alpha value that is more than 0.8 (Sekaran and Bougie 2010).

Table 1 Reliability and validity analysis

Construct	Cronbach’s Alpha (α)	Remarks
Babysitter traits	0.985	Excellent
Childcare safety practices	0.984	Excellent

Table 2 Descriptive analysis

	N	Min	Max	Mean	Std. deviation
Babysitter traits	37	4.75	7.00	6.561	0.702
Childcare safety practices	37	4.74	7.00	6.323	0.802

5.3 Descriptive Analysis

The first research question investigates the nature of childcare safety practices and their babysitter traits among childcare practitioners. None of the respondents deny the importantness of childcare safety statements. Based on the question on the respondent's agreeees on the safety statements, it has been shown that all 37's participants (100%) agree on the view and opinions that "safety performance is the priority in the childcare setting for the benefits of children's development" and "it is the childcare center's responsibility to ensure the children are surrounding in the safer childcare environment." None of them (childcare's owner, childcare's manager, and senior babysitters) deny that particular statement.

Besides, the list's mean values of all the variables are at a high score, and they are ranging from 6.323 to 6.561 for childcare safety practices and babysitter traits, respectively. Meanwhile, the standard deviation for all the variables ranges between 0.702 to 0.802. The lowest standard deviation value was babysitter traits, and the highest was employee childcare safety practices (Table 2).

Thus, the research assumes that childcare practitioners are aware and concern about their responsibility by having the best childcare safety practices (management commitment, safety training, workers involvement, communication and feedback, rules and procedures, and promotion policies), and good babysitter traits with a higher mean value and standard deviation score.

5.4 Regression and Correlation Analysis

Pearson correlation analysis was used to measure the p-value to check the significant relationship between the dependent variable: babysitter traits and the independent variable: childcare safety practices (Table 3).

The result indicates that childcare safety practices ($r = 0.880^{**}$, $sig = 0.000$) significantly impact the babysitter traits. Thus, it has been shown that childcare safety practices have a significant relationship with babysitter traits (Table 4).

To sum up, the results show a significant positive relationship ($Beta = 0.880$) with 57.5% of the change in babysitter traits that can be explained by childcare safety practices. Hence, Hypothesis 1 constitutes an accepted status.

Table 3 Pearson correlation analysis

		MeanCSP	MeanBT
MeanCSP	Pearson Correlation	1	0.880**
	Sig. (2-tailed)		0.000
	N	37	37
MeanBT	Pearson Correlation	0.880**	1
	Sig. (2-tailed)	0.000	
	N	37	37

**Correlation is significant at the 0.01 level (1-tailed)

Table 4 Linear regression analysis

Model	Unstandardized coefficients		Standardized coefficients	Sig.
	B	Std. error	Beta	
(Constant)	1.688	0.447		0.001
CSP	0.771	0.070	0.880	0.000

R Square = 0.575

Adjusted R Square = 0.570

Std. Error of the Estimate = 2.478

6 Discussion and Conclusion

The Malaysian childcare nature is concerns with the children’s needs of safety in the childcare centers. Thus, the higher mean score presented explains that childcare prioritizes their safety practices and the babysitter traits for their stakeholder benefits in doing the business. Besides, the respondent’s agreeeness on both statements and the highest mean value represent their awareness of safety issues in providing the best practices of safety in their childcare premises.

With a basis of the organizational culture concept and theory, regarding the relationship between childcare safety practices towards the babysitter traits, the babysitter traits are influences by the childcare safety practices of 1) management commitment, 2) safety training, 3) workers involvement, 4) communication and feedback, 5) rules and procedures, and 6) promotion policies. Thus, based on the empirical evidence, the childcare safety practices should be apply by all the childcare institutions as one of their cultures and good values to ensure the harmonize ecology in their institution’s business setting.

Taking the childcare safety performance into account, the childcare management should understand how childcare safety practices enter the safety elements into the babysitter’s traits of various kinds. Hence, the results finding will provide empirical evidence for childcare stakeholders, especially for authorities, the childcare industry, society, for continuous safety improvement in this business setting. The research findings provide the empirical guidelines to improve their practices and the babysitter’s character while dealing with this fragile, valuable human life. Thus, to

further enhance the babysitter's traits in the childcare organizations, the childcare practitioners may increase their initiatives to improve the safety practices in their childcare premises.

7 Research Limitation

The present research study represents one view of childcare quality of childcare safety management practices, including the practices of 1) management commitment, 2) safety training, 3) workers involvement, 4) communication and feedback, 5) rules and procedures, and 6) promotion policies. It is objectives. However, each of the childcare safety management practices elements can be further investigated in detail to understand the childcare ecology and improve safety in the childcare setting for the children's well-being, especially in the Malaysian context. Meanwhile, the other approaches, and different aspects of care to evaluating the childcare practices, including the safety culture, values, and motivation, might yield different results.

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Strategic Orientations and Absorptive Capacity on Competitive Advantage Among the Batik SMEs in Malaysia



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Abstract The performance of SMEs is a major focus of emerging and developing economic growth. Furthermore, as the market environment became more dynamic and competitive, SMEs were forced to cultivate their competitive advantage in order to improve their performance. The aim of this study was to investigate the impact of firm orientation for customer, supplier, innovation, and competitor, as well as the firm's absorptive capacity on competitive advantage. Cross-sectional research design was used to gather data from batik SMEs industry in Malaysia's Terengganu and Kelantan. For information collection, the structured interview yielded 213 relevant responses. PLS-SEM, a variance-based structural equation model, was used in the analysis. The findings showed that a firm's absorptive capacity, competitor orientation, innovation orientation, and supplier orientation have a substantial and positive impact on competitive advantage of the firm in batik industry, while, customer orientation had a positive and insignificant influence on firm's competitive advantage. Furthermore, absorptive capacity and competitor orientation were the most influential factors to competitive advantage of SMEs batik industry. Finally, the discussion, implications and conclusion of the study are discussed in the research paper.

Keywords Absorptive capacity · Competitive advantage · Customer orientation · Competitor orientation · Innovation orientation · Supplier orientation

1 Introduction

Most firms strive for success in their operations and activities, and they are continuously fighting to gain a strategic edge and distinct competitiveness, as well as to

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assure long-term planning, growth, and performance (Al-Zu'bi 2014). Furthermore, in today's business environment, SMEs that wish to stay in business and compete must learn to manage more strategically (Ogbari et al. 2018). As a result, in order to attain these objectives, businesses with a strategic orientation must be managed in order to acquire a stable, long-term competitive advantage.

Previously, the majority of study focused on how a large corporation formulates its strategic orientation. However, they did not pay attention to the strategic orientation and competitive advantage of SMEs. Furthermore, despite the fact that a large number of strategic management research studies have found strong links between market orientation for customers, suppliers, and competitors and firm performance (Masadeh et al. 2018; Neneh 2018; Sulisty and Ayuni 2019), there is still no consensus on the direct contribution to competitive advantage (Chin et al. 2013; Zahari et al. 2018; Zhou et al. 2009). Furthermore, in today's increasingly competitive company climate, it's worth looking into how SMEs construct business strategy orientation to achieve a competitive advantage. Strategic orientation is critical for achieving long-term competitive advantage (Zhou et al. 2009). For the survival and sustainability of SMEs, strategic orientation is also frequently required and considered (Ogbari et al. 2018). Furthermore, one of the most important areas of corporate management is strategic management since it aids in the development and maintenance of a competitive advantage (Masadeh et al. 2018). Customer, competition, supplier, and innovation are all examples of strategic orientation in this study, and they indicate a company's approach to attaining a competitive advantage (Park et al. 2017). In today's competitive business world, enterprises must build strong relationships and partnerships with their customers, suppliers, and competitors to obtain and maintain a sustained competitive edge (Al Mamun et al. 2018), which can boost corporate performance (Tehseen and Ramayah 2015). Furthermore, firms must adapt and improve their knowledge and information to gain a competitive advantage in the face of fast globalisation (Liao et al. 2016). Absorptive capacity is a key component that allows a company to gain a competitive advantage by converting knowledge or information into commercial goods or services (Ndiege et al. 2012). Absorptive Capacity, which allows a company to obtain fresh skills from outside the company (Liao et al. 2016), is crucial for a competitive advantage (Chang et al. 2018). The strategic orientation of a company, together with its ability to absorb actual and intangible resources, can have a significant impact on its performance and provide crucial competitive advantages in the marketplace (Acar et al. 2017). However, there is still a paucity of information on how a company's internal resources are managed in terms of strategic orientation resources.

SMEs in Malaysia account for 98% of GDP, 63% of employment, and 21% of exports (Nawi et al. 2020; SMECorp 2019). Over the years, the batik business has aided in the creation of jobs for local communities, the enhancement of the country's fashion sector through innovative fabric design (Mokhtar and Wan-Ismail 2012), the promotion of the country's cultural tourism industry (Hairuddin et al. 2012), and the direction of Malaysian craft industries. Furthermore, the United Nations Conference on Trade and Development (UNCTAD) has recognised the batik sector as having the potential to contribute to the country's economic growth and development (Akhir

et al. 2018). Furthermore, the batik business has been recognised as a valuable legacy with a market potential both in Malaysia and abroad (Mokhtar and Wan-Ismail 2012). The local batik industry was predicted to be worth RM370 million in 2003, RM400 million per year since 2004 (Mokhtar and Wan-Ismail 2012), and RM1 billion in 2016 (Akhir and Ismail., N. W., Utit, C. 2018). The batik business is well rooted in Malaysian history (Nawi et al. 2020; Yaacob et al. 2015), and it is widely regarded as a thriving cottage industry (Akhir and Ismail 2018). Malaysian batik is well-known both locally and globally, since it is the country's third most popular handicraft (Nawi et al. 2020), with Terengganu and Kelantan having the highest number of batik-producing SMEs (Nordin and Abu Bakar 2012). Chinese competition has hit local batik producers hard, and numerous small batik makers have been forced to close their doors (Nawi et al. 2020; Yaacob et al. 2015). Furthermore, batik product sales have declined dramatically with the execution of the Products and Services Tax (GST), which is an indirect tax paid at any manufacturing and distribution stage in the supply chain of goods and services produced in Malaysia together with imports (Yaacob et al. 2018).

The remaining batik SMEs struggle to compete with others due to a lack of essential competitive edge. Batik SMEs cooperate with their suppliers, consumers, and local competitors to achieve competitive advantage in order to develop and stay competitive (Yaacob et al. 2018). It's critical to figure out how batik SMEs' strategic management approach and absorptive capabilities influenced their competitive advantage. As a result, the goal of this study was to investigate the impact of the batik SMEs' customer, competitor, supplier, and innovation orientations, as well as their absorptive capacity, on the firm's competitive advantage.

Next section of this study examines at the literature on the relationship between competitive advantage and innovation orientation, customer orientation, competitor orientation, supplier orientation, and absorptive capacity. The approach for this inquiry, which is based on the literature review and hypothesis creation, is given after the literature review. The research methodology is described in full in the third section. In Sects. 4 and 5 of the discussion, the analysis and results are presented. Section 6 concludes with implications and suggestions for further research, as well as the study's shortcomings.

2 Literature Review

2.1 Theoretical Foundation

In this study, the Resource Based View (RBV) is applied, which asserts that the organization's internal resources are sources of competitive advantage. Internal resources and competencies that are valuable, rare, unique, and inimitable by competitors, are the cornerstone of an organization's competitive advantage according to RBV theory (Barney 1991). Furthermore, according to RBV, a company's strategic resources should be developed, acquired, and utilised in order for it to become one of the best

performing organisations (Barney 1991; Chae et al. 2014), and a firm can create a competitive advantage by effectively using its resources (Acar et al. 2017). A company's strategy is determined by the resources it owns and controls (Kiyabo and Isaga 2019), which include capabilities, skills, firm traits and procedures, information, and knowledge (Barney 1991). As a result, the RBV theory recognises that a company's resources and knowledge management capabilities are both sources of competitive advantage, and that the firm's strategy for better corporate success is dependent on both (Kiyabo and Isaga 2019). According to a recent study, intangible strategic orientation resources for consumers, suppliers, rivals, innovation, and absorptive capacity enable a company to develop those abilities and strategies that improve competitive advantage and lead to superior market performance (Adi et al. 2018; Chin et al. 2013; Lin et al. 2020). Furthermore, in today's current business environment that is swiftly changing, the firm's RVB should emphasise management's ability to integrate, develop, and reconfigure competencies, skills, and strategies in order to achieve long-term competitive advantage (Sharma and Singh 2012). This study looked at the impact of Innovation Orientation, Customer Orientation, Competitor Orientation, Supplier Orientation, and Absorptive Capacity on competitive advantages, based on RBV theory.

2.2 Innovation Orientation and Competitive Advantage

By generating sustainable innovations that are suited to consumer and market needs, SMEs must be able to react and forecast any changes happened in the business environment because of multiple technologies and technological breakthroughs (Sulistyo and Ayuni 2019). A "combination of research and development, creativity, inventive methods, new products or services, and the extension of current technologies" is defined as innovation (Al Mamun et al. 2018). The results show that such an orientation provides a foundation for proactive growth-based strategies to be implemented (Dobni 2010). An organization's innovation orientation explains how creative it is, and the results show that such an orientation provides a basis for proactive growth-based strategies to be implemented. When compared to competitors, innovation orientation is defined as the "belief held across firm staff in accomplishing the organization's objectives" (Yusof et al. 2017). A company's innovation orientation enables it to deploy strategic resources to develop new products and services that meet or surpass the expectations of present and potential customers, resulting in competitive advantages (Dobni and Klassen 2015; Kafchehi et al. 2016). A focus on innovation can help companies innovate and achieve significant commercial success (Park et al. 2017). Without the ability to innovate effectively, it is exceedingly difficult for SMEs to attain market success and competitive advantage. Furthermore, firms with a high level of innovation will obtain a greater response from their environment and will be able to acquire the skills necessary for long-term competitive advantage more efficiently (Imamoglu et al. 2016). Firms that can consistently innovate will have a significant impact on their success and competitive advantage (Sulistyo

and Ayuni 2019). Because it leads to product or service enhancement, innovation is considered as one of the most crucial sources of competitive advantage for a firm (Imamoglu et al. 2016). Being inventive and imaginative, coming up with new ideas and tactics, spotting chances, and discovering and inventing new things are all significant aspects of innovation (Imamoglu et al. 2016). According to Nuryakin (2018), Batik SMEs must continue to create product innovation activities through designs, quality materials, and attractive goods with cultural characteristics in order to boost firm competitiveness and acquire a competitive edge. Thus, based on earlier studies, the following hypothesis is formulated:

HI: Innovation orientation has a positive and significant effect on firm's competitive advantage.

2.3 Customer Orientation and Competitive Advantage

Customer orientation refers to a company's capacity to provide goods and services to customers by projecting a positive image of the company's target market (Agostini et al. 2017). Customers' needs necessitate strategic action on the part of corporate personnel and staff, who must consider the main level of business performance (Nawi et al. 2020; Masadeh et al. 2018). Consumer-oriented firms prosper by obtaining data from customers and using it to develop appropriate strategies that are promptly implemented to meet current customer demands and acquire a competitive edge (Neneh 2018). Providing exceptional customer service increases client satisfaction, which leads to a competitive advantage in terms of increased sales efficiency and profitability (Neneh 2018). The stronger a company's consumer focus, the more pricing and differentiation techniques it will use to gain a competitive advantage (Zhou et al. 2009). Companies with a clear customer focus have a competitive advantage, thus they can easily surpass their competitors (Neneh 2018) because they are better equipped to change their product and service offerings to match market demand. Furthermore, because customers' tastes change often, a consumer-oriented approach demands a deep grasp of target customers' current and future cost and revenue dynamics (Zhou et al. 2009). Because customers' expectations of benefits vary so considerably, their demands, preferences, and desires are very distinctive and varied (Zhou et al. 2009). Customers' expectations of a product's advantages change with time, therefore products that fulfil customers' demands now may no longer meet their needs tomorrow (Zhou et al. 2009). As a result, consumer orientation can have a favourable or negative impact on a firm's ability to maintain a competitive advantage in the long run (Nawi et al. 2020; Masadeh et al. 2018). Customer orientation has been shown to have a positive and large impact on firm competitive advantage (Adi et al. 2018), a no effect on competitive advantage (Chin et al. 2013), and a considerable impact on firm performance (Kumar et al. 2018; Masadeh et al. 2018; Neneh 2018) in previous studies. Thus, the following hypothesis is formulated:

H2: Customer orientation has a positive and significant effect on competitive advantage of the firm.

2.4 Competitor Orientation and Competitive Advantage

Competitor orientation is getting to know and understand competitors, accumulating information and knowledge about them, and finding ways to obtain an advantage over them through deliberate action and conduct (Park et al. 2017). Competitor orientation refers to a company's assessment of both short- and long-term strengths and weaknesses, as well as long-term skills and strategies of current and future competitors (Adi et al. 2018). A company's competitive position can be improved if it understands the strengths and limits of its primary present and future competitors (Zhou et al. 2009). Understanding competitors' tactics and working methods can help businesses spot chances for understanding strategies and gaining a competitive advantage. Companies who are focused on their competitors continue to do so, balancing their marketing tactics with ease, and attempting to grasp both long-term skills and strategies (Zhou et al. 2009). By comparing themselves to their competitors, competitor-oriented businesses will be able to recognise their own advantages and weaknesses. Continuous product innovation will give a competitor-oriented organisation a competitive advantage if it has a better awareness of its relative market position (Zhou et al. 2009). Competitor orientation has been shown to have a favourable impact on competitive advantage in previous studies (Adi et al. 2018; Chin et al. 2013). Therefore, the following study hypothesises that:

H3: Competitor orientation have a positive and significant influence on firm competitive advantage.

2.5 Supplier Orientation and Competitive Advantage

Supplier orientation refers to a company's aim to control its supply chain relationships with its partners, with a focus on internal supply chain activities or a goal to be reliable and competitive in supply chain operations outside of the company's activities (Acar et al. 2017). In order to create value for all supply chain stakeholders by investing their knowledge, talents, and know-how, adopting the Supplier Chain Orientation involves collaborative and integrative supply chain management methods (Lengnick-Hall et al. 2013). Supplier Chain Orientation is claimed to have a favourable impact on operating efficiency, suggesting that businesses that focus on supply chain operations have a competitive advantage over their competitors (Acar et al. 2017). Firms should be supply chain focused with a strategic partner in order to gain a competitive edge. Both the company and its suppliers' profit from the management of a company's supply chain (Kumar et al. 2018; Zhou et al. 2009). Furthermore, a close relationship between the supplier and the company allows the company to innovate while reducing

process costs (Acar et al. 2017; Masadeh et al. 2018), as well as provide the process efficiency required for innovation (Masadeh et al. 2018). Furthermore, the company's performance depends on establishing a strategic and long-term collaboration with business suppliers. Prior research has found that a firm's supplier origination has a considerable impact on its competitive advantage (Acar et al. 2017; Lin et al. 2020). Thus, the following hypothesis is formulated:

H4: Supplier orientation has a positive and significant effect of firm competitive advantage.

2.6 Absorptive Capacity and Competitive Advantage

Absorptive capacity refers to a company's ability to absorb external data and knowledge and develop new knowledge in a competitive and cooperative manner in order to foster innovation, creativity, strategic advantage, and profitability (Leyden and Link 2015; Scuotto et al. 2017). Furthermore, (Lane et al. 2006) defines absorptive capacity as "the ability to acquire, develop, and digest new information in order to achieve a competitive advantage through processes." Furthermore, (Cohen and Levinthal 1990) defined absorptive capacity as "a firm's ability to understand the value of fresh knowledge, digest it, and use it to commercial purposes." By supplying the flow of external information to the company, absorption capacity helps firms obtain a better grasp of existing internal knowledge flow as well as employ external knowledge in a more creative way (Imamoglu et al. 2016). Using externally obtained talent, the company will develop and remain competitive (Nawi et al. 2020). The ability of firms to integrate and consume newly acquired knowledge is referred to as their absorptive capacity (Albort-Morant et al. 2018). Furthermore, the ability of a firm to generate new products or services through its absorptive capacity is depicted as the ability of the firm to link its internal information capacities with externally accessible knowledge (Agostini et al. 2017; Nawi et al. 2020). Within the organization's boundaries, absorptive capacity is required to recognise, detect, remove, and interpret new and applicable external information (Imamoglu et al. 2016). Firms with a stronger absorptive ability will be significantly more adaptive when it comes to updating their knowledge stock by discovering and digesting information about external advancements, innovations, and discoveries (Zahra and George 2002). Absorptive ability enables a company to develop new capabilities and components (Imamoglu et al. 2016), produce new products (Park et al. 2017), and obtain a competitive edge (Al Mamun et al. 2018). A higher potential absorptive capacity allows a corporation to obtain the necessary performance gains and gain a competitive advantage (Imamoglu et al. 2016). Based on earlier studies, the following hypothesis is postulated:

H5: Absorptive capacity of the firm has a positive and significant effect on firm's competitive advantage.

3 Research Methodology

3.1 Data Collection and Sample Selection

The participants of the study were Malaysian batik makers from Terengganu and Kelantan. These states on Malaysia's east coast are recognised for their batik production (Yaacob et al. 2018). By contacting the Malaysian Handicraft Development Cooperation, which is part of the Ministry of Tourism, Art, and Culture Malaysia, the researcher was able to get a list of 468 enterprises from Terengganu and Kelantan. To begin, each company was called by phone to obtain permission and set up an appointment. Structured questionnaires and face-to-face interviews with batik business owners were used to collect the data. From June to August 2019, the surveys were done across a three-month period. This study received 213 valid replies for the final analysis.

3.2 Measurement and Scales

The items for the questionnaire were taken from previously verified studies. (Yusof et al. 2017) provided items for the innovation orientation. (Masadeh et al. 2018) and (Neneh 2018) were used for customer orientation, whereas (Acar et al. 2017) and (Kumar et al. 2018) were used for supplier orientation. Competitor orientation items and absorptive capacity were taken from Park et al. (2017) and (Agostini et al. 2017). (Al Mamun et al. 2018) provided the items that measured competitive advantage. The questionnaire was written in English and then translated into Malay so that participants could readily comprehend the items and respond depending on their own understanding.

3.3 Assessment of Common Method Variance (CMV)

Many techniques were used in this study to limit the effect of common method variance. Firstly, the study reassured respondents of their privacy and confidentiality, stressed the significance of answering the questions honestly, and reminded them that there are no right or incorrect responses to the topic (Podsakoff et al. 2012). Harman's one-factor test was also utilised to determine potential bias on the research constructs, as indicated by Sadalia et al. (2020). Harman's one-factor test revealed 23.04% of variance, which is less than the required 50%, indicating that CMV had just a minor effect.

3.4 *Multivariate Normality*

In the results, there should be no multi-variate normality because SEM-PLS is a nonparametric analysis approach (Hair et al. 2014). Data normality should be evaluated using an online method called web power to validate data normality, as described by Peng and Lai (2012). The test results suggested that the data set was not normal because the Mardia's multivariate coefficient p-values were less than 0.05 (Cain et al. 2017).

3.5 *Data Analysis Method*

This work utilised Smart-PLS software 3.1 to conduct an empirical analysis of the study model using partial least squares structural equation modelling (PLS-SEM). PLS-SEM is a method for evaluating route models with latent constructs that uses multivariate analysis (Hair et al. 2019). In comparison to covariance-based SEM, PLS-SEM has the advantage of working with small data sets and sophisticated models of composites, as well as requiring fewer goodness-of-fit prediction assumptions (Chin 2010). The initial assessment of the model is part of a two-step process for PLS-SEM data analysis (Hair et al. 2019), which includes determining the model's reliability and validity. The second stage comprises the application of structural model interactions and major research hypotheses (Chin 2010). The path effect from exogenous to endogenous construct was characterised by r^2 , Q^2 , and the effect size f^2 , which were used to estimate the model (Hair et al. 2019). PLS predict should be used to verify the model's key endogenous construct rather than just looking at prediction errors, according to (Shmueli et al. 2016). The mean of the Q^2 predict statistic was used to compare prediction performance to the naive benchmark obtained using the PLS predict method (Shmueli et al. 2016). The naive benchmark was estimated using a linear regression model (LM) by PLS predict (LM). The RMSE or MAE values for the LM and PLS models were then compared to see how well they explained the data. According to (Shmueli et al. 2016), a PLS-SEM model lacked predictive capability when its prediction errors were higher than the LM benchmark. The model's predictive capability is low if the majority of PLS-SEM analyses provide higher prediction errors than the LM benchmark. The PLS-SEM model has medium power if the majority of PLS-SEM analyses produce higher prediction errors than the LM benchmark. The PLS-SEM model has stronger predictive power than the LM benchmark if no predictor in the PLS-SEM model had a higher error than the LM benchmark (Shmueli et al. 2016).

By importance and performance, the research predictor constructs were categorised as relatively high to low in the importance-performance matrix analysis (IPMA) (Chin 2010). The IPMA study is focused on the total effect of rescaled variable ratings in the unstandardized arrangement (Hair et al. 2019) to find potential areas for improvement that managers and academics may want to consider. Using

rescaling, each latent variable score was established between the values of 0 and 100. In terms of endogenous construct performance, the performance of the latent variable is represented by the mean value of the latent variable score, where 0 represents the least important and 100 represents the most important (Hair et al. 2019).

4 Data Analysis

4.1 Descriptive Statistics

Table 1 shows the profiles of the survey respondents. Male respondents made up 58.7% of the total, while female respondents made up 41.3%. The age group of 31–40 years old accounted for 52% of all responders, with 23.5% of those aged 21–30 years old and 21.1% of those aged 41–50 years old following closely behind. In terms of marital status, 65.7% were married, 27.7% were single, 5.2% were divorced,

Table 1 Profile of the respondents

Variables	Category	Count	%
Gender	Male	125	58.7
	Female	88	41.1
	Total	213	100
Age	21–20 years of age	50	23.5
	31–40 years of age	110	52
	41–50 years of age	45	21.1
	51—and Above	8	3.8
	Total	213	100
Education	No Education	23	10.8
	Primary	21	9.9
	Secondary	97	45.5
	STPM/Diploma	50	23.0
	Degree	22	10.3
	Total	213	100
Marital status	Single	59	27.7
	Married	140	65.7
	Divorced	11	5.2
	Widowed	3	1.4
	Total	213	100
State	Kelantan	135	63.4
	Terengganu	78	36.6
	Total	213	100

and the rest were widowers. Respondents with a high school education accounted for 45.5% of the total, followed by STPM/Diploma level education accounting for 23%, degree-level education accounting for 10%, and no formal education accounting for 10.8%. The majority of the responders with 63.4% are from Kelantan, with the rest from Terengganu.

4.2 Validity and Reliability

Cronbach’s Alpha, Composite Reliability (CR), Dillon–Goldstein rho (DG rho), and AVE were used in this study’s reliability analysis. Table 2 shows that the Cronbach’s Alpha for all indicators was more than 0.788 (Hair et al. 2019). As a result, Cronbach’s Alpha is regarded as trustworthy. All indicators for composite reliability and DG rho have values more than 0.80, indicating that all items are dependable. For all items, the average variance extracted (AVE) value was greater than 0.5, indicating acceptable convergent validity (Hair et al. 2019). The variance inflation factor for each construct is shown in Table 2, and all of the values are less than 3, showing that multi-collinearity among the study constructs was not a concern. As a result, the constructs met both reliability and convergent validity criteria.

For construction discriminant validity validation, item loading and cross-loading were discovered, as indicated in Table 3. The discriminant validity of the research construct was found to be sufficient. In addition, the Fornell-Larcker criterion (Fornell and Larcker 1981) and the HTMT ratio measure for he-troitrait and mono-trait discriminant validity were utilised to validate the study components. The Fornell-Larcker criterion findings must be less than 0.70 to prove discriminant validity for

Table 2 Reliability analysis

Variables	Number of items	Cronbach’s alpha	CR	Rho-A	AVE	Variance inflation factor
Innovation Orientation	7	0.885	0.911	0.919	0.602	1.239
Customer Orientation	6	0.861	0.896	0.874	0.589	1.332
Competitor Orientation	5	0.788	0.854	0.798	0.541	1.410
Supplier Orientation	7	0.903	0.922	0.914	0.602	1.185
Absorptive Capacity	6	0.893	0.919	0.898	0.654	1.072
Competitive Advantage	6	0.805	0.858	0.811	0.502	

each construct (Hair et al. 2019). Table 3 shows that all constructs showed acceptable discriminant validity. The HTMT ratio was less than 0.90, demonstrating discriminant validity for the research constructs (Henseler et al. 2015). Because they fell below the 0.9 threshold, all of the values matched the Heterotrait–Monotrait (HTMT) criterion, as shown in Table 3.

4.3 Path Analysis

The path coefficients of the standardised path values, t-values, and significant level of innovation orientation, customer orientation, competitor orientation, supplier orientation, and absorptive capacity on the firms’ competitive advantage are represented in Table 4. The path coefficient between innovation orientation and competitive advantage ($\beta = 0.160, p = 0.022$) demonstrated that innovation orientation had a significant and positive effect on competitive advantage. H1 was statistically supported as a result of this finding. The f^2 value 0.029 indicated that a low effect of innovation orientation on competitive advantage. The path value for customer orientation on firms’ competitive advantage ($\beta = 0.030, p = 0.364$) showed that customer orientation had a positive and insignificant influence on competitive advantage, rejecting

Table 3 Outer loading and cross loadings

	INO	CSO	SPO	NWO	ABC	ENS
INO. item – 1	<i>0.854</i>	0.176	0.662	0.214	0.142	0.146
INO. item – 2	<i>0.760</i>	0.156	0.679	0.147	0.098	0.072
INO. item – 3	<i>0.809</i>	0.239	0.573	0.181	0.114	0.075
INO. item – 4	<i>0.547</i>	0.053	0.593	0.308	0.211	0.177
INO. item – 5	<i>0.789</i>	0.364	0.264	0.161	0.156	0.095
INO. item – 6	<i>0.824</i>	0.281	0.406	0.183	0.135	0.115
INO. item – 7	<i>0.863</i>	0.305	0.244	0.149	0.148	0.110
CSO. item – 1	0.239	<i>0.853</i>	0.270	\nearrow 0.007	0.022	\nearrow 0.0
CSO. item – 2	0.186	<i>0.738</i>	0.246	\nearrow 0.006	\nearrow 0.01	54 \nearrow 0.1
CSO. item – 3	0.207	<i>0.708</i>	0.287	0.061	0.035	69 \nearrow 0.0
CSO. item- 4	0.262	<i>0.766</i>	0.227	\nearrow 0.012	0.031	03 \nearrow 0.0
CSO. item-5	0.245	<i>0.789</i>	0.272	0.052	0.095	43 \nearrow 0.0
CSO. item-6	0.132	<i>0.743</i>	0.206	\nearrow 0.061	\nearrow 0.02	16 \nearrow 0.0
					1	63

(continued)

Table 3 (continued)

CPO. item-1	0.138	0.416	<i>0.794</i>	↗0.032	0.122	↗0.0
						10
CPO. item -2	0.041	0.301	<i>0.732</i>	↗0.089	0.111	0.029
CPO. item - 3	0.125	0.238	<i>0.664</i>	↗0.082	0.162	↗0.0
						47
CPO. item -4	0.130	0.351	<i>0.766</i>	↗0.096	0.119	↗0.0
						22
CPO. item -5	0.166	0.334	<i>0.714</i>	↗0.063	0.067	↗0.0
						78
SPO. item - 1	0.232	0.047	0.411	<i>0.842</i>	0.318	0.192
SPO. item - 2	0.254	↗0.01	0.511	<i>0.734</i>	0.370	↗0.1
		1				42
SPO. item - 3	0.164	0.071	0.539	<i>0.816</i>	0.260	↗0.3
						08
SPO. item - 4	0.211	0.039	0.097	<i>0.766</i>	0.277	↗0.4
						51
SPO. item - 5	0.182	0.048	0.105	<i>0.810</i>	0.172	↗0.4
						20
SPO. item - 6	0.120	0.014	0.181	<i>0.776</i>	0.157	↗0.2
						79
SPO. item - 7	0.172	0.032	0.233	<i>0.804</i>	0.278	0.921
ABC. item -1	0.069	0.095	0.106	0.174	<i>0.862</i>	0.857
ABC. item - 2	0.144	0.064	0.109	0.206	<i>0.829</i>	0.905
ABC. item - 3	0.227	0.178	0.138	0.081	<i>0.826</i>	0.711
ABC. item - 4	0.183	0.076	0.026	0.223	<i>0.837</i>	0.289
			↗0.00			
ABC item - 5	0.152	0.152	1	0.137	<i>0.734</i>	0.331
ABC. item - 6	0.194	0.230	0.066	0.097	<i>0.754</i>	0.205
CPA. item - 1	0.129	-0.030	-0.073	0.132	0.308	↘0.4
CPA. item - 2	0.059	-0.042	0.102	0.169	0.233	↘0.4
CPA. item - 3	0.071	-0.132	-0.020	0.137	0.316	↘0.4
CPA. item - 4	0.192	-0.030	0.002	0.119	0.234	↘0.4
CPA. Item - 5	0.110	0.006	0.013	0.141	0.302	↘0.4
CPA. item - 6	0.130	-0.007	0.020	0.173	0.248	↘0.4
Fronell-Larcker criterion						
INO	<i>0.776</i>					
CSO	<i>0.306</i>	0.768				
CPO	<i>0.396</i>	0.424	0.375			
SPO	<i>0.195</i>	0.331	0.302	0.793		
ABC	<i>0.178</i>	0.039	0.192	0.161	0.808	
CPA	<i>0.348</i>	0.255	0.450	0.296	0.309	0.709

Table 4 Hypothesis testing

Hypothesis	Coefficient	t-values	Sig.	r ²	f ²	Decision	
H1	INO → CPA	0.160	2.020	0.022		0.029	Supported
H2	CSO → CPA	0.030	0.349	0.364		0.001	Not Supported
H3	CPO → CPA	0.295	3.211	0.001		0.088	Supported
H4	SPO → CPA	0.133	1.816	0.035		0.021	Supported
H5	ABC → CPA	0.202	3.556	0.000	0.298	0.054	Supported

Note INO: Innovation orientation; CSO: Customer orientation; CPO: Competitor orientation; SPO: Supplier orientation; ABC: Absorptive capacity; CPA: Competitive advantage

H2 with no effect. The path value for competitor orientation on firms’ competitive advantage ($\beta = 0.295, p = 0.001$) showed that competitor orientation had a substantial and positive effect on firms’ competitive advantage with small effect, supporting H3. The effect of supplier orientation on firms’ competitive advantage ($\beta = 0.135, p = 0.035$) illustrated a positive and significant influence of supplier orientation on firms’ competitive advantage, which supported H4. The f^2 value 0.021 indicated that a low effect of supplier orientation on competitive advantage. The path coefficient for absorptive capacity on firm competitive advantage ($\beta = 0.202, p = 0.000$) showed that absorptive capacity had a substantial and positive impact on competitive advantage with small effect 5.4%, supporting H5.

The r^2 value for competitive advantage was 0.298 and signified that of the variance in competitive advantage can be explained through the five input variables (i.e., innovation orientation, customer orientation, competitor orientation, supplier orientation, and absorptive capacity). The value of predictive relevance (Q2) for the part of the model was 0.127, which indicate a small predictive relevance (Chin 2010).

4.4 Important-Performance Matrix Analysis (IPMA)

In order to identify major possibilities for development, IPMA evaluated the overall impact of the structural model to the results of competitive advantage (Hair et al. 2019). It also contrasted the total effects of the structural model (importance) and the average values of the latent variable scores (performance) of a certain endogenous construct to identify areas where management operations may be improved (Hair et al. 2019). According to Table 5, the most important factor in the performance of competitive advantage was customer orientation, which received a score of 75.608,

Table 5
Important-performance matrix

Target construct Variables	Competitive advantage	
	Total effect	Performance
INO	0.116	68.177
CSO	0.030	75.608
CPO	0.276	71.005
SPO	0.111	73.603
ABC	0.156	59.361
CPA	–	–

Note INO: Innovation orientation; CSO: Customer orientation; CPO: Competitor orientation; SPO: Supplier orientation; ABC: Absorptive capacity; CPA: Competitive advantage

followed by supplier orientation, which received a score of 73.603, competitor orientation, which received a score of 71.469, innovation orientation, which received a score of 68.177, and absorptive capacity, which received a score of 59.361.

5 Discussion

The effects of innovation orientation, customer orientation, competition orientation, supplier orientation, and absorptive capacity on a firm’s competitive advantage are examined in this study. Based on the path coefficient, the study found that SMEs’ innovation orientation, competitor orientation, supplier orientation, and absorptive competence were key contributors to achieving SMEs’ competitive advantage. The innovation orientation of Malaysian SMEs had a significant impact on their competitive advantage ($f^2 = 0.029$), which supported H1. The analyses’ findings are consistent with those of Park et al. (2017) and (Nuryakin 2018), who found that innovation orientation has a considerable impact on competitive advantage. H2 was rejected because customer orientation had a favourable but small influence on competitive advantage ($f^2 = 0.001$). This study’s findings contradict those of Adi et al. (2018), which found that customer orientation had a considerable beneficial impact on competitive advantage. In addition, competitor orientation ($f^2 = 0.088$) had a favorable and substantial effect on competitive advantage, indicating that H3 is correct. (Adi et al. 2018) discovered that competitor orientation had a significant impact on competitive advantage in Makasar’s Alfa Mart and Indomaret small markets. Similarly, supplier orientation had a significant and positive impact on firms’ competitive advantage ($f^2 = 0.021$), indicating that H4 is correct. The outcomes of the study are consistent with earlier research (Acar et al. 2017; Kumar et al. 2018). On the other hand, absorptive capability had a positive and significant effect on firms’ competitive advantage ($f^2 = 0.054$), confirming H5. The analyses’ conclusions are consistent with those of Sharma and Singh (2012) and (Liao et al. 2016), which found that absorptive aptitude has a large and favourable impact on competitive advantage.

Furthermore, the IPMA found that competitor orientation, absorptive capacity, innovation orientation, and supplier orientation were the most important elements affecting competitive advantage. As a result, SMEs should focus more on competitor orientation, absorptive capacity, innovation orientation, and supplier origination from a management standpoint, as these areas have emerged as the main priority areas for improvement in order to attain firm competitive advantage.

6 Theoretical and Managerial Implication

Despite the fact that various studies have looked at the impact of strategic orientation determinants on competitive advantage, there has been little research on how strategic management orientation helps to competitive advantage in the SMEs batik sector. The relevance of employing a variety of strategic orientations that allow batik industry businesses to strengthen their competitive advantage and performance was stressed in this study. The impact of customer orientation, competitor orientation, supplier orientation, innovation orientation, and absorptive ability on the competitive advantage of Malaysian SMEs in the batik sector is investigated in this study. The findings revealed that firm orientation for innovation, competitor, supplier, and abortive capability have a significant impact on a firm's competitive advantage of SMEs in the batik industry, while customer orientation has a positive but insignificant impact.

Because it investigates the main features of strategic orientations that determine competitive advantage in the batik business, the study adds to the corpus of knowledge, notably in marketing literature. The outcomes support the RBV hypothesis by demonstrating how strategic management orientation influences competitive advantages in the batik business. In addition, because the RVB theory emphasises strategic intangible resources as a major component of competitiveness and organisational performance, this study examines the impact of strategic orientation determinants on competitive advantages. Previous research on strategic orientation for consumers, suppliers, and competitors, as well as innovation and absorptive capacity on competitive advantage (Lin et al. 2020; Nuryakin 2018; Sulistyono and Ayuni 2019), has found that the findings are consistent with the RBV theory's premises.

Management may find the findings of this study beneficial in establishing and implementing various strategy orientations that will strengthen the firm's competitive advantage in the batik sector. This study is especially valuable for SMEs in Kelantan and Terengganu's batik industries since it emphasises the importance of strategic orientation for innovation, suppliers, rivals, and absorptive aptitude in obtaining competitive advantage. As a result, batik entrepreneurs should focus on increasing their strategic orientation by strengthening their relationships with suppliers, competitors, consumers, and other industry specialists. Furthermore, SME managers should improve their strategic orientation by developing closer relationships with customers and suppliers and providing better service; introducing practises that support and facilitate open innovation and collaboration among various

market actors whose competence can increase absorptive capability, thereby satisfying customers and achieving firm competitive advantage; and introducing practises that support and facilitate open innovation and collaboration among various market actors whose competence can increase absorptive capability, thereby satisfying customers and achieving firm competitive advantage. Furthermore, they should place a higher emphasis on the generation of and strengthening of a company's absorptive ability in order to better utilise and capitalise on experience acquired from external business partnerships. Investing in training and development to raise employee understanding of the importance of outside knowledge can help the firm's ability to collect and exchange information more efficiently across divisions and departments. This is especially significant for SMEs, which have a lower absorption capacity than large enterprises. Increasing absorption ability and competitive advantages will result from increased trust and collaboration with suppliers and industry experts, which will help to improve access to vital resources and external information. However, they should thoroughly examine client demand and preferences through purchasing trends and feedback in order to develop market information, which can be used to gain competitive advantages.

7 Conclusion

Due to their natural predisposition for inventiveness in invention, customer, competitor, and supplier relationships, as well as their absorptive power, SMEs all over the world are battling to stay competitive. As a result, research regarding customers' competing orientation and rival attainment of competitive advantage is required. The goal of the study was to see how innovation, customer, competition, and supplier orientation, as well as absorptive abilities, influenced the competitive advantage of batik SMEs.

The studies revealed that firm orientation for rival, innovation, supplier, and absorptive capability has a substantial impact on a firm's competitive advantage. On the other side, client orientation has a negligible impact on competitive advantage. When batik companies were compared to their competitors, they were found to be less customer-focused. Also, because of a U-shape link between customer orientation and organisational success, the role of customer orientation is challenged. Furthermore, competitive advantage is founded on absorptive capability and competition orientation. From a managerial aspect, companies need to focus on their competitor's and absorptive abilities to invent and increase a competitive advantage.

There are certain flaws in this study that could lead to more research in the future. The model developed in this study focuses on the broad features of innovation and capacity to absorb new information. Future study could concentrate on "potential absorptive capacity and actual absorptive capacity" (Zahra and George 2002) and "innovation creation and adoption" (Yusof et al. 2017). The research model's factors orientation did not contain all of the potential explanatory variables that could influence competitive advantage. Upcoming studies should include other explanatory

variables including technology orientation, entrepreneurship orientation, employee orientation, and interaction orientation.

Furthermore, to explain the study constructs, the current study relied on the understanding of respondents towards the competition in the market, customer expectations, and the suppliers' role, and the validity of the study measures was reliant on the understanding of respondents regarding market competition, customer expectations, and the role of suppliers. Future research could use data from a variety of sources to understand clearly regarding the competitive advantage of the firms from a variety of perspectives.

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Strategic Orientation, Service Innovation Capability and Financial Performance Among Chinese Service-Oriented SMEs



Guifang Sun, Mcxin Tee, Abdullah Al Mamun, and Anas A. Salamah

Abstract Strategic orientation is strategic direction for enterprises to create appropriate behaviors to achieve excellent performance. Enterprises need strategy and market-oriented methods to keep them in line with stakeholders. Through innovative products, enterprises provide opportunities to grow in market, expand to new areas and gain competitive advantages. Market orientation is important for enterprises to recognize market and formulate appropriate product and service strategies to fulfill needs and requirements of customers. For service-oriented companies, coordination among market orientation (customer orientation, competitor orientation, inter-functional coordination), innovation orientation, learning orientation, and cost orientation ensure generation of market-centered knowledge to achieve long-term success. Objective of this research is studying relationships among strategic orientation, service innovation capability and financial performance are analyzed through quantitative survey of Chinese service-oriented SMEs. Based on analysis on 214 respondents, this research confirms that strategic orientation of learning orientation and cost orientation will enhance service innovation capability of service-oriented SMEs in China. Service innovation capability is also perceived can bring positive impact to financial performance of SMEs. This research able to provide suggestion to service-oriented SMEs to be innovative and achieve higher financial performance in industry.

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Keywords Strategic orientation · Market orientation · Service innovation capability · Chinese SMEs

1 Introduction

With the growth of globalization and the rapid development of technology, today's market become increasingly competitive and turbulent, especially for small and medium-sized enterprises (SMEs). SMEs in China's GDP have become an important force in China's economic development. Based on SME Promotion Law of China, generally SMEs in China are classified as enterprise with 300 or fewer employees. In China, there are more than 98% of all enterprises are SMEs which have contributed to more than 60% of China's total GDP (OECD 2020). In order to obtain sustainable competitive advantage, it is essential to explore the new framework of strategies for SMEs. Moreover, it is crucial to understand how the strategic and innovative focus of an enterprise affects its market positioning and business performance. Innovative products or services can provide opportunities for enterprises to grow in the market and expand to new fields. Since the late 1980s, great progress has been made in the development of market-oriented structures. Many analytical works have been devoted to the definition, conceptualization, and operationalization of market-oriented structures. However, with the fast development of China's economy and rapid growth of China's service-oriented SMEs, the relevant research literature is still scarce. Most of the research on strategy, innovation and market performance is carried out in the context of developed countries. There is lack of studies have been conducted in developing countries context especially in terms of SMEs (Alhakimi and Mahmoud 2020). Therefore, according to the corresponding determinants and guiding factors of service-oriented SMEs, this study will make an in-depth study on service innovation capability and financial performance of service-oriented SMEs in China. Besides that, customers today are getting more knowledgeable and demanding. Response to customers' needs and dynamic market conditions is critical to the success of an enterprise. Market orientation is important for enterprises to comprehend the market and formulate appropriate strategies to meet the needs and requirements of customers. However, existing researchers typically have studied market orientation with general measure, without distinguish between different types of orientations in market orientation (Newman et al. 2016). On the other hand, a meta-analytic review on 159 research papers has proved that innovation has strong and positive relationship towards financial position of enterprises (Rubera and Kirca 2012). However, there is limited literature has studied on the influence of innovation on financial performance under different strategic orientation (Racela and Thoumrungroje 2019). On these bases, this study will further explore the coordination among market orientation (customer orientation, competitor orientation, inter-functional coordination), innovation orientation, learning orientation, and cost orientation on service innovation capability and service performance with the aim of ensuring service-oriented

SMEs can formulate market-centered knowledge and strategies to achieve long-term success in China. The paper is organized as follows. The subsequent section shows literature review and hypotheses of the proposed framework. Then, research methodology, data analysis and results are exhibited. Lastly, discussion of findings, conclusion, limitations, and directions for future researchers are presented.

2 Literature Review

2.1 Service Innovation Capability

The complexity of corporate world shapes today's business environment become more dynamic and turbulent than ever. Innovation can play an important function in this market dynamism by generate new ideas and knowledge to bring better performance and profitability to the enterprises (Taghizadeh et al. 2018). Innovation capability is defined as enterprises' ability to utilize knowledge and ideas to perform value-creating tasks through development of innovation activities and new solutions (Liu et al. 2017). Service innovation capability will focus on ability of service providers to create value to new or improved service process of mode of service deliveries (Kumar et al. 2020).

2.2 Strategic Orientation

Strategic orientation is a popular way in product-oriented and service-oriented businesses with the aim of achieving more favorable enterprise performance and profitability by using strategy to develop plans of action to adapt to the fast-changing environment (Hsu et al. 2016). It is the enterprise's overall goals and direction which includes market orientation notion and development of strategic decision-making to achieve well-defined objectives. Previous researchers have discussed extensively on different orientations that should be involved in strategic orientation, such as market orientation (Kurniawan et al. 2020; Wilden et al. 2019; Al-Henzab et al. 2018), innovation orientation, learning orientation and cost orientation.

2.3 Market Orientation

Market orientation is one type of strategic orientations to define how enterprises examine the changes in current market, respond to the current customers' demands

and also predict the future market dynamics (Wilden et al. 2019). It is an enterprise-wide development of strategy and distribution of market knowledge across all functional units (Kurniawan et al. 2020). It includes the integration of three main areas: customer orientation, competitor orientation and inter-functional coordination to provide solution in the way of innovative products and services (Al-Henzab et al. 2018).

Customer Orientation and Service Innovation Capability

When service-oriented enterprises are customer-oriented, they identify customers' demand desire and purchase preferences to fulfill customers' needs. It reflects to the comprehensive understanding about the customers with the aim of creating values that the customer required. The creation of customer value can lead to customer-focused innovation to satisfy customers' desire and preferences (Racela and Thoumrunroje 2019). Hence, we propose the first hypothesis:

H1: Customer orientation has positive impact on service innovation capability.

Competitor Orientation and Service Innovation Capability

Competitor orientation reflects to enterprises' understanding on current and potential competitors' strengths and weaknesses by continuously assess competitive environment in the same industry and benchmark themselves again the competitors (Newman et al. 2016). Competitor-oriented enterprises will put more efforts to differentiate themselves from their competitors through facilitating innovation and generating new ideas (Aydin 2020). Therefore, we propose the second hypothesis:

H2: Competitor orientation has positive impact on service innovation capability.

Inter-functional Coordination and Service Innovation Capability

Inter-functional coordination exhibits the degree of collaboration among functional units in an enterprise such as willingness to share market information among the functional units to develop innovative solutions for the current market (Shin 2017). The coordination between functional units can positively affect business performance by creating greater customer value through faster market reaction and greater customer satisfaction. Hence, we propose the third hypothesis:

H3: Inter-functional coordination has positive impact on service innovation capability.

2.4 Innovation Orientation and Service Innovation Capability

Innovation orientation is the key driving force to improve the ability of enterprises to successfully adapt and implement new systems, new processes, or new products. Innovation orientation is built on four main parts: flexible structures, innovative

organizational culture, comprehension on market dynamism, and lastly resources and knowledge capabilities (Norris and Ciesielska 2019). Attention on these four parts enable the enterprise's overall innovative capabilities of empowering employees, discovering new opportunities in the market, and then able to manage environmental dynamics and competitiveness in a more innovative, efficient, and effective way. So, we propose the fourth hypothesis:

H4: Innovation orientation has positive impact on service innovation capability.

2.5 Learning Orientation and Service Innovation Capability

Learning orientation is one of the extensions of market orientation, to suggest that organizational learning is important to the process of developing and distributing market knowledge in order to become a market-oriented enterprise (Mahmoud et al. 2016). It emphasizes the organizational culture of learning to explore market opportunities, then produce and share market knowledge in a timely manner. The learning atmosphere can strengthen organizational innovation capabilities (Xie and Zheng 2019). Therefore, we propose the following hypothesis:

H5: Learning orientation has positive impact on service innovation capability.

2.6 Cost Orientation and Service Innovation Capability

Cost orientation is derived from internal orientation, refers to enterprises attempt to reduce costs in organizational activities and emphasize on reaching cost efficiency (Bapat and Mazumdar 2015). Cost orientation that relies on centralized decision-making to standardize practices for achieving lower cost will negatively affect innovation. However, cost orientation that motivate employees to search for innovative alternatives to utilize creative and new approaches to reach cost efficiency can be positively related to innovation capability (Shin and Lee 2016). It can create better and newly enhanced outcomes for the enterprises. Hence, we propose the following hypothesis:

H6: Cost orientation has positive impact on service innovation capability.

2.7 Service Innovation Capability and Financial Performance

A meta-analytic review on 159 research papers has proved that innovation has strong and positive relationship towards financial position of enterprises (Rubera and Kirca 2012). Introducing successful innovative services will allow enterprise to increase

market shares in an industry (Alnawas and Hemsley-Brown 2019). Therefore, we propose the following hypothesis:

H7: Service innovation capability has positive impact on finance performance of an enterprise.

3 Research Methodology

3.1 Research Design

This research studies on relationships among strategic orientation, service innovation capability and financial performance of China’s service-oriented SMEs. All relationship hypothesized are presented in Fig. 1. It was exploratory research to study associations between variables. Quantitative research method was applied for collecting data in target population to further understand characteristics of variables empirically.

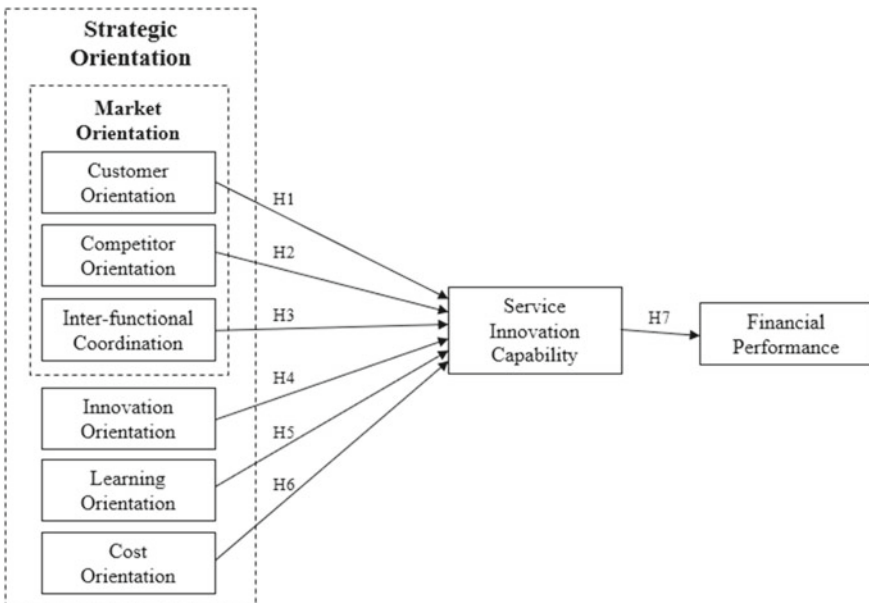


Fig. 1 Proposed framework

3.2 Population and Sample

This research focused on studying SMEs because it is very challenging for SMEs to compete with larger enterprises in the marketplace due to SMEs have limited resources and networking. Hence, innovation strategy may be the solution to overcome this difficulty faced by SMEs (Liu et al. 2017). Convenience sampling is conducted to select the sample to overcome limitation of impossible to gain the sampling framework as it is difficult to get the whole list of the target population. Based on G*Power software, the minimum sample size is 74 samples. However, we decided to collect more than it for further analysis and avoid issue due to small sample size.

3.3 Measurement Instrument

Quantitative questionnaire method is implemented. All the item was measured by five-point Likert scales. Table 1 shows the sources for measurement instrument of this research.

Table 1 Measurement instrument

Variables	No. of items	Sources
Customer Orientation (CO)	6	Grawe et al. 2009
Competitor Orientation (COMO)	4	Grawe et al. 2009
Inter-functional Orientation (INTO)	5	Zhang and Duan 2010
Innovation Orientation (INNO)	5	Zhang and Duan 2010
Learning Orientation (LO)	6	Gomez et al. 2011
Cost Orientation (COSO)	5	Grawe et al. 2009
Service Innovation Capability (SIC)	5	Grawe et al. 2009
Financial Performance (FP)	4	Hutahayan 2020

3.4 Data Collection and Data Analysis

Considering the current situation of COVID-19 in China, the questionnaire distribution will be conducted online through an online survey platform, Questionnaire Star, which is a popular questionnaire survey platform in China. The questionnaire link will be sent through e-mail or social media (WeChat, Weibo) to the employers or managers who are working in service-oriented SMEs. After the respondents answered the questionnaire, data is automatically stored on the platform. In addition, invalid and incomplete questionnaires will be excluded by the platform which is convenient for further data processing. The questionnaire will also have a question to confirm whether the enterprise have 300 or fewer employees, to make sure we only collect data from SMEs. After filtering the unsuitable responses (such as service-oriented enterprises with more than 300 employees), descriptive analysis and multiple regression analysis is carried out to test hypotheses proposed in this research.

4 Data Analysis

4.1 Descriptive Analysis

Total respondents of this research are 214 respondents. Table 2 shows the demographic profile.

4.2 Reliability Test

Cronbach's Alpha larger than 0.7 will prove measurement instrument has a good reliability. Table 3 presents all variables are reliable.

4.3 Multiple Regression Analysis

Multiple regression analysis is performed by SPSS software to test the seven hypotheses of this research. Adjusted R^2 of the model is 0.778, indicates has a good fitness and 77.8% of the variance of Service Innovation Capability can be explained by the independent variables. Next, Table 4 presents Coefficients of the model, which suggested that hypotheses of the research: H5, H6 and H7 are positive and statistically significant (with Std Beta > 0.2; t-value > 1.645; p-value < 0.05). However, the analysis showed H1, H2, H3 and H4 are not supported.

Table 2 Demographic profile of respondents (N = 214)

	Frequency	%		Frequency	%
Gender			Industry		
Male	123	57.5	Business	20	9.3
Female	91	42.5	Communication	40	18.7
Total	214	100%	Construction	37	17.3
			Education	26	12.2
Years of experience			Entertainment	7	3.3
Less Than 3	7	3.2	Environment	13	6.1
3–5	62	29.0	Financial	8	3.7
6–10	78	36.4	Health	16	7.5
11–15	36	16.7	Sales	31	14.5
16–20	22	10.2	Shipment	2	0.9
More Than 20	9	4.5	Travel	8	3.7
Total	214	100%	Others	6	2.8
			Total	214	100%
Working position			Education level		
Trained Professional	91	42.5			
Middle Management	76	35.6	Diploma	7	3.3
Top Management	27	12.6	Bachelor’s Degree	111	51.9
Partner	18	8.4	Master’s Degree	87	40.7
Others	2	0.9	PhD	5	2.3
Total	214	100%	Others	4	1.8
			Total	214	100%

5 Discussion

Among the six types of strategic orientation, learning orientation and cost orientation have been proved to have significant positive relationship on service innovation capability of service-oriented SMEs in China. Learning orientation is the popular and latest extensions of market orientation to suggest that organizational learning is important to the process of developing and distributing market knowledge to become a market-oriented enterprise. Our result about learning orientation is consistent with previous findings. Besides, China’s culture and local enterprises are more internally oriented, hence cost orientation will be the important strategic orientation to motivate the enterprises to search for innovative approach to improve financial performance. This result is consistent with previous findings too. Moreover, there is significant and positive relationship between service innovation capability and financial performance. Hence, there is no doubt that introducing successful innovative services will allow enterprise to increase market shares in an industry.

Table 3 Reliability test

Variables	No. of items	Cronbach's Alpha
Customer Orientation (CO)	6	0.730
Competitor Orientation (COMO)	4	0.737
Inter-functional Orientation (INTO)	5	0.758
Innovation Orientation (INNO)	5	0.710
Learning Orientation (LO)	6	0.791
Cost Orientation (COSO)	5	0.749
Service Innovation Capability (SIC)	5	0.796
Financial Performance (FP)	4	0.790

Table 4 Summary of coefficients

Relationship	Std. Beta	Std. Error	t-value	p-value	Decision
H1: CO > SIC	0.053	0.059	0.906	0.366	Not supported
H2: COMO > SIC	0.081	0.078	1.035	0.302	Not supported
H3: INTO > SIC	0.072	0.078	0.924	0.357	Not supported
H4: INNO > SIC	0.084	0.067	1.245	0.215	Not supported
H5: LO > SIC	0.381	0.062	6.111	0.000	Supported
H6: COSO > SIC	0.352	0.065	5.425	0.000	Supported
H7: SIC > FP	0.815	0.042	19.263	0.000	Supported

However, there are four strategic orientations (customer orientation, competitor orientation, inter-functional coordination, and innovation orientation) are proved not related to service innovation capability of China's service-oriented SMEs. In terms of customer orientation, one possible explanation is due to limitation of SMEs' resources, they may need to make decision by shifting their resources allocation from supporting innovative-related activities to delivering better services to customers which may be irrelevant to innovation capability (Liu et al. 2017). Next, one possible reason is that when engaging in competitor orientation, SMEs usually have narrower product or service range compared to their competitors of larger enterprises. Hence, they prefer not to pursue competitor orientation as this strategy needs to invest more resources in studying and examining competitors' movement. In terms of inter-functional coordination, one possible rationale may because smaller enterprises are lacking organized departments and they depend on managers or owners to make the decisions (Alhakimi and Mahmoud 2020). Lastly, in terms of innovation orientation,

one possible explanation is enterprises in China have their own Chinese-style innovation which mainly focuses on other reasons, such as low-cost orientation, instead of just want to be innovative (Shen et al. 2020).

6 Conclusion

The outcomes of this research confirm that the strategic orientation of learning orientation and cost orientation will enhance service innovation capability of service-oriented SMEs in China. Service innovation capability is also perceived can bring positive impact to financial performance of SMEs. Hence, it is important for the policymakers to formulate plans that might be tailored to help the SMEs to integrate learning and cost orientation strategies in their marketing activities and management practices. This will motivate them to pursue new and innovative ideas on processes, products and services provided. SMEs who have better understanding on their strategic orientation can ultimately affect financial performance of the enterprise. This research can be beneficial for future researchers who want to examine further in the relationship between strategic orientation and SMEs' innovativeness in China. In the future, a mixed research method (qualitative and quantitative) can be considered to overcome limitation of this research, which is to collect more comprehensive feedback and opinions from the respondents.

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Factor Acceptance of Technology in Assisting Entrepreneurs with Disabilities (PWDs) Through the Development of “Smart 3-Wheel Bike”



Nurhaiza Nordin , Nur Naddia Nordin, Nur Ilyana Amiiraa Nordin, Nur Faiz Nordin, and Edin Eai Ewan

Abstract Technology is a crucial factor for starting a business today and it is an important factor for disabled entrepreneurs. Entrepreneurship has become one of the preferred fields of employment for disabled people due to the lack of other employment opportunities. However, the existing technology for disabled people is still insufficient to ensure that disabled people remain competitive in the entrepreneurship field. The Smart 3-Wheel Bike was developed to provide better facilities to entrepreneurs with disabilities. The study will examine the factors of acceptance of technology in assisting entrepreneurs with disabilities (PWDs) through the development of “Smart 3-Wheel Bike”. The factors are technical efficiency, the usability of technology, and attitude to use the technology towards the acceptance of the technology “Smart 3-Wheel Bike”. Using Smart-PLS analysis and the sample size is 37 people of disability (PWDs) from Kelantan. The results revealed that a direct relationship was supported. The study will help disabled people to increase their standard of living and at the same time increase their income. Thus is technology “Smart 3-Wheel Bike” is most valuable to them and this technology has become one of the tools to help them. For the novelty of the study are introducing new support technology for the disabled entrepreneurs with the safety and features for them.

Keywords Disable people · Entrepreneurship · Technology · Smart-PLS

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1 Introduction

For a multitude of reasons, including societal transformation and innovation, entrepreneurship is critical. Entrepreneurs are usually regarded as national assets that must be properly supported, promoted, and paid. In actuality, thanks to their innovation, research, and forward-thinking entrepreneurs, some of the most developed countries, such as the United States, are world leaders. On a local and national level, great entrepreneurs can alter how we live and work. If successful, their ideas can enhance living standards and, in addition to generating revenue through entrepreneurial activities, contribute to economic growth by creating jobs. It is impossible to overestimate the value of entrepreneurship.

In India, for example, the IT sector was created in the 1990s by numerous information technology businesses. The industry is quickly expanding, and many other industries are benefiting from it. Businesses in adjacent industries, such as contact centers, network maintenance firms, and hardware manufacturers, are expanding. Education and training institutions are nurturing a new class of IT professionals who are being given better-paying employment.

Future development initiatives in other nations will also need strong logistical assistance, financial investment, and skilled staff. Entrepreneurship supports a broad section of the economy, from competent programmers to construction workers. Small companies in the United States alone produced 1.6 million net employment in 2019. Entrepreneurial endeavors contribute to the creation of new wealth. Current firms may be restricted to existing markets and may approach revenue ceilings. Entrepreneurs' innovative and improved goods, services, or technology enable the development of new markets and the creation of new riches.

Individuals with disabilities have a considerably higher risk of poverty in the EU than people without impairments. In comparison to 14.9% of persons without impairments, 21.1% of people with disabilities are in danger (Hauben et al. 2012). The major cause and/or consequence of persons with disabilities' social exclusion is their low employment rates, which is the cause and/or result of their social exclusion (Greve 2009; Hauben et al. 2012).

Integration of persons with disabilities into the labor market through employment remains a serious issue in European countries. Individuals with disabilities have a 20% lower employment rate than people without impairments (Eichhorst et al. 2010). In many situations, private and governmental organizations in Europe fail to satisfy quota duties for persons with disabilities (Greve 2009). As a result, persons with impairments are underused in Europe's employment. Disability shall be defined as follows in the context of this background paper:

Disability is the consequence of a complicated interplay between a person's functional limits and his or her social and physical surroundings. A person's physical, intellectual, or mental state might cause functional limits (British Government department for international development 2000).

Many PWDs entrepreneurs were born with various sorts of companies, as seen from all across the country. This group is more likely to be self-employed and eventually become entrepreneurs, whether little or large-scale businesses, due to the difficulties of finding work. This scenario is in keeping with the PWDs Action Plan 2016–2022's approach. Because of the great potential in the area of entrepreneurship, the government has worked hard to nurture this sector in the community through different approaches, departments, agencies, and so on, by following per under the National Entrepreneurship Policy.

According to a study by Rozell et al. (2010), the success and failure factors of entrepreneurs are influenced by a variety of factors including raw material resources, entrepreneurial motivation, industry knowledge, technology, planning skills, communication skills, interpersonal skills, and risk-taking.

The crucial question, on the other hand, is how technology may be used to enhance the self-employment rate of persons with disabilities. The objective of this study is to examine the factor of acceptance technology in assisting entrepreneurs with disabilities (PWDs) through the development of the "Smart 3-Wheel Bike". As a result, this background paper will outline the present hurdles to entry for persons with disabilities who want to start their own business, as well as give examples of best practice policies that promote the removal of these barriers through the adoption of technology. In conclusion, this paper will make recommendations for necessary policy actions related to technology, which will promote people with disabilities to approach the path to self-employment. In conclusion, this study will provide recommendations for essential technological policy steps that will encourage individuals with disabilities to pursue self-employment. The structure of this study is follow by the literature review, research methodology, results, and discussion and conclusion.

2 Literature Review

This chapter is outlined with a review of the literature of this study. This means that this analysis aims to clarify the definition of the variable in terms of the independent variable (IV) and the dependent variable (DV). Based on previous studies on technology acceptance, three factors that influence the acceptance of technology development "Smart 3-Wheels Bike" among people with disabilities (PWDs) in doing business or known as independent variables (IV) consists of technical competence, usability, and attitude using "Smart 3-Wheels Bike" technology. Meanwhile, the dependent variable (DV) or known as the yield variable is contained in the Acceptance of "Smart 3 Wheels Bike" technology. The variables will be discussed in-depth in this chapter.

The Technology Acceptance Model (TAM) has been expanded to include emotional standards to explain the practical purpose and clear application of social influence and subjective instrumental procedures (Venkatesh et al. 2003), also known as Unified Technology Acceptance and Use Theory (Venkatesh et al. 2003). (UTAUT). Since the prototype development framework is the expansion and use of

creative innovation framework and technology use behavior, for example, prototype development is like the use framework, TAM provides valuable requirements and frameworks to ensure explanation of prototype development to PWDs entrepreneurs.

Greene (2000) defines an entrepreneur as a person who owns and operates a business, whereas Idris (2003) and Naude (2010) define entrepreneurs as people who are willing to take risks, constantly strive to innovate, and are smart and creative in their pursuit of wealth, power, and social status.

According to Zahra et al. (2008), marginal groups such as persons with disabilities (PWDs) have the potential to be highlighted in the area of entrepreneurship. This is because entrepreneurship does not compare the physical shape and physical limits to succeed as an entrepreneur. Furthermore, the disabled are not exempt from a variety of difficulties that make it difficult for them to find work (Ang 2014; Haslina 2006; Khoo et al. 2012). Research by Rogoff et al. (2004) also supports the relevance of technology to entrepreneurs.

Information systems (IS) that are not well received by their intended users will fail. System deployment is perhaps the largest issue faced by IS managers, with failure rates as high as 40% or more (Kijisanayotin et al. 2009). Fortunately, it is now commonly accepted that measuring and improving the usage of IS may be done using customer acceptance of technology. As a result, one of the most significant areas of IS research is determining what characteristics influence consumer technology acceptance. As a result, one of the most significant areas of IS research is determining what characteristics influence consumer technology acceptance. Davis et al. (1989) established a key paradigm known as the technology acceptance model (TAM) to achieve this goal (Davis 1989; Davis et al. 1989).

Perceived use refers to “the extent to which a person believes that using a particular technology will improve his or her job performance,” (Davis 1989). In the TAM framework, PU is hypothesized to be a direct predictor of behavioral intention to use (BI) technology of interest (Park et al. 2014).

Ease of Use is defined as “the degree to which a person feels that utilizing technology will be simple” (Davis 1989). PEOU refers to the extent to which consumers feel their continuing usage of e-government is free in the context of this study. Individuals will be more comfortable learning about the system’s features and will eventually want to continue using it if it is reasonably simple to use. PEOU is favorably related to intention continuity in the context of Web-based learning, according to studies (Chiu and Wang 2008).

The intention to use, according to the literature study of technology adoption, shows the consumer’s willingness to utilize the technology in the future. Because intention to use technology has been proven to be a reliable predictor of actual technology usage, it was utilized as the outcome variable in this study (Ajzen 1991; Turner et al. 2010).

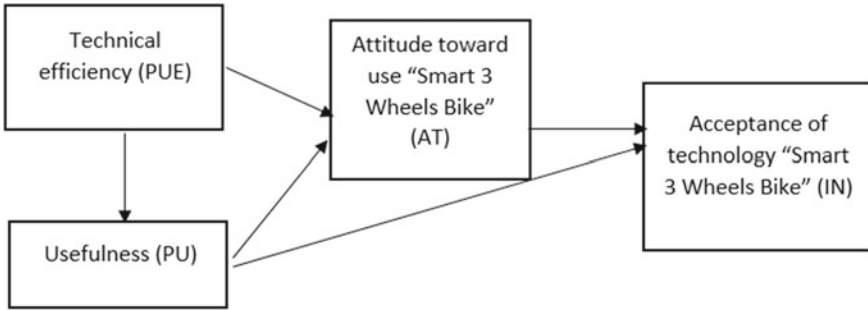


Fig. 1 Conceptual framework for the acceptance of the development of “Smart 3 Wheels Bike” technology

3 Proposed Research Model

The proposed research model consisting of factors related to the acceptance and use of technology is described in this section. In some studies, TAM theory is used to examine user satisfaction (PU), understanding of ease of use (PEU), and intention to use “Smart 3 Wheels-Bike” technology. The design of the proposed model is based on TAM theory to influence key factors such as PU, PEU, and consumption attitude (AT) on the development of “Smart 3 Wheels Bike” technology. Three additional variables were included in the design of this model such as usability, technical competence, and attitude to use technology from various studies and empirical literature. TAM is implemented in the acceptance of technology development as the most powerful and general theory than other theories (Šumak et al. 2011). In Fig. 1, the proposed research framework should be tested and analyzed showing the constructs grouped into three categories to investigate the factors influencing the development of “Smart 3 Wheel-Bike” technology.

4 Research Methodology

The disabled people in Kelantan are the unit of analysis in this study and the current study used a convenience sampling method to select the participants. According to Kumar et al. (2013), convenience sampling is a process that involves collecting data from a particular population that the researcher can easily access. Generally, a non-probability sampling technique is suitable for studies examining the theoretical influence grounded by a conceptual framework (Hulland et al. 2017; Ngah et al. 2019). Therefore, this study employed this method because it matches the research context.

The data collection was conducted using an online survey and some face-to-face surveys. Besides, to minimize common method variance (CMV), a few procedural

remedies were also implemented. Firstly, a description of the research project was written in the questionnaire to outline the purpose and significance of the study to the community. Additionally, the respondents were given written instructions and assured that all responses and personal details would be treated with the utmost confidentiality. Besides, their participation in the study was entirely voluntary and they were also encouraged to answer all questions honestly since the questions do not specify any right or wrong answers. Based on Mackenzie et al.'s (2011) suggestion, different anchor scales were used to measure the variables using a five-point Likert scale.

An analysis using Green's (1991) table was carried out before collecting the data to identify the minimum sample size needed to sufficiently accomplish statistical power for explaining the relationships within the model as suggested by Hair et al. (2017). Based on the result, this study requires a minimum sample size of 35 for the three predictors, with a large effect size of 0.35 at a 0.05 confidence level. Thus, the data were deemed sufficient for the research model based on the 37 responses received.

5 Result and Discussion

5.1 Respondent Profile

The demographic background of the respondents consisting of 37 people with disabilities (PWDs) in Kelantan as shown in Table 1. The respondents consisted of 18 (48.8%) females and 19 (51.2%) males. with 68%.

To analyze the data, the SmartPLS version 3.2.8 software was applied to experiment on complex models that involve latent variables. This software is suitable to be used as a tool because it can better explain the underlying constructs including their relationships. SmartPLS is also appropriate for the data that did not meet the normality distribution.

In line with Hair et al.'s (2016) recommendation, a normality test has been carried out before examining the measurement model. The WebPower software was also used to calculate multivariate skewness and kurtosis and the results revealed both Mardia's multivariate skewness ($\beta = 10.308$, $p < 0.01$) and multivariate kurtosis ($\beta = 97.402$, $p < 0.01$). This indicates the non-normality encompassed within the data including its significant application for regression analysis via Smart PLS.

Since this analysis applied single-source data through a simultaneous collection of the dependent and independent variables from the same person, this study renders CMV a potential issue (Mackenzie et al. 2011). Hence, a statistical approach was applied to solve this issue. According to Podsakoff et al. (2003), CMV is troublesome if the bulk of the explained variation is found in a single latent factor. It has also been reported that CMV is a concern if more than 50% of the total variance is clarified by the first factor (Fuller et al. 2016). Therefore, to determine the degree of the bias, the

Table 1 Respondent profile

	Demographic		Frequency	Percent
1	Gender	Male	19	48.8
		Female	18	51.2
2	Age	20–30 year	5	1.85
		31–40 year	13	35.13
		41–50 year	12	32.43
		51 year and above	7	18.91
3	Race	Malay	20	54.0
		Cina	8	21.6
		India	2	5.4
		Bumiputera	2	5.4
		Lain-lain	5	13.5
4	Residence/district	Tumpat	10	27.02
		Kota Bharu	6	16.21
		Pasir Mas	4	10.8
		Pasir Puteh	2	5.4
		Keterah	2	5.4
		Machang	2	5.4
		Wakaf Bharu	7	18.9
		Pengkalan Kubur	4	10.8

Harman single factor test was carried out as per Hair et al.'s (2017) suggestion. The unrelated factor analysis further revealed that 27.33% of the balance was carried out by the first factor. Therefore, CMV is not an issue in this study.

5.2 Assessment of the Measurement Model

Anderson and Gerbing's (1988) approach called the two-step approach was introduced in this study, which evaluates the calculation model and the structural model. Firstly, the associations between the items and constructs were measured based on the measurement model. Secondly, the association between the independent and dependent constructs was measured in the structural model. The convergent and discriminant validity conditions must also be met in the measurement model. Table 2 depicts the measurement model of this study.

Convergent validity is used to measure the extent of consensus between various items measuring the same concept. Firstly, to determine the convergent validity of each construct in the measurement model, the study tested the loading values as well as composite reliability (CR) and average variance defined (AVE). According

Table 2 Convergent validity

Construct	Indicator	Loadings	Cronbach's alpha	Composite reliability	AVE	R-square	Composite reliability
PUE	PUE1	0.847	0.930	0.953	0.722	0.565	0.945
	PUE2	0.872					
	PUE3	0.928					
	PUE4	0.873					
	PUE5	0.873					
	PUE6	0.877					
PU	PU1	0.888	0.941	0.945	0.741	0.698	0.943
	PU2	0.858					
	PU3	0.894					
	PU4	0.890					
	PU5	0.820					
	PU6	0.810					
AT	AT1	0.886	0.938	0.953	0.803	0.513	0.941
	AT2	0.937					
	AT3	0.945					
	AT4	0.864					
	AT5	0.843					
IN	IN1	0.821	0.906	0.930	0.726		0.922
	IN2	0.900					
	IN3	0.895					
	IN4	0.869					
	IN5	0.768					

Source Authors' estimates based on survey data

to Hair et al. (2017), to ensure the presence of convergent validity in the model, the loading and AVE values should be greater than 0.5 and the CR value should be at least 0.7. As can be seen in Table 3, the loading, AVE, and CR values exceeded the suggested values; hence, the convergent validity of each model is deemed sufficient. The loading values were recorded to range from 0.768 to 0.945, specifically from

Table 3 Discriminant validity (HTMT)

	AT	IN	PU	PUE
AT	0.896			
IN	0.716	0.852		
PU	0.611	0.587	0.861	
PUE	0.764	0.682	0.808	0.879

0.722 to 0.803 for AVE and from 0.922 to 0.945 for CR. Therefore, these findings suggested that convergent validity is achieved.

After achieving the criteria for convergent validity, discriminant validity was further achieved by testing the presence of discriminant validity in the model using the correlation criteria heterotrait-monotrait (HTMT) ratio in deciding whether all constructs in the established model varied from other constructs. Resultantly, each construct was unique and not described in the model by other constructs (Hair et al. 2017). In line with Henseler et al.'s (2015) recommendation, all HTMT scores were smaller than the threshold score of 0.90 (Table 3); therefore, this shows that the model has fulfilled the suggested criteria and that all structures of the analysis were validated via discriminant validity.

5.3 Structural Model

We evaluate multivariate skewness of Mardia (multivariate skewness and kurtosis, as indicated by Hair et al. (2017) and Cain et al. (2017). The findings showed that the data we obtained were not regular multivariate kurtosis of Mardia ($\beta = 62.566$, $p < 0.01$), so we recorded the path coefficients, the standard errors, t-values, and p-values for the structural model using a 5,000 sample re-sample bootstrapping procedure following the suggestion on Hair et al. (2019). Hahn and Ang (2017) also criticized that p-value is not a good criterion for evaluating the validity of the hypotheses and proposed using a mix of metrics such as p-values, confidence ratio, and effect sizes. The description of the parameters we have used to test the hypotheses formed is shown in Table 4.

First, we tested the effect of 3 variables on the development of “Smart 3 Wheels Bike” (IN) technology, R2 is 0.653 which indicates that all three variables explain 65.3% of the variance in IN. Usability ($\beta = 0.587$, $p < 0.00$), technical efficiency ($\beta = 0.682$, $p < 0.00$) and usability ($\beta = 0.716$, $p > 0.00$). Therefore, H1, H2, and H3 are all positively related to the intention to use (IN) which is the development of “Smart 3-Wheels Bike” technology. Therefore, all variables are supportive and positively related to the acceptance of the development of the “Smart 3 Wheels Bike” technology.

Table 4 Hypothesis testing direct effects

Hypothesis	Relationship	Std beta	Std error	t-values	p-values	f ²	VIF	Results
H1	IN → AT	0.587	0.113	5.173	0.000	1.054	1.000	Supported
H2	IN → PU	0.682	0.110	6.219	0.000	0.525	1.000	Supported
H3	IN → PUE	0.716	0.075	9.490	0.000	0.870	1.000	Supported

Note We use a 95% confidence interval with a bootstrapping of 5,000

5.4 Conclusion and Recommendation

This study aims to investigate the factors of influence the acceptance of the development technology “Smart 3 Wheels Bike” among disable people. From the results and findings, all variables such as technical efficiency, usability, and attitude to use technology influence the acceptance of the development of the “Smart 3 Wheels Bike” technology. Therefore, people with disabilities accept this technology in running their businesses.

In conclusion, the need for technology in helping entrepreneurs with disabilities (PWDs) through the development of the “Smart 3-Wheel Bike” is very much needed. This group will use the “Smart 3-Wheel Bike” as one of their sources of income. Thus, the success and failure factors of entrepreneurs according to a study by Rozell et al. (2010) are dependent on several elements such as raw material resources, entrepreneurial motivation, industry knowledge, technology, planning skills communication skills, interpersonal skills, and risk-taking. The elements considered are business resources, general situation, organizational structure, and customer relationships (Kuratko 2012; Bygrave and Zacharakis 2011; Morris et al. 2011; Schaper et al. 2011). Moreover, also appropriate technology requirements refer to matching technological capabilities with job requirements, i.e. technological capabilities to support tasks (Teo and Men 2008; Fu et al. 2019). Goodhue and Thompson (1995) proposed a TTF model, which extends TAM by considering how tasks affect technology use (Tam and Oliveira 2016).

The results show that all the theories are backed by empirical research and by following per under with previous observations and theoretical context for the acceptance of the factor of technology in assisting entrepreneurs with disabilities (PWDs) through the development of the “Smart 3-Wheel Bike”. The novelty of this research is the development of the new technology in assisting entrepreneurs with disabilities (PWDs) through the development of “Smart 3-Wheel Bike” with the smart features and easy for them to use this “Smart 3-Wheel Bike”. For the recommendation, the government should provide the used technology to disabilities (PWDs) especially in the assisting them for becoming the entrepreneur. The limitation of this study is only using several factors acceptance of technology in assisting entrepreneurs with disabilities (PWDs) through the development of “Smart 3-Wheel Bike”. Another factor such as financial assistance for the disabilities to buy the technology and the factors of the family background also important to ensure that they were able to get the technology for assisting them for the entrepreneur. Thus the results may be more useful in future research.

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Augmented Reality Street Art (ARSA) Model to Revitalize Deserted Alley in Kota Bharu, Kelantan Towards Shared Prosperity Vision 2030: A Systematic Literature Review



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Abstract Previous research has mentioned that lost places in urban areas, such as back alleys, are often hotbeds of crime and immoral acts. Most countries, including Malaysia, have chosen to use creative methods, such as placemaking, to regenerate deserted alleys and urban spaces to improve such locations. However, integrating interactive technology, such as Augmented Reality (AR), has not had enough study as a creative approach in placemaking projects to revitalize abandoned alleys or empty urban places. Therefore, a systematic literature review was conducted to evaluate the relationship among various street arts, using AR technology, in creative placemaking projects, to revitalize places for society's well-being and to fulfill the government's Shared Prosperity Vision 2030. Inclusion criteria added studies on street art, street art with augmented reality technology, and their relationship to placemaking. The excluded studies were unrelated methodology, samples, contexts, and findings. Eleven studies met the inclusion criteria using a systematic search strategy.

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Based on the review, a research model for revitalizing areas using street art projects integrated with AR technology was developed for society's wellbeing and to fulfill two of the Key Economic Growth Activities (KEGA); namely, (KEGA 4) Content Industries and (KEGA 15) Tourism Malaysia, in the government's Shared Prosperity Vision 2030 blueprint.

Keywords Augmented Reality · Street arts · Creative placemaking · Key Economic Growth Activities (KEGA) · Systematic literature review

1 Introduction

Malaysia is not new to the concept of street art or public art projects. Graffiti, street art, or public art has gained interest, especially as of late, and can be seen everywhere. It is well-known that one of the most effective methods used to revitalize deserted urban spaces is by using art, which has been applied or implemented in various countries (Buckley 2014; Fun 2017; Guimarães et al. 2016). Several studies have mentioned how street art or public art projects help revitalize urban environments and impact their surroundings (Fun 2017; Mohd Fabian et al. 2012; Omar et al. 2016). For example, there are places where these kinds of projects took place in Malaysia, most notably in Kuala Lumpur, Pulau Pinang, and Perak. As mentioned in an article written by Bavani M. (2018), a transformation project was first initiated in Kuala Lumpur in 2015 when around 20 areas were identified within Bukit Bintang, Jalan Alor, and the Tun Razak Exchange (TRX). The regeneration project covers several areas including side lanes, back lanes, alleys, and service lanes in between buildings (M. 2018). The project has now extended to several other lanes along the Bukit Bintang area, such as Lorong Sultan and Lorong Petaling (AGENCY 2021). However, while many studies have been completed regarding revitalizing abandoned alleys or empty urban places using street art or public art projects, there is a lack of research on combining street art projects with creative technology such as Augmented Reality (AR) in Malaysia. Thus, this article focuses on developing a research model using street art while integrating creative technology such as AR to revitalize a deserted alley in Kota Bharu, Kelantan, for social well-being to fulfill the government's Shared Prosperity Vision 2030 (SPV2030 2019), which was officially launched on October 5, 2019, by ex-Prime Minister Mahathir Mohamad.

Referring to the Shared Prosperity Vision 2030, particularly Key Economic Growth Activities (KEGA), it is crucial to recognize the sectors with the most potential to grow quickly for future economic development to align with the country's aspiration to achieve high-value economic growth development (SPV2030 2019). This would also allow the growth and expansion of businesses, the economy, and their spectrum in Malaysia.

There are 15 KEGA proposals identified for development but in this article only 2 of KEGA's sectors are suitable; namely, KEGA 4 Content Industries and KEGA 15 Tourism Malaysia Truly Asia (SPV2030 2019). The KEGA 4 Content

Industries, mentioned in SPV2030, are the digital arts and entertainment industries such as Animation, Programming, Entertainment, Culture, and Digitalisation. These Industries focus on the potential of companies and talent, in the local animation scene, by facilitating projects, capital grants, and the creation of an ecosystem that is appropriate for the activities of the Content Industries.

Meanwhile KEGA 15 is focused on tourism activities and promoting Tourism; namely, the Malaysia Truly Asia campaign (SPV2030 2019). There is further room for improvement in tourism activities; including, the integration of multiple tourism platforms such as agro-tourism and ecotourism, health tourism, heritage tourism, and experience-based tourism. Tourism is considered an economic driver as it encourages efforts to improve local businesses and provides benefit to environmental rehabilitation, enhances health services, and celebrates Malaysia's cultural diversity. This article also helps to underscore the importance of the integration of creative technology in street art projects to revitalize deserted alleys and its effects on social well-being to help preserve cultures in the community.

2 Background

According to the literature reviews, previous studies revealed the need of reinventing abandoned back alleys by creating suitable street art or placemaking. However, there was a lack of research on using Augmented Reality (AR) technology in street art or creative placemaking projects in Malaysia. To strengthen our economic performance, the Shared Prosperity Vision 2030 blueprint was developed by our government, highlighting the Key Economic Growth Activities (KEGA) to promote and fulfil such goals. In this article, two of the KEGA are highlighted, which are KEGA 4 and KEGA 15.

The ARSA Model was developed to help revitalize placemaking projects in empty and deserted spaces toward fulfilment of both KEGA 4 and KEGA 15 in the Shared Prosperity Vision 2030. This was based on several studies and revitalization projects, as mentioned by Zakariya and Azhari (2017), who proved that revitalizing abandoned or underutilized public places contribute to an increase in public space comfort. According to Guimarães et al. (2016), through street art and cultural identity, the memory of places, can be preserved. Salau et al. (2018), mentioned in their article that cultural content is essential in tourism, while cultural information can bring communities together and promote understanding among society. Referring to Nassar and Battour (2020), companies are urged to build marketing campaigns that promote surrounding ethical norms in order to meet unique societal features. This will increase customer satisfaction, retention, and loyalty, all of which will benefit the company's profitability and performance. Thus street art should be promoted as an essential facet of human development. According to Sakip et al. (2016), street art can be a valuable tool in creating local distinctiveness. The street art project acts as a landmark, giving it a local identity, and highlighting the uniqueness of local culture in communities. Hence, the ARSA Model was developed to help preserve culture through street art and

encourage interaction between society and tourists to elevate the tourism industry, as mentioned in KEGA 15.

KEGA 4 focuses on the Content Industries such as animation, culture, digitalization, and entertainment. The potential of a few companies, and talent in the local animation scene, can be harnessed with facilitation and capital grants. In modern technology, AR is used as a platform to encourage interaction between society and the art to expand the animation scene into the public space. As Milgram et al. (1994) defined AR as “a situation in which a real-world context is dynamically overlaid with coherent location or context-sensitive virtual information”.

It can also be a tool for creating and preserving artwork and can be seen as a form of visual communication by combining information, entertainment, and interaction, to create a form of user engagement (Casimiro 2018; Guimarães et al. 2016). This article develops the ARSA Model to revitalize deserted or abandoned spaces to fulfil the Key Economic Growth Activities (KEGA) in the Shared Prosperity Vision 2030 (SPV2030) blueprint.

3 Methodology, Variables, and Data

Using PRISMA (Preferred Reporting Items for Systematic Review and Meta-Analysis) guidelines, the research was systematically reviewed to identify elements which reactivate a deserted alley in Kota Bharu, Kelantan, and show whether or not the elements support the hypothesis in this research.

The research involved four steps; identification, screening, eligibility, and inclusion. A variety of keywords were also used separately and to identify articles that could help within the research. Potentially relevant articles surfaced matching the following search string in the title, abstract, or keywords, as seen in Table 1 below. A total of 158 articles were found using the search strings, and a total of 11 articles were screened, assessed, and analyzed qualitatively.

Table 1 Keyword string searched in databases Scopus and Google Scholar

Database	Search string
Scopus	TITLE-ABS-KEY (“ <i>AUGMENTED REALITY</i> ”) OR (“ <i>USER EXPERIENCE</i> ”) AND (“ <i>STREET ART*</i> ” OR “ <i>PUBLIC ART*</i> ” OR “ <i>URBAN ART*</i> ” OR “ <i>GRAFFITI ART*</i> ” OR “ <i>MURAL ART*</i> ”))
Google Scholar	(“augmented reality”) AND (“rejuvenate*” OR “revitalize*” OR “revitalization” OR “revitalize*” OR “regenerate*” OR “reactivate*”) AND (“street art*” OR “public art*” OR “urban art*” OR “graffiti art*” OR “mural art*”)

4 Results and Analysis

The flow diagram for the reviewed research is shown in Fig. 1 below. Research of peer-reviewed literature and journals yielded a total of 158 articles. Additional records were identified by examining the referenced lists of articles from the databases to ensure that any relevant studies were not missed when the strategy listed above was used. The publications were then screened to remove any duplicates and unrelated topics, other than street art using augmented reality. The publications were also assessed against the inclusion and exclusion criteria for eligibility, as shown in Fig. 1. Most of the studies were excluded due to irrelevance to the research (i.e. architectural study). A total of 11 articles were included in the article and are summarized in Table 2.

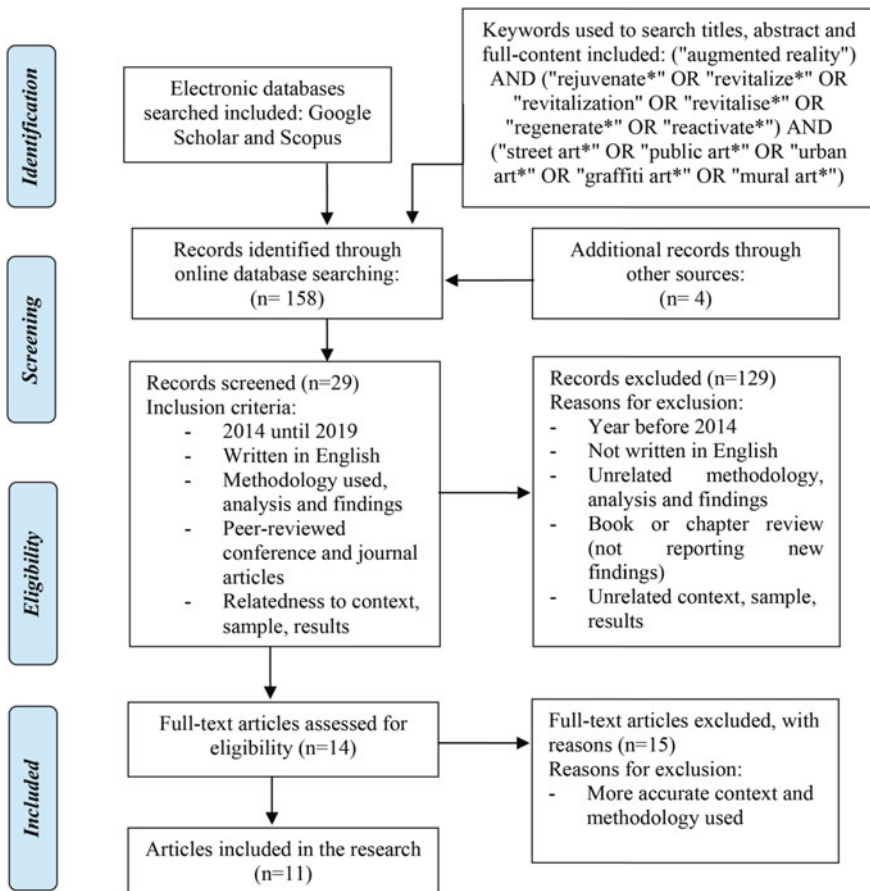


Fig. 1 Systematic review flow diagram

Table 2 Documents included in a systematic review

Authors	Country	Research design	Methodology	Revitalizing urban spaces using elements				Supports hypothesis
				Street art	Technology (Augmented Reality)	Placemaking	Social inclusion	
Khalilah Zakariya; Syamin Azhari	Malaysia	Study case approach	Qualitative	/		/	/	/
Christian Tilt; Stephanie Moran; Alexander Hogan	United Kingdom	Case study approach	Qualitative		/	/	/	/
Andrea Boeri; Giulia Bortoli; Danila Longo	Italy	Case study approach	Qualitative	/		/	/	/
Lino Trinchini; Thanasis Spyriadis	United Kingdom	Thematical Analysis	Qualitative		/		/	X
H. Patricia McKenna	Canada	Exploratory case study approach	Mixed-method (Triangulation of Data)		/		/	X
Erick S. Gomez	United States	Theoretical Exploration	Qualitative		/	/	/	/

(continued)

Table 2 (continued)

Authors	Country	Research design	Methodology	Revitalizing urban spaces using elements				Supports hypothesis
				Street art	Technology (Augmented Reality)	Placemaking	Social inclusion	
Jun Hu; Mathias Funk; Yu Zhang; Feng Wang	The Netherlands	Developmental	Mixed-method	/	/	/	/	/
Alexander Lamazares	United Kingdom	Case study documentation	Qualitative	/	/	/	/	/
Ziyang Li; Hao He; Xiandong Cheng	China	Experimental (Field)	Qualitative	/	/	/	/	/
David Lewis Simfield	New Zealand	Heuristic inquiry approach	Qualitative	/	/	/	/	X
Stefan Peacock	New Zealand	Action-Reflection approach	Mixed-method	/	/	/	/	/

Key: / (supportive evidence), X (not supportive evidence), X / (mixed evidence)
 The hypothesis tested: Street art using AR can help to revitalize deserted or urban spaces for social well-being

The table is organized by the elements used to revitalize urban spaces, which seems to find a correlation between said elements and revitalization in urban spaces and their country, methodology used, and whether or not it supports the hypothesis. The included studies were published between 2014 until 2019; three studies were conducted in the United Kingdom (Lamazares 2014; Tilt et al. 2019; Trinchini and Spyriadis 2019) and one in the United States (Gomez 2019), followed by two studies in New Zealand (Peacock 2018; Sinfield 2018), one study in The Netherlands (Hu et al. 2014), another in China (Li 2018), and one in Canada (McKenna 2017), one study in Italy (Boeri et al. 2019), and finally one study in our very own country, Malaysia.

The studies were peer-reviewed conference literature, journals, or articles. They were assessed by their relatedness to the context, sample, results, the methodology used in the study, and their analysis and findings.

From the review, a total of seven studies support the hypothesis with three considered unsupportive. The three studies were considered unsupportive because they did not mention AR technology or street art as elements that could help to revitalize deserted alleys or urban spaces. The elements which were considered revitalized deserted or urban spaces like street art or public art, technology (augmented reality), placemaking, and social inclusion. There are six studies that mention street art (Boeri et al. 2019; Hu et al. 2014; Lamazares 2014; Li 2018; Peacock 2018; Zakariya and Azhari 2017), eight studies on augmented reality technology (Gomez 2019; Hu et al. 2014; Li 2018; McKenna 2017; Peacock 2018; Sinfield 2018; Tilt et al. 2019; Trinchini and Spyriadis 2019) eight studies on placemaking (Boeri et al. 2019; Gomez 2019; Hu et al. 2014; Lamazares 2014; Li 2018; Peacock 2018; Tilt et al. 2019; Zakariya and Azhari 2017), all studies included social inclusion, and three studies mentioned all four elements (Hu et al. 2014; Li 2018; Peacock 2018).

Overall, some of the studies stated that augmented reality technology and street art help revitalize deserted or urban spaces; some stated either one of those. Even so, the hypothesis of the research is still considered supported by the studies. Most of the included studies opted for qualitative method research, while three studies used a mixed-method (Hu et al. 2014; McKenna 2017; Peacock 2018). Out of these three studies, one study was not supportive of the hypothesis. The studies included interviews and observations, developed prototypes, and conducted content analysis on case studies, in which, most case studies selected were of urban places in cities such as São Paulo and Wellington. One of the studies used the triangulation of data to contribute further insight and rigour (McKenna 2017).

For the quantitative methods, the resesarchers collected data from samples by completing questionnaires, and one study took an “action-reflection approach” to research where the research was focused to create design knowledge rather than a design solution (Hu et al. 2014; McKenna 2017; Peacock 2018). Thus, taking all of these into account, while the qualitative method was much more popular, both the qualitative and mixed-method methodology was acceptable in conducting this research.

4.1 Street Art or Public Art

Street art or public art has gained interest, especially as of late, and can be seen everywhere. One of the most effective methods used to revitalize deserted and urban places is by using art. Street art has been applied or implemented in various countries. Several studies have mentioned that street art or public art projects helped revitalize urban environments and improve urban landscape quality (Boeri et al. 2019; Hu et al. 2014; Lamazares 2014; Li 2018; Peacock 2018; Zakariya and Azhari 2017). Each study relates to social inclusion, which is essential in revitalizing urban spaces. Since it encourages society to connect and engage.

Throughout the review, it was unanimously agreed that public art indeed plays a vital role to enhance and develop the identity of an area (Hu et al. 2014; Lamazares 2014; Li 2018; Peacock 2018; Zakariya and Azhari 2017). It has been a part of society for as long as humans have intervened with urban spaces, with the growth of cities, and it has also contributed to the development of a sense of belonging, a sense of community while it has helped tackle social issues, and even promoted educational and heritage values (Boeri et al. 2019; Lamazares 2014; Peacock 2018; Zakariya and Azhari 2017). Some of the studies made comparisons between cities and districts, and some compared the city's current condition to its previous. For example, previously, before the urban places were revitalized and gentrified, the economic rate was low, and the crime rates were high, which led to social exclusion (Lamazares 2014). Thus, public art is not just a matter of artwork placed in a public space. Public art aims to create harmonious spaces and engage with its audience and the community.

4.2 Technology (Augmented Reality)

The review found that handheld displays are much more suitable and easier to use to incorporate street art. It is also considered one of the most popular choices in viewing AR, primarily because of its use of a device already significant within the population. Small handheld devices such as cell phones and handheld computers (smart phones or tablets) are much more ergonomic and are well suited for specific applications of AR as they are lightweight and are carried around. Five out of eight articles either agreed with the statement or used handheld devices to develop their AR applications or projects (Gomez 2019; Hu et al. 2014; Li 2018; Peacock 2018; Sinfield 2018).

The studies also related augmented reality technology to education; some were about the current issues surrounding their community, some were about their cultural heritage and tourism, and another was about augmented reality technology replacing traditional forms of classroom to become much more interactive (Gomez 2019; Sinfield 2018; Tilt et al. 2019; Trinchini and Spyriadis 2019). While some studies only mentioned augmented reality technology briefly and instead emphasized the importance of technology and social connectedness with the city (Lamazares 2014; McKenna 2017). Naturally, augmented reality technology promotes social inclusion

and provokes engagement, thus a study needs tests with an audience or participation. Two studies focused on encouraging public participation using such technology and even developed a prototype to test out their hypothesis and then analyzed their results (Hu et al. 2014; Li 2018).

4.3 Placemaking

Placemaking is a process where spaces are converted into places of engagement which is an idea that has long been discovered and implemented in various places (Boeri et al. 2019; Gomez 2019; Hu et al. 2014; Lamazares 2014; Li 2018; Peacock 2018; Tilt et al. 2019; Zakariya and Azhari 2017). The included studies assessed the associations between placemaking and street art or augmented reality technology.

However, most of the studies had no further elaboration on the placemaking but instead, focused on how placemaking affects the surrounding areas and the community. One of the studies mentioned how the recent study and revitalization projects had proven that revitalizing underutilized public spaces, such as back lanes, contributed to an increase in public space comfort, enhanced user experiences, enlivened spaces, and also increased the public's environmental awareness (Zakariya and Azhari 2017) and several studies agreed with the statement (Boeri et al. 2019; Gomez 2019; Lamazares 2014). A collaboration between local authorities, organizations, artists and the public is crucial to the creation of a successful placemaking. Through interviews, study has also discovered that the framework for placemaking is collaborative and documented in four phases (Boeri et al. 2019; Gomez 2019).

Other studies stated that they were introducing new insights into augmented reality and placemaking for future collaborative relationships rather than deliberately only showing augmented reality for placemaking (Gomez 2019). The same goes for several other studies (Lamazares 2014; Tilt et al. 2019). This suggests that there is indeed a potential relationship between the two which should be explored in future research.

4.4 Social Inclusion

All studies in the research had one thing in common, and that is social inclusion (Boeri et al. 2019; Gomez 2019; Hu et al. 2014; Lamazares 2014; Li 2018; McKenna 2017; Peacock 2018; Sinfield 2018; Tilt et al. 2019; Trinchini and Spyriadis 2019; Zakariya and Azhari 2017). Public space projects naturally encourage public participation, hence citizenship and the places or their spaces in the community.

One study stated that recent developments in materials and technology create new opportunities for the artists and designers to create interactive public art installations which allow engagement and participation (Hu et al. 2014). It is also primarily agreed

that social inclusion creates a sense of belonging in the community and symbolizes ownership (Gomez 2019; Hu et al. 2014; McKenna 2017).

Social inclusion increases the connectedness within the city and interaction within a society. It could also help connection to lifestyle and cultural heritage, both the past and the future of the society, by addressing social issues and developments within the community. Engagement could also help bring in revenue to local places and boost local economies through cultural tourism. As mentioned before, some of the studies focused on encouraging public participation and engagement among the society.

5 Discussion of Findings

In light of the government's newest blueprint, Shared Prosperity Vision 2030, under the Strategic Thrust called Key Economic Growth Activity (KEGA), this research aims to develop a research model to revitalize deserted alleys using street art projects combined with AR technology for social well-being. The research hypothesizes that using augmented reality technology in a street art project can revitalize deserted alleys or urban spaces in Kota Bharu, Kelantan.

Thus, this review of revitalizing deserted alleys through street art using augmented reality was systemically researched to assess whether or not it had elements that could support the hypothesis. The review identified a few studies on street art using augmented reality technology to revitalize deserted or urban spaces for social well-being. The relationships between three components; street art, augmented reality technology, and placemaking, is not yet fully explored. There are studies on street art and placemaking or augmented reality technology and placemaking. However, there are only a total of three studies that have all four elements. Studies have shown that street art has an essential role in placemaking. There are countless examples and case studies on the topic.

There are also studies about using augmented reality technology to encourage engagement with a society to revitalize urban spaces. There are several examples of using augmented reality in street art projects, for instance, 'The Early Mercers' mural in Kuching, Sarawak, drawn by street artist Leonard Siaw, as seen in Fig. 2 below. The mural was drawn on the Indian Street Pedestrian Mall wall and is recognized as a giant AR mural in Malaysia by the Malaysian Book of Records (MBOR). Datuk Dr Sim Kui Hian, the Minister of Local Government and Housing, emphasized enhancing tourism experiences by using advanced interactive technology such as augmented reality to help Sarawak's tourism industry further. Hence, this suggests that augmented reality technology can become a platform to help connect street art projects with communities and inadvertently help urban regeneration of the place and the tourism industry.

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Fig. 2 The Early Mercers' AR mural by Leonard Siaw (*source* Google)

a giant AR mural in Malaysia by the Malaysian Book of Records (MBOR). Datuk Dr Sim Kui Hian, the Minister of Local Government and Housing, emphasized enhancing tourism experiences by using advanced interactive technology such as augmented reality to help Sarawak's tourism industry further. Hence, this suggests that augmented reality technology can become a platform to help connect street art projects with communities and inadvertently help urban regeneration of the place and the tourism industry.

The studies also illustrated the relationship between local authorities, organizations, people, and places in street art projects to reactivate or regenerate urban spaces. According to the Creative Placemaking model adapted from Markusen and Gadwa (2010), the creative placemaking model consists of three system components: people, businesses and organizations, and places. All three sectors collaborate to strategically shape the physical and social character, city, or region around art and cultural activities. Thus, the ARSA model, adapted from Markusen and Gadwa (2010), is the creative placemaking model.

Implementing the ARSA research model within urban places, such as deserted alleys, would help these abandoned spaces be revitalized, with interactive technology and cultural content, in street art projects, as shown in Fig. 3. Interestingly, one of the key economic activities the government wishes to develop is KEGA 4, the Content Industries, which focus on animation, programming, entertainment, and Culture and Digitalisation. This is because of several achievements made by local animation studios in which they have successfully penetrated the premier international market. The government sees the potential in this sector that could be harnessed further with facilitation, capital grants, and an appropriate ecosystem for the activities. Through the ARSA model, AR technology could be integrated into street art projects to revitalize deserted alleys, thus answering the government's blueprint to develop economic activities (Fig. 3). As mentioned by Guimarães et al. (2016), AR is a form of mediation using interaction that supports forms of narratives, thus creating a form of user engagement. For example, users could interact with the art and their surroundings by downloading an application developed for the street art using lightweight, handheld gadgets or devices such as smartphones and tablets (Fig. 4). These gadgets are used



Fig. 3 Augmented Reality Street Art in Kota Bharu, Kelantan (*source* Author's source)

Fig. 4 Examples of AR technology (*source* Author's source)



extensively and are widely accessible to the public. They could create a unique entertainment experience for users through the AR technology applications. Furthermore, with recent technology, the applications and software for AR technology development are much easier to find and navigate using these gadgets, including Unity, Vuforia, etc.

It is also clear from the review that social inclusion is an essential factor in placemaking. Both street art and augmented reality requires an audience which promotes social engagement. Gomez (2019) stated that in practical terms, installing or utilizing digital technologies in public spaces can “enhance culture, facilitate urban regeneration programs, and promote public participation and democratization of public space”. It helps create a sense of belonging, tackles social issues, and helps gentrify the local economy within urban cities. Especially in cultural tourism, it is essential to create a space for society to connect with their lifestyle as a reflection of both their past and future by taking their heritage and historical values into consideration in placemaking, as seen in the example from Fig. 2. The street art project itself contributes as a tourism product, and its impact can be seen not only on its surroundings, but also economically. By attracting visitors, business opportunities and activities such as restaurants, hotels, and social events grow. This can help address employment issues within communities by creating job opportunities, luring more local and foreign investors, thus strengthening the economy through the tourism sector and digital entrepreneurship. Derived from this, we can see stakeholders and owners from local art or related industries capitalising on street art and digital technology as part of a commercial or tourism product.

This study is limited by the fact that there is a lack of prior research or data which discusses the use of interactive technology in creative placemaking. Considering the rapid digitalization and development of technologies, it is undeniable that technology is closely intertwined into our lifestyles. Placemaking relating to heritage or culture in street art projects could help local cultural tourism and increase economic growth. With the advance of digital technologies and affordable digital tools, AR

creates unprecedented opportunities to explore the potential of digital technologies and digital entrepreneurship.

Given that the recent pandemic outbreak of COVID-19 has severely impacted the tourism industry in Malaysia, technology-centred tourism development should be very much encouraged to achieve the objectives of KEGA in the Shared Prosperity Vision 2030. By studying and understanding the importance of integrating technology and art in daily life, it can bring benefit to various sectors and could be an objective for future research in the field of AR applications, especially in tourism sectors and to rejuvenate abandoned alleys or urban areas.

7 Conclusion

In conclusion, the ARSA research model can provide valuable information and enhance knowledge to help preserve cultures and act as a guideline to revitalize deserted alleys by creating street art projects integrating AR technology for society's social well-being and to follow the government's blueprint of the Shared Vision 2030. Based on the studies included in this research, street art technology, such as augmented reality, and placemaking have a relationship that has yet to be explored and exploited.

This article shows how a creative approach, such as street art projects and AR technology, contributes to placemaking and revitalizing deserted or abandoned places, all the while complying with the government's newest approach to strengthening the country's economic performance through tourism as stated in SPV2030. Revitalizing underutilized public spaces contributes to an increase in public space comfort. With interactive technology such as AR, the number of interactions and engagements between users would be increased, thus increasing the public's environmental awareness.

To further enhance our communities' economic performance, as mentioned in SPV2030, it is crucial that all parties, whether from the private sectors or the government, undertake action plans to help fulfil the Key Economic Growth Activities (KEGA) of the Shared Prosperity Vision 2030, particularly KEGA 4 and KEGA 15. This may include undertaking several revitalization projects for abandoned and deserted places, improving the content industries such as animation, culture and digitalization, entertainment, or strengthening marketing and promotion strategies for tourism campaigns. Thus, this article concludes that the local authorities could implement the developed ARSA model to encourage more collaboration between local government, private and public organizations, local artists, and the public to revitalize deserted or urban spaces. Hopefully, we can have a walking history AR "museum" tour of street art images in the future.

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Investigating Differences in Social Commerce Apps with Special Reference to Fashion E-tailing



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Abstract The alarming and rapid growth of technology has paved the way for many new business models. One such is social commerce, selling through social networks. The gaining attractiveness of social networking positions has enabled the E-tailers to sell without much hustle and get consumer feedback directly. Social commerce has rapidly grown with the array of new entrants in the sub-continent who majorly invest in the fashion industry. Understanding social networks and leveraging them for social commerce will be crucial to monetizing for business promotions. In this background, an empirical study was executed to analyze and understand the top social commerce apps in the framework. The data was collected through a questionnaire among 493 active online shoppers on fashion product(s) social networking sites. Based on statistical analysis, the study brought out the differences across social commerce apps crosswise phases of consumer decision making and social commerce constructs viz., Recommendations & Referrals, Forums & Communities, and Ratings and Reviews. The study results will be the basis for marketers and entrepreneurs to build their social commerce strategies appropriately.

Keywords Social commerce · Social commerce apps · Social commerce constructs · E-tailing

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1 Introduction

Increased internet usage has led to the era of disruptive technology worldwide (Melnik et al. 2019); it has made most people prioritize smart phones in their day-to-day lives. All these have benefited businesses across the world and in India as well. The increased internet diffusion, usage of smartphones, easiness of buying, selling & payments, the comprehensive option of products and services are steering growth in electronic commerce (Iqbal et al. 2020). India is witnessing significant growth in retailing through the internet, adapting to the current disruptive technology (Mashelkar 2018). With boosted internet incursion and the growing popularity of social networking sites, social commerce is emerging to become the next big thing after E-commerce (Khan et al. 2017). The expression of social commerce was initiated by Yahoo ad Pick lists and Shop sphere (Curty and Zhang 2013). Social commerce referred to the implementation of e-commerce performance and business through social media and web 2.0 software. The advantages of using social media are massive from the consumer's point of view. Right from the product information to reviews, everything needed to make a purchase decision is available at one platform, which makes this SC (Social Commerce) an attractive method to adopt both for the sellers and the buyers. Ratings & Reviews, Recommendations & Referrals, and Forums & Communities help the consumers, and the businesses understand and improve their products and services (Liang and Turban 2011). Social networking sites influence the consumers across the stages of decision-making processes (Al-Abdallah and Bataineh 2018). All these commendable impacts of social commerce led to the growth of many apps that provided this service and made the top social networking sites adapt to the framework. Therefore it becomes essential for every marketer to understand this growing trend and embrace this method for further advancement of their business in a much easier way (Turban et al. 2017). This empirical study is mainly done to help marketers with the adaptation mentioned above by exploring the already available platforms and their impact.

1.1 *Need for the Study*

The global pandemic has transformed consumer shopping patterns. A retailer with an omnichannel presence has successfully replaced and carried out the point of sale (POS) online. With pandemic, the market witnessed a shift in e-commerce usage from products purchased typically in-store. According to the future of E-commerce Report 2021, 55% of e-commerce users in India reported changes in e-commerce usage very frequently. The retail e-commerce sales composite yearly enlargement rate predict (CAGR), 2020-24 is projected to be 13.1% for India and e-commerce. The e-commerce boom has also fueled the competition in the online marketplace. It has also witnessed a change in consumer trends, with consumers trying new product categories online. Convenience and direct home delivery were

the key drivers for online purchases. The rise of social commerce is with increased penetration of smartphones and decreased data cost. It has opened up a market of 400 million users in Tier II & Tier III cities. According to Paypal's 4th Annual commerce index, social commerce adoption is at a higher pace in India than in other countries. Also, consumers preferred mobile-optimized experiences. It is significant for every business to be present across omnichannel and use each of them effectively. With the accessibility & convenience of mobile phone usage, companies must leverage the social commerce app. The companies have to strategize themselves in the market than the mere presence of organizations in social commerce. In this scenario, the study identified a research gap for the companies to understand the role of social commerce constructs and shopper decision-making procedures with social commerce apps.

2 Literature Review

The product recommendations done personally are convenient. And the consumer makes a choice based on product recommendations (Senecal and Nantel 2004). The information of the products gives suggestions for consumers to make decisions. The study also related thoughts online and buying Intention. It revealed the online reviews increase the purchase intention of consumers (Cheng and Ho 2015). Social media is used by 70% of consumers for information search about product(s)/service. Also, social media influences purchase decisions for 67% of the consumers in a report by (Goodrich and Mooij 2014). The influence of social networks was strong with e-commerce. The study also revealed that the user's satisfaction level in social networks was high (Shipps and Phillips 2013). The usage of social media is for the purpose marketing and advertising. It was found that social media improves brand value and also makes communication among consumers easier (Colicev et al. 2018). The UGC is reviewed when customers have a purchase intention. Hence, user-generated content significantly impacts buying intent. The effects of user-generated content are also more prolonged and get famous in the same group (Assaker 2020).

The social commerce model was developed and proposed the conceptual framework with SSCs, RR, Forums & Communities, and Recommendations. The study revealed that the social commerce constructs (SCCs) improve Trust and emanates purchase intention (Han et al. 2018). The scholar recognized and affirmed how the benefit of the social network needs recognition, information search, Evaluation of alternatives, and post-purchase conclusion steps of buyer decision making. It laid down that consumers prefer & seek product information in e-commerce channels (Maity et al. 2018). The social commerce adoption model is based on Technology Acceptance Model. The communication happening through the social commerce constructs has evolved social commerce. The consumer builds their content, and the social networks facilitate the interactions in social media through social commerce constructs. This social commerce construct results in purchase intention. The study built a model for social commerce consumer behaviour with social commerce

constructs (Ratings & reviews, Recommendations & referrals, Forums & communities), Trust, and Intention to buy. The social commerce constructs directly impact Intention to purchase and indirectly on confidence to buy through Trust (Taherdoost 2018).

3 Research Methodology

3.1 Objectives of the Study

The research study focuses on understanding the social commerce apps used with fashion products. The study is based on the social commerce Apps—Facebook, Instagram & Meesho. Usage of Social commerce constructs—Ratings & Reviews, Recommendations & Referrals, Forums & Communities and the various stages of consumer decision making viz., Need Recognition, Information Search, Evaluation of alternatives and Purchase Decision are focused on this study. The usage of social commerce constructs and the difference in consumer decision-making stages across the social commerce apps is studied in the research. Also, the research identifies the top social commerce app for fashion products.

3.2 Survey Instrument

The structured closed-end Questionnaire was used as a survey instrument for data collection. The literature review identified the social commerce constructs, stages of consumer decision-making and related factors. A five-point Likert scale where 1 referring to Strongly Agree and 5 referring to Strongly Disagree was used in the Questionnaire to measure the usage of social commerce Apps for Social commerce constructs and across stages of consumer decision making. A pilot study was carried out among 35 respondents who used social commerce apps for shopping fashion products in the recent past. Based on the feedback, appropriate changes were made to the Questionnaire.

3.3 Data Collection and Analysis

Descriptive research is carried out in the study. The respondents were active fashion product online shoppers using social commerce apps. A total of 612 responses were out of which 493 samples were selected and were further analyzed. ANOVA test is done (a) To understand if there is any significant difference in usage of social

commerce apps for social commerce constructs viz., Ratings & Reviews, Recommendations & Referrals, and Forums & Communities and (b) To understand if there is any significant difference in usage of social commerce apps across stages of consumer decision making viz., Need Recognition, Information Search, Evaluation of alternatives and Purchase Decision and Overall consumer decision-making process.

4 Results and Discussions

(a) Social Commerce Apps Used for Fashion Product(s)

Table 1 indicates the social commerce apps used by the respondents for shopping fashion product(s). It is inferred from Table 1, Instagram is the most widely used single social commerce apps among the respondents (48.4%), followed by Facebook (16.7%) and Meesho, the least used social commerce app (15.9%). A significant number of respondents (19.1%) use all three social commerce app (Facebook, Instagram & Meesho).

(B) Respondents Usage of Social Commerce Apps with Rating & Reviews

One-way ANOVA test exercised to know if there is any significant difference among Social commerce Apps Facebook, Instagram, Meesho, and all the three social commerce Apps (Facebook, Instagram & Meesho) with Ratings & Reviews.

Null Hypothesis 1: There is no significant difference in usage of social commerce apps with Ratings & Reviews.

Table 2 below reveals the mean, standard deviation, F value, and p-value results for the one-way ANOVA.

By comparing the mean values in the usage of social commerce apps with Ratings & Reviews, there is a miniscule difference. However, the p-value for the use of social commerce apps is 0.034, which is less than 0.05 for Ratings & Reviews. Thus it is inferred that there is significant difference in the usage of Social Commerce Apps for Ratings & Reviews. The proposed hypothesis is rejected at 5% level of significance.

Table 1 Social commerce Apps used for shopping fashion product(s)

Social commerce App(s)	Frequency	Percentage
Facebook	83	16.7
Instagram	238	48.4
Meesho	78	15.9
All Three (Facebook, Instagram & Meesho)	94	19.1
	493	100.0

Source Computed from primary data

Table 2 ANOVA test for Usage of Social commerce apps with Ratings & Reviews

Social commerce Apps	N	M	SD	F	P
Facebook	83	44.90	6.02	2.907	0.034*
Instagram	238	43.60	6.68		
Meesho	78	44.97	7.37		
All Three (Facebook, Instagram & Meesho)	94	43.26	6.94		

*represents significance at 5% level

(C) Respondents Usage of Social Commerce Apps with Recommendations & Referrals

One-way ANOVA is carried out to know if there is any significant difference among Social commerce Apps Facebook, Instagram, Meesho, and all the three social commerce Apps (Facebook, Instagram & Meesho) with Recommendations & Referrals.

Null Hypothesis 2: There is no significant difference in usage of social commerce apps with Recommendations & Referrals.

Table 3 below reveals the mean, standard deviation, F value, and p-value results for the one-way ANOVA.

It is inferred that there is significant difference in Social Commerce Apps usage for Recommendations & Referrals. By comparing the mean values in the use of social commerce apps with Recommendations & Referrals, there is miniscule difference. However, the p value for usage of social commerce apps is 0.019 which is less than 0.05 for Recommendations & Referrals. The null hypothesis is rejected at 5% level of significance.

Table 3 ANOVA test for Usage of Social commerce apps with Recommendations & Referrals

Social commerce Apps	N	Mean	SD	F value	P value
Facebook	83	15.79	1.99	3.364	0.019*
Instagram	238	15.55	2.40		
Meesho	78	14.83	3.23		
All Three (Facebook, Instagram & Meesho)	94	15.96	2.23		

Source Computed from primary data

* denotes significance at 5% level

(D) Respondents Usage of Social Commerce Apps with Forums & Communities

One-way ANOVA is carried out to know if there is any significant difference among Social commerce Apps Facebook, Instagram, Meesho, and all the three social commerce Apps (Facebook, Instagram & Meesho) with Forums & Communities.

Null Hypothesis 4: There is no significant difference in usage of social commerce apps with Forums & Communities.

Table 4 below reveals the mean, standard deviation, F value, and p-value results for the one-way ANOVA.

It is inferred that there is a significant difference in the usage of Social Commerce Apps for Forums & Communities. By comparing the mean values in the use of social commerce apps with Forums & Communities, there is miniscule difference. However, the p value for usage of social commerce apps is 0.039 which is less than 0.05 for Forums & Communities. The null hypothesis is rejected at 5% level of significance.

(E) Respondents Usage of Social Commerce Apps across all the stages of consumer decision making

Null Hypothesis 4: There is no significant difference in usage of social commerce apps across all the stages of consumer decision-making.

One-way ANOVA is carried out to know if there is any significant difference among the usage of Social commerce Apps Facebook, Instagram, Meesho, and all the three social commerce Apps (Facebook, Instagram & Meesho) across all the stages of consumer decision making. Table 5 below reveals the mean, standard deviation, F value, and p-value results for the one-way ANOVA.

It is inferred that there is no significant difference in the usage of Social Commerce Apps across all the stages of consumer decision-making. By comparing the mean values in the use of social commerce apps across all the stages of consumer decision making, there is miniscule difference. Also, the p value for usage of social commerce apps is 0.172 which is greater than 0.05 across all the stages of consumer decision making. The null hypothesis is accepted at 5% level of significance.

Table 4 ANOVA test for Usage of Social commerce apps with Forums & Communities

Social commerce Apps	N	Mean	SD	F value	P value
Facebook	83	15.10	1.73	2.809	0.039*
Instagram	238	14.89	1.94		
Meesho	78	14.66	2.31		
All Three (Facebook, Instagram & Meesho)	94	15.48	2.24		

Source Computed from primary data

* denotes significance at 5% level

Table 5 ANOVA test for Usage of Social commerce apps all the stages of consumer decision-making

Social commerce Apps	N	Mean	SD	F value	P value
Facebook	83	44.90	6.02	1.672	0.172*
Instagram	238	43.60	6.68		
Meesho	78	44.97	7.37		
All Three (Facebook, Instagram & Meesho)	94	43.26	6.94		

* represents significance at 5% level

(F) Respondent's Usage of Social Commerce Apps Across Stages of Consumer Decision Making

One-way ANOVA is carried out to know if there is any significant difference among the usage of Social commerce Apps Facebook, Instagram, Meesho and all the three social commerce Apps (Facebook, Instagram & Meesho) across the stages of consumer decision making viz., Need Recognition, Information Search, Evaluation of alternatives and purchase decision.

H₀ 5a: There is no significant difference in usage of social commerce apps across the Need Recognition stage of consumer decision-making.

H₀ 5b: There is no significant difference in usage of social commerce apps across the Information Search stage of consumer decision-making.

H₀ 5c: There is no significant difference in usage of social commerce apps across the Evaluation of alternatives stage of consumer decision making.

H₀ 5d: There is no significant difference in usage of social commerce apps across the Purchase decision stage of consumer decision making.

Table 6 below reveals the mean, standard deviation, F value, and p-value results for the one-way ANOVA.

The mean values for the usage of social commerce app with the Need Recognition stage show very slight variation. It is slightly higher with Meesho, followed by Facebook, Instagram, and users of all three apps. However, the p-value is 0.135, which is greater than 0.05. Hence, no significant difference between social commerce app usage with the Need Recognition stage.

The mean values for the usage of social commerce app with the Information search stage shows very slight variation. It is slightly higher with Facebook, Meesho, Instagram, and users of all the three apps. However, the p-value is 0.233, which is more significant than 0.05. The null hypothesis (5b) is rejected at a 5% level of significance and no significant difference in the usage of social commerce app with the Information search stage.

The mean values for the usage of social commerce app with the Evaluation of alternatives stage show very slight variation. It is slightly higher with Facebook, Meesho, Instagram, and users of all the three apps. However, the p-value is 0.202, which is greater than 0.05. The null hypothesis (5c) is rejected at a 5% level of

Table 6 ANOVA test for Usage of Social commerce apps with the stages of consumer decision making

Consumer decision making stage	Social commerce apps	N	Mean	SD	F	P
Need Recognition	Facebook	83	11.63	2.04	1.861	0.135*
	Instagram	238	11.38	2.04		
	Meesho	78	11.91	2.15		
	All Three (Facebook, Instagram & Meesho)	94	11.23	2.13		
Information Search	Facebook	83	11.85	1.16	1.431	0.233*
	Instagram	238	11.51	1.43		
	Meesho	78	11.69	1.56		
	All Three (Facebook, Instagram & Meesho)	94	11.50	1.47		
Evaluation of Alternatives	Facebook	83	8.19	1.65	1.567	0.197*
	Instagram	238	7.94	1.69		
	Meesho	78	8.30	1.79		
	All Three (Facebook, Instagram & Meesho)	94	7.82	1.75		
Purchase Decision	Facebook	83	13.21	1.64	1.545	0.202*
	Instagram	238	12.76	1.97		
	Meesho	78	13.06	2.20		
	All Three (Facebook, Instagram & Meesho)	94	12.70	2.08		

* **represents** significance at 5% level

significance. It is inferred from the results that there is no significant difference in the usage of social commerce app with the Evaluation of alternatives stage.

The mean values for the usage of social commerce app with the Purchase Decision stage shows very slight variation. It is slightly higher with Facebook, Meesho, Instagram, and users of all the three apps. However, the p value is 0.197, which is greater than 0.05. The null hypothesis (5d) is rejected at a 5% level of significance. It is inferred from the results that there is no significant difference in the usage of social commerce app with the Evaluation of alternatives stage.

The above results specify that no significant difference in the usage of social commerce apps across the phases of decision making of consumers viz., Need Recognition (NR), Information Search (IS), Evaluation of Alternatives (EOA), and Purchase Decision (PD). In comparison with mean values, the Meesho app's identified usage is preferred across stages of Need Recognition, Evaluation of Alternatives, and Purchase Decision, followed by Facebook and Instagram. Although Instagram is the most widely used social commerce app, the usage of apps relating to stages of consumer decision-making is relatively low.

5 Implications of the Study

The research outcomes are significant from the perspective of social commerce business and also for the marketers. The primary motive of any social commerce is for sales to happen. Every product/service or business will have an influential social commerce construct. Identifying and using the most appropriate social commerce construct in the right social commerce platform will bring out effective results. The research brought out the significant relationship between social commerce constructs and usage of social commerce apps. The marketer must identify the social commerce apps and use social commerce constructs aptly. The outcomes will form the basis for marketers in choosing appropriate social commerce construct in every platform.

It is decisive to recognize the consumer decision-making stage and develop customer-related strategies accordingly. However, the study revealed no significant difference with the usage of social commerce apps crosswise the phases of the consumer's decision-making. The study also brought out those user's presence across all the apps Facebook, Instagram & Meesho covered in the survey. Nevertheless, there was no significant relationship identified with the overall consumer decision-making stage or across every step. The study also highlights the need for the companies to carry out an integrated communication among the social commerce apps and develop promotions following consumer decision-making for social commerce to happen effectively.

5.1 *Limitations and Scope for Further Study*

The study was limited to the social commerce apps users of Facebook, Instagram and, Meesho. Further, the study was limited to active social commerce apps users who acquired fashion products recently. The study investigated only the usage of social commerce apps with the construct of social commerce. The extent of influence of construct of social interaction has scope for further research. Also, analysis can be carried out with other evolving social commerce apps. Further studies should research the user's demographic variables. The study can be further extended across fashion product categories for social commerce constructs and periods of consumer decision-making.

6 Conclusion

The study investigated the difference in social commerce apps usage across social commerce constructs and stages of consumer pronouncement making. The research brought out a significant relationship between using social commerce apps and constructs of social interaction. However, there is no meaningful relationship between

the usage of social commerce apps with consumer decision-making stages and the overall consumer decision-making process. The research paves the starting point for building an integrated communication among the social commerce apps and promoting product/service crosswise phases of consumer assessment making.

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When Entrepreneurial Passion Affect Green Innovation Performance in Indonesia?: Three-Way Interaction Effect of Emotion, Islamic Work Ethic, and Cognition



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Abstract In this study explores the effect of the three-way interaction effect of emotion (entrepreneurial passion), Islamic work ethic, and cognition (promotion regulatory focus and locomotion regulatory modes) on green innovation performance in the Muslim entrepreneur context in Indonesia. This study responds the gap of studies that discuss the role of Islamic Work Ethic (IWE) in improving green innovation performance in Indonesia as a country with majority Muslim population. In addition, the role of interaction between emotions, IWE, and cognition is rarely studied by researchers. Moderated multiple hierarchical regression analysis will be used to examine the three-way interaction effect. The theoretical implication of this study provides insight how several theories interact with each other to explain how emotions, work ethics, and cognition affect green innovation performance (affective event theory, regulatory focus theory, and regulatory mode theory). The practical implication of this study is that green innovation performance of Muslim entrepreneurs improves when Muslim entrepreneur has a strong passion for environmental friendly business fields accompanied by a good Islamic work ethic and has a high promotion regulatory focus and locomotion regulatory mode.

Keywords First Green innovation performance · Entrepreneurial passion · Islamic work ethic · Promotion regulatory focus · Locomotion regulatory modes

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1 Introduction

Nowadays, public and business people's attention to green business is getting higher (Chang 2017; Cheng 2020; Wu et al. 2021; Oduro et al. 2021). According to Peattie (1992), the definition of green business is a company that is able to integrate green ideas into business activities. Green business is a crucial issue because it responds to increasingly strong social, environmental, and political pressures on business practices that are oriented towards environmental sustainability (Oduro et al. 2021). The application of green business will increase market opportunities and prosperity (Walley and Whitehead 1992) and competitive advantage (Chuang and Huang 2015). Therefore, in such a context, the relevance of green innovation is increasing, both from a practical and academic perspective (Tietze et al. 2011).

Green innovation consists of green products or green processes. Green innovation consists of innovations in technology for energy saving, pollution prevention, waste recycling, environmental friendly product design, and corporate environmental management (Chen et al. 2006).

Entrepreneurial passion is important in affecting green innovation performance. So far, study on the motivational effect of entrepreneurial passion for business ventures continues to increase (Lex et al. 2020). According to Chen et al. (2009), passion causes entrepreneurs to work with full concentration and remain persistent, so that they increase creativity for their businesses. Study has established that entrepreneurial passion is an important characteristic of business processes related to innovation, such as opportunity recognition, opportunity exploitation, idea development, and firm-level activities, such as venture growth (Baum and Locke 2004; Shane et al. 2003).

Based on the latest studies, it shows that the effect of entrepreneurial passion on green innovation has not been consistent. So far, most of them are still in the form of direct relationships and have not included mediating or moderating variables. One of the potential moderators is Islamic Work Ethic (IWE). Especially in the context of Indonesia as a country with the largest Muslim population in the world, IWE's role is very important in business development in Indonesia.

Islamic Work Ethic is a Muslim ethic in work, including in entrepreneurship. According to Islam, every action is judged through the ethical direction of Islam and the Muslim's obligation is follow certain ways that are directed by Sharia (Islamic Law and Fiqh) (Khan et al. 2015). Further, Syed and Ali (2010) state that Muslims surrender completely to the Allah's will. Thus, whatever the situation, anyone who believes in Islam will behave positively as needed. As a result, entrepreneurs will apply stricter ethical standards than those who apply man-made ethics. One of the ethics in IWE is ethics towards the universe. Islam urges its people to preserve nature and not harm the nature. Thus, IWE plays a role in moderating the effect of entrepreneurial passion green innovation.

Furthermore, the moderating role of IWE is getting stronger for individuals who have a promotion regulatory focus. According to regulatory focus theory individuals who have promotion regulatory focus are idealistic, and seek to close the gap between

their current state and their desired final state, which is characterized or defined by aspirations and accomplishments. Entrepreneurs who have a high promotion regularity focus will always strive to achieve goals with high growth-oriented motivation. If the entrepreneur has a high IWE and a high promotion regulatory focus, it will strengthen the effect of entrepreneurial passion on green innovation performance.

In addition, the moderating role of IWE is also getting stronger in individuals who have locomotion regulatory modes. Locomotion is an aspect of self-regulation that is concerned with moving from one activity to another to achieve goals directly without undue delay (Kruglanski et al. 2000). Individuals with this regulatory mode will prioritize acting quickly rather than evaluating too long and waiting for the perfect to take action. Entrepreneurs who have high locomotion regularity modes will always try as soon as possible to seize opportunities and innovate. If the entrepreneur has a high IWE and high locomotion regulatory modes, it will strengthen the effect of entrepreneurial passion on green innovation performance.

2 Proposition

2.1 *Entrepreneurial Passion Increases Green Innovation Performance*

According to Cardon and Kirk (2015) define entrepreneurial passion as an accessible awareness, a strong positive feeling experienced by involvement in entrepreneurial activities related to a meaningful and important role for the self-identity of the entrepreneur. This conceptualization includes two important elements to be explored further: (1) entrepreneurial passion involves strong positive feelings and (2) it results from involvement in activities related to entrepreneurial role identity.

More deeply, entrepreneurial passion involves strong positive feelings reflected in many writings where entrepreneurial passion is described by words such as enthusiasm, and passion (Baum and Locke 2004; Bird 1989; Brännback et al. 2006; Cardon et al. 2005). According to Russell (2003) and Seo et al. (2004) state that entrepreneurial passion corresponds to strong and positive feelings, similar to excitement and joy, but differs from negative and intensive feelings (e.g., angry, depressed) and feelings that not at all intensive (e.g., tired, calm), or positive but not intensive (e.g., satisfied).

Entrepreneurial passion is very important in entrepreneurship. This construct is often metaphorized as “the fire of desire” (Cardon et al. 2009). Theorists in this area argue that passion for entrepreneurial activity increases tenacity, effort, enthusiasm, and overall success (Bird 1989; Cardon et al. 2009; Baron 2008). Based on affective event theory (Weiss and Cropanzano 1996) explains that emotions will affect behavior or performance.

Based on the result of various previous studies, it has been stated that entrepreneurial passion has an effect on innovation, including green innovation

performance (Strese et al. 2018; Valina et al. 2020; Kiani et al. 2020). Since entrepreneurial passion is able to increase creative thinking and the flexibility of entrepreneurial cognition to design creative combinations (Baron and Tang 2011). Thus, entrepreneurial passion helps entrepreneurs to formulate and combine creative ideas as a basis for formulating new products so as to improve green innovation performance.

P1: Entrepreneurial Passion has positive effect on Green Innovation Performance

2.2 Islamic Work Ethic Moderates the Positive Effect of Entrepreneurial Passion on Green Innovation Performance

Based on the result of literature review, it shows that organizations have great attention to positive organizational psychology (Javed et al. 2017). Sources of positive organizational psychology consist of two things, namely individuals and organizations. Sources from individuals such as spirituality and sources from organizations such as altruism, citizenship behavior, and work ethics (Seligman and Csikszentmihalyi 2014). Work ethics is a predictor that has a direct effect on behavior in positive organizations because it is very important to examine work ethics (Javed et al. 2017).

One of the most important studies related to work ethics is the study of work ethics based on religious values. There have been many studies of work ethics based on religions such as Christianity, Confucianism, Buddhism, Hinduism, and Judaism (Parboteeah et al. 2009). The next study that is no less important is the study of work ethics based on Islamic religious values which is conceptualized as Islamic Work Ethic (IWE) (Ali 1988, 1992). IWE is based on the teachings of the Qur'an and the Sunnah of the Prophet Muhammad SAW (Ali and Al-Owaihah 2008).

According to Ali and Al-Owaihah (2008), IWE is a work ethic based on Islamic values which views that work is a virtue that a person has to meet needs that are balanced between individual needs and social needs. IWE views work not only to advance the individual's economy but also to improve the welfare of the community as a means of donation and to reaffirm religious beliefs. The concept is taken from the Qur'an and Hadith.

Based on the Qur'an and Hadith, many indicators from IWE are formed, including commitment to work hard, honesty, social care, and care for nature by preserving it. In connection with the commitment to work hard, the Qur'an encourages Muslims to work hard. "*Humans can have nothing but what they strive for*" (An-Najm 53: 39). Furthermore, honesty gets special attention from the Qur'an as the basis of a Muslim in work. "*Give the full measure when you measure and weigh with fairness*" (An-Naml 27: 9). Social care is what a Muslim pays attention when working and managing wealth as a result of his work. If you don't care about the social environment, then hell will be the reward. "*Those who hoard gold and silver and do not spend in the way of Allah: then upon them will be the most painful punishment*" (Al-Furqan 25:

67). In addition, Qur'an also forbids Muslims to destroy nature. *“And do no mischief on the earth, after it has been set in order, but call on Him with fear and longing (in your hearts): for the Mercy of Allah is (always) near to those who do good”* (Al A'raf 7: 56–58).

The results of empirical studies show that IWE has an effect on organizations such as organizational change, job satisfaction, job involvement, turnover intention, and organizational citizenship behavior, knowledge sharing behavior, and innovative behavior (Javed et al. 2017; Khalil and Abu-Saad 2009; Ahmad 2011; Murtaza et al. 2014). According to Khan et al. (2015) the significant effect on the organization is due to the ethical behavior of IWE which shows characteristics such as commitment, loyalty, and dedication to certain tasks which have an impact on completing tasks effectively and efficiently. Individuals who have strong ethical behavior emphasize hard work with a high level of dedication to fulfill the task requirements demanded by the organization (Schneider 1990).

Therefore, in the environmental context, where innovative behavior is required to adapt to new changes, entrepreneurs who have high ethical behavior work enthusiastically (Ali and Al-Owaihyan 2008) and take proactive action through generating, promoting, and implementing creative idea. Furthermore, entrepreneurs who have ethical behavior show positive behavior as predictors of innovative behavior (Arnaud and Sekerka 2010). The thing that stands out from IWE is ethics towards the universe. Islam urges its people to preserve nature and not to cause harm to nature. Thus, IWE plays a role in moderating the effect of entrepreneurial passion on green innovation.

P2: Islamic Work Ethic moderates the positive effect of Entrepreneurial Passion on Green Innovation Performance

2.3 Promotion Regulatory Focus Increases the Moderation of Islamic Work Ethic for Entrepreneurial Passion on Green Innovation Performance

Self-regulatory according to Self-Regulatory Theory (SRT) is a personal awareness management system that involves the process of guiding one's thoughts, behaviors, and feelings to achieve goals. Self-regulation consists of several stages and individuals must function as contributors to their own motivation, behavior, and development in a network of interacting effects.

Regulatory focus is the motivation that underlies individuals to act that is driven by self-regulatory mechanisms within a person that focuses on seeking pleasure or avoiding pain (Higgins 2010). Individuals who focus on the search for pleasure are called focus on promotion which is oriented to something ideal. This individual will focus on growth and achievement. While individuals who focus on avoiding pain are called prevention, which is oriented towards responsibility and fulfillment of obligations.

Regulatory focus theory describes how a person is involved in self-regulation, the process of aligning oneself with one's standards and goals. At any given point in time, people may engage in self-regulation with a promotion or prevention focus. Self-regulation that focuses on promotion and prevention differs in three dimensions: (1) the underlying motives that people seek to fulfill, (2) the nature of the goals or standards they are trying to achieve, and (3) the type of desired outcome. When focusing on promotion, growth need, and advancement, people motivates them to align themselves with their ideal selves (based on their dreams and aspirations), thereby heightening the importance of potential gains to be achieved (feeling the presence of positive results).

When focusing on prevention, people's security and safety needs drive them to seek to align themselves with who they should be (based on their sense of duty and responsibility), thereby increasing the salience of potential harm to be avoided (the absence feeling of negative outcomes). Self-regulatory focus theory states that part of why individuals appear to be motivated by different factors, even if each seeks pleasure and avoids pain because of the different strategies individuals use to do so. Self-regulatory focus theory describes what people focus on in the final state when they regulate themselves: whether achievement and aspirations (promotional focus) or safety and responsibility (prevention focus).

The theory suggests that those who focus on promotion are goal-oriented, and seek to close the gap between their current state and their desired final state, which is characterized or defined by aspirations and accomplishments. Those who focus on prevention are oriented toward "duties"—duties or obligations that lead to safety or protection. Rather than removing the distance between the current state and the desired final state, they seek to increase the distance between the current state and the unwanted final state. Higgins also asserts that the two types of focus, promotion and prevention, are not simply opposites of each other. Those with a promotion focus see the world in terms of profit versus non-profit situations. While those with a prevention focus see the world in terms of non-loss versus loss situations.

Muslim entrepreneurs in achieve green innovation performance require various factors. According to Riggs (2010), ethical standards are one of the requirements to produce innovation because entrepreneurial ethics able to produce and communicate ideas, then choose them or generate opportunities to find creative solutions. Meanwhile, Lex et al. (2020) state good entrepreneurial innovation performance requires emotional and cognitive support from the entrepreneur. Entrepreneur passion is a representation of emotion, while promotion regulatory focus is a representation of an entrepreneur's cognition.

Therefore, the moderating role of IWE is getting stronger for individuals who have a promotion regulatory focus. Theory of promotion which focuses on individuals are idealistic, seek to close the gap between their current state and their desired final state. It is characterized or defined by aspirations and accomplishments. Entrepreneurs who have a high promotion regularity focus will always strive to achieve goals with high growth-oriented motivation. If the entrepreneur has a high IWE and a high promotion regulatory focus, it would strengthen the effect of entrepreneurial passion on green innovation performance.

P3: Promotion regulatory focus increases the moderating effect of Islamic work ethic on the effect of entrepreneurial passion on green innovation performance, when a high level of Islamic work ethic is combined with a high level of promotion regulatory focus, the positive effect of entrepreneurial passion on green innovation performance would increase.

2.4 Locomotion Regulatory Modes Increases the Moderation of Islamic Work Ethic for Entrepreneurial Passion on Green Innovation Performance

Every entrepreneur wants to succeed in achieving the business goal. Based on regulatory mode theory, it is stated that individuals in the process of achieving goals use one of two regulatory modes described by the terms locomotion and assessment (Higgins et al. 2003; Avnet and Higgins 2003). Locomotion is an aspect of self-regulation that is concerned with moving from one activity to another by exerting psychological resources that will initiate and sustain goal-related movements immediately without undue distraction or delay (Kruglanski et al. 2000). In short, it is an approach that emphasizes speed in taking action on the principle that the sooner the better.

In contrast, assessment is a comparative aspect of self-regulation that emphasizes critical evaluation of an entity or situation, with regard to alternatives for assessing relative quality (Kruglanski et al. 2010). Based on this approach, a person emphasizes caution in taking action and does not continue his action until he is absolutely sure that he has considered all relevant factors and considered all alternative ways to take action. The essence of this method is that individuals always make sure they “have done it right” when they will proceed to the next action. Individuals in action place more emphasis on taking truly effective actions rather than just getting started.

According to Avnet and Higgins (2003), locomotion and assessment are stable individual differences and situational variables that cause one mode to dominate over another. Furthermore, the two methods are independent. It is possible in the individual can be high or low in each mode of setting. For example, certain individuals can be both high- and high-evaluators, high- and low-evaluators, both low-movers, and so on (Higgins et al. 2003).

Regulation modes have an impact on the behavior of individuals in organizations. According to Amato et al. (2016) find that regulatory mode affects business success. Furthermore, Higgins et al. (2003) state that individuals with high locomotion have high work involvement and work commitment since individuals with high locomotion are more likely to have intrinsic task-motivation. Meanwhile, Pierro et al. (2006) state that individuals with high assessments are more likely to have extrinsic task-motivation. While, Mauro et al. (2009) state that individuals or groups consisting of locomotion are faster, while individuals or groups consisting of assessments are more accurate in their task performance.

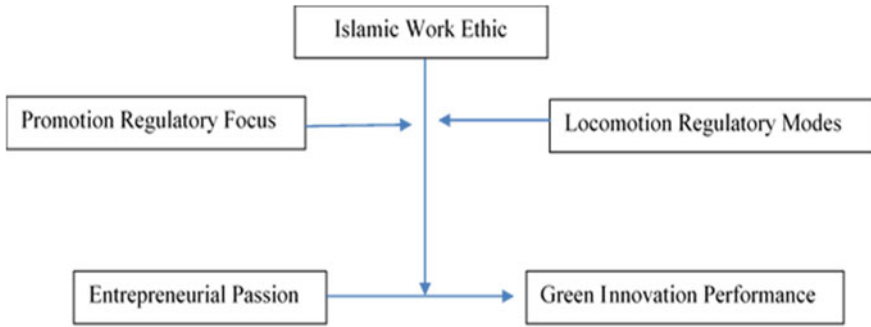


Fig. 1 The conceptual framework

The achievement of green innovation performance by Muslim entrepreneurs is influenced by many factors. Ethical standards are one of the factors that affect the achievement of green innovation performance because entrepreneurial ethics able to produce and communicate ideas, then choose them or generate opportunities to find creative solutions (Riggs 2010). Meanwhile, according to Lex et al. (2020), good entrepreneurial innovation performance requires emotional and cognitive support from the entrepreneur. Entrepreneur passion is a representation of emotion, while locomotion regulatory modes is a representation of an entrepreneur's cognition.

Therefore, the moderating role of IWE is getting stronger in individuals who have locomotion regulatory modes. Locomotion is an aspect of self-regulation that is concerned with moving from one activity to another to achieve goals directly without undue delay (Kruglanski et al. 2000). Individuals with this mode of regulation will prioritize acting quickly rather than evaluating too long and waiting for the perfect action to take. Entrepreneurs who have high locomotion regulatory modes will always try as soon as possible to seize opportunities and innovate. If the entrepreneur has a high IWE and high locomotion regulatory modes, it will strengthen the effect of entrepreneurial passion on green innovation performance.

P4: Locomotion regulatory mode increases the moderating effect of Islamic work ethic on the effect of entrepreneurial passion on green innovation performance, when a high level of Islamic work ethic is combined with a high level of locomotion regulatory mode, the positive effect of entrepreneurial passion on green innovation performance would increases (Fig. 1).

3 Methodology and Approach

This study examines the moderating role of Islamic work ethic, promotion regulatory focus, and locomotion regulatory modes on the effect of entrepreneurial passion on green innovation performance. Researchers use a quantitative approach to prove the

propositions or hypotheses that have been built previously. The topic of green innovation performance and Islamic work ethic will be very relevant if it is conducted in the scope of Islamic entrepreneurship which essentially operates based on Islamic law and cares about environmental sustainability. Furthermore, study in the context of green innovation performance and Islamic work ethic would be more appropriate if done through the survey method, namely by conducting survey directly with entrepreneurs in order to obtain accurate and credible data in proving research propositions or hypotheses. This study uses a moderated multiple hierarchical regression analysis to examine the three-way interaction effect.

4 Discussion and Conclusion

The study discusses how emotions, IWE, and cognition interact with each other on the affect of green innovation performance in the context of Muslim entrepreneur in Indonesia. Islam is a religion that highly upholds environmental sustainability as the word of Allah SWT which means *“And do not cause damage to the earth, after (Allah) has repaired it and pray to Him with fear (will not be accepted) and hope (will be granted). Verily, the mercy of Allah is near to those who do good. And He blows the wind as a bearer of glad tidings before the coming of His mercy (rain); until when the wind has brought overcast clouds, We drive it to a barren area, then We send down rain in that area, So We bring out because of the rain various kinds of fruit. That is how We resurrect those who have died, Hopefully you will learn a lesson. And the land is good, its crops flourish by the permission of Allah; and the soil is not fertile, the plants only grow languishing. Thus We repeat (Our) signs of greatness for those who are grateful”* (Al A'raf 7: 56–58). Based on the verses, Muslims are asked to always protect the environment and not damage the environment. Even asked to maintain the grace of God as well as possible.

In addition, the Prophet Muhammad strongly encouraged his people to preserve the environment. He said that preserving the environment includes worship because it will get a reward from Allah SWT. The Messenger of Allah said, *“A Muslim does not grow a plant unless what he eats from it becomes a charity for him. What is stolen from the plant becomes alms for him. What a wild animal eats becomes alms for him. What the bird eats becomes alms for him. And no one else will benefit (from the tree) except as a charity for (the planter)”* (Hadith Muslim from Ibn Numair). This hadith explains that planting trees as an embodiment of environmental friendly actions will have a broad and beneficial impact on many parties so that it is considered worship and gets a reward.

Based on the word of God and the hadith of the prophet, if it is implemented in business, we are allowed to utilize and optimize natural resources and the economy must be environmental friendly and beneficial for many parties. This will be realized with environmentally friendly business innovation (green innovation).

Green innovation is an innovation that is environmental friendly. It means that the resulting innovation products do not damage the environment. Islam strictly prohibits

its people from doing things that damage the environment as Allah says which means *“Mischief has appeared in the land and the sea because of what the hands of the mankind have earned, that He may make them taste a part of that which they have done, so that they may return (turn to Allah). Say: Travel through the earth and see what was the end of those before (you): Most of them worshipped others besides Allah”* (Ar-Rum 30: 41–42).

Muslim entrepreneurs in running their business are always based on an Islamic perspective. It is in accordance with IWE which also provides an ethical approach to nature by maintaining its sustainability (Ali and Al-Owaihian 2008). Thus, Muslim entrepreneurs will try to improve their business performance by making innovations. The innovations conducted certainly do not damage the environment because they are in accordance with the Islamic perspective, especially IWE.

According to Ma et al. (2017) find that emotions and cognition interact with each other in affecting innovation. This study uses entrepreneurial passion as a representation of emotion and regulatory focus as a representation of cognition. The results of the study indicate that the interaction between entrepreneurial passion and regulatory focus affects innovation behavior. This study recommends further study to add other variables that may interact with entrepreneurial passion.

This study responds to Ma et al. (2017) by adding that IWE interacts with entrepreneurship passion in affecting green innovation performance. This study does not replace the regulatory focus in previous studies but combines them so that there is a three-way interaction which includes emotion, work ethic, and cognition. In addition, this study also adds regulatory modes as a representation of cognition.

This study contributes to combining various theoretical perspectives to describe how emotions, Islamic perspectives, and cognition interact with each other to improve green innovation performance. Based on affective event theory, Weiss and Cropanzano (1996) explains that emotions will affect behavior or performance. Positive emotions represented by entrepreneurial passion affect performance. Furthermore, based on the perspective of Islamic work ethics, Ali (1988) explains how Islamic work ethics affect performance. Finally, regulatory focus theory (Higgins 2010) and regulatory mode theory (Kruglanski et al. 2000) explain how a person's focus and mode of self-regulation affect performance. Several theoretical perspectives are interacted to test their effect on green innovation performance. The interaction of these theories has rarely been conducted in previous studies.

This study contributes the policy making to improve green innovation performance. Based on the propositions offered in this study, the first thing that must be considered to improve green innovation performance is entrepreneurial passion. Green innovation performance will be good when entrepreneurs have a passion for environmental friendly business fields. Furthermore, what needs to be improved is the Islamic work ethic that exists within a person. Finally, it is the regulatory focus and regulatory mode of entrepreneurship in action that need to be considered. Entrepreneurs with a high passion of green business, strong Islamic work ethic, and self-regulation focused on achieving goals (high promotion) will interact and strengthen each other so that they can increase green innovation performance. The performance of green innovation will also increase when entrepreneurs have a great

passion for green business, then have a strong Islamic work ethic, and have a mode of self-regulation to act immediately (high locomotion).

The managerial contribution of this study is that green innovation performance can be improved by enhancing entrepreneurial passion, Islamic work ethic, promotion regulatory focus, and locomotion regulatory mode. It can also be improved by increasing the activity of green innovation performance itself, such as by carrying out energy saving, pollution prevention, waste recycling, environmental friendly product design, and corporate environmental management. The limitation of this study is that it only uses promotion regulatory focus and locomotion regulatory modes in examining the influence of entrepreneurial passion on green innovation performance, thus it cannot provide a complete description of the role of regulatory focus and regulatory modes on the relationship between entrepreneurial passion on green innovation performance. Therefore, to provide a clear and complete picture, future research should include prevention regulatory focus and assessment regulatory modes. Another limitation of this study is that it uses a cross-sectional data (at one time point) and the source of the data is only from one country, thus it can only provide a less comprehensive picture of green innovation performance (Hamdan et al. 2021). Future studies should use a longitudinal data such as using Experience Sampling Methodology (ESM) (Uy et al. 2010) and use data that is sourced from a group of Muslim countries in Southeast Asia, such as Indonesia, Malaysia, and Brunei Darussalam. Finally, this study does not specifically include gender factor in looking on the influence between variables. Gender factor surely will generate different impacts in the research results (Gholami and Al Tahoo 2021). The aspect of cognition and emotion from male and female would be different, as female tend to put emotion first compared to male. Therefore, future research should collect specific gender type that will be the research samples from Muslim entrepreneurs, such as female Muslim entrepreneurs.

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Social Media Adoption on SMEs in Indonesia: TOE Model



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Abstract SMEs are very much affected by the current pandemic. Social media is believed to be needed by SMEs to improve performance. This study analyzes the marketing performance of SMEs, which are influenced by SM adoption. The performance of SMEs can be predicted from the availability of technology, management support, competition, convenience, and perceived usefulness. All of these variables make it easier for SMEs to adopt SM. The data in this study were 300 SMEs consisting of handicraft, tourism, and general trading. The research location is in the Special Region of Yogyakarta. Analysis of the data using a structural model with the help of the PLS-SEM program. The results show that the SME performance model with antecedents of SM adoption is acceptable. This study analyzes the adoption of SM with three categories of SMEs namely crafts, tourism and general trade in one model, which has never been done by other researchers. In addition, the condition of SMEs in Yogyakarta has a uniqueness that is different from SMEs in the world related to the absence of good management implementation in managing their business.

Keywords Technology · Organizational · Environment · Complexity · PU · Adoption · SMEs performance

1 Introduction

SM adoption in small and medium enterprises is an important thing to do. SM can communicate information to several interested parties at a minimal cost. SMEs must be able to access and use the information to improve their performance of SMEs. SM adoption in developing countries is the right strategy for the success of SMEs in the new normal. SM facilitates good communication between customers and SMEs

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quickly. SM is a low-cost digital option for analytics, content tracking, and customer tracking. Qalati et al. (2021) show the benefits of SM for SMEs to maintain their competitive position through strengthening relationships with customers to impact sales performance. This study uses technology-organizational-environmental (TOE) and TAM to predict the performance of SMEs caused by SM adoption in developing countries, especially in Indonesia, which represents an area that is still under-researched. Previous research has shown that SM affects consumer purchases (Sugandini et al. 2019). However, there is not good literature on how SMEs choose, adopt, or practice SM platforms (Fernandes et al. 2016). Many areas remain unexplored, such as the adoption of SM in the context of SMEs (Chatterjee and Kumar Kar 2020), the influence of SM on the survival of SMEs, and antecedents of successful adoption of SM in SMEs (Rahman et al. 2016). SMEs in developing countries face more competitive challenges with increasing market uncertainty and a lack of resources. In addition, some of these SMEs also avoid the adoption and use of SM due to inadequate technical skills (Nisar and Shafiq 2019).

The research gap in technical capability is one of the reasons behind the increasing non-adopter of SMEs in developing countries. This study aims to justify the adoption of SM in SMEs and the factors that influence it using the context of the technology-organization-environment (TOE) framework. TOE is a technology-organization-environment construct. Technology refers to the technological suitability of new technologies. The organization covers the type, size, scope, managerial level, and related issues (Effendi et al. 2020). Environment refers to the climate in which SMEs operate, including government, industry, and competitor policies and support. This study also uses the technology acceptance model (TAM).

The integration of TOE and TAM combines human-non-human aspects into one model, strengthening existing traditional frameworks such as the UTAUT model. There are three novelties in this research. First, this study applies the TOE framework to integrate three contexts explaining SM adoption in SMEs in Indonesia. The comprehensive framework provides a broader perspective of SM adoption in evaluating the impact of different antecedents. Second, an empirical study was conducted based on survey data collected from three different SME types, namely tourism enterprises, handicraft SMEs, and trading SMEs. This study can provide a broader generalization of findings of SM adoption. Third, this survey was conducted on home-based SMEs that carry out their production processes, are self-managed and sell themselves, do not have employees and craftsmen outside their immediate family, and do not have adequate production capacity. This study provides a clearer picture of SMEs in developing countries with limited conditions.

2 Literature Review

2.1 SM Adoption

Technological innovation is believed to provide a competitive advantage for SMEs in market diversification and creating new commercial opportunities. Venkatesh et al. (2012) states that innovation is the application of new ideas or technologies in organizations related to competitiveness. The organization's competitive ability is the feasibility of gaining a competitive advantage in terms of time, cost, and service quality (Beier and Wagner 2016; Cartwright et al. 2021). Innovation is a means of survival in today's increasingly difficult economy and a driver of productivity and competitiveness. Innovations related to SM are very appropriate to be applied to SMEs in Indonesia. SM provides several opportunities about costs that can be saved, do not require high IT skills, and are easy to use (Abed 2020). SM helps SMEs promote products and services, build brand communities, and reach niche markets (Guha et al. 2017). Alshaer et al. (2020) show that social media plays an important role in consumer decision making. The speed of information from social media spreads to many consumers so that it can increase competition. TOE has been widely used by researchers in analyzing technology adoption in SMEs. The TOE framework categorizes technology, organization, and environment as three factors influencing SME innovation adoption (Dwivedi et al. 2017).

2.2 TOE Model

TOE Model is a conceptual framework that shows the determinants of innovation adoption behavior. The technological context in the TOE model is one of the factors that influence innovation adoption behavior (Jia et al. 2017; Sugandini et al. 2019; Effendi et al. 2020). Adoption of this innovation is an essential thing in the SME business process. Innovation helps SMEs to market unique product and service features. Research (Brulhart et al. 2017) inspires productive partnerships with multiple stakeholders, enabling SMEs to access resources useful in sourcing practices. The technology factor in the TOE framework shows a significant influence on technology adoption. Technological factors include perceived relative advantage, compatibility, and cost efficiency (Qalati et al. 2021). Hadi Putra and Santoso (2020) shows that technology can have an impact on the use of e-business and improve company performance. Research conducted by Abed (2020) using the TOE framework on 181 SMEs in Saudi Arabia shows that technology has the most significant effect on SM use.

H2a: Technology influences SM adoption

H2b: Technology affects the performance of SMEs by mediating SM adoption

The TAM model from Davis (1989) shows that PU and PEOU influence innovation adoption. The ability to adopt good innovation will improve performance. SM

adoption in SMEs has been studied from various theoretical perspectives. TAM is one theory that is often used to analyze SM adoption in SMEs. TAM is the perception of SME owners/managers as the basis for adopting innovation (Hadi Putra and Santoso 2020); Social Media Adoption and Financial Sustainability.

Research conducted by Chatterjee and Kumar Kar (2020) shows that PU and PEO impact SM adoption and can ultimately improve the performance of SMEs. PU is a perception where SMEs have confidence that technology helps improve overall performance (Yu and Schweisfurth 2020). PEOU shows that technology is uncomplicated, easy, and useful (Venkatesh et al. 2012). If the innovation is easy to use by SMEs, then SMEs are motivated to use the technology (Lin et al. 2021).

H3a: PU affects SM adoption

H3b: PU affects SMEs performance by mediating SM adoption

H4a: Perceived complexity affects SM adoption

H4b: Perceived complexity affects SMEs performance with mediation

2.3 SM Adoption

The organizational context is the second discussion of the TOE model. The organizational context is related to the internal factors of SMEs, such as managerial support, the size of the SMEs rice, adequate capabilities, and resources to support SM adoption (Abed 2020). In TOE, this organizational factor is developed from managerial support. According to (Pateli et al. 2020), organizational support involves approval from the owner/manager to make changes throughout the organization. Top management support influences the availability of human, time, and financial resources (Qalati et al. 2021). Smerecnik and Andersen (2010) argue that top managers who are up-to-date with current and future technologies and have positive intentions and views towards SM adoption are better positioned to facilitate SM adoption in SMEs. Qalati et al. (2021) proved a significant relationship between the role of top management support on organizational performance. Managerial support is a determinant of SM adoption behavior. Sahaf and Tahoo (2021) show that the experience, partnership and knowledge of the owner/manager can support planning, execution, fundraising and all stages of a business. Top management support can create the resources needed to adopt new technologies and influence the adoption of innovations such as SM (AlAwadhi and Al-Daihani 2018).

H5a: Organizational context influences SM adoption

H5b: Organizational context affects the performance of SMEs by mediating SM adoption

The environmental context shows that the adoption of innovation in SMEs is influenced by external factors beyond the company's control, one of which is competitor pressure (Oubrich et al. 2021). Competitor pressure refers to the level of competition that SMEs face in the industry (Cao et al. 2014). The intense competition requires

SMEs to find new ways of doing business. Innovation can be used to change competition (Martins et al. 2015). Pressure from competitors is a force for information and technology adoption (Popov et al. 2010). When SMEs have adopted an innovation, their competitors will usually follow it to adopt the innovation as well (Cao et al. 2014).

H6a: Environment context influences SM adoption

H6b: Environment context affects SME performance by mediating SM adoption.

3 Research Methods

The research was conducted in a survey, using a quantitative research approach with a survey sample and a questionnaire as a data collection tool whose central unit of analysis is the organization.

3.1 Measurement

The technological, organizational, and environmental context was measured by nine items from Qalati et al. (2021) and Abed (2020). PU and perceived complexity from Chatterjee et al. (2021) and Venkatesh et al. (2012). SM adoption from Cartwright et al. (2021) and Dwivedi et al. (2017). The performance of SMEs is obtained from Qalati et al. (2021) and Ferreras-Méndez et al. (2021). All items use a five-point Likert scale ranging from one = strongly disagree to five = strongly agree. The validation of the measuring instrument is carried out through discussions with three professors who are experts in consumer behavior and digital marketing and five SME leaders whose performance is still excellent. The purpose of this validation is to ensure the appropriateness of context and content (Leong et al. 2018). The recommended value of Cronbach's alpha is 0.70 (Hair et al. 2014).

3.2 Data Collection

The data for this study were collected through a survey in the Special Region of Yogyakarta, Indonesia. The current research population consists of user SMEs. Respondents are SMEs that use at least two social media platforms. Respondents in this study were SMEs. This research was conducted during the COVID-19 pandemic, where many SMEs were negatively affected by this pandemic. Types of SMEs are handicrafts, tourism, and general trade. The sample number in this study was 300 samples consisting of 100 handicraft SMEs, 100 tourism SMEs, and 100 trade SMEs. The sample size meets the recommended requirement of ten times the number of

structural paths (Hair et al. 2020). According to the experts above, the various definitions of marketing performance can be concluded that marketing performance can be defined as the achievement of organizational goals related to profitability and sales growth, market share, and the result of corporate strategic goals. The measure of the company's success in achieving its goals is also based on the marketing performance.

4 Result

This study uses partial least squares structural equation modeling (PLS-SEM). Data were analyzed with Smart PLS (version 3.2.9) and IBM SPSS (version 25) statistics. Hair et al. (2020) stated that PLS-SEM can be used for prediction purposes and uses a causal-predictive approach. PLS-SEM allows researchers to analyze complex models that have several additional constructs and characters without considering the assumption of normality in the data distribution (Hair et al. 2014). PLS-SEM is a statistical tool favored by researchers because it does not limit the sample size. PLS-SEM is analyzed in two stages: measurement model (outer model) and structural model (inner model).

4.1 Measurement Model Analysis

The measurement model was evaluated from the value of construct reliability, convergent validity, and discriminant validity (Hair et al. 2020). The results of construct reliability in Table 1 show that Cronbach's alpha value is between 0.703 and 0.846, while the composite reliability value is between 0.725 to 0.902. All criteria offer a value of 0.70, so the reliability is confirmed. Factor loading and average variance extract (AVE) values are used to measure convergent validity. The data processing results

Table 1 Characteristics of respondents

Characteristics of respondents	Respondents%
<i>Gender</i>	
Male	71%
Female	29%
<i>Old establishment of SMEs</i>	
One year - four years	35%
Five years - eight years	15%
Nine years	50%
<i>Number of employees</i>	
10–20 people	78%
>20 people	22%

show that the validity is convergent, and the AVE value is 0.50, which meets the valid requirements for the research instrument (Sarstedt et al. 2017). Discriminant validity was confirmed using one of the well-known traditional approaches (Fornell and Larcker 1981) as well as the heterotrait-monotrait ratio (HTMT) approach (Henseler et al. 2014). The Fornell-Larcker results show that the value of the square root of AVE is higher than the correlation value between constructs. The HTMT approach recommends that the value should be lower than 0.90 for discriminant validity. The resulting findings confirm the good discriminant validity criteria. Thus the instrument can be used for analysis in the structural model.

4.2 Structural Model Analysis

After verifying the measurement model, then confirming the structural model for the purpose of testing the hypothesis. The results of the structural model analysis showed a positive and significant effect of SM adoption and SMEs Performance (H1: beta = 0.947; $p < 0.05$). Technological context influences SM adoption in a significant positive way (H2a: beta = 0.215; $p < 0.05$). PU affected SM adoption in a significant positive way (H3a: beta = 0.345; $p < 0.05$). Perceived complexity has a significant negative effect on SM adoption (H4a: beta = -0.067; $p < 0.05$). Organizational context had a significant positive effect on SM adoption (H5a: beta = 0.388; $p < 0.05$). Environmental context. significant positive effect on SM adoption (H6a: beta = 0.154; $p < 0.05$). The overall results are presented in Table 2 (Fig. 1).

Table 2 Hypothesis testing results

	Original Sample (O)	T Statistics (O/STDEV)	P values	Hypothesis
Adoption SM → SMEs performance	0.947	9.220	0.000	Supported
Technology → Adoption SM	0.215	4.899	0.000	Supported
PU → Adoption SM	0.345	4.466	0.000	Supported
Perceived complexity → Adoption SM	-0.067	1.993	0.047	Supported
Organizational → Adoption SM	0.388	5.069	0.000	Supported
Environment → Adoption SM	0.154	3.337	0.001	Supported

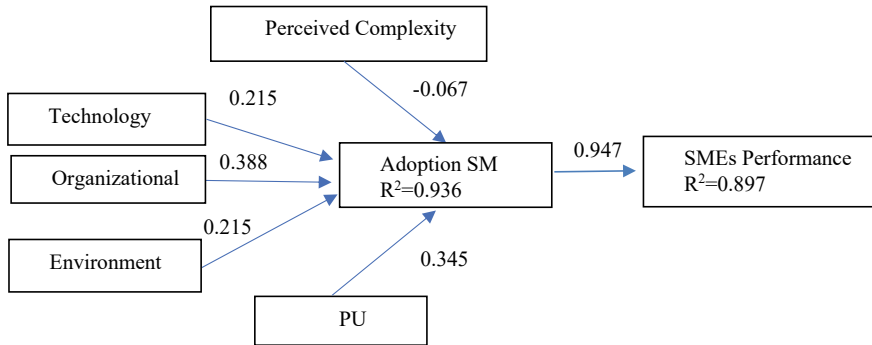


Fig. 1 SM adoption model and SMEs performance

Table 3 Indirect effect test results

	Original Sample (O)	T Statistics (O /STDEV)	P Values
Technology → adoption SM → SMEs performance	0.204	4.971	0.000
PU → adoption SM → SMEs performance	0.326	4.509	0.000
Perceived complexity → adoption SM → SMEs performance	-0.063	1.997	0.046
organizational → adoption SM → SMEs performance	0.367	4.985	0.000
Environment → adoption SM → SMEs performance	0.145	3.323	0.001

4.3 Mediation analysis

This study analyzes the effect of meditation on social media adoption on the relationship between technology context, organizational context, environmental context, public works, and perceptions of complexity with SME performance. The results of the indirect pathway analysis in Table 3 show that all mediating pathways are significant.

4.4 Measurement R^2 , f^2 , and Q^2

The determinant coefficient (R^2) and effect size (f^2) were also analyzed. R^2 is considered weak if the value is (0.25), moderate (0.50), and substantial (0.75) (Hair et al. 2020). Table 4 shows the results of the model fit assessment as indicated by the values of R^2 , f^2 , and Q^2 . Overall, Table 2 shows a 93.6% variance in SM adoption, and SMEs performance variance is 89.7%. Cohen (1988) shows the value of money is used to confirm f^2 . The value of f^2 is small if = 0.02, medium = 0.15, and large

Table 4 Assessment of R², f², and Q²

Endogenous	R square	Q ²	Exogenous variables	f ²
Adoption SM	0.936	8.665	Adoption SM	8.665
	0.897		SMEs performance	0.897
			Environment	0.127
			PU	0.208
			Perceived complexity	0.042
			Technology	0.230

= 0.35. The results showed that all exogenous variables sufficiently influenced the endogenous variables—Q² to measure the accuracy of the predicted model. (Hair et al. 2020) stated that if Q² > 0, the model has predictive relevance, Q² > 0.25 indicates moderate, and Q² > 0.50 has high predictive relevance. The endogenous variables in this study have great predictive relevance leading to encouraging results.

5 Discussion

This study analyzes the antecedents of SM adoption and SME performance using the TOE and TAM frameworks. The results show that the adoption model that affects the performance of SMEs is acceptable. These findings indicate a significant relationship between the context of technology, organization, environment, and SM adoption in SMEs. Jia et al. (2017) stated that SMEs that have promising technology adoption capabilities can increase their sales. The results show that although organizational readiness is not yet feasible enough to adopt SM with the consequences that arise, the owners, who are also the leaders of SMEs, are serious in supporting the successful use of SM for SMEs. The pandemic that has devastated SMEs due to falling demand has led to even greater pressure in the competitive environment. SMEs in Indonesia feel significantly helped by this SM technology. SMEs in Indonesia choose digital platforms, namely Facebook and Instagram. Both digital media are believed to have a low level of complexity and are easy to adopt. This ease of adoption and perceived benefits make SMEs happy to use SM. This finding is in line with Chatterjee and Kumar Kar (2020); Yu and Schweisfurth (2020), which shows that uncomplicated and helpful technology will be easily accepted by users Venkatesh et al. (2012) and Lin et al. (2021). This study indicates that the adoption of SM is considered an important technology that must be applied by SMEs as a condition to achieve a competitive advantage. The findings of this study support Brulhart et al. (2017) and Qalati et al. (2021). Other research results from this study show that the adoption of SM by SMEs in Indonesia boosted sales of Selma during the pandemic. SM is beneficial in marketing SME products which during the pandemic went down drastically. The development of the sales level is starting to show good results thanks to the marketing

efforts carried out through SM. This study also supports Qalati et al. (2021), which indicates that SM can increase the competitive power of SMEs.

Theoretical Contribution

This study investigates the adoption of SM in three tennis SMEs, namely handicraft SMEs, tourism and general trade in one model, which has not been done by other researchers. The condition of SMEs in Yogyakarta has unique characteristics that may be different from SMEs in general in the world. The uniqueness of SMEs in Yogyakarta, among others: no one has a manager, because the owner is also a manager of SMEs. There is no special place for production, and the management of SMEs is not well organized. This research contributes to the findings on the adoption of innovative technology of SMEs by utilizing the TOE framework of Tornatzky and Fleischer (1990). This study also observes the internal side of SMEs not in the context of consumers, such as research that Abed (2020) has carried out; Akman and Mishra (2017). It is hoped that the results of this study can add to the theoretical contribution related to the setting of this research.

Practical Contribution

This research provides a good understanding of the importance of SM for SMEs in increasing competitive advantage. SM is trusted to contribute to helping the marketing of SMEs, which have fallen sharply due to the pandemic. The SME owner who doubles as a manager can facilitate everyone who works in his SME in adopting SM. Owner support is beneficial for all parties in SMEs to contribute generously to the progress of SMEs. This study shows that the organizational context indicated by the support from the SME leadership has the most influence on SM adoption. However, although leadership support as an organizational factor has been found to be the main driver for adoption, the perceived usefulness factor has a significant influence. SM provides many benefits for businesses because it can increase sales, speed up task completion, and increase the competitiveness of SMEs. SME owners and managers must be willing to take risks involved in SM adoption. SME owners need to keep abreast of the latest developments of SM technology and provide funding for technology adoption.

Limitations and Future Research Direction

This research is limited to SMEs that have adopted SM, not analyzing SMEs that have not adopted SM. This study also has not explored several indicators to justify the TOE model. Organizational readiness, pressure from consumers have also not been involved in shaping the organizational context and environment. Some of the variables that have not been analyzed and found at this research are the trust variable on transactions made through SM. The technical readiness of SMEs related to facilities and infrastructure is also indicated to be the cause of SM adoption. Some of these variables should be studied for future research on SM adoption that affects the performance of SMEs.

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Organizational and Economic Fundamentals of Activity of Seed Enterprises of Ukraine



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Abstract The essence of prospects for increasing the export potential of cereal crops of Ukraine, which specialize in growing maize for grain, is revealed. Following these positions, a very important task is to study the problem of forming the export potential of cereal industry in order to improve Ukraine's competitive position in the world grain market and developing a national policy on Ukraine's participation in global food security. This led to the choice of the topic of the article and indicates its relevance. It can be argued that Ukraine's production potential is significant. It is proved that stimulating the development of the export potential of the grain industry is possible on the basis of modern structural and transformational conversion in the agricultural sector in order to stabilize and increase the production of competitive products. It is substantiated that the domestic branch of selection and seed production is not experiencing the best of times: the efficiency of the state program of formation and implementation of seed policy is very low, and control in seed production due to constant reform of relevant bodies is extremely insufficient. As a result, there is illicit circulation in seeds of varieties of dubious origin, unrecognized varieties or low quality seeds. However, large international companies consider Ukraine as a center for the production of maize seeds and a country with significant export potential. Therefore, it is crucial to finalize agreements with the European Union on the recognition of Ukrainian certificates and the opening of the EU market for seeds produced in Ukraine. At the same time, growing seeds is first of all a business where the speed of reaction to consumer requests is important. Thus, the main task is to invent a «compromise» between high quality and competitive price. It is proved that due to the introduction of high-yielding hybrids of maize and the intensification of

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innovative activities in the technology of growing this crop in 2011 for the first time in Ukraine received a record gross harvest of its grain—more than 22 million tons. In particular, in 2013 this index was 30.9 million tons, in 2018 it was more than 35.8 million tons. Such data confirm the real possibilities of increasing the production of this important forage crop in the country. It is noted that in industrial practice in the cultivation of this crop, farmers face a significant number of problems, both agro-technological, organizational and economic nature. The dynamics of development of maize production is characterized by significant variation in sown areas, and as a consequence, in gross yield.

Keywords Export · Potential · Formation · Food security · Competition · Seed production · Agrarian market · Market of seeds · Oily crops · Varieties · Hybrids

1 Introduction

The main tasks of the seed industry are the uninterrupted supply of agricultural enterprises with quality seeds of high-yielding varieties and hybrids. In recent years, there have been positive changes in the seed industry of Ukraine, but this industry needs to develop a strategy for the development of seed enterprises and the introduction of innovative technologies in production.

Analysis of the data in Table 1 shows that in 2019 there was a rapid development of both world and Ukrainian selection. Thus, analyzing the varieties of the main grain crops, we note that for wheat during the analyzed period the number of registered varieties suitable for distribution in Ukraine increased 11.7 times, including domestic—10.5 times. Respectively, the increase in corn was 21.8 times and 14.4

Table 1 The structure of the quantitative composition of varieties of major cereals in Ukraine

Crop	1991 p.			2019 p.			2019 in 1991 times
	Number of varieties	Ua. selections	%	Number of varieties	Ua. selections	%	
Winter crops	80	53	66	863	534	60	10,8
Including wheat	40	32	80	468	338	72	11,7
Spring	189	121	64	1679	821	52	8,9
Including corn	54	38	70	1176	549	47	21,8
Barley	21	13	62	154	89	58	7,3
Oil and fiber crops	65	37	56	2044	648	32	31,4
Including sunflower	17	7	41	769	203	26	45,2

times, accordingly. It is worth noting a fairly significant share of domestic wheat varieties, the share of which is 72%. What can not be said about other cereals in particular, the share of domestic varieties of corn is only 47%, the share of oilseeds and spinning crops and sunflower is quite low—32% and 26%, respectively.

2 Literature Review

The question of the economic category and the essence of the market of agrarian sector products are constantly under the ears' attention. Theoretical foundations of the formation of the domestic agrarian market are laid down in the writings of famous scientists Gaiduckiy P.I., Sabluk P.T., Malik M.Ya., Alekseenko L.M. Different aspects of the development of the seed market are presented in the research by Fadeeva L.V., Zaharchuk O.V. The research of these scientists focuses on theoretical and methodological aspects of the market and certain segments of the agrarian market. However, the globalization of the economy and the dynamism of the transformational processes in the world necessarily affect the national markets of agrarian products and, accordingly, formulate new tasks that require adaptation and resolution. In Ukraine, until recently, virtually no research was carried out on the seeds market in general, and the market for oilseed crops, in particular. Issues of quality of domestic seeds remain insufficient; there is a problem of integration of the domestic market of seeds with world trends in the field of genetics and marketing of seeds. Important is the issue of interaction of supply and demand, price formation, as well as improvement of inter-branch economic relations and the creation of an appropriate market infrastructure for oilseed crops. The importance of the topic from the point of view of the agrarian potential of the domestic economy requires further research.

3 Research Methodology

The purpose of the study is to consider the prospects of the network model of economic organization entities on the basis of modern info communication infrastructure and e-commerce systems in the activities of seed enterprises of Ukraine. The research was based on scientific works domestic scientists and data IOB NAAS. The study was performed using a monographic, structural–functional and abstract-logical methods.

To reveal the organizational and economic principles of Kolos Agrofirma LLC—in grain variety testing.

General scientific: working hypothesis—for the choice of areas of research, experience, observation, analysis; Mathematical and statistical—correlation, variation, variance, which were carried out using computer programs «Microsoft Office Excel» and «Statistica 6.0».

4 Results

In general, we can note the following trends in domestic seed production:

- reducing the amount of seed production of cereals and violating the proportions for the production of specific seed generations;
- lack and unclear proportions between the production of seeds of different types of cereals, which requires coordination;
- reduction of the number of certified farms, and in such a direction that prevents the localization of these farms and at the same time increases the cost of transportation of grain seeds, reduces competition in the seed market, which may lead to a monopoly of certain producers;
- the seed market has mostly stabilized, but given the increase in the area under cereals there is a need to increase the competitiveness of domestic varieties and hybrids of domestic seed, as well as reduce the dominance of the Ukrainian seed market with imported varieties.

Today in each soil-climatic zone special researches with grades are carried out not only for definition of their biological, morphological and economically valuable signs, but also for adaptation of elements of technology of cultivation for the purpose of receiving stable and high productivity with accordingly good quality indicators.

Limited Liability Company is a diversified integrated agricultural enterprise established in 2000, which leases 3,600 ha of arable land in Skvyra district of Kyiv region.

The farm is a production bridgehead, a testing ground for scientific developments of breeders, microbiologists. The main areas of LLC «Agrofirm Kolos» are crop production, animal husbandry, processing of own production and scientific activity.

In the production of different generations of seeds in 2020, the main share is the production of certified seeds. This is the production of winter wheat, the most popular crop, in second place—spring barley, a much smaller share is allocated to the production of winter rye and other cereals and legumes.

The structure of pre-seed production is slightly modified. Here a much smaller share is occupied by the production of winter wheat seeds, a slightly larger share—the production of spring barley seeds, characterized by a significant share of winter rye and other cereals and legumes. In the production of basic seeds, the production of winter wheat traditionally remains the largest—51%. Winter rye occupies a high share of production, while a small share falls on the production of other cereals and legumes. This allows you to note lack of reasonable proportions between the production of different generations of seeds of different cereals. Obviously, each of the spheres of certain generations must be larger is focused on both the general need for seeds of grain farms and the needs of the seed farms themselves, especially those engaged in certified seed production.

The specifics of seeds as a consumer value, significant technical differences in its production, the need for labor resources of a certain qualification contributed to the separation of seed production into a separate branch of agricultural production,

increasing the efficiency of which is one of the components of economic efficiency of grain farming.

The current state of development of seed production of cereals indicates the presence here of a set of problems that are gaining dynamism, require in-depth study and justification of meaningful ways to solve them.

The farm cultivates about 20 varieties of winter wheat and 15 hybrids of corn. New varieties of winter wheat Tsentylivka, Pustovarivka and Svitilo have proven themselves in the domestic market as high-yielding. Annually, the company produces and sells 50 thousand points. Corn seeds (on the area of 42 thousand hectares) and 4000 tons of wheat seeds (on the area of 16 thousand hectares). An important element of effective activity in this direction is the functioning of its own plant for the calibration, cleaning, treatment of seed material.

Table 2 data indicate a significant increase in the production cost of corn for grain in 2015–2018 (from UAH 830 per ton in 2015 to UAH 2,890 in 2018), which is due to a significant increase in direct material costs (by mineral fertilizers, fuels and lubricants, wages) and other direct and overhead costs.

Kolos Agrofirm LLC has well-established work on grain selection: 3 varieties of winter wheat, 19 maize hybrids and 28 self-pollinating maize lines have been registered. Seed calibration, treatment and packaging is carried out on CarterDay's own equipment directly on the farm, which significantly minimizes the cost of transporting seeds. Maize hybrids are used for selection work—three-line (silage direction of use) and simple (grain direction of use).

These are the following hybrids: «Zhinchyn SV», «Motryn 178 SV», «Kyy 250 SV», «Leonidiv 276 SV», «Pustovarivs'ky 280 SV», «Rist SV», «Rushnyk SV», «Rehion SV», «Romashka SV».

Domestic hybrids of corn seeds are highly productive, adapted to the natural and climatic conditions of Ukraine and have a yield potential of 12.5 to 15 t/ha (Table 3).

Table 4 shows the dynamics of the price and cost of corn seeds of domestic hybrids, which is selected by LLC «Agrofirm Kolos».

Table 2 The structure of the production cost of corn for grain (1 ton) in LLC «Agrofirm Kolos» in 2015–2018, thousand UAH

Years	Production cost of 1 ton, total, UAH	Including direct material costs	of them					Direct labor costs	Other direct costs and overhead costs, total
			Seeds and planting material	Mineral fertilizers	Fuels and lubricants	Payment for services and work of third parties	Other material costs		
2015	830	394	71	73	176	46	28	222	214
2016	1100	453	92	46	300	–	15	211	436
2017	1650	953	66	341	318	109	119	277	420
2018	2890	756	40	175	251	53	237	434	1700

Table 3 The main technical parameters of domestic hybrids of corn for grain, which are selected in LLC «Agrofirma Kolos» (Zakharchuk 2009)

Name of maize hybrid (first generation)	FAO	Potential yield, t/ha	Grain type	Number of days before harvest	Number of plants at the time of harvest, thousand pieces/ha			Ціна за 1 п.о.* (70 000 нас.), грн. з ПДВ
					Forest-steppe	Woodlands	Steppe	
<i>Zhinchyn SV</i>	170	To 13,0	dentiform	120	70–75	75–80	60–65	600,00
<i>Motryn 178 SV</i>	180	To 13,5	dentiform	120	80–85	85–90	60–65	600,00
<i>Kyy 250 SV</i>	250	To 12,5	dent	134	70–75	75–80	60–65	600,00
<i>Leonidiv 276 SV</i>	280	To 14,0	dent	142	60–70	65–75	50–55	600,00
<i>Pustovarivs'kyi 280 SV</i>	280	To 13,5	dent	142	60–70	65–75	50–55	600,00
<i>Rist SV (simple hybrid)</i>	200	To 14,0	dent	127	75–80	80–85	60–65	840,00
<i>Rushnyk SV (simple hybrid)</i>	270	To 13,5	dent	138	70–75	75–80	65–70	840,00
<i>Rehion SV (simple hybrid)</i>	280	To 13,5	dent	140	70–75	75–80	65–70	840,00
<i>Romashka SV (simple hybrid)</i>	290	To 15,0	dent	145	65–70	70–75	55–60	840,00

*Price for 1 s.u. specified as of July 27, 2018

Table 4 Analysis of economic parameters of domestic hybrids of corn for grain, which are selected in LLC «Agrofirma Kolos» (Zakharchuk 2009)

Years	Three-line hybrids			Simple hybrids		
	Price for 1 s.u., UAH	The cost of 1 s.u., UAH	Rate of return, %	Price for 1 s.u., UAH	The cost of 1 s.u., UAH	Rate of return, %
2014	350	220	59,1	540	330	63,6
2015	400	250	60,0	600	360	66,7
2016	500	310	61,3	700	430	62,8
2017	500	330	51,5	700	450	55,6
2018	600	370	62,2	840	500	68,0

Based on the data in Table 4 it can be concluded that the company received a higher rate of return on simple hybrids of corn for grain, although their cost and selling price were higher than those of three-line hybrids.

As of July 27, 2018, the highest rate of profit the farm received for simple hybrids (68%), ie profit from the sale of 1 s.u. corn seeds amounted to 340 UAH.

It should be noted that the main buyers of corn seeds in Agrofirma Kolos LLC are agricultural enterprises of Ukraine (from different regions) and distributors (trade

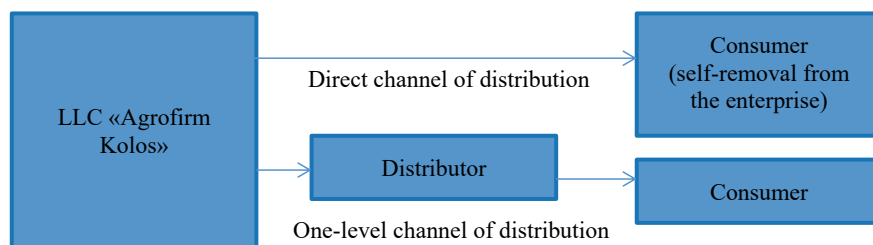


Fig. 1 Sales channels for corn seeds used by Kolos Agrofirm LLC. Source: built by the author on the basis of data from Agrofirm Kolos LLC

intermediaries). The main areas of sale of corn seeds, which are selected in LLC «Agrofirm Kolos» are: Kyiv, Zhytomyr, Chernihiv, Cherkasy, Vinnytsia, Poltava and Kirovohrad regions.

Agrofirm Kolos LLC uses direct and one-level sales channels for the sale of corn seeds (Fig. 1).

The following companies are distributors-partners of Kolos Agrofirm LLC, which buy and sell corn seeds: PJSC Agrochemical Center (Kyiv); Terra Agro Chem LLC (Kirovohrad region); Private individual Yevheniy Kochubey (Poltava region); LLC «Agro-Center Veles» (Kirovohrad region); PE «Adler» (Zhytomyr region).

The main buyers-partners of Kolos Agrofirm LLC, which buy corn seeds for grain, are the following companies: Hals Agro Agroholding (which includes enterprises of Kyiv, Vinnytsia and Chernihiv regions); IST AGRO SERVICE LLC (Chernihiv region).

In order to increase the profitability of LLC «Agrofirm «Kolos» built an economic and mathematical model using the simplex method, which provides for the optimization of the structure of sown areas. As the researched enterprise produces fifteen types of crops ($n = 15$), 8 main types of resources are used ($m = 8$). Therefore, the constraints for this task will be the available resources needed to produce crops in the enterprise, namely: sown area of crops, costs of seeds, fertilizers, wages, petroleum products, payment for works and services of third parties, rent and other items of expenditure. In addition, the task includes restrictions on the optimal allowable sown areas of individual crops. Therefore, we denote:

x_1 —area of winter wheat, ha;

x_2 —area of spring wheat, ha;

x_3 —buckwheat area, ha;

x_4 —area of corn, ha;

x_5 —area of winter barley, ha;

x_6 —area of spring barley, ha;

x_7 —area of peas, ha

x_8 —area of oats, ha;

x_9 —millet area, ha;

x_{10} —area of sunflower, ha;

x_{11} —soybean area;

x_{12} —rapeseed area, ha;

x_{13} —area of sugar beet, ha;

x_{14} —potato area, ha.

x_{15} —area of vegetables, ha;

V_1, V_2, \dots, V_{10} —the actual amount of resources listed in Table 5.

The optimization criterion is to obtain the maximum possible profit with the efficient use of available sown areas. The model is based on the mathematical theory of linear programming and is effectively solved by a simplex method with an artificial basis. The objective function of optimization of sown areas will look like:

$$P = p_1x_1 + p_2x_2 + p_3x_3 + \dots + p_8x_8 @ \max \quad (3.1)$$

$$P \rightarrow \max, \quad (3.2)$$

Table 5 Resource costs for crop production, UAH/ha (Zakharchuk 2009)

Crop	Standard cost of resources UAH/c						
	Seeds and planting material	Mineral fertilizers	Fuels and lubricants	Other material costs	Wages with deductions	Depreciation from the account	Payment for services of third parties
Winter wheat	831	2610	1185	1602	137	776	797
Spring wheat	998	3131	1422	1923	164	932	957
Buckwheat	796	659	902	772	91	459	493
Corn for grain	2547	2814	1731	2273	179	1088	2583
Winter barley	751	1917	1095	1323	120	662	586
Spring barley	736	1879	1073	1297	118	649	574
Pea	1579	1173	1016	1475	121	657	653
Oat	594	855	827	562	94	319	382
Millet	338	859	1121	1102	104	556	588
Sunflower	1530	1806	1380	1789	132	797	933
Soy	1341	1508	1352	2398	155	846	1861
Rapeseed	1087	4106	1547	2963	156	1060	1438
Sugar beet	3630	6844	3753	8152	411	1871	4318
Potato	13,238	7632	4425	12,066	1019	2789	4488
Open ground vegetables	9489	6012	4484	11,909	1559	3617	3767

5 Conclusion

It is established that the export potential of grain enterprises is the existing or potential capacity of the enterprise which is determined by the set of its production, financial, personnel and marketing potentials under the influence of the micro- and macro-factors of the business environment in order to carry out successful marketing activities in the international agri-food market.

There has been offered the division of the factors influencing the formation of the export potential of the grain industry (on the basis of control over them) into the following: the internal factors related to the activities of the enterprise, consumers, its foreign economic marketing strategy, management system; the external characteristics of the economic, socio-cultural, political and legal, technological and natural-geographical environment of domestic and export markets.

It is noted that Ukraine is one of the few countries that have a significant impact on the world grain market. However, the potential for grain production in our country has not yet been fully exploited. During the analyzed period, the gross harvest of corn for grain increased the most, i.e. from 3.85 million tons in 2000 to 35.88 million tons in 2019 (9.3 times). In recent decades, the corn market has become one of the most important segments of the domestic agri-food system, taking a leading place in the development of strategic products along with wheat, soybeans, sunflowers, canola and other crops. Currently corn is the second largest crop in the overall structure of crops after wheat, which directly forms the export potential of the country's agricultural sector and it is the basis for ensuring its food and economic security. From time to time corn in terms of gross production takes the first place among all other types of crops outperforming even wheat that has been the undisputed and long-standing leader of the grain industry of Ukraine for a long time.

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Developing Repayment Risk Management Model of Qarḍ al-Ḥasan Financing for SMEs in Islamic Banks



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Abstract This study focuses on repayment risk associated with Qarḍ al-Ḥasan financing in Islamic banks. The study aims to review repayment risk management of Qarḍ al-Ḥasan for SMEs Financing, which is proposed to be utilized for SMEs financing needs. The study initiated a model on how the Islamic banks can manage repayment risk and get sources for default Qarḍ al-Ḥasan. The proposed initiative suggests the use of Set-Aside Earning, Zakāt and Qarḍ al-Ḥasan Takaful for default Qarḍ al-Ḥasan. The Shariah model used for this initiative is Qarḍ al-Ḥasan financing model. The study follows series of approaches to achieve its objectives. A descriptive method was used to study the subject matter. The study also uses the comparative analytical approach to analyze and compare the annual financial reports issued by some Islamic banks. The study finds that Islamic banks possessed a perfect opportunity to manage repayment risk of Qarḍ al-Ḥasan financing SMEs by channeling the Set-Aside Earnings and Zakāt for default Qarḍ al-Ḥasan. The ReRMQAF model can be applicable for repayment risk to SMEs financing using Qarḍ al-Ḥasan default sources which that Set-Aside Earnings, part of Zakāt and Qarḍ al-Ḥasan Takaful. The study concludes with a few recommendations, including that the Islamic banks should offer their Set-Aside Earnings, part of Zakāt and Qarḍ al-Ḥasan Takaful for defaulted Qarḍ al-Ḥasan funds. The study also proposes that the Islamic banks can search for other sources such as waqf and crowdfunding to reduce the repayment risk of Qarḍ al-Ḥasan default to SMEs financing. The study has also recommended a particular supervisory policy and regulations that would guide and support the proposed model, which is named Repayment Risk Management of Qarḍ al-Ḥasan Financing (ReRMQAF).

Keywords Repayment risk management · Qarḍ al-Ḥasan · Financing · SMEs · Islamic banks

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1 Introduction

The global Islamic banking industry has witnessed significant expansion and development rapidly. Risk management has been one of the most concerning areas of Islamic banking and finance products and services. The risk associated with Islamic banks can be divided into non-financial and financial risks. Repayment risk can be classified based on financial risk. The Qarḍ al-Ḥasan financing models existing in some Islamic banks are of high repayment risk in terms of repayment,¹ this might be associated with the fact that Qarḍ al-Ḥasan is seen as a charity loan that intended to secure an eternal reward from the almighty Allah and not intended for any profit gain.

Furthermore, the intended beneficiaries of Qarḍ al-Ḥasan financing are mostly SMEs that might be in critical need; this factor attracts dealing with the companies that would most likely be in default. Therefore, Islamic banks should have clear policies and procedures drawn from the Islamic risk management perspective in dealing with repayment risk pertaining to the Qarḍ al-Ḥasan financing models. Moreover, Islamic banks must have internal controls to ensure the continuity of policies and procedures to ensure repayment obligations. The study aims to introduce alternative sources of funds to manage the repayment risk of Qarḍ al-Ḥasan financing, proposing the Set-Aside Earnings, part of Zakāt fund, using the concept of *al-Gharimin* (loan defaulters) and Qarḍ al-Ḥasan Takaful as an alternative solution for the Islamic banks.

1.1 Literature Review

Studies on repayment risk management of Qarḍ al-Ḥasan of Islamic banks are still minimal. This part highlights some literature that addresses the area of discussion related to this study. It is found that the Qarḍ al-Ḥasan model has several risks such as the risk of repayment, management risk, and inflation risk. However, these risks can be mitigated through auditing and monitoring systems (Aderemi and Ishak 2020).

Qarḍ al-Ḥasan Definition and Reward

Qarḍ al-Ḥasan is defined as “a non-interest bearing loan intended to allow the borrower to use the loaned funds for a period of time with the understanding that the same amount of the loaned funds would be repaid at the end of the period” (AAOIFI 2015). Qarḍ al-Ḥasan is mentioned six times in Quranic verses in Surat Al-Baqarah: 245, Al-Ma'idah: 12, At-Tagabun: 17, Al-Muzzammil: 20, and Al-Hadid: 11 and 18. In Surah Al-Hadid, Allah the exalted says: “Verily, those who give Sadaqāt (i.e. Zakāt and alms), men and women, and lend Allah a goodly loan, it shall be increased manifold (to their credit), and theirs shall be an honourable good reward (i.e. Paradise)”

¹ Saba Islamic Bank, 2021.

(The Qur'an, Al-Hadid: 18). Also, in surah Al-Ma'idah, Allah the exalted says: "And lend a good loan to Allah, verily, I will expiate your sins and admit you to Gardens under which rivers flow (in Paradise). But if any of you after this, disbelieved, he has indeed gone astray from the Straight Path" (The Qur'an, Al-Ma'idah: 12).

It is also supported by the Sunnah. It was narrated from Anas bin Malik that the Messenger of Allah (ﷺ) said "On the night on which I was taken on the Night Journey (Isra), I saw written at the gate of Paradise: 'Charity brings a tenfold reward and a loan brings an 18-fold reward.' I said: 'O Jibril! Why is a loan better than charity?' He said: 'Because the beggar asks when he has something, but the one who asks for loan does so only because he is in need.'" (Ibn n.d.). In another Hadith, it was narrated that Qais bin Rumi said: The Prophet (ﷺ) said: "There is no Muslim who lends something to another Muslim twice, but it will be like giving charity once" (Ibn n.d.). The part concludes that Allah (SWT) encourages people to give Qard al-Hasan for the needy, whereby Allah (SWT) guarantees them rewards in this world and the hereafter. Qard al-Hasan is a practical solution to eradicating Riba from society and various problems of financing.

The Excess Benefit in Qard

It is narrated by 'Ali (RA) that the Prophet (ﷺ) said: "Allah's Messenger (ﷺ) said: 'Every loan, which leads to a benefit, is usury'" (Ibn Hajar Alasqalani n.d.). The excess benefit in Qard has several types such as the excess benefit stipulated in the Qard contract, the excess benefit not stipulated in the contract, the stipulation of a period in Qard, the stipulation of a contract in Qard, and the stipulation of a reward for raising loans for another and service charges for Qard. The rules for excess benefit stipulated, and Unstipulated in the Qard Contract are, If the excess for the lender in Qard contract is stipulated, it is prohibited, and it is Ribā. However, an excess over Qard is allowed with satisfaction when it is not stipulated or is part of the custom, irrespective of the subject-matter of Qard. It is also not for the borrower to offer tangible property or extend a benefit to the lender during the period of the Qard when this is done for the sake of Qard, unless giving of such benefits is a practice continuing among the parties from a time before the contract of Qard (AAOIFI 2017). A borrower is permitted to return the loan with an additional amount or in better quality. This is recommended (Abozaid and Saleem 2013). It was narrated from Abu Hurairah that the Prophet (ﷺ) said: "The best of you is the one who is best in repaying" (An-Nasa'i n.d.). Therefore, Islamic banks have repayment risk more than conventional banks because they cannot receive the excess benefit in a Qard contract because this is regarded as Ribā and therefore prohibited.

Qard al-Hasan for Small and Medium Enterprises

A study (Baeaziz and Makhlufi 2018) found that the micro-projects initiatives using Qard al-Hasan as a source of financing have contributed to the realization of much economic development and social benefits, increasing the number of these projects and raising the operating activities. The author opined that Algeria might consider this experience when facing the challenges of introducing the financing mechanism

of Qarḍ al-Ḥasan. Another study by (Zada and Saba 2013) found AKHWAT practices Qarḍ al-Ḥasan suitable for Malaysia as a model. Abu Mounes (2019) argued for financing SMEs based on Qarḍ al-Ḥasan. Its mechanism should be designed to empower socio-economic development projects and provide financial services facilities to the needy. This product can also be used to provide job opportunities to these communities and help them exit poverty. Masyita (2012), found positive indications for helping the needy microentrepreneurs with Qarḍ al-Ḥasan financing.

Repayment Risk

Risk Management has received considerable attention in recent years because of the global financial crisis in 2009. Repayment risk is one of the types of credit risk. "Credit risk arises due to risk of the counterparty failing to meet its obligations on time and in accordance with agreed terms. Volatility in default rates and credit qualities dictates the credit risk" (ISRA 2016). A study done by Sangwan et al. (2020) ascertain that households with low incomes, high indebtedness, and enormous loan diversion, and experiencing high borrowing costs are prone to greater default probabilities. Marital status, education, employment status, nationality, and business activity sector substantially impact borrowers' repayment performance. Married borrowers are more able than single borrowers to repay their loans. Education level has a positive influence on repayment performance; namely, the more extensive the academic qualifications of borrowers are, the better able they are to repay loans. For employment status, extra-business sources of professional income positively affect borrowers' ability to repay loans. The nationality of borrowers has a significant impact on the repayment of microcredit. Concerning the business sector, the secondary sector positively impacts repayment processes, whereas the tertiary sector negatively contributes (Mota et al. 2017).

Some Islamic banks used the penalty clause to alleviate the repayment risk management. A study by Al-Melahi (2021) found that acceleration of installments and alternatives to bad debts based on four phases as follows; acceleration of remaining installments, compensation due to inflation, imposing a financial penalty and liquidated damages. However, Shaikh Al-Qaradaghi Ali's view involves the acceleration of remaining installments and compensation due to harm caused by hyperinflation. The penalty clause puts pressure on the two parties to implement the commitment between them (Bawashkah and Sa'ad 2021). For Qarḍ al-Ḥasan support, Al-Melahi and Sa'ad (2021b) recommend that the supervisory authorities legislate procedures and policies related to the Qarḍ al-Ḥasan product together with Islamic banks. The agreement to the repayment of Qarḍ at a place other than that where the Qarḍ was paid is permissible to stipulate (AAOIFI 2017).

2 Qarḍ al-Ḥasan Financing in Islamic banks

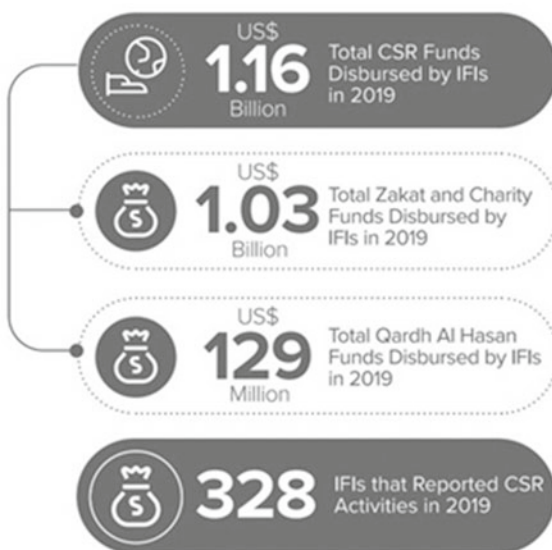
2.1 Overview of Qarḍ al-Ḥasan Financing

The total corporate social responsibility fund reached US\$1.16 billion disbursed by Islamic Financial Institutions in 2019. One of that total was Qarḍ al-Ḥasan, with a total of US\$129 million with a percentage of 11% of the total corporate social responsibility funds disbursed by Islamic Financial Institutions. (ICD and REFINITIV 2020). Total Qarḍ al-Ḥasan funds were disbursed by Islamic Financial Institutions in 2019 (see Table 1 and Fig. 1).

Table 1 Total CSR funds distributed by IFIs

Total CSR funds disbursed by IFIs	Amount (US\$)	Percentage
Total Zakāt and charity funds disbursed	1,030,000,000	89%
Total Qarḍ al-Ḥasan funds disbursed	129,000,000	11%
Total CSR funds disbursed	1,159,000,000	100%

Fig. 1 Total CSR funds distributed by IFIs



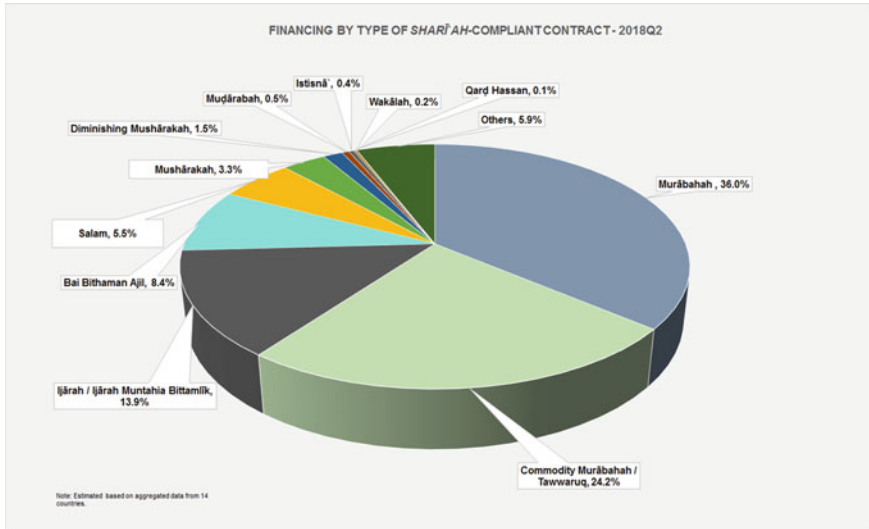


Fig. 2 Financing by type of Shariah-Compliant Contract—2018 Q2

2.2 Qard al-Ḥasan Financing in Islamic banks

According to Prudential and Structural Islamic Financial Indicators (PSIFIs), the percentage of Qard al-Ḥasan financing was 0.1% from types of Shari'ah-compliant Contract in 2018 (IFSB 2021). Qard al-Ḥasan Financing by type of Shari'ah-compliant Contract in 2018 (see Fig. 2).

2.3 The Proposed of Repayment Risk Management

The Islamic Financial Services Board (IFSB) defines credit risk as “generally defined as the potential that a counterparty fails to meet its obligations in accordance with agreed terms.” IFSB outlines a set of the following six risks: credit risk, equity investment risk, market risk, liquidity risk, rate of return risk, and operational risk. It also has defined the fourth principle of credit risk that Institutions (other than Insurance Institutions) offering only Islamic Financial Services “shall have in place Shari'ah-compliant credit risk mitigating techniques appropriate for each Islamic financing instrument” (IFSB 2005).

According to an interviewee working in an Islamic bank said the most significant risk in Qard al-Ḥasan financing is repayment risk, and the average percentage of risk Qard al-Ḥasan portfolio reach around 50% (Saba Islamic Bank 2021). Therefore, repayment risk management is the most important for Qard al-Ḥasan financing in Islamic banks, especially since this product is non-profits.

3 Sources for Mitigating the Repayment Risk in Islamic Banks

3.1 *Qarḍ al-Ḥasan Takaful*

Qarḍ al-Ḥasan Takaful is like cooperative insurance. Alzuhaili (2006) defines cooperative insurance as a group of people participating by paying a certain amount. Then, given to the harmed person from those subscriptions. This insurance is called mutual insurance because each participant exchanges aid with others, and where each of them is insured, whether he is a partner in the management or not.

In 1994, Jordan Islamic bank created Mutual Insurance Fund. The fund's participants share in indemnifying the damage inflicted on any of them to repay all or some of their debt to the Bank in case of permanent disability, permanent insolvency, or death through this fund. In addition, as of 2014, this fund kept mitigating the risks after the Central Bank of Jordan approved. The fund covers the financial lease ending with the transfer of the title and Murabaha clients (Jordan Islamic Bank 2020).

According to the Resolution of The International Council of Fiqh Academy, an offshoot of the Organization of Muslim Conferences (OIC), it organized its second conference in Jeddah from 10–16 *Rabi' Al-akhir* 1406AH, which corresponds to 22–28 December 1985. No. 9 (9/2): Concerning Insurance and Reinsurance, "An alternative to commercial insurance is the contract of cooperative insurance, which is founded on the basis of charity and mutual cooperation. A similar ruling is extended to reinsurance, which is founded on the basis of cooperative insurance" (The International Islamic Fiqh Academy 2021). Therefore, Qarḍ al-Ḥasan Takaful can be applicable for mitigating the repayment risk in case of permanent disability and death.

3.2 *Set-Aside Earnings*

Set-aside earning is a unique income that comes unwantedly into the balance sheet of Islamic banks. The earning could have resulted from the profits gained from the Islamic banks dealing with conventional or interest-bearing banks or earnings that come from a sanctioned Islamic banking product or any other earning sanctioned by the Shari'ah committee of an Islamic bank (Al-Melahi and Sa'ad 2021a).

The set-aside earnings in the charitable fund of Islamic Financial Institutions and Shariah-compliant companies is a result of their transactions with conventional banks which involve *riba*, it also includes payments received from their customers as a result of late payments of their due installments or profits of some operations that the bank's Shari'ah board decided to avoid and to spare their profits for charity (Fidad 2020). AAOIFI (2017) illustrates that "any interest and other non-permissible Earnings should be channeled to charity and general public utilities. It is not permissible for the bank to use these amounts, directly or indirectly, for its benefit. Examples

of charitable channels include, among others, training people other than the staff of the bank, funding research, providing relief and support equipment's, financial and technical assistance to Islamic countries or Islamic scientific, academic Institutions, schools, anything to do with spreading Islamic knowledge, and similar channels. The charity fund must go to these channels in accordance with the resolutions of the Shari'ah Supervisory Board of the bank". Similarly, According to the International Islamic Fiqh Academy resolution No: 13 (1/3) [1] "the Bank must spend that interest in ways that realize the public benefit, like training, research, providing means of relief, providing financial and technical assistance to member countries and to academic institutions, schools, and foundations, and on anything related to spreading Islamic knowledge" (International Islamic Fiqh Academy 1986; ISRA 2020). Moreover, AAOIFI (2015) considered how the Islamic financial institutions intend to dispose of such revenues, assets, or liabilities as mandatory conduct standard of corporate social responsibility (CSR). Therefore, Islamic banks can pay the refundable Set-Aside Earnings to the Qarḍ al-Ḥasan default to facilitate SMEs financing initiative. According to (Al-Melahi and Sa'ad 2021a), most Islamic banks do not have transparency of the Set-Aside Earnings data. However, some Islamic banks have clarity of the Set-Aside Earnings data, such as Islamic Banks in Yemen. They feature that have transparency of the Set-Aside Earnings data in their reports. The authors make precise figures to illustrate the Set-Aside Earnings in Islamic Banks in Yemen. The researchers' brief explanations according to figures extracted from the bank's annual reports from 2010–2019. The charts below show the Set-Aside Earnings in three Islamic Banks in Yemen: SIB, TB, and SBYB. It is clear from the charts that SIB already had the highest amount of the Set-Aside Earning, which is around sixty-eight million (YER) within ten years from 2010 to 2019, and a high percentage of 55%. On the other hand, SBYB had the lowest amount of the Set-Aside Earning, which is about sixteen million (YER) for the tenth year, too, with 13%. The TB had a medium amount of the Set-Aside Earnings source, which is forty million (YER) in the same years, and 32%. It can be seen from the graphs that the total amount of the Set-Aside Earnings in these three Islamic Banks has reached around one hundred and twenty-five million. The total amount and the percentage of the Set-Aside Earnings in a big three Islamic Banks in Yemen (see Figs. 3 and 4).

For more clarification, it can be seen from the literature and the table below that the Set-Aside Earning of Islamic banks is suitable to be used through the new model ReRMQAF. The model is also suitable and applicable for SMEs Financing using these sources by utilizing Qarḍ al-Ḥasan financing method. By looking at the total amount of the Set-Aside Earnings for ten years, it can generate around one hundred and twenty-five million YER. With this amount, would be able to repay around 6000 with the average amount of financing per default client SMEs considering the average percentage of risk portfolio is 3% approximately with the average number of clients for ten years. The Islamic banks may cover its risk portfolio of Qarḍ al-Ḥasan from within the amounts generated. For example, see Table 2.

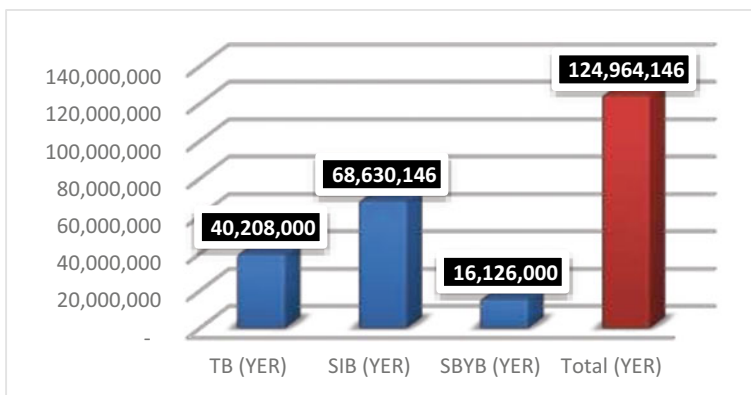


Fig. 3 The total amount of the Set-Aside Earnings in a big three Islamic Banks in Yemen

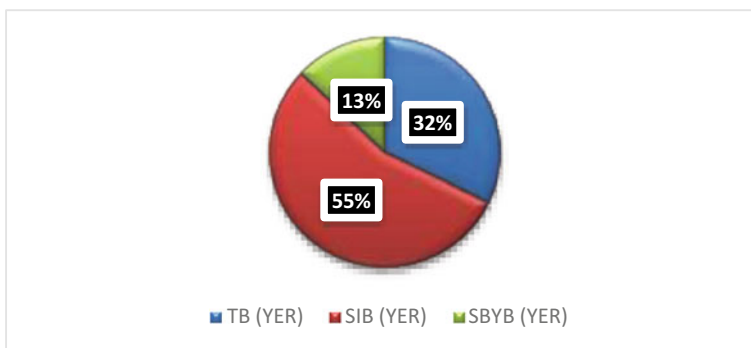


Fig. 4 The percentage of the Set-Aside Earnings in a big three Islamic Banks in Yemen

Table 2 Sit-Aside Earning in Yemeni Bank for ten years

The statement	Indicators
Sit-Aside Earning in Yemeni Bank for ten years	124,964,146
The average amount of financing per default client	200,000
The average percentage of risk portfolio (approximate)	3%
The average amount of risk portfolio	6,000
The average number of clients for ten years	20,827
The average number of clients for one year	1,736

3.3 Zakāt

Zakāt means “a particular amount of property that must be paid to a particular recipient if Zakāt is payable to him; the amount of Zakāt payable yearly are fulfilled in seeking Allah’s reward” (ISRA 2010).

According to the International Islamic Fiqh Academy resolution No. 15 (3-3), it is permissible to invest Zakāt funds in investment projects that generate a return on the condition that the return is channeled to the legitimate beneficiaries of Zakāt. Such investments can be managed by the administration responsible for and have jurisdiction over collecting and distributing Zakāt, provided it satisfies the immediate needs of the beneficiaries and with proper guarantees against loss (The International Islamic Fiqh Academy 1986).

In M’sila Province, Algeria, The Zakāt Fund plays an influential role in economic development by financing small projects through Qarḍ al-Ḥasan (Hiba and Ibtasam 2018). The Diwan al-Zakāt in Sudan was working with 32 banks in providing microfinance to 83,000 needy families who have become active members in society through Qarḍ al-Ḥasan which had to be repaid to Diwan al-Zakāt in 2010 (Mohsin and Alhabshi 2015).

The amount of Qarḍ al-Ḥasan of the Zakāt fund is developing in Wilayat Albalida, Algeria. Considering the factor of awareness and reminders about the obligation of Zakāt will enhance the outcome, which increases the rate of investment in it, in addition to organizing the procedures for following up the project financed by the Qarḍ al-Ḥasan (Riwaya 2015).

Febianto and Ashany (2012) explored whether the Qarḍ al-Ḥasan financing through Sinergi of Dompét Dhuafa in West Java, Indonesia, as a Zakāt managing organization, can empower the beneficiaries economically. The statistical result demonstrates that the Qarḍ al-Ḥasan financing using Zakāt funds executed by the Dompét Dhuafa, West Java, Indonesia, improves economic empowerment.

With zakat payout principle to the poor and needy. The Ministry of Religious Affairs and Waqf signed a cooperation agreement with the Algerian Al Baraka Bank to be its technical agent to invest zakāt funds and supporting youth needy employment projects, especially small ones. The fund would finance some projects. The Zakāt funds are 37.5% of the total of Zakāt which means 12.5% of three each part of Zakāt banks which that attract the hearts of those who have been inclined (towards Islām), and to free captives, and for those in debt. It is called the Zakāt Investment Fund (Hiba and Ibtasam 2018; The Ministry of Religious Affairs and Waqf 2004).

Therefore, Zakāt can be used for repayment risk, especially for *Gharemeen* (in debt). Some countries have regulated to collect 100% of Zakāt, such as Algeria. However, Algerian Islamic banks can cooperate with the Ministry of Religious Affairs and Waqf of Algeria to pay part of Zakāt *Gharemeen* for the default Qarḍ al-Ḥasan. On the other hand, other countries can collect only 75% of Zakāt, such as Yemen. Consequently, Yemeni Islamic Banks can support repayment risk for Qarḍ al-Ḥasan directly by paying 25% of Zakāt for the default Qarḍ al-Ḥasan (Maslahat

al-Wajibat 1999). Therefore, The Islamic banks may cover its risk portfolio of Qarḍ al-Ḥasan from within the amounts generated by part of Zakāt.

4 Conclusion, Findings, and Recommendations

4.1 Conclusion

The study tries to review and discuss the repayment risk of Qarḍ al-Ḥasan in Islamic banks. The study will show how the set -aside, Zakāt funds, and Qarḍ al-Ḥasan takaful, and Guarantees will be used for default Qarḍ al-Ḥasan to SMEs financing model based on repayment risk Qarḍ al-Ḥasan financing model. The study has created a model as one of the essential findings, coupled with recommendations as follows:

Using Sources and Guarantees for Mitigating Repayment Risk

Most of the financial transactions are done by Islamic banks comprise debts; one of them is Qarḍ al-Ḥasan financing. The study summarises the type of default Qarḍ al-Ḥasan into five reasons: permanent disability, death, insolvent debtor (permanent insolvency, temporary insolvency), and procrastinating debtor. Three repayment risk sources and guarantees can mitigate these risks, which are Qarḍ al-Ḥasan takaful, Set-aside Earning, and part of Zakāt, and guarantees. Qarḍ al-Ḥasan takaful can be

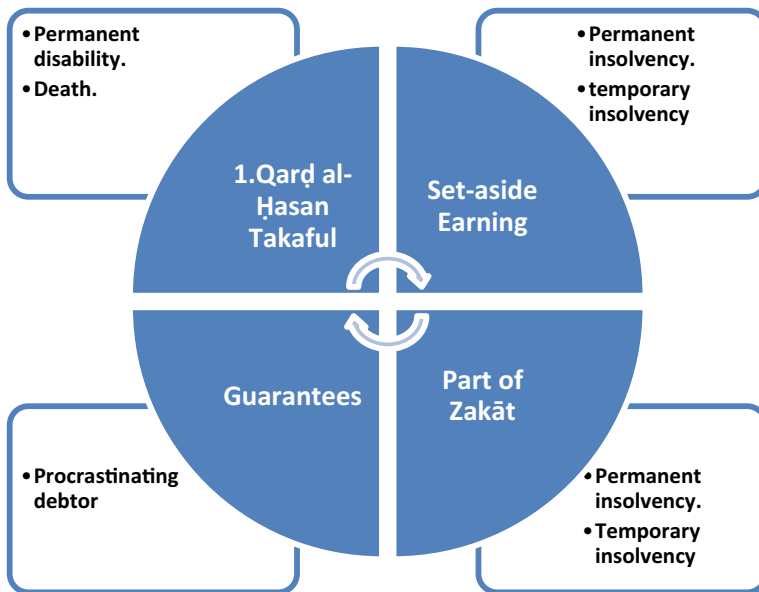


Fig. 5 Sources and guarantees for repayment risk

used for permanent disability and death, and the Set-aside Earning and part of Zakāt can be used for insolvent debtors, which are permanent insolvency and temporary insolvency. Guarantees can be used for procrastinating debtors. Figure 5 illustrates using that sources and guarantees for repayment Risk (see Fig. 5).

ReRMQAF Model

The model is called ReRMQAF, which means Repayment Risk Management of Qarḍ al-Ḥasan Financing (ReRMQAF). It will be processed via six main components:

1. Islamic banks;
2. Qarḍ al-Ḥasan Fund;
3. Takaful Fund;
4. Qarḍ al-Ḥasan default sources;
5. Risk Management, and
6. SMEs.

The model order indicates input, process, and output sources (see Fig. 6).

It can be seen from the graph that the ReRMQAF is processed as follows:

1. Islamic bank creates Qarḍ al-Ḥasan funds.
2. Islamic bank creates Qarḍ al-Ḥasan Takaful funds.
3. Islamic bank channels the Set-Aside Earnings and part of Zakāt to Qarḍ al-Ḥasan Takaful Fund for default Qarḍ al-Ḥasan based on a fund (non-refundable).
4. The clients “SMEs” apply for Qarḍ al-Ḥasan. Then, Qarḍ al-Ḥasan fund receives the applications and then begins sorting the requests that meet the conditions.
5. The clients of SMEs who met the conditions would provide guarantees for repayment of the Qarḍ al-Ḥasan on a specific date.
6. The clients of SMEs pay 1% of Qarḍ al-Ḥasan financing for Takaful.
7. The clients of SMEs who provide guarantees and pay for Takaful would sign a Qarḍ al-Ḥasan contract to establish or rebrand its Shari’ah-compliant business on a specific date and suitable location.
8. Qarḍ al-Ḥasan fund pays the amount on a cash or commodity basis on the project phases and tracks progress achievement.
9. The clients refund the specified amount to the Qarḍ al-Ḥasan fund on a designated time duration.
10. Qarḍ al-Ḥasan Takaful Fund refunds the default Qarḍ al-Ḥasan amount to the Qarḍ al-Ḥasan fund.

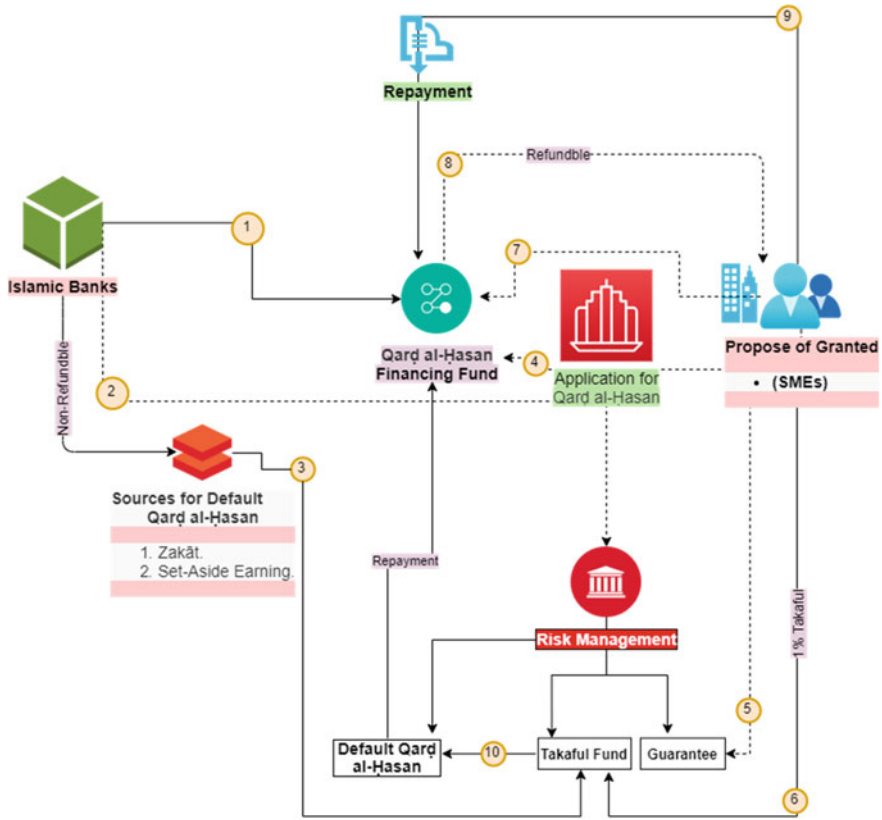


Fig. 6 ReRMQAF model

4.2 Findings

The study reached the following significant results:

1. There are five reasons for the repayment risk of Qarḍ al-Ḥasan, permanent disability, death, the insolvent debtor (permanent insolvency, temporary insolvency), and procrastinating debtor.
2. Three sources for mitigating repayment risk can mitigate this risk; Qarḍ al-Ḥasan takaful, Set-aside Earning, and part of Zakāt. Furthermore, guarantee.
3. The ReRMQAF model can be applicable for repayment risk to SMEs financing using these sources.
4. Islamic banks can support the ReRMQAF model by these sources.

4.3 Recommendations

1. The authors recommend that the Islamic banks should offer their Set-Aside Earnings and part of Zakāt for default Qard al-Hasan.
2. The study recommends using supervisory bodies of the Islamic banks to be part of the legislations that help channel the Set-Aside Earnings and part of Zakāt to ReRMQAF model.
3. The Islamic banks can search for other sources such as Waqf and crowdfunding to reduce the repayment risk of Qard al-Hasan default to SMEs financing.

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Twitter Reflections on Syrian Conflict from Turkey



Selcen Ozturkcan , İnanç Arın , Nihat Kasap , and Yücel Saygın 

Abstract The Syrian conflict is a well-known regional conflict, where Turkey is among the most affected countries in political, social, and economic terms. This study explores the Turkish public reflections on the Syria conflict by analyzing 450,000 Tweets posted in the Turkish language between Feb 1, 2015, and Feb 27, 2016. This chapter contributes to the literature by providing a broader perspective with the main research questions of: (1) What are the widely discussed topics on Twitter about Syria by the Turkish users? (2) Were these topics attracting more users to Twitter or encouraging the further engagement of the already existing users? (3) How can the fading-out characteristics of the most popular topics be described? (4) Why-under which conditions and with which features-Tweets about Syria end up extensively re-Tweeted by Turkish users? The authors report a predictive model of 86.12% accuracy to classify high and low Tweets based on the number of re-Tweets received via seven features. The analysis reveals that armed fighting, religious, and political sensitivities within the Turkish public inflate the volume of posted Tweets.

Keywords Twitter usage · Turkey · Syrian conflict · Big Data · Classification · Clustering

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1 Introduction

The Syrian conflict led to a major impact on many aspects of life, from individual to public, in many parts of the globe (Issa 2016). Longer than World War II, the war in Syria has led to widespread profound global effects, with many leaving their homes to seek safety elsewhere in Syria or abroad. According to the UN refugee agency (UNHCR), over 5.5 million individuals moved abroad, in addition to the 6.5 million that have been internally displaced within Syria's borders (Aljazeera Homepage 2021). UNHCR (2019) indicates that the 1951 Geneva Convention Relating to the Status of Refugees describes a refugee as any person who, "owing to well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group or political opinion, is outside the country of his nationality and is unable or, owing to such fear, is unwilling to avail himself of the protection of that country".

Reports indicate that the economic consequences exceed \$35 billion, with more than 5 million people relocated (Connor 2018). Among Syria's immediate neighboring countries, Turkey hosted the largest population of Syrian refugees (Orhan 2015) that consisted of 3.4 million (Connor 2018) individuals. Some reports on refugee studies indicate emerging tensions among host communities, displaced Syrians, and humanitarian policymakers and practitioners (Chatty 2015; Phillips 2012), while others underline the positive impact of Syrian businesses in Turkey (Karasapan 2016). There is an obvious impact on Turkish society with a population of 80 million as 2.7 million Syrian refugees (UNHCR 2016) are now registered in Turkey. In this respect, this chapter aims to utilize Twitter analysis to explore the reflections present in the Turkish social networks about Syria and the related sub-topics. The findings are based on the analysis of 450,000 Tweets that were streamed between Feb 1, 2015, and Feb 27, 2016, with the content in the Turkish language. The main research questions focused on this chapter are as follows: (1) what are the widely discussed topics on Twitter about Syria by the Turkish users, (2) were these topics attracting more users to Twitter, or encouraging the further engagement of the already existing users, (3) how are the fading out characteristics of the most popular topics described, (4) why-under which conditions and with which features-Tweets about Syria end up extensively Re-Tweeted by the Turkish users?

The remainder of this chapter is structured in the following manner. The next sections provide an overview of existing literature as well as insight into the research context. Then, data and methodology are described, comprehensive analysis and results are provided, and significant findings are discussed. Finally, the chapter is concluded by offering perspectives relevant to further research.

2 Background

Twitter, a micro-blogging social media, which was initially adopted for networking and entertainment (Howard 2008; Rui et al. 2013) is also used in cases of social

and political movements (Della Porta 2014; García-Martín and García-Sánchez 2015; Gerbaudo 2012; Molaei 2015; Penney and Dadas 2014; Starbird and Palen 2011; Stieglitz and Dang-Xuan 2013; Theocharis et al. 2014; Tremayne 2013). As a cyber-ekklesiá¹ with effortless accessibility and easy information sharing, its users continuously and contagiously declare their emotions and ideas on topics of their choice (Berger and Milkman 2012; Peters et al. 2013; Shi et al. 2014; Subramani and Rajagopalan 2003). With its 320 active million users worldwide (Smith 2016), Twitter produces immense amounts of data to probe temporal behavioral patterns (Jacobs 2009; Kourouthanassis et al. 2015; Metallo and Agrifoglio 2015). Twitter data analysis uncovers meaningful findings on individual and group Tweeting characteristics and often reveals situational phenomena while predicting future events (Jacobs 2009; Savage 2011). Among Twitter's top markets of active users, Turkey ranked 8th with a share of 3.0% of global users (Richter 2013). Twitter was the 7th most popular website in Turkey (Alexa Homepage 2020), with more than 80% of the population in Turkey having an account (Akar and Dalgic 2018). Twitter was considered a vast data source, allowing research to capture and analyze the public's reflections in Turkey, particularly in under-covered news surrounding social phenomena. For example, previous literature reported wide use of Twitter in Turkey during the Gezi Park social protests (Ogan and Varol 2017; Ozturkcan et al. 2017).

Twitter analysis has been used on a wide array of research topics, which also includes political science. For example, the German federal election results had been predicted successfully by Twitter analysis (Tumasjan et al. 2010). The study of Tweets is also used in understanding the spread of phenomena concerning conflict resolution and emergency management. For instance, Twitter exhibits cues that can enable analyzers to detect real-time earthquake events, specifically an emergency (Sakaki et al. 2010, 2013).

A well-known regional conflict with recent worldwide effects is the Syrian conflict, which is cited as the source of "one of the largest movement of migrants and refugees from Asian, African and Middle East countries towards Europe" (Coletto et al. 2016). Turkey is the most affected country of the Syrian conflict in political, social, and economic terms and is living a dramatic demographic change as one of the main host countries of Syrian refugees. In Turkey, 80% of Syrian refugees live in urban areas, while some camps are built for their accommodation (Gabiam 2016). Aras and Mencutek (2015) showed how variations in foreign policies often immediately reflect upon the different states' responses as well as changes to a particular state's approach. Turkey first adopted an open-door policy towards Syrian refugees welcoming all; however, upon confrontation with massive flows of refugees, it had to revise the foreign policy orientations. Heisbourg (2015) claims that one of the quickest and least complicated policies for the EU to implement is financial support to the UN High Commissioner for Refugees in the region to cope with refugee flows from Syria. The research also suggests that the negotiation between the EU and

¹ A political assembly of citizens of ancient Greek states; especially: the periodic meeting of the Athenian citizens for conducting public business and for considering affairs proposed by the council (<http://www.merriam-webster.com/dictionary/ecclesia>).

Turkey for funding to support refugee relief in Turkey is vital to reducing refugee flows since Turkey has become a significant transit point for refugees and other migrants trying to reach Europe (Gabiam 2016). One of the main issues regarding the Syrian crisis is the education of refugee children who need access to primary education at all levels. Bircan and Sunata (2015) mention that collaboration among public and private partners at the local, national and international levels is crucial for the education program development mainly due to lack of financial matters. All in all, as reported in past research public's perceptions of refugees and migrants, such as concerns with security issues, beliefs that migrant workers might pose a threat to public safety, carry diseases, and compete for jobs and national resources with the natives can easily lead to misperceptions that would hinder the integration of refugees and migrants (Sunpuwan and Niyomsilpa 2012).

Dekker and Engbersen (2014) argue that social media provides new communication channels in migration networks and facilitates migration. Social media helps people to access widespread informal information and thus expands the perspectives of candidate migrants. Refugees perceive mobile phones as a vital tool to enable social and economic networks to remain strong. Wall et al. (2015) find that refugees view the phone within a broader political context. It was because of mobile phone use that the world noticed what was happening in Syria. In this regard, Tyshchuk et al. (2014) provide an essential insight into how the international community built an opinion about the Syrian gas attack via available information on Twitter while few journalists and international observers were available on the ground to offer any external validity checks. In addition, refugees are often able to supplement and reinforce professional news with their networks. Maitland and Xu (2015) show that limited capacity in the cellular infrastructure and an over-dependence on mobile data might create downfalls for refugees as they often access the Internet solely via their mobile phones.

The emerging field of research on uses of Social Media during social movements, crises, and conflicts includes several findings with regard to digital activism (Jansen 2010; Leuven et al. 2015; Sandoval-Almazan and Gil-Garcia 2014; Tufekci 2013), as well as the use of the visual propaganda in international conflicts (Seo 2014). However, most of this past research focuses on a narrow group of people since digital activists are individuals who engage online for social change. There is a lack of research in understanding the reflections of a broader population other than those calling for a social change in social media. This chapter provides a broader perspective of the host population in Turkey in researching reflections of the population on the Syrian conflict by analyzing Twitter reflections from Turkey. Following the work of Coletto et al. (2016) on addressing European level questions in terms of populations' perception of the refugee crisis, similar country-level questions are tackled: "How is the population in perceiving the refugee crisis phenomenon? What is the general opinion? How do events influence perception? What is the impact on public opinion of news related to refugees? How does perception evolve in time?" specifically for Turkey.

3 Data and Methodology

A Twitter Stream API², which allows for a small random sample of all related Tweets, is employed to collect real-time publicly available Tweet contents and features that contain the keyword of “Syria” (“Suriye” in Turkish) between Feb 1, 2015, and Feb 27, 2016, on a 24-h basis. There was no specific reason to choose these days other than ensuring a term longer than a year-long period for better reflective analysis. A total of 450 000 Tweets were collected, all in the Turkish language, to reflect upon how the host country’s members view the refugees and the refugee conflict. Unfortunately, as a minor limitation, the server employed received an attack and lost its data connection between Mar 24, 2015, and May 8, 2015. The used methodology is built on a social media analytics framework (Fan and Gordon 2014) that has incorporated other similar social phenomena revealing research (Çevik et al. 2015; Ozturkcan et al. 2019).

The distribution of daily Tweet numbers, daily user numbers, and cumulative user numbers are explored to comprehend the data characteristics concerning research questions 1 and 2. Additionally, the most re-Tweeted Tweets that provided the highest spread and their related dispersion are analyzed. The acceleration of spread that the highly re-Tweeted Tweets amass until reaching a saturation point is investigated regarding the 3rd research question. Here, the saturation point is defined as when a specific highly re-Tweeted Tweet lost its acceleration but started receiving lower numbers of re-Tweets. For this purpose, the top highest re-Tweeted 50 Tweets were extracted from the data set and analyzed their spread and dispersion. Next, a deeper analysis based on the Tweet’s content characteristics is conducted by increasing the number of Tweets included in the analysis step by step. Some content-based features are extracted to construct a learning model by using data mining techniques. Lastly, the prediction capability and accuracy of re-Tweet acceleration of our model is tested with 3 000 Tweets.

4 Analysis and Results

As mentioned earlier, the chapter focused on some main research questions, which were as follows: (1) what are the widely discussed topics on Twitter about Syria by the Turkish users, (2) were these topics attracting more users to Twitter, or encouraging the further engagement of the already existing users, (3) how are the fading out characteristics of the most popular topics described, (4) why, under which conditions and which features of Tweets about Syria end up extensively Re-Tweeted by the Turkish users?

The following sections of this chapter present the relevant results in this same respective order.

² Twitter API Rate Limits from Twitter Developers: <https://dev.twitter.com/rest/public/rate-limiting> Retrieved on May 12, 2016.

4.1 *Reflection of Real-Life Phenomenon in Tweets*

Previous research indicates that Tweet volume is indicative of social trends taking place in real life (Molaei 2015; Penney and Dadas 2014; Theocharis et al. 2014; Tremayne 2013). Twitter, in particular, is known as a powerful computer-based interactions medium that minimizes the gap between the virtual and the real world (Capece and Costa 2013). Therefore, the chapter analyzed the collected data to understand the distribution of the total Tweets per day. Ten days had more than 5 000 Tweets posted (Table 1). The events were mapped with relevant news concerning the top 10 highest numbers of Tweets posted daily to the Twitter volume time-series (see Fig. 1). The peak day in the data set was on Jul 20, 2015, with 11,722 Tweets posted. Common themes that lead to an increase in the number of Tweets posted are identified by chronologically associating real-life events and news. These themes were revealed by the consensus of researchers involved in the study by observing an inter-rater reliability score of 0.7. When the events were categorized with the relevant news that occurred on specific peak dates (Table 1), a common theme emerged around the armed conflict concept. Religious and political sensitivities and in-group collectivistic cultural traits among the Turkish public were among the other concepts that were identified. Turkish culture is often described as high on power distance and in-group collectivism (GLOBE 2016; Hofstede 1980), while it is deemed to carry paternalistic values (Arcan 2001; Kabasakal and Bodur 1998; Wyer et al. 2009). House et al. (2004, p. 30) defined in-group collectivism as “the degree to which individuals express pride, loyalty, and cohesiveness in their organizations or families”. The high volume of Tweets posted upon news about border issues (249 people were arrested at the border; ‘wall’ to protect the Syrian border; Cilvegozu border gate was closed), and beyond border action (Humanitarian aid was delivered to the enclaves; land operations to Syria is necessary) could be related with such in-group collectivism and paternalism aspects of the Turkish culture. On another note, it is worth considering that legal action towards Tweets due to various reasons in the recent past (Watters and Ziegler 2016) could have led to some level of self-censoring on posting Tweets, too.

As detailed in Table 1, the top 10 highest of Tweets were recorded in rows 1 to 10, with armed conflict observable in the daily events corresponding to each of these dates. News on Assad’s attack on the Turkmen village and Suruc attack, together with ISIS’s use of chemical weapons in Syria and Iraq on Jul 19, 2015, was reflected with the highest number of Tweets ($N = 11\,722$) in the dataset on Jul 20, 2015, by tapping into all three categories of armed conflict, religious and political sensitivities, and in-group collectivistic cultural traits. A similar pattern of capturing all three categories was observed on Jun 27, 2015, Sep 10, 2015, Feb 15, 2016, and Feb 14, 2016, in the descending order of captured number of Tweets. Also, Jan 12, 2016, and Jun 28, 2015, were the two dates where only the armed conflict was observed in the Tweets. This prevalence of the armed conflict category may be due to significant major events that took place on these dates. On Jan 12, 2016, a massive explosion took place at

Table 1 Top 10 highest numbers of Tweet posting days and related real-life events

	Date	Number of tweets	Real-Life occasion	Category of the event (1 = armed conflict; 2 = religious and political sensitivities; 3 = in-group collectivistic cultural traits)
1	Jul 20, 2015	11 722	Assad attacked the Turkmen village; Suruc attack; (Jul 19, 2015: ISIS used chemical weapons in Syria and Iraq)	1, 2, 3
2	Jan 12, 2016	11 146	An explosion occurred in Sultanahmet; Operation to ISIS in 5 cities	1
3	Jun 28, 2015	10 163	Sound of cannons across the Kilis; 249 people was arrested at the border;	1
4	Jun 27, 2015	9 805	ISIS attacked Al-Hasakah; The second largest massacre in Kobani; The 'wall' protection to Syrian border; Kobani again in YPG's hands	1, 2, 3
5	Feb 22, 2015	6 533	The place of Suleyman Shah Tomb has been changed; Tomb was evacuated, conflicts were increased	1, 2
6	Jul 23, 2015	6 248	Conflict in Kilis, 1 Turkish soldier was killed; Turkish F-16 hit the ISIS targets; Early elections commentary from the leader of the main opposition party	1, 2
7	Feb 18, 2016	6 014	Humanitarian aid was delivered to the enclaves; the Prime minister unclused the perpetrators	1, 3
8	Sep 10, 2015	5 985	Cilvegozu border gate was closed; 5.5 tons of bomb in trucks loaded with onions	1, 2, 3
9	Feb 15, 2016	5 467	Opened fire from YPG region in Syria, how soldiers began to respond; 50 kg of explosives were seized in Şanlıurfa; YPG took control of 70% of Tel Rifat	1, 2, 3
10	Feb 14, 2016	5 309	Minister Yilmaz said TSK is hitting YPG positions; A concrete wall is put up at the Turkey-Syria border; land operations to Syria is necessary	1, 2, 3

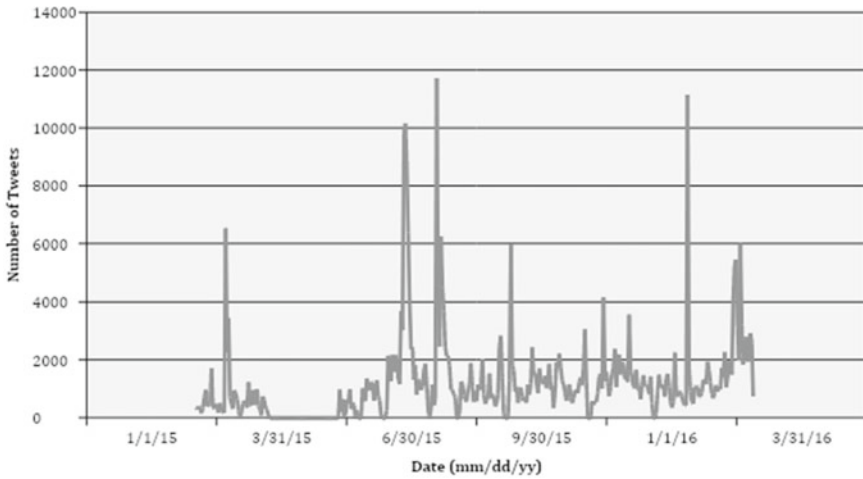


Fig. 1 Daily number of Tweets (Feb 01, 2015–Feb 27, 2016)

the touristic and historic Sultanahmet district of Istanbul in the former. On Jun 28, 2015, some 249 individuals were arrested at the Turkish border following the sound of cannons across Kilis, a Turkish town at the border.

4.2 *Attracting New Users to Post*

There is a similar pattern between the daily number of Tweets and the daily number of distinct users in the dataset (see Fig. 1 and Fig. 2), which might seem confusing and misleading that these two charts are the same. We conclude that users, who prefer to post Tweets about Syria, choose to post only 1–2 Tweets per day. The high resemblance in the patterns of distinct daily users and Tweet numbers' distributions indicates that a wide range of individuals chose to reflect on the topic of Syria. The cumulative numbers of users increased day by day, reaching more than 175,000 users towards the end of our data set. Therefore, it is concluded that Tweets containing Syria have not only been posted by a small specific group of people but indeed attracted new individuals to post (see Fig. 3).

4.3 *Spread and Fade Out Characteristics*

The highly re-Tweeted top 50 Tweets are identified (Table 2). Tweet1, which was posted by user0 on Jul 20, 2015, 12:26:43, received the highest number of re-Tweets

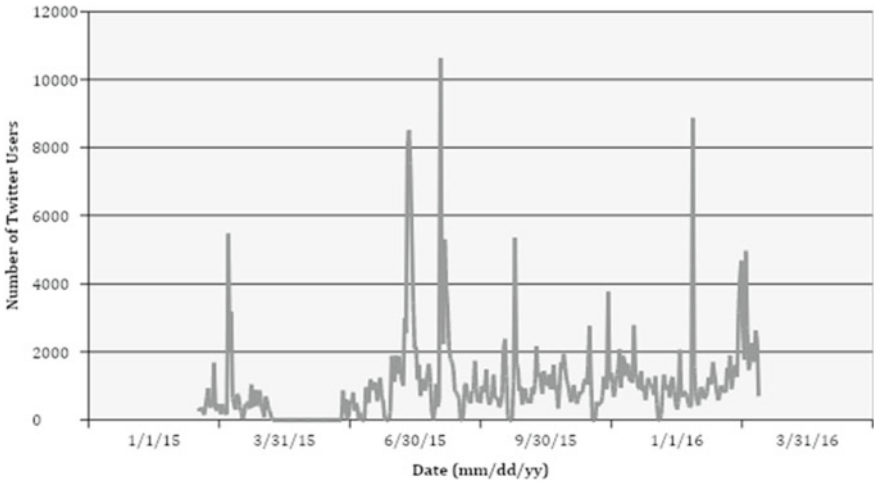


Fig. 2 Daily number of Twitter users (Feb 01, 2015–Feb 27, 2016)

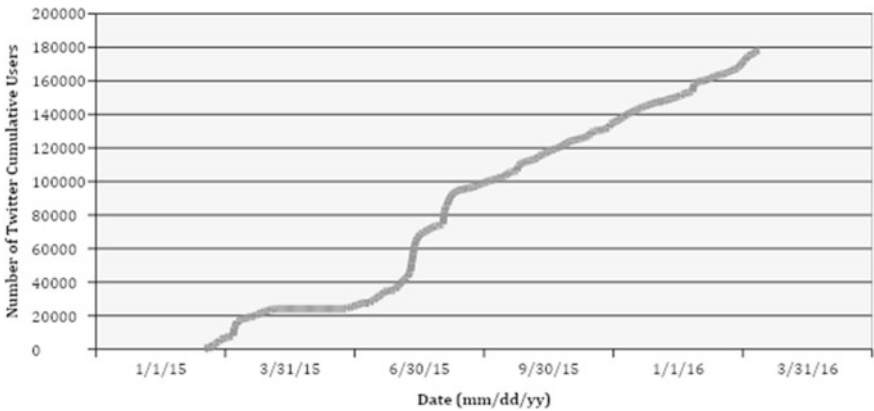


Fig. 3 Daily cumulative numbers of Twitter users (Feb 01, 2015–Feb 27, 2016)

with a total of 9,973. User0 had 1,873,272 followers when posting Tweet1. The re-Tweet line has exercised a slope of 305.64 before reaching a saturation point.

To answer the third research question (“how are the fading out characteristics of the most popular topics could be described”), the subsequent analysis focused on the characteristics of the most popular Tweets while reaching their saturation point. It is observed that some Tweets experienced a sharp decline in re-Tweets once a saturation point was reached. On the other hand, some Tweets enjoyed a relatively smooth fall with a lower diminishment of re-Tweets. The sharpness of re-Tweet decline, which is an indicator of Tweets fade-out characteristics, is examined for the top 50 re-Tweeted Tweets (Table 2). Tweet6 exercised the sharpest slope (706.50)

Table 2 Details of highly re-Tweeted top 50 Tweets and posting accounts

Tweet ID	TwitterUser ID	Number of followers	Timestamp of Tweet	Number of re-Tweets accumulated	Slope of the re-Tweet trendline
Tweet1	user0	1 873 272	Mon 20/07/15 12:26:43	9 973	305.64
Tweet2	user1	1 277 607	Fri 26/06/15 23:56:12	4 908	188.45
Tweet3	user2	6 614 251	Sat 27/06/15 21:52:22	3 851	109.41
Tweet4	user1	2 610 948	Sun 14/02/16 22:52:37	1 633	61.62
Tweet5	user3	37 275	Thu 12/02/15 20:25:58	1 530	461.50
Tweet6	user4	16 810	Sun 22/02/15 12:02:36	1 481	706.50
Tweet7	user5	73 650	Thu 25/02/16 11:51:55	1 095	373.70
Tweet8	user6	640 376	Thu 13/08/15 15:20:54	1 070	106.38
Tweet9	user7	10 995	Mon 23/02/15 21:42:16	1 053	524.00
Tweet10	user8	1 520 728	Sun 03/01/16 13:14:29	1 020	151.17
Tweet11	user8	1 521 315	Tue 12/01/16 11:39:20	988	111.61
Tweet12	user9	884 047	Mon 29/06/15 15:52:58	765	46.84
Tweet13	user10	33 886	Tue 12/01/16 14:04:41	730	110.57
Tweet14	user11	47 849	Thu 29/10/15 04:18:42	726	139.20
Tweet15	user12	381 451	Fri 25/09/15 08:25:12	724	91.57
Tweet16	user11	58 074	Sun 14/02/16 10:40:03	722	35.74
Tweet17	user13	634 235	Fri 24/07/15 07:52:51	712	133.63
Tweet18	user14	19 260	Thu 10/09/15 15:10:10	674	137.80
Tweet19	user15	676 881	Wed 22/07/15 18:14:58	670	96.04
Tweet20	user16	2 747	Sun 08/02/15 20:25:54	645	322.50
Tweet21	user17	50 234	Sun 28/06/15 12:30:48	644	201.60

(continued)

Table 2 (continued)

Tweet ID	TwitterUser ID	Number of followers	Timestamp of Tweet	Number of re-Tweets accumulated	Slope of the re-Tweet trendline
Tweet22	user18	166 810	Sun 22/11/15 09:24:10	641	98.89
Tweet23	user19	316 294	Mon 20/07/15 11:41:33	609	186.20
Tweet24	user20	190 091	Mon 20/07/15 18:39:19	600	102.86
Tweet25	user21	23 553	Thu 23/07/15 14:43:11	590	125.30
Tweet26	user22	535 194	Sun 14/06/15 21:39:45	568	28.57
Tweet27	user23	446 603	Mon 29/06/15 18:22:27	559	73.14
Tweet28	user24	166 660	Sun 28/06/15 06:38:20	530	56.06
Tweet29	user25	111 404	Thu 09/06/15 21:35:27	529	86.09
Tweet30	user26	2 345	Wed 01/07/15 17:32:13	517	63.35
Tweet31	user27	85 476	Sun 22/02/15 14:51:54	515	36.59
Tweet32	user8	1 521 326	Tue 12/01/16 14:27:35	511	74.03
Tweet33	user28	2 520 567	Sun 22/02/15 05:48:26	503	35.91
Tweet34	user29	84 693	Wed 08/07/15 09:51:00	485	81.34
Tweet35	user11	50 877	Fri 13/11/15 22:33:04	474	26.69
Tweet36	user30	300 507	Sun 28/06/15 22:23:51	466	51.50
Tweet37	user31	1 556 018	Sun 22/02/15 10:28:58	445	90.50
Tweet38	user32	44 427	Thu 02/07/15 19:49:44	442	25.83
Tweet39	user33	264 823	Wed 17/02/16 23:55:25	439	218.00
Tweet40	user34	40 102	Sat 28/11/15 00:11:09	439	26.74
Tweet41	user35	57 454	Wed 24/02/16 19:01:11	432	108.90
Tweet42	user6	694 295	Mon 18/01/16 10:15:28	424	41.88

(continued)

Table 2 (continued)

Tweet ID	TwitterUser ID	Number of followers	Timestamp of Tweet	Number of re-Tweets accumulated	Slope of the re-Tweet trendline
Tweet43	user36	62 246	Sun 22/02/15 10:26:10	418	209.00
Tweet44	user37	17 110	Thu 23/07/15 14:51:34	412	101.70
Tweet45	user38	4 220	Tue 12/01/16 11:51:05	412	125.00
Tweet46	user39	106 591	Thu 10/09/15 14:37:51	410	204.00
Tweet47	user40	302 911	Sun 15/02/15 16:14:51	407	62.94
Tweet48	user41	2 987 212	Fri 25/12/15 23:55:36	404	31.72
Tweet49	user42	96 658	Wed 22/07/15 07:32:08	402	401.00
Tweet50	user41	2 686 033	Tue 30/06/15 01:07:47	400	58.74

while amassing 1,481 re-Tweets. On the other hand, Tweet3 reached some 3,851 re-Tweets but observed a smoother trend with the most curved slope (109.41) with the highest number of followers. Tweet38 followed the smoothest slope with only 442 re-Tweets (see Fig. 4).

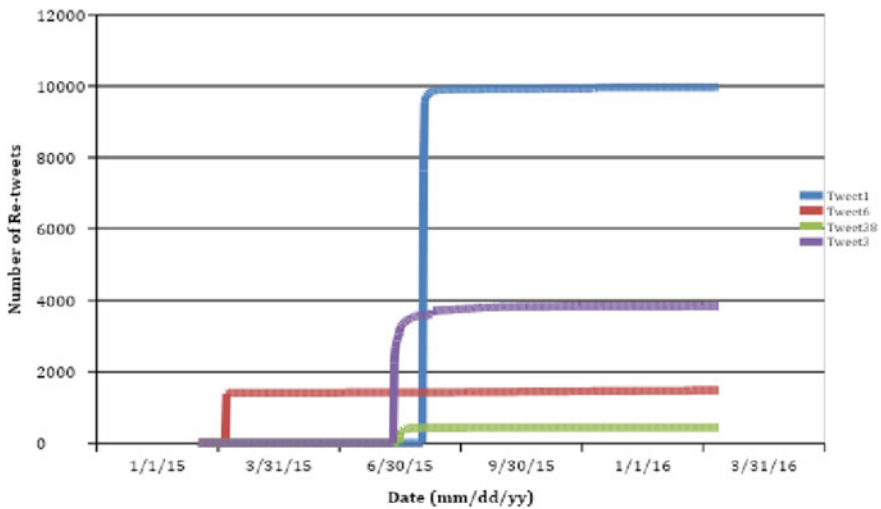


Fig. 4 A sample spread and fade-out patterns of some highly re-Tweeted Tweets

Further analysis was conducted with a broader sample containing the top 500 most re-Tweeted Tweets in the next section.

4.4 Conditions and Features Leading to High Re-tweet

It is possible to extract different characteristics from a Tweet. For instance, user-based features can be obtained, such as the user's follower number or the user's location. Time-based features can be extracted from a Tweet as well. On the other hand, analysis of the text written in the Tweet often referred to as the content-based analysis, is also possible. In this regard, some class-specific words (tokens) following the Information Retrieval Technique introduced by Rajaraman and Ullman (2011) were extracted.

The number of re-Tweets was checked initially, then the average re-Tweet level and the average re-Tweet level \pm variance were calculated. Then, re-Tweets at a level more than the "average of re-Tweets + the variance" were classified as "high"; while those less than the "average of re-Tweets-the variance" were classified as "low" class. Lastly, "high" classified re-Tweets were further examined to understand any further possibilities to identify sub-levels. These sub-levels appeared around 500 and 5,000 re-Tweets, which were incorporated in the further analysis detailed below.

Regular attributes of a learning model are identified based on the content features of the highly re-Tweeted top 500 Tweets. Propagation velocities of the Tweets are extracted via the Simple Linear Regression method to discover relations in the data model. The Tweet distribution data for each Tweet is fit into a line using Simple Linear Regression; then, their slopes are calculated and categorized as high and low according to the normal distribution ($\mu = 76.08$; $\sigma = 69.11$). Tweets with a slope higher than $\mu + \sigma$ are categorized as the high class ($n = 46$) and the remaining Tweets as the low class. For the fourth research question ("why, under which conditions and which features of Tweets about Syria end up extensively Re-Tweeted by the Turkish users"), six regular content-based and user-based features from the Tweets, namely containsHashtag, containsLink, numberOfFollowers, numberofCapitalLetters, containsPoliticWords, and numberofTotalRTs were extracted. Their detailed content features are also provided in Table 3.

In the rest of this section, learning models are composed using the features mentioned above and some other features, which will be mentioned in the following parts to make predictions regarding the fourth research question. RapidMiner, an open-source Data Mining tool, is used in stratified k-fold cross-validation ($k = 10$) to build the model and estimate the accuracy of the model (Table 4).

Results indicated well overall accuracy (90.60%) but low recall value for the high class. Naïve Bayes classifier was more likely to make predictions on low since most of the records ($n = 454/500$) belonged to the low class. Feature subsets are then selected via the brute force feature selection technique to identify the best feature combination for the developed classifier. Although accuracy improved (Table 4) upon

Table 3 Attributes of the learning model

Attribute	Content-feature
<i>containsHashtag</i>	It is a binomial attribute. It is <i>true</i> for the Tweet that contains a hashtag; <i>false</i> otherwise
<i>containsLink</i>	It is a binomial attribute. It is <i>true</i> for the Tweet that contains a link; <i>false</i> otherwise
<i>numberOfFollowers</i>	The follower number of the Twitter user at the time when the Tweet had been posted
<i>numberOfCapitalLetters</i>	The number of capital letters in the Tweet text
<i>containsPoliticWords</i>	It is a binomial attribute. We have generated a list of political words, consisting of political party names, politician names, some political keywords, etc. This attribute is <i>true</i> if the Tweet contains any of these political words; <i>false</i> otherwise
<i>numberOfTotalRTs</i>	It reflects how many times a particular Tweet has been re-Tweeted

Table 4 Confusion matrix on predicting low and high labels

	True high	True low	Class precision
Predicted high	5	6	45.45%
Predicted low	41	448	91.62%
Predicted total	46	454	
Class recall	10.87%	98.68%	
Accuracy: 90.60 ± 2.84% (micro: 90.60%)			

this feature selection operation, for prediction purposes, *numberOfTotalRTs* is to be regarded as a unique attribute similar to the slope.

Acceleration Analysis. The types of dispersion that Tweets amass over time vary. Typically, high influencer Tweets receive more elevated numbers of re-Tweets in an extended period. However, the acceleration of re-Tweet accumulation—whether the re-Tweets accumulated slowly or quickly, also provides information about the nature of their spread. Therefore, an acceleration analysis is conducted to understand the nature of Tweet spread better.

In addition to classifying *numberOfTotalRTs* as a special attribute, another special attribute, *numberOfDaysForSaturation*, which indicated the number of days it takes for a given Tweet to reach the ending of all its re-Tweets, is included in the analysis. Therefore, the analysis is conducted with three labels (slope, *numberOfTotalRTs*, and *numberOfDaysForSaturation*) and five regular attributes that were used as the feature(s) for learning (*containsHashtag*, *containsLink*, *numberOfFollowers*, *containsPoliticWords*, and *numberOfCapitalLetters*).

There was a major difference in data size in the low (454 Tweets) and the high (46 Tweets) classes. To remedy this difference, the training set was increased from 500 to the top 1,000 highest re-Tweeted Tweets. This ensured an improved balance between the classes. Results are provided below for slope, *numberOfTotalRTs* and *numberOfDaysForSaturation*:

Slope. Following the 68-95-99.7% Rule, 91 high and 909 low values were detected. Since unbalanced class sizes were obtained, under-sampling, which uses only a subset of the majority class in a very efficient way, was applied (Liu et al. 2008). Therefore, the analysis selected 91 low Tweets and used all 91 high Tweets to experiment on a balanced dataset. Cross-validation with two classifiers using the five regular attributes, namely containsHashtag, containsLink, numberOfFollowers, numberOfCapitalLetters, and containsPoliticWords, were used for Naïve Bayes and K-NN (k = 22) analysis (Table 5). Results indicated that K-NN performed better than Naïve Bayes, with 66.52% accuracy.

numberOfTotalRTs. The 26 high and the 26 low Tweets were used for adopting the 68-95-99.7% Rule. Again, there was an unbalanced dataset situation (26 high, 974 low Tweets); therefore, the under-sampling method was applied to balance class sizes. Results indicated that both K-NN (k = 22) and Naïve Bayes performed with equal accuracy at the 72.00% level (Table 6).

numberOfDaysForSaturation. 134 high and 134 low Tweets were used for adopting the 68-95-99.7% Rule. K-NN performed slightly better than Naïve Bayes, with an almost 4% overall accuracy difference. The k value for the K-NN classifier that produced the best accuracy results is given in Table 7.

Next, cluster analysis was employed to separate data into two different groups with the aid of a similarity measure in between them.

Cluster Analysis. Cluster analysis was used to group the specified class labels (high and low) for special attributes, as it allowed for two different clusters via calculation of

Table 5 Confusion matrix on predicting low and high labels for slope

	Naïve Bayes			K-NN (k = 22)		
	True high	True low	Class precision	True high	True low	Class precision
Predicted high	39	31	55.71%	61	31	66.30%
Predicted low	52	60	53.57%	30	60	66.67%
Predicted total	91	91		91	91	
Class recall	42.86%	65.93%		67.03%	65.93%	
Accuracy	54.36 ± 8.97% (micro: 54.40%)			66.52 ± 8.53% (micro: 66.48%)		

Table 6 Confusion matrix on predicting low and high labels for numberOfTotalRTs

	Naïve Bayes			K-NN (k = 22)		
	True high	True low	Class precision	True high	True low	Class precision
Predicted high	14	2	87.50%	12	0	100.00%
Predicted low	12	24	66.67%	14	26	65.00%
Predicted total	26	26		26	26	
Class recall	53.85%	92.31%		46.15%	100.00%	
Accuracy	72.00 ± 18.33% (micro: 73.08%)			72.00 ± 16.00% (micro: 73.08%)		

Table 7 Confusion matrix on predicting low and high labels for numberOfDayForSaturation

	Naïve Bayes			K-NN (k = 50)		
	True high	True low	Class precision	True high	True low	Class precision
Predicted high	25	11	69.44%	69	44	61.06%
Predicted low	109	123	53.02%	65	90	58.06%
Predicted total	134	134		134	134	
Class recall	18.66%	91.79%		51.49%	67.16%	
Accuracy	55.24 ± 5.07% (micro: 73.08%)			59.27 ± 5.54% (micro: 59.33%)		

a similarity measure between them. Dispersion of each Tweet is previously presented by the relevant best fitting line(s) obtained via Linear Regression, where the best fitting line is characteristically deemed representative of the Tweet that it is obtained from. Singhal (2001) stated that the angle between any two vectors could be used to measure similarity among them. Particularly, the cosine of the angle can be used for identifying the numeric similarity (1.0 = identical vectors; 0.0 = orthogonal vectors). Similarly, vector clusters were obtained by adopting the cosine similarity metric. The cluster of Tweets, represented by best fitting line vectors, has been examined by two different clustering techniques, namely the agglomerative clustering and the k-means clustering. In agglomerative clustering, a type of hierarchical “bottom-up approach” technique where each data point composed one cluster at the beginning and then paired with clusters that merged as they moved up in the hierarchy depending on their distance metrics was employed (Maimon and Rokach 2005). The distance measure was chosen “Single Linkage,” which meant the closest pair of elements that belonged to different clusters was taken into consideration while merging clusters. Moreover, “cosine similarity” was used as a similarity metric. However, obtained results included quite unbalanced two top clusters with 4 and 996 observations.

Next, k-means clustering, where k = 2, was adopted. Again “cosine similarity” metric was applied as the distance metrics among vectors. More balanced clusters, cluster_0 with 564 items and cluster_1 with 436 items, were achieved (Table 8). Subsequently, the five regular attributes, namely containsHashtag, containsLink, numberOfFollowers, numberOfCapitalLetters, containsPoliticWords and one

Table 8 Confusion matrix on predicting clusters

	True Cluster_1	True Cluster_0	Class Precision
Predicted Cluster_1	160	105	60.38%
Predicted Cluster_0	276	459	62.45%
Predicted total	436	564	
Class recall	36.70%	81.38%	
Accuracy	61.90 ± 3.96% (micro: 61.90%)		

special attribute, which is cluster_0 or cluster_1, were analyzed with the K-NN (k = 50) model. Results indicated the overall accuracy of the cross-validation as 61.9% (Table 8).

Sampling among the top highest re-Tweeted Tweets was believed to enclose similar major characteristics, hindering the aimed prediction capability of the model built. Therefore, Tweets with low re-Tweet incidents were included in further analysis to understand the content-based characteristic differences of highly re-Tweeted Tweets. Consequently, the training dataset was established to contain the top 1,000 highest re-Tweeted Tweets, where the number of re-Tweets for each Tweet ranged from 60 to 9,973. In addition, 1,000 random Tweets with each Tweet less than or equal to 5 re-Tweets were included in the dataset. Hence, 1,000 highly (if ≥ 60 re-Tweets, then label high) and 1,000 lowly (if ≤ 5 re-Tweets, then label low) re-Tweeted Tweets were included in the dataset with equal size bins. Subsequently, the five regular attributes, namely containsHashtag, containsLink, numberOfFollowers, numberOfCapitalLetters, and containsPoliticWords, were used in the learning model by using K-NN (k = 20). When tested with the cross-validation method, the built model’s overall accuracy is reported to be 83.80%, while both precision and recall values for each class were satisfactory (Table 9).

To further improve the dataset with regards to high and low classes, a follow-up model was built with the top 576 highest re-Tweeted Tweets (# of re-Tweets ≥ 105) and 548 of the least re-Tweeted Tweets (# of re-Tweets ≤ 2). In this way, the results were compared when the classes became more polarized among each other. K-NN (k = 20) classifier was executed with this dataset, and the overall accuracy was improved to 85.76% (Table 10).

As a result, an increase in the number of re-Tweets difference between the high and low classes in the dataset was shown to improve the accuracy of distinguishing classes

Table 9 Confusion matrix on predicting low and high labels with 2000 Tweets

	True high	True low	Class precision
Predicted high	863	187	82.19%
Predicted low	137	813	85.58%
Predicted total	1,000	1,000	
Class recall	86.30%	81.30%	
Accuracy	83.80 ± 2.14% (micro: 83.80%)		

Table 10 Confusion matrix on predicting low and high labels for more polarized classes

	True high	True low	Class precision
Predicted high	495	79	86.24%
Predicted low	81	469	85.27%
Predicted total	576	548	
Class recall	85.94%	85.58%	
Accuracy	85.76 ± 3.95% (micro: 85.77%)		

by the five attributes used (containsHashtag, containsLink, numberOfFollowers, numberOfCapitalLetters, and containsPoliticWords).

Identifying Class-Specific Terms. In information retrieval, the use of specific tokens (terms) leads to richer information on the class, particularly in the analysis of text data. Accordingly, topics (classes) were typically identified by finding the special words that characterize the relevant class following the approach proposed by Rajaraman and Ullman (2011). The importance of a word for a particular class was calculated based on its occurrence in a given class together with but less frequent occurrence in any other class. The determined class-specific terms for high and low classes were then used as another feature in testing an improved prediction capability. Accordingly, two new features were identified as:

- containsHighRelatedTerms: a Boolean value true or false
- containsLowRelatedTerms: a Boolean value true or false

These two new features were added to the training set that had 2,000 samples (1,000 low–1,000 high, the model’s data presented in Table 9). To summarize, the seven features used in this analysis involved containsHashtag, containsLink, containsHighRelatedTerms, containsLowRelatedTerms, numberOfCapitalLetters numberOfFollowers, and containsPoliticWords.

Use of K-NN ($k = 20$) classifier showed that accuracy did not improve much but remained at the same level of 83.80% (Table 9). When the new two additional features were added to the training set with 548 low and 576 high classes, accuracy increased from 85.76% (Table 10) to 86.12% (Table 11).

In order to capture the moderate number of re-Tweets, that is, $5 < \text{number of re-Tweets} < 60$, another 1,000 randomly selected representatively re-Tweeted Tweets were added to the training set. They were labeled as the low class since the focused prediction is on the top re-Tweet occurrences. As a result, the training set included a total of 3,000 Tweets, a combination of 2,000 low and 1,000 high Tweets. This was also reflective of the real Tweet eco-system since there were always more low levels of re-Tweeting than high. The confusion matrix on this dataset with K-NN ($k = 20$) is presented in Table 12. The overall accuracy of 75.10% on this dataset provided sound prediction accuracy in predicting whether a Tweet will get a high number of re-Tweets.

Some characteristic Tweet features were observed for a Tweet to lead towards extensive re-Tweeting. Accordingly, it is concluded that Tweets containing political

Table 11 Confusion matrix on predicting low and high labels with occurrence features

	True high	True low	Class precision
Predicted high	488	68	87.77%
Predicted low	88	480	84.51%
Predicted total	576	548	
Class recall	84.72%	87.59%	
Accuracy	86.12 ± 2.57% (micro: 86.12%)		

Table 12 Confusion matrix on predicting low and high labels with 3000 Tweets

	True high	True low	Class precision
Predicted high	612	359	63.03%
Predicted low	388	1 641	80.88%
Predicted total	1 000	2 000	
Class recall	61.20%	82.05%	
Accuracy	75.10 ± 2.38% (micro: 75.10%)		

words were more likely to amass high re-Tweeting when compared to Tweets without political words. The findings indicated that 32% of the highly re-Tweeted Tweets contained political words, while only 27% of the lesser re-Tweet receiving Tweets contained political words. Therefore, determining whether a Tweet contains a political token (word) was identified as a distinctive feature in predicting the likelihood for high re-Tweeting. Note that 1,000 Tweets, which had more than 60 re-Tweets, were labeled as high (more specifically, the number of re-Tweets for each Tweet we labeled high ranged from 60 to 9,973). Additionally, Tweets containing a hyperlink tend to be highly re-Tweeted by Turkish Twitter users. Moreover, containing class-specific terms (containsHighRelatedTerms and containsLowRelatedTerms) was another feature in predicting the likelihood for high re-Tweeting.

5 Discussion of Major Findings

As Tweet volume was an indicator of social trends taking place in real life, some common categories emerging in the dataset were identified. In order of importance, these categories were armed conflicts, religious and political sensitivities, and cultural traits such as in-group collectivism and paternalism.

Tweets containing Syria were not only posted by a small specific group of people but indeed attracted new individuals to post, with cumulative numbers of 175,000 users. The topic of Syria was reflected upon by a wide range of individuals as illustrated in the patterns of distinct daily users and Tweet numbers distributions.

Among the highly re-Tweeted top 50 Tweets (Table 2), Tweet1 received the highest number of re-Tweets, Tweet3 had the highest number of followers, Tweet6 and Tweet38 achieved the sharpest and smoothest slope, respectively (see Fig. 4).

In order to predict features that lead to high re-Tweet, a model was built by first with 500 top re-Tweeted Tweets, then with a total of 3,000 Tweets where a combination of 2,000 low and 1,000 high Tweets was used. This was more reflective of the real Tweet eco-system, which often included more low levels of re-Tweeting than the high. Classification of high and low Tweets was based on the number of re-Tweets received, where high was considered as having more than 60 re-Tweets. By using seven features, namely containsHighRelatedTerms, containsLowRelatedTerms, containsHashtag, containsLink, numberOfFollowers, numberOfCapitalLetters, and

contains `PoliticWords`; use of K-NN ($k = 20$) classifier showed that the best accuracy was achieved at the level of 86.12% (Table 11). It is often assumed that the `NumberOfFollowers` would be a dominant regular attribute directly related to the number of re-Tweets. Upon closer examination, the analysis revealed that 800 of 2,000 low labeled Tweets—that is, less re-Tweeted Tweet posting accounts—had more than 10,000 followers. However, the developed model still achieved good prediction results. In other words, the developed learning model indicated that there was no direct relation between the number of followers of a Twitter account and the re-Tweets that the Tweets posted from this account would have. This finding also contributes to the research field in terms of correcting a common misassumption.

The mayors of Turkey did not use Twitter for transparent, participatory, and citizen-oriented public service delivery but rather used Twitter for self-promotion and political marketing (Sobaci and Karkin 2013). The results of the analysis conducted in this chapter illustrated armed fighting, religious and political sensitivities were identified as topics leading to high Tweet volumes. Accordingly use of Twitter by politicians to promote measures of public safety, religious and political stability messages could be a preferred approach for policymakers.

A government account that aims to inform the public on security issues would be interested in achieving the highest number of re-Tweets in the shortest time to be able to spread information as fast as possible to the widest possible public. It is expected that having a high number of followers would be sufficient based on common understanding. However, the conducted analysis in this chapter indicated that a combination of seven identified features needs to be considered in this regard.

6 Conclusions and Future Research

This chapter presents an analysis of Tweets in exploring the reflections on the Syria conflict among the Turkish public as frontier research in this field. Unlike most social conflict-based Twitter research that rather preferred to focus on digital activists by studying mostly a narrow group of people engaging online for social change, the chapter contributed to the literature by providing a wider perspective by including all available social media reflections from the public. The chapter has not only chosen to have a deep research focus for a specific group that has anti-war, anti-immigration, or anti-anything but included all posted Tweets over a year-long period from any perspective for ensuring a wider focus representative of the public's reflection. The chapter contributed to the theory by uncovering themes from a wide span of data that does not rely on any sampling but collection of all posted Tweets that included the word 'Suriye' (Syria in Turkish) and were publicly available. As part of the chapter's findings, it is shown that social media, which was launched as part of a leisure activity alternative, took a different role in serving as a medium for discussing societal concerns that can be as severe as war and immigration.

The analysis revealed that armed fighting, religious and political sensitivities within the Turkish public tend to inflate the volume of posted Tweets during the

Syrian conflict. In addition, Tweets containing Syria were not only posted by a small specific group of people but indeed attracted new individuals to post. The topic of Syria was reflected upon by a wider range of individuals.

A predictive model of 86.12% accuracy was built to classify high and low Tweets based on the number of re-Tweets received via seven features, namely numberOfFollowers, containsHighRelatedTerms, containsLowRelatedTerms, containsPoliticalWords, containsLink, numberOfCapitalLetters, and containsHashtag. As a surprising finding, the chapter concluded that there was no direct relation between the number of followers of a Twitter account and the re-Tweets that the Tweets posted from this account are likely to have. This finding provided an unexpected methodological contribution towards further research that utilizes Twitter and other social media data.

Policymakers can use Twitter to promote measures of public safety, religious and political stability messages effectively by considering the seven identified features in the model built. Policymakers should revisit the tendency to rely on traditional communication channels on public concern issues, and opportunities to utilize new mediums such as social media should be seized. Public concerns often involve citizens' voluntary contribution to gathering and spreading information, which Twitter offers widespread usage for (Gürbüz et al. 2017), especially in sound information seeking (Zha et al. 2015). For instance, in line with the propositions set forth by Tanes (2017) to use gameplay for improving earthquake precautions, other innovative novel communication approaches could be developed for efforts concerning issues surrounding the social conflict, such as integration of the immigrants via Twitter. Twitter is renowned for its impact in building social capital, especially for communication support (Son et al. 2016). E-marketers working on policy communication design can increase their reach, as it is reported in the case of the Danish Police's message diffusion study (Velde et al. 2015) by catering to citizens that engage in social media (Akar and Dalgic 2018) by utilizing corporate Twitter accounts (Lee and Kim 2018).

The retrieved data in this chapter's sampling by Twitter Stream API had some limitations since Twitter did not permit retrieval of all Tweets but instead allowed streaming of only a small fraction of the total volume of Tweets at any given moment³. Therefore the findings were only based on Tweets within this limitation. However, it is believed that the arrived results were applicable in understanding the Syrian conflict Tweets posted by the public in Turkey. Moreover, the majority of the Tweets sent daily had some rather low number of re-Tweets. Therefore, the whole dataset could not be used for the testing process as it would have led to an unbalanced distribution among the "low" and "high" classes, with a weaker learning model. Therefore, a subset for each class with the same size to test the model was selected. Another limitation that comes with Tweet data was related to the bot accounts on Twitter. A Twitter bot is an account organized to post automatic Tweets by using a special software program instead of a real Twitter user. In the analysis, the top 500 most re-Tweeted Tweets' users were manually checked to confirm that they were real

³ Retrieved from <https://dev.twitter.com/tags/streaming-api> on August 17th, 2016.

individuals, celebrities, media organizations, and state institutions that posted them. Hence the general limitation of bot accounts did not apply to the chapter's findings.

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The Needs Analysis for Development of Smart 3-wheel Bike for Disabled Entrepreneurs



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Abstract The purpose of this study is to examine entrepreneurs with disabilities' views towards the need for technical support. The Unified Theory of Acceptance and Use of Technology (UTAUT) were used as a basic model for study. A survey method was utilized among 40 respondents in Tumpat Kelantan, Malaysia that categorize as disabled entrepreneurs to investigate their technology needed. The data obtained were analyzed using Statistical Packages for the Social Sciences (SPSS) software for descriptive statistics and regression analysis. The findings indicate that the most significant factor is effort expectancy that show the disabled entrepreneurs accept the development of Smart 3-Wheel Bike, which enable them in competing with the other business competitors and remain in the market.

Keywords Disabled entrepreneurs · Needs analysis · Technical support

1 Introduction

Technology is a vital factor that enables us to remain competitive in business today and it is an important factor for disabled entrepreneurs. Entrepreneurship has become one of the preferred fields of employment for disabled people due to the lack of other employment opportunities. However, the existing technology for disabled people is

Industry Collaboration in Development Smart 3-Wheel Bike.

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still insufficient to ensure that disabled people remain competitive in the entrepreneurship field. The opportunity for disabled people to be employed is lowered compared to normal people. One of the main reasons is lack of the employability skills. According to Grammenos 2011, statistics of disabled people show lower labor market participation rates than the normal people. Statistics show that in Malaysia only 0.31% of disabled people were employed from 68.7% total labor participation rate in 2019 and become lowest because of the Pandemic Covid-19 outbreak. This figure shows that low skilled sector will be chosen by people with disabilities as their job that is lower-paid occupations, which is stated in research by Meager and Higgins (Meager and Higgins 2011). Doing business or become self-employed becomes a possible solution to problems of low participation rates among disabling people.

According to Zahra et al. (2008), marginal groups such as people with disabilities (OKU) are seen to have the potential to be featured in the field of entrepreneurship, this is because the field of entrepreneurship can be ventured into this group, it is because it does not compare physical form and physical disability to succeed as an entrepreneur. In addition, the disabled are not immune from various issues that make it difficult for them to get a job (Ang 2014; Khoo et al. 2012). A study from Rozell et al. (2010) and Othman (2002) see technology as one of the important factors to the success of every entrepreneur in addition to other factors such as motivation, capital, knowledge, and skills. The importance of technology to entrepreneurs has also been supported by a study by Rogoff et al. (2004).

Promoting entrepreneurship constitutes an important part of the national agenda in Malaysia. Malaysia's National Entrepreneurship Policy was introduced as a guide to provide a holistic framework or ecosystem for the development of entrepreneurship in Malaysia, which today is seen to be growing rapidly. This is in line with Malaysia OKU Action Plan 2016–2022, entrepreneurship is made the strategic thrust in empowering the economy of the OKU, through increasing the participation of the OKU in the open, inclusive and accessible job market to enable them to live independently and contribute to national development. People with disabilities are often disadvantaged to handle a complex situation like a business. The duty is much tougher for disabled people and in some cases, even unbearable compared to normal people. Due to their incapacity, they need (e.g. technology) which help them to cultivate the business. Either disable people or non-disabled people, technology is a vital factor to accomplish and sustain self-motivation and self-esteem and to join in the social environment Rozell et al. (2010), Sans-Bobi et al. (2012) and Othman (2002) and Rogoff et al. (2004).

Through this research, researchers from Universiti Malaysia Kelantan are interested to find the solution through developing a prototype to support disabled entrepreneurs in business activity. The prototype is called "Smart 3-Wheel Bike". Therefore, before the development of the Smart 3-Wheel Bike, it is desirable a need analysis study conduct on disabled entrepreneurs on the existing technology for them, the level of acceptance, and intention to use to support them in business activity.

The main objective of this study is to identify the need for the development Smart 3-Wheel Bike based on the UTAUT model for disabled entrepreneurs. This research will answer the following questions. This paper is organized as follows. Section 2

covers a review of relevant literature on the review. Section 3 is a methodology and presents the conceptual framework. Detailed discussion on empirical findings is reported in Sect. 4. Finally in Sect. 5 presents the conclusion and discusses the policy implication.

2 Literature Review

Generally, an entrepreneur is defined as someone who runs a business with the aim of profit and innovation in the business. Greene (2000) defines an entrepreneur as an individual who runs his own business while Idris (2003) and Naude (2010) consider entrepreneurs as entrepreneurs and traders who are willing to take risks, always strive to innovate, and be smart and creative in finding ways to improve wealth, power and social status. According to Zahra et al. (2008), marginal groups such as people with disabilities (OKU) are seen to have the potential to be featured in the field of entrepreneurship, this is because the field of entrepreneurship can be ventured into this group, is because it does not compare physical form and physical limitations to succeed as an entrepreneur. In addition, the disabled are not immune from various issues that make it difficult for them to get a job (Ang 2014; Haslina 2006; Khoo et al. 2012). A study from Rozell et al. (2010) and Othman (2002) see technology as one of the important factors to the success of every entrepreneur in addition to other factors such as motivation, capital, knowledge, and skills. The importance of technology to entrepreneurs has also been supported by a study by Rogoff et al. (2004) and a study by Aminova and Marchi (2021) that stated that individual performance is influence by innovation.

The existence of small-scale businesses is seen to be able to contribute to the country's economic growth. According to Abd Ghani et al. (2012), Small and Medium Industries (SMIs) are one of the main catalysts for Malaysia's economic growth. Almost 99.2% of all entrepreneurs in Malaysia are registered SME traders and have contributed 32% of GDP. Looking globally from all over the country, many disabled entrepreneurs have been born with various types of businesses. Starting from the difficulty of getting a job this group is more likely to be self-employed and eventually become entrepreneurs, no matter small or large-scale business. This situation is in line with the strategy stated in the Malaysia OKU Action Plan 2016–2022. The vast potential in the field of entrepreneurship has prompted the government to work hard to cultivate this field to the community through various approaches, departments, agencies, and so on in line with the Malaysia National Entrepreneurship Policy.

The success and failure factors of entrepreneurs according to a study by Rozell et al. (2010) are dependent on several elements such as raw material resources, entrepreneurial motivation, industry knowledge, technology, planning skills communication skills, interpersonal skills, and risk-taking. Yet studies from (Othman 2002; Nordin 1994; Lope Pihie and Elias 1997; Ling 1990; Timmons et al. 1985; Hess 1987; Ken 1990) state that entrepreneurs face various challenges such as lack of

capital, competition, technology, management, communication, changing demand and uncertain economic conditions, where statistics from the National Insolvency Department show that for a period of three years, a total of 4,067 Small and Medium Enterprises (SMEs) have gone bankrupt. Among the factors that cause this situation is whether entrepreneurs fail to continue to grow in line with the boom of 4.0 IR technology. This situation is seen to have a greater impact on disabled entrepreneurs where there is still a lack of technical facilities that are competent for entrepreneurs with disabilities. Therefore, this study was conducted to examine the level of needs and acceptance by disabled entrepreneurs on the development of Smart 3-Wheel Bike.

3 Methodology

3.1 *The Needs Analysis*

The need analysis is a method proposed by Witkin (1997) that is used to identify gaps between current conditions and target conditions. According to McKillip (2001) stated that needs analysis is the value of judgment for a particular group that has a problem that needs to be solved. Analysis of the need aims to investigate existing issues and the need to develop a supporting technology for the disabled entrepreneur. The designed prototype can be used as a model for one of the supporting technologies for the disabled entrepreneur in business activity. The needs analysis in this study will be conducted through a techniques survey to identify the need to build a Smart 3-Wheel Bike based on disabled entrepreneurs' views. Respondents will be asking a research questionnaire to obtain feedback on the need for the development of a Smart 3-Wheel Bike. The questionnaire distributed to disabled entrepreneurs was to see whether they need to have technical support, assess the level of acceptance of the use of Smart 3-Wheel Bike. Although this prototype can be viable support for the disabled entrepreneur to be used in the business activity its implementation becomes less effective if disabled entrepreneurs do not like to use it.

The questionnaire items of this study were constructed based on the Theory of Acceptance and Use of Technology (UTAUT). The technology acceptance theory proposed by Venkatesh et al. (2003) explains the intention of users to use information systems and human behavior. This theory explains four main constructs namely Performance Expectancy, effort expectancy, Social Influence, and Facilitating conditions which are the direct determinants about intentions and use behaviors (Venkatesh et al. 2003), as shown in Fig. 1. There is one moderating factor that is voluntariness to use.

UTAUT had been used by many researchers in examining the need for of adoption technology. A study by Mikalef et al. (2016) analysis the need of used Video-Based Learning (VBL) technology, Nistor et al. (2012) used UTAUT to examine the need of virtual need practice, Karulkar et al. (2019) examine the need for online food

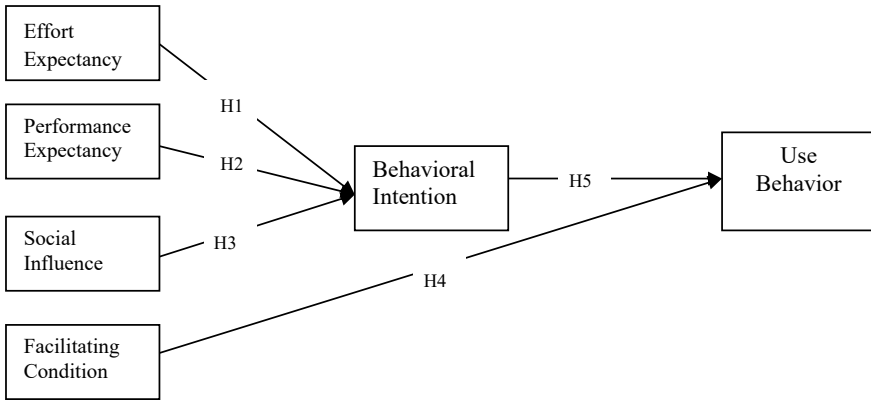


Fig. 1 The research model The Unified Theory of Acceptance and Use of Technology (UTAUT) (Adopted from Venkatesh et al. 2003)

delivery service. Abu-Shanab and Pearson (2009) conducted a study using UTAUT on the adoption of Internet banking, Learning Online Social Support, and Lin et al. (2008) investigates the role of Network Information Technology in Online Social Support.

The questionnaires ask the disabled entrepreneurs with the purpose to know if the disabled entrepreneurs needed technical support for their business activities, besides to examine the level of acceptance of the development of Smart 3-Wheel Bike and their intention to adopt the technology. Although Smart 3-Wheel Bike can be viable support for disabled entrepreneurs to remain competitive in daily business activity and to compete with business competitors, this prototype becomes less effective if the disabled entrepreneurs do not like to use it.

3.2 Performance Expectancy

Performance expectancy is a level of trust from disabled entrepreneurs that the use of technology is able to help them remain competitive in the market and ability to grow the business. This construct will indicate that the degree to which using Smart 3-Wheel Bike will improve capabilities for disabled entrepreneurs in doing businesses. Venkatesh et al. (2003) defined performance expectancy as “the degree to which the user expects that using the system will help them to attain gains in job performance”. Another researcher Kijsanayotin et al. (2009) also supported that performance expectancy is one of the important indicators to measure the intention to use technology. In this study, performance expectancy was defined as the degree to which a disabled entrepreneur believes that using Smart 3-Wheel Bike will help them in business activity and propose the following hypothesis:

H1: Performance Expectancy is positively influenced behavioral intention to use Smart 3-Wheel Bike by the disabled entrepreneur.

3.3 Effort Expectancy

This construct will measure the level of easiness of use. According to Venkatesh et al. (2003), the effort expectation refers to a person's desire to use technology, and self-efficacy becomes the main determinant of an individual's behavior for the actual use of the technology. A few studies (i.e. Neufeld et al. 2007; Nov and Ye 2010; Pai and Tu 2011; Abbas et al. 2018) among others found there is a positive relationship between effort expectancy on the behavioral intention. Thus this study defines effort expectancy as ease to use Smart 3-Wheel Bike. The second hypothesis is:

H2: Effort Expectancy is positively influenced behavioral intention to use Smart 3-Wheel Bike by the disabled entrepreneur.

3.4 Social Influence

Social influence is the degree to which a consumer is influenced by their peers and other individuals in the social circle to convince him or her to use the technology. A few studies had adopted the social influence in UTAUT analysis and found it to be significant on behavior intention. For example a study by Tibenderana et al. (2010) estimation of adoption Information Communication Technology (ICT) services; Hung et al. (2007) and Al-Shafi and Weerakkody (2009) study on adoption e-government service. Based on the support from past literature, the third hypothesis of this study is as follow:

H3: Social influence is positively influenced behavioral intention to use Smart 3-Wheel Bike by the disabled entrepreneur.

3.5 Facilitating Conditions

According to Brown and Venkatesh (2005) and Venkatesh et al. (2003), the facilitating conditions are defined as the preference of the user to used the resource and support available to execute a behavior. In this study, we define the facilitating condition as a disabled entrepreneur who believes that using Smart 3-Wheel Bike will ease their business activity, which means that facilitating condition is expected to predict user behavior. Then, the fourth hypothesis of this study is:

H4: Facilitating condition is direct influences the use behavioral of Smart 3-Wheel Bike provided for the disabled entrepreneur.

H5: Behavioral intention directly influence disabled entrepreneur usage behavior of Smart 3-Wheel Bike.

The questionnaire used five points Likert scale of 1 = very not agree, 2 = disagree, 3 = disagree, 4 = agree, and 5 = strongly agree. The questionnaire is divided into two parts. Part A is related to demographic factors, Part B is concerned with performance expectancy, effort expectancy, social influence, facilitating condition, and behavioral intention, and part D measures the behavioral intention and use behavior of a Smart 3-Wheel Bike.

The study was carried out in Malaysia on a random group. The respondents of the study consisted of disabled entrepreneurs in Tumpat, Kelantan Malaysia. Data of disabled entrepreneurs were collected from Tumpat District Council (TDC). There are 62 disabled entrepreneurs registered with TDC. 40 respondents were involved in the study self-managed by the researcher. The data obtained were analyzed through descriptive statistics using SPSS software.

4 Result and Discussion

The distribution of respondent data is described in Table 1 which covers gender, business experience.

The distribution of disabled entrepreneurs of the male is 87.5% of the total respondent that equal to 35 persons and female is 12.5%. The respondent age is between 21 to 60 years old, with 17.5% of respondents are in the age group 21 to 40 years old and 62.5% of respondents are grouped in 41 to 60 years old. Business experience

Table 1 Respondent demographics

Item	Category	Frequency	Percentage
Gender	Male	35	87.5
	Female	5	12.5
Age	Below 20 years old	0	0
	21–40 years old	7	17.5
	41–60 years old	25	62.5
	More than 60 years old	8	20.0
Business experience	1–5 years	6	15
	6–10 years	20	50
	11–15 years	8	20
	16–20 years	3	7.5
	More than 20 years	3	7.5

Table 2 Result of validity test

Construct	Indicator	Factor loadings	Cronbach's Alpha
Performance expectancy	PE1	0.843	0.889
	PE2	0.915	
	PE3	0.801	
	PE4	0.810	
	PE5	0.868	
Effort expectancy	EE1	0.851	0.872
	EE2	0.896	
	EE3	0.709	
	EE4	0.756	
	EE5	0.890	
	EE6	0.878	
	EE7	0.794	
Social influence	SI1	0.889	0.878
	SI2	0.853	
	SI3	0.792	
	SI4	0.826	
Facilitating conditions	FC1	0.882	0.816
	FC2	0.742	
	FC3	0.871	
	FC4	0.808	
	FC5	0.856	
Behavioral intention	BI1	0.810	0.896
	BI2	0.798	
	BI3	0.885	
	BI4	0.834	
Use behavioral	UB1	0.850	0.886
	UB2	0.845	
	UB3	0.871	
	UB4	0.874	
	UB5	0.872	

indicates that experience between 6 to 10 years had the highest respondent with equal to 50, and 20% of respondents have 11 to 15 years of business experienced.

The reliability and validity tests were conducted. All the constructs were examined for the Cronbach alpha. The entire construct namely effort expectancy, performance expectancy, social influence, facilitating conditions, behavioral intention, and use behavior indicated the coefficient of Cronbach alpha greater than 0.7. Thus the research instrument was either accurate or reliable in qualifying. Table 2 shows the validity results of the main construct based on the UTAUT model.

Table 3 Result of mean and standard deviation of UTAUT construct

	Mean	Standard deviation
Performance expectancy	4.14	0.898
Effort expectancy	4.45	0.789
Social influence	4.19	0.899
Facilitating conditions	3.90	0.577
Behavior intention	3.78	0.561

We employed descriptive statistics in this study because the data created can be considered as a summary of the entire data set. It is also able to provide information directly and easily (Pallant 2007). Descriptive statistics used were frequency, percentage, mean and standard deviation. The interpretation of the Mean Score based on Pallant (2007) is as follows: the mean score of 0.00–1.66 is at a low level, the mean score between 1.67–3.33 is at a medium level while the mean score is between 3.33 to 5.00 is at a high level.

The first construct is about performance expectancy. In needs analysis studies, performance expectations are a level of trust from disabled entrepreneurs that the use of technology able to help them remain competitive in the market and ability to grow the business. A result shows that the mean value of performance expectancy is 4.14 with a standard deviation of 0.898.

The second construct of the UTAUT model is effort expectancy. According to Venkatesh et al. (2003), the effort expectation refers to a person’s desire to use technology and self-efficacy is becomes the main determinant of an individual’s behavior for the actual use of the technology. Results show that the mean value is 4.45 with a standard deviation of 0.789. The mean value of this construct is higher compare to the mean of performance expectancy. These results indicate that the desired to use technology in business activity by disabled entrepreneurs becomes the most dominant factor as compared to the performance expectation of the technology.

The third construct is social Influence. The mean of this construct is the lowest compare with the mean of 4.19 and the standard deviation is 0.899. Social influence is defined as an individual who has an interest in someone’s life that gives rise to trust and encourages him to use some technology. Social influence is a direct determinant of behavioral intentions. The last construct under the UTAUT model is facilitating conditions that indicate, disabled entrepreneurs believe existing technology, facilities and infrastructure are insufficient for them. The mean value is 3.90 with a standard deviation is 0.577. Based on descriptive estimation, we can conclude that the factor effort expectancy indicates a higher mean value which indicates that disabled entrepreneur is a desire to use a Smart 3-Wheel Bike.

However, to support the above findings regression analysis was conduct and reported in Table 4. The result shows that the coefficient of all indicators was found to be significant. Hence, estimation factor performance expectancy, effort expectancy, social influence, and facilitating condition were found to be significant. These factors

Table 4 Summary of regression analysis

	Coefficient	Standard error	t-statistic	Significant
Constant	0.6791	0.2811	2.4158	0.0246
Performance expectancy	0.2561	0.1101	2.3260	0.0045
Effort expectancy	0.5671	0.1581	3.5869	0.0004
Social influence	0.1671	0.0912	1.8322	0.0023
Facilitating condition	0.4671	0.1517	1.7607	0.0000

Dependent variable: Use Behavioral.

Table 5 Results of hypothesis testing

Hypothesis	Test
H1: Performance Expectancy is positively influenced behavioral intention to use Smart 3-Wheel Bike by the disabled entrepreneur	Supported
H2: Effort Expectancy is positively influenced behavioral intention to use Smart 3-Wheel Bike by the disabled entrepreneur	Supported
H3: Social influence is positively influenced behavioral intention to use Smart 3-Wheel Bike by the disabled entrepreneur	Supported
H4: Facilitating condition is direct influences the use behavioral of Smart 3-Wheel Bike provided for the disabled entrepreneur	Supported
H5: Behavioral intention directly influence disabled entrepreneur usage behavior of Smart 3-Wheel Bike	Supported

successfully explained the maximum variance in the use of behavioral. The coefficient of the effort expectancy on use intention indicates the highest coefficient value that indicating the prominent role in influencing the dependent variable of use intention.

Thus based on these results, results of hypothesis testing are displayed in Table 5 as shown in the research model in Fig. 1. All the hypothesis is supported with the empirical finding.

5 Conclusion

The finding of this study offer support for the research model. Thus, the main contribution of this study indicates that the disabled entrepreneurs indicate they need the Smart 3-Wheel Bike. Whereas, disable entrepreneurs believe that the introduction of new technical support was able to help disabled entrepreneurs in their business activity. Thus development and introduction of new technical support and facilities for disabled entrepreneurs are needed. A study by Alper (2017) stated that, for an individual with disabilities, specialist and assistive technology need to be designed to

support the needs of this special group that also supported from research by Goggin and Newell (2003).

The result on the effort expectancy construct indicates that this factor is the most important in the needs analysis model. Which, disabled entrepreneurs stated that they need the new technology to remain competitive in the entrepreneurial world. Where this finding has been supported by the result for facilitating conditions. A study by Ostroff (2011) stated that, the need to include technology development in policy for disable people. Arnold and Ipsen (2005) and Dotson et al. (2013) had stated the important role of government policy support for entrepreneurs with disabilities.

Facilitating conditions show a direct effect on user behavior. These findings have been supporting by Bai et al. (2020) who believe in the need for technology to support business activity. Since the development of the Smart 3-Wheel Bike getting supported from disabled entrepreneurs, then these findings can be made a platform for the development of Smart 3-Wheel Bike.

In a conclusion, the findings from the needs analysis indicate the urgent need for development and supporting technology for the disabled entrepreneur. Therefore, the development of the Smart 3-Wheel Bike for disabled entrepreneurs was able to fulfill the disabled entrepreneurs' needs which had been proved base on the estimation analysis using the UTAUT model. Based on the findings related to acceptance and intention to use Smart 3-Wheel Bike, the overall findings from the main construct can be concluded that disabled entrepreneurs strongly accepted the development of Smart 3-Wheel Bike as a supporting facility for them.

For the theory contribution, this study has adopted the UTAUT model in the context of intention to use Smart 3-Wheel Bike. This study has validated a model in the context of the introduction of Smart 3-Wheel Bike to disabled entrepreneurs. This study found that the second important factor for the used intention of Smart 3-Wheel Bike is facilitating condition. This factor indicated that the features offer by Smart 3-Wheel Bike can ease the business activity for the disabled entrepreneur. The limitation of this study is the number of respondents. Due to the outbreak of the pandemic Covid-19, this study was restricted to the sample in Tumpat District. For future research, it suggest to expanding the scope of study and it is recommended that to including other variables to improve the explained variable.

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Catching-Up Innovation Strategies for SMEs Sustainability: Context of Developing Economies



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Abstract Malaysia recognizes the critical role of Small and Medium-Sized Enterprises (SMEs) in its quest to become a developed country. As a result, Malaysia's government has emphasized the importance of innovation with unique capabilities to help small and medium-sized enterprises (SMEs) become more competitive and sustainable. The purpose of this study is to examine the unique capabilities of Small and Medium-Sized Enterprises (SMEs) when it comes to innovation in a dynamic competitive environment. It is important understand how Small and Medium-Sized Enterprises (SMEs) developed and enhanced their unique capabilities in order to increase their competitiveness when implementing their innovation strategies. This paper as expected to provide a comprehensive explanation of the unique capabilities that Small and Medium-Sized Enterprises (SMEs) possess in order to enhance and develop their competitiveness and sustainability. Additionally, these unique capabilities should shed light on the significance of the study's underlying theory (The Dynamic Capability Theory). To summarize, this study will provide the depth of knowledge and understanding necessary for Small and Medium-Sized Enterprises (SMEs) to remain competitive and viable for an extended period of time.

Keywords Small and Medium-Sized Enterprises (SMEs) · Innovation · Unique capabilities · Competitive · Sustainability

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1 Introduction

Economic development and growth have historically been linked to industrialization, and this mindset has influenced governments, particularly in developing countries (Jomo 1993). Malaysia, on the other hand, has experienced rapid economic growth in recent decades and is on track to become an independent developing industrialised country. Tun Dr. Mahathir bin Mohamad, Malaysia's former Prime Minister, announced in 1991 the goal of becoming a fully industrialised country by 2025.

Developing countries such as Malaysia have historically relied heavily on FDI to propel their economies forward (Acquah 2017). Countries with less developed economies have attempted to implement comparable measures, such as attracting Foreign Direct Investment (FDI), knowledge, and technology. Foreign Direct Investment (FDI) is without a doubt a significant contributor to Malaysia's robust economic growth. Despite its critical contribution to Malaysia's economic growth and development, Malaysia's total factor productivity lags behind China's Taiwan Province and Korea (Cherif and Hasanov 2015). According to Cherif and Hasanov (Cherif and Hasanov 2015), Korea and China's Taiwan Province were significantly more competitive in terms of innovation and productivity growth in order to escape the middle-income trap, owing to their heavy reliance on indigenous technology development. They stated that developing and disseminating technologies through domestic firms is critical for Korea and the Chinese province of Taiwan's productivity, innovation, and technological advancement.

As a result, Malaysia's government has placed a premium on developing the Small and Medium-Sized Enterprises (SMEs) sector in order to foster innovation and accelerate the country's transition to developed status. Small and medium-sized enterprises (SMEs) are the bedrock of Malaysian industrial development and have historically been instrumental in promoting growth, employment, and income. The significance of SMEs in Malaysia dates all the way back to the early 1970s, when the New Economic Policy (NEP) was implemented in 1971 with the stated goal of improving people's welfare and realigning economic imbalances. Numerous studies on this subject have been conducted. Malaysia's commitment to SME development has been bolstered by the implementation of the Malaysia Industrial Master Plan (IMP), particularly Industrial Master Plan 2 (IMP2) from 2000 to 2005, followed by Industrial Master Plan 3 (IMP3) from 2006 to 2020, with the goal of realising the country's vision of becoming a developed economy.

Without a doubt, SMEs have emerged as the country's bright star. This is because they are a significant contributor to national income. Indeed, because SMEs are critical to the country's economic development, their performance is constantly scrutinised by academics, investors, trade associations, scholars, universities, entrepreneurs, and government agencies. Despite this, SMEs continue to face a variety of obstacles, including slow productivity growth, limited access to financing, a shortage of human resources, and a lack of technological adoption, all of which can undermine their resilience and competitiveness (Radzi et al. 2017). As Hogeferster (Hogeferster 2014) argues, innovation is necessary for any business to

remain competitive. As a result, innovation is critical for SMEs to survive in competitive environments (Pierre and Fernandez 2018). The primary reason is that small businesses' survival will be contingent on their ability to innovate in the face of a massive challenge, and they suggest that small businesses must develop the capacities and capabilities necessary for growth and competitive advantage. In other words, the firm must adapt, develop a strategy, and develop capabilities in order to meet the requirements of the competitive environment (Radzi et al. 2017). Thus, it is critical to examine and prioritise SME-specific capabilities in light of their ability to innovate in a dynamic competitive environment in order to ensure the survival, sustainability, and continued growth of SME in Malaysia.

Despite an increase in business establishments, failure rates remain high (Singh and Hanafi 2020). As a result, these businesses' viability remains uncertain. Numerous SMEs have been found incapable of maintaining business operations, with nearly half failing within the first five years and two-thirds failing within the first ten years (DeGeest et al. 2017). In the United States, approximately half of businesses survive five years, and only one-third (1/3) survive longer than ten years (Small Business Administration 2017). This failure rate has remained astonishingly consistent over time.

In Malaysia, SMEs have faced a similar fate, with many failing within the first five years (Khalique et al. 2011), at a rate of 60%. Numerous studies on this subject have been conducted (Yusoff et al. 2018). For example, AmBank's Managing Director stated during the 2017 Entrepreneurship Challenge launch that nearly 80% of SMEs fail within the first three years of operation (Bernama. 2017). In the last three years (2013–2015), the average number of businesses closed was 27,859 (Singh and Hanafi 2020). This is an alarming increase. In relation to that, while innovation can provide a business with a competitive edge, it cannot last indefinitely. Utilizing a business's capabilities to achieve a competitive edge is not a new concept. Nonetheless, until the last decade, businesses did not recognise the critical nature of capability regeneration and reconstruction in response to changing environments. As a result, it is argued that businesses must develop capabilities that enable them to adapt their technology and market offerings in a competitive environment, resulting in ownership of resources and competencies that are difficult to replicate (Tece 2007).

This is especially true for businesses operating in a complex and competitive environment, where the ability to develop and integrate new markets rapidly is critical to maintaining a competitive edge. This capability is viewed as distinct from the resources managed by a business (Widya-Hastuti et al. 2016). As a result, it is classified as a firm's unique capability in this research. Indeed, SMEs operating in complex environments require additional capabilities. Small and medium-sized businesses (SMEs) require robust innovation and adaptation capabilities in order to thrive in rapidly changing environments. Thus, identifying the firm's distinct capability within its innovation capability may be critical for survival in a dynamic competitive environment (Zainuddin et al. 2019).

In Malaysia, expanding competitive SMEs would ensure productive use of resources, job creation, mobilisation of domestic savings and investments, and an increase in the number of indigenous entrepreneurs, thereby expanding indigenous

resource use and ensuring income equality (Bank Negara Malaysia 2007). Thus, developing a competitive, efficient, and robust SME sector is critical for the government to achieve sustained economic growth and higher living standards across the board (Bank Negara Malaysia 2007). SME's must be innovative in order to succeed, gain a competitive edge, and sustain for an extended period of time in a dynamic competitive environment. As a result, SMEs require resources, capabilities, and skills to maintain and improve their innovation capabilities on a continuous basis.

2 Overview of Key Concepts

2.1 Roles of SMEs in Economic Development

Malaysian SMEs, like their international counterparts, are diverse. They are classified as “manufacturing” or “services and other.” Manufacturing is defined as any activity that involves the chemical or physical transformation of components or materials in order to create new products (SME Corporation Malaysia 2020). The services sector encompasses all types of services, including hotels and restaurants, distribution trade, financial management, professional and information technology services, entertainment, education, and private health care, as well as manufacturing-related services such as logistics, research and development (R & D), engineering, and warehousing. Meanwhile, the term “others” refers to the remaining three significant economic activities: primary agriculture (agriculture), construction (construction), and mining and quarrying (mining and quarrying) (SME Corporation Malaysia 2020).

Small and medium-sized enterprises (SMEs) are the engine of the country's rapid economic growth and development. Numerous scholars agree that SMEs are critical to Malaysia's goal of developing into a developed and high-income country (Snyder et al. 2016). SMEs play a multifaceted role in economic growth, which is influenced by a variety of factors, including poverty reduction, job creation, and GDP contribution. Additionally, a thriving SME sector fosters innovation, expands opportunities, decreases unemployment, stimulates the economy, and alleviates poverty (Haddad et al. 2019).

Malaysian government have long emphasised the importance of micro, small, and medium-sized enterprises (SMEs), which account for 98.5% of all business establishments in the country. According to the 2016 Economic Census, SMEs own 907,065 business establishments, and microenterprises account for the majority of SMEs (76.5%). Malaysian SMEs are currently structured in such a way that the majority, 89.2%, are in the service sector, followed by manufacturing (5.3%) and construction (5.2) (4.3%). Agriculture, on the other hand, is the least dominated sector, accounting for 1.1% of total employment, followed by mining and quarrying at 0.1% (Fig. 1).

The geographical distribution of business establishments in Malaysia, as illustrated in Fig. 2, reveals that the majority of SMEs in Malaysia are based in the Klang

Valley (Selangor and Federal Territory), accounting for 34.5%, followed by Johor (10.8%), Perak (8.3%), and Pulau Pinang (7.4%).

Thus, the following section will discuss the primary factors that will help to strengthen and improve the capabilities and competitiveness of SMEs in Malaysia, as they are a critical resource for the country’s development and growth.

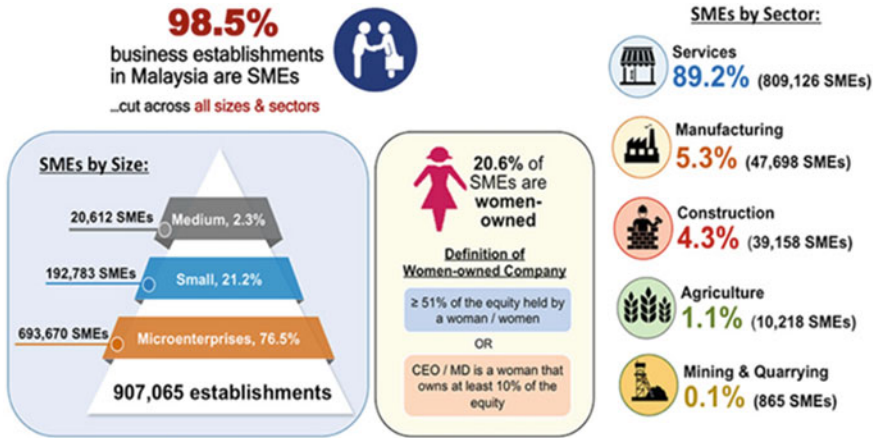


Fig. 1 SMEs in Malaysia Source: Economic Census 2016, Department of Statistics Malaysia (DOSM)

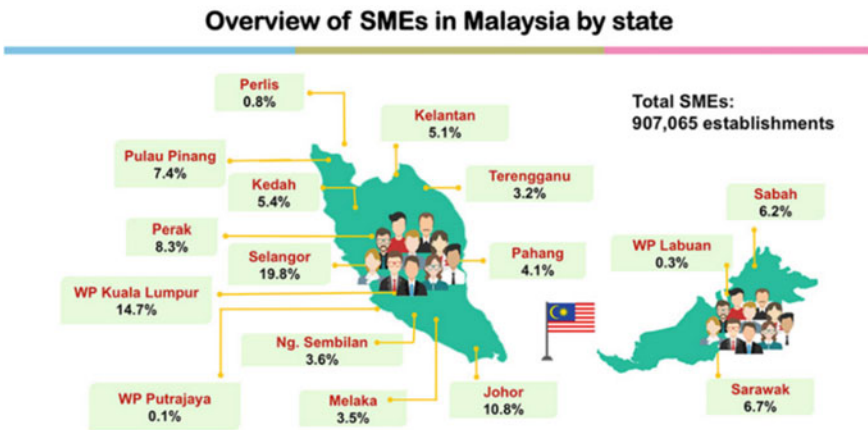


Fig. 2 SMEs business establishment by the state in Malaysia Source: Economic Census 2016, Department of Statistics Malaysia (DOSM)

2.2 *Competitiveness of Small and Medium Enterprises (SMEs)*

The 1980s saw the emergence of competitiveness theory, which was endorsed by classical economists such as Schumpeter, Adam Smith, Weber, David Ricardo, Sloan, Solow, and Peter Drucker. The competitiveness principle, which is based on classical economic theory, reached its zenith in the 1990s, following Michael Porter's work (Ahmedova 2015). While the term "competitiveness" is frequently used, it can be imprecise and a source of contention (Abe 2009). Competitiveness has captivated both business executives and academics to varying degrees (Cong and Thu 2020).

Competitiveness is defined as the capability of an organisation to maintain a market position while anticipating the accomplishment of multiple concurrent goals (Altenburg et al. 1998). Alternatively, it is referred to as market share maintenance, as it entails pursuing multiple concurrent goals (Altenburg et al. 1998). Three pillars underpin this concept: the capacity to compete, connect, and change (International Trade Center 2017). These are sophisticated conceptions of competitiveness that place a premium on the critical role of connections in dynamic economies.

Likewise, competitiveness refers to a business's capacity for growth and expansion in comparison to other businesses in its industry. It is comprised of a decision-making process and a series of business events that a business intends to conduct. The competitiveness of a business is defined as the degree of engagement between consumer satisfaction groups and shareholder value creation through continuous service efficiency improvements, potential maximisation, and the introduction or reaction to financial strength (Cong and Thu 2020). Meanwhile, enterprise competitiveness is defined as a business's capacity to generate and sustain sustainable competitive advantages through continuous renewal and enhancement, ultimately resulting in increased economic achievement over time (Ahmedova 2015).

Meanwhile, the processes, resources available, management strategies, environmental response, and market competition of SME vary significantly. SMEs are not replicas of large businesses on a smaller scale. Thus, competitiveness studies that concentrated exclusively on large enterprises could not be directly applied to SMEs (Cong and Thu 2020). Numerous prior studies have established that SMEs face numerous barriers to survival and competitiveness (Khalique et al. 2011). For instance, while no precise figures have been released, (Khalique et al. 2011) estimate that approximately 60% of Malaysian SMEs fail. Thus, it demonstrates that Malaysian SMEs face significant challenges and numerous obstacles in order to remain competitive. The majority of small and medium-sized businesses face difficulties recruiting qualified employees, increasing productivity, and investing in effective technology, all of which can erode their competitiveness (Radzi et al. 2017). Meanwhile, one of the fundamental structural issues confronting Malaysian SMEs is their inability to compete in today's dynamic environment (Ng and Kee 2012).

2.3 Innovation is a Crucial Driver for the Competitiveness and Survivability of SMEs

The ability of SMEs to remain competitive in a challenging environment in order to achieve a competitive edge and sustainability has long been of interest to managers and researchers alike. Between the mid-1990s and late 1990s, Malaysia's government implemented a series of programmes aimed at transforming the country into an innovation-driven economy, with innovation as the primary driver of growth. As a result, Cong and Thu (Cong and Thu 2020) emphasise the importance of innovation in enhancing the competitiveness of SMEs, as stated in the SME Masterplan's objective (2012–2020). The advancement of technology and globalisation have resulted in a steepening and complicating of the market terrain in terms of competition. As a result, innovation is widely accepted as being inextricably linked to a business's survival and competitiveness (Farsi and Toghraee 2014). Innovation is widely recognised as a critical component of SME competitiveness and has had a significant impact on both government policy and SME strategies.

As per Prasanna et al. (Prasanna et al. 2019) argument, SMEs must innovate to maintain a competitive edge or increase market viability as a result of the impact of rapid technological advancements and globalisation. Meanwhile, (Nguyen et al. 2020) emphasise that innovative SMEs have been identified as a significant driver of economic growth and will have a significant impact on expanding SMEs' competitive position. Thus, the critical role of innovation in small and medium-sized businesses' survival and competitiveness is undeniable.

2.4 The Adoption of Process Innovation as Innovation Strategies

The term "innovation" encompasses a broad range of processes and products, as well as incremental and radical innovation, component and systematic innovation, and, most recently, open and closed innovation (Efendi et al. 2020). However, the study makes a case for process innovation as a critical function of SMEs. In today's global market, a business cannot thrive unless it differentiates itself through means other than pure product advantages.

This is possible by modifying the current process. Process innovation is one of the strategies. Process innovation, as defined in the Oslo Manual, is "the adoption of novel or significantly improved manufacturing or delivery methods, which may require significant changes in techniques, equipment, or software" (OECD, Eurostat, 2005). Process innovation can be thought of as a subset of manufacturing and distribution innovation. He defines it as implementing a significantly altered or new manufacturing or delivery process that requires changes to materials, facilities, and techniques (Gault 2018). Similarly, process innovation entails the establishment of completely new or significantly improved delivery or manufacturing processes.

Process innovations, in general, refer to the reengineering and improvement of the internal functioning of business systems (Cumming 1998). This process of innovation encompasses multiple aspects of a business's operations, such as manufacturing, management, research and development, technical design, and business activities. According to the Oslo Manual, process innovation refers to significantly improved or novel methods of creating and providing services, such as significant changes in the software, hardware, techniques, or procedures used by service-oriented firms or delivery services. Several examples include the implementation of GPS tracking systems for transportation providers, the adoption of a modern reservation method in a travel agency, and the adoption of a new project management technique in a consulting firm. Additionally, process innovation frequently entails significant improvements or new equipment, techniques, and applications in ancillary support functions such as purchasing, accounting, computing, and maintenance. Implementing significantly improved or new information and communication technology (ICT) is a process innovation designed to boost the performance and quality of an ancillary support operation. Meanwhile, process innovation encompasses manufacturing methods, which include the machinery, techniques, and software used to create products or services, as defined by (Singh and Hanafi 2020). For example, new manufacturing methods may include the addition of automated systems to a computer-aided design (CAD) system or production line for the purpose of product development.

Additionally, process innovation encompasses delivery methods that involve the firm's logistics and necessitate the use of software, equipment, and techniques for supplying inputs, distributing resources within the organisation, and delivering final products. A novel delivery method is one that makes use of an active Radio Frequency Identification (RFID) or bar-coded goods tracking device. Numerous benefits of process innovation have been identified in the literature, including increased profitability, competitiveness, and productivity. Indeed, one of the objectives of process innovation is to increase productivity, capability, flexibility, and quality while also achieving cost savings, process rationalisation, and labour cost reduction.

Similarly, successful process innovations result in a reduced time to market, increased market share, and stronger competitive barriers (Flores-Garcia et al. 2019). The process innovation decreases the cost of manufacturing or distribution units, improves efficiency, or creates or delivers significantly improved or new products (Singh and Hanafi 2020; Mukhtar et al. 2021). Furthermore, process innovation would increase manufacturing adaptability. For instance, flexible manufacturing systems enable the creation of customised equipment configurations in the automotive industry. This can be accomplished by enhancing product quality characteristics such as durability, recyclability, or versatility.

Meanwhile, process innovation is frequently associated with improving service quality in service-oriented businesses, rather than simply or inherently lowering costs (Snyder et al. 2016). Electronic banking, for example, would undoubtedly reduce a bank's operational costs. However, it would increase the service's reliability by providing users with virtually free access to banking services.

2.5 SMEs Needs Specific Capabilities for Sustainable Competitive Advantage

As previously discussed, innovation has historically been viewed as the primary reason why a business can maintain a competitive advantage (Efendi et al. 2020). However, as global markets and rapid technological advancements have altered the competitive environment, making it more dynamic and unpredictable, businesses are forced to respond quickly in order to survive. As a result, sustainability is a current point of discussion when it comes to the critical role and value of SMEs in driving innovation (Widya-Hastuti et al. 2016).

Nonetheless, innovation is a transitory state of being. Innovation on its own is insufficient for adapting to environmental changes and sustaining a competitive advantage (Khattab 2017). This is due to the inherent unpredictability of innovation. As a result, SMEs must integrate a diverse set of knowledge, capabilities, skills, and resources in order to achieve long-term viability and a sizable competitive advantage through innovation. According to Gault (Gault 2018), businesses must develop specific capabilities for identifying and seizing opportunities that provide a competitive advantage, not just through market expansion, but also through the development of novel strategies for competing in developed and stable markets.

Marin et al. (Marin et al. 2015) established that purely regional or sectoral approaches to innovation are insufficient for engaging in sustainability-related interactions. It must be facilitated by firm capabilities that are unique to that firm. This is consistent with the assertion made by (Widya-Hastuti et al. 2016) that as SMEs innovate, they require specialised capabilities to ensure sustainability and competitive advantage. Certain businesses are more successful than others at driving innovation because they have the resources and specialised capabilities that are constantly integrated for the company's benefit. Pierre and Fernandez (Pierre and Fernandez 2018) emphasise the critical nature of businesses being able to enter new markets and reconfigure their resources more rapidly than competitors in order to remain innovative for an extended period of time in dynamic environments.

Rajapathiran and Hui (Rajapathirana and Hui 2018) believed that a firm's capabilities would enable it to innovate continuously in order to adapt to changing market demands and maintain a competitive edge, all while implementing internal organisational conditions and sustaining the culture. Meanwhile, (Breznik and Hisrich 2014) observed that businesses must actively seek, scan, and investigate opportunities presented by technology and markets in order to adapt to an ever-changing environment and market conditions. As a result, SMEs require distinct capabilities for operating in dynamic environments and innovating in order to achieve sustainability and a competitive edge.

3 Conclusion

Malaysia is a prime example of a developing economy that has made significant progress toward industrialization. The government recognized that SMEs would be critical to economic prosperity and development, significantly contributing to employment and job creation (Kücher et al. 2020). Due to the uncertain environment and rapid competition that accompany the country's economic development, SMEs are constantly impacted by bankruptcy and failure, with particularly high rates of company mortality among smaller firms (Kücher et al. 2020). It is due to Malaysian SMEs' lack of competitiveness (Ng and Kee 2012). As a result, Malaysia's government emphasizes the importance of innovation in resolving this issue.

Nonetheless, innovation by itself will not suffice to address environmental changes (Khattab 2017). Thus, Malaysian SMEs must develop and enhance their unique capabilities in order to achieve sustainability and competitive advantage in a dynamic environment. To conclude, this chapter reviewed the literature on the importance of SMEs development in the Malaysian economy. Governments emphasize the importance of innovation as a means of competition and survival for SMEs in this regard. However, due to Malaysia's dynamic environment, SMEs require specific capabilities to continue to succeed in innovation for an extended period of time.

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Understanding the Concept of Entrepreneurial Orientation on SMEs in Agriculture Sector



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Abstract Through entrepreneurial orientation (EO) concept of the impacts upon firms on its improvement, this specific research includes the methodology and entrepreneurship research. The agriculture sectors in Sabah crucially contribute to the increase of the economy, in any case the capability abdicate isn't totally met. With that, the targets of this have a see at had been to determine the relationship among EO dimensions (i.e. competitive aggressiveness, innovativeness and proactiveness) and firm growth in expansion to examine the moderating factor that have an effect on component of the government support programmes with EO dimensions and firm growth. The strategy connected with this research had been the quantitative methods. In this consider, proportionate stratified random sampling was applied. The area of this research included the zone of the Interior Division within the State of Sabah. The results confirmed that the EO dimensions shown measurably positive relationship with firm growth. The government support programmes, as a moderator ended up illustrated not significant and noninfluential to the relationship between EO dimensions with firm growth. In the expansion, the usage of the SMEs programmes were not exceptionally empowering as there were not a significant relationship of the government support programmes factor that ought to be rebuilt and streamlined. The expanded mindfulness of the programmes that exist within the small and medium agriculture firms should be complimented by adding up to disentanglement for the programmes provided.

Keywords Agriculture sector · Entrepreneurial orientation · Firm growth · Government support programmes · SMEs

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1 Introduction

The small and medium enterprises (SMEs) sector continued its strong growth as it persevered the global economic uncertainty and contributed to the country's economy moving forward. Being the backbone of the country's economy, accounting for 97.3% of the total business setups across the property, services, manufacturing, construction and agriculture industries, the SMEs sector was impacted by the global volatility. The concept 'agriculture is business', has placed an honest attention to the event of up to now agriculture by encouraging more agricultural entrepreneurship activities. State of Sabah is one of the states in Malaysia with good potential of SMEs in agriculture sector. As at September 2019, Sabah has recorded a total financing of RM961.66 million, a year-on-year increase of 16.64%, which is higher than last year's growth recorded of 6.51% for the same period of time (SMEs Corporation Malaysia 2019).

The Sabah Government is committed to push the state because the most effective agriculture produce exporter across Asia, similarly as a centre of trade for agricultural products the regime will continue its research and development (R&D) in providing high yielding planting materials, methods and sustainable practices for environmental conservation. Sabah also will position itself as a trade centre for agricultural products by taking advantage of its geographical location. Sabah had launched a 10-year blueprint to boost the SMEs in agriculture sector. Focused lots on the basics like farming, fisheries and also the livestock sectors. The blueprint is extremely comprehensive. Also target organic farming. State of Sabah is about to be the exporter of green, sustainable and healthy food products within the region (Department of Industrial Development and Research 2019).

1.1 SMEs in Sabah Agriculture Sector

Within the setting of Sabah's SMEs growth, all business people are situated towards managing their businesses. Typically with respect to the setting of their business acknowledgment in managing for the change of their firm growth (Mojikon et al. 2016).

The Sabah Government propelled the State's to begin with agriculture blueprint for the following next 10 years, which points to twofold the sector's commitment to the state's Gross Domestic Product (GDP) to 40%. SMEs in agriculture sector is that the moment biggest supporter to the state's GDP with a middle commitment of 24% yearly. The blueprint sketched out endeavors to amplify efficiency, quality and amount of the State agriculture sector as guaranteeing agriculture industry players getting to be more competitive, in line with the commercial of the Fourth Industrial Revolution (IR 4.0).

The Sabah Agriculture Development Plan (2021–2030) points to draw in open participation, particularly among graduates, inside the agriculture sectors. Creating the agriculture sector to cater to the expanding populace and request won't as it

were make spillovers but too grow work openings for young people (Department of Industrial Development and Research 2019).

SMEs particularly within the setting is regularly being a spotlight in any discourse. Trading related to globalisation and liberalisation are a few of the issues that contribute towards the increase of challenges confronted by SMEs. The distinctive example can be seen within the State of Sabah, which had been detailed to possess lower rates of establishment, as compared to the other states within the Peninsular Malaysia (Mojikon et al. 2017).

A large portion of agriculture land in Sabah is cultivated by palm oil companies, harvesting the best yields in Malaysia due to favorable conditions and planting practices. However, the potential yield is not fully met yet due to gaps in planting and harvesting methods. Smallholders in particular require basic assistance with development of good agriculture practices, application of appropriate technology, achievement of economies of scale, marketing and distribution.

1.2 Entrepreneurial Orientation

The strategic orientation of a firm that deals with finding out ways and creating a specific set of methods with the help of which various styles of taking decision, ways and practices of entrepreneurial aspects that can be realised is termed as EO. It, therefore, refers to the method of operation of a firm. In other words, an entrepreneurial firm is an organisation, which looks out for advantages through competition and aims at staying ahead of other competitors through innovative strategies regarding products, methods and marketing (Memili et al. 2010).

Competitive Aggressiveness shows the intensive efforts put in by the firm to win over rival competitors that is characterised by positive and aggressive counter actions of competitors. When a firm is willing to introduce creative ideas and gladly accepts and promotes new services, product and methods doing away with old methods and technologies are termed as innovativeness. Proactiveness points to another aspect of a firm where it is always searching for new opportunities to introduce something new to the customers before rival competitors. It may be products or services related to the requirements of customers in the future (Memili et al. 2010).

1.3 Growth of SMEs

SMEs' growth alludes to the results of firm's commerce exercises (Kotane and Kuzimina-Merlino 2017). It ought to be measured utilising different pointers. Firm growth indicators are among critical SMEs growth measures. Distinguished five common firm growth measures that are utilised in past considers; these are growth in deals, workers, benefit, resources and value. There's small address that SMEs

growth measures are created in eastern nations (Shepherd and Wiklund 2009). Business visionaries in eastern world are propelled by accessibility of openings to be abused whereas entrepreneurs in slightest created nations are persuaded by necessities. Whereas profit from entrepreneurial businesses in eastern nations can exclusively be utilised to cultivate firm growth, a portion of profit from slightest created nations visit individual costs to back the lives of the business visionaries. This reality has raised a requirement for degree SMEs growth utilising individual riches pointers (Eijdenberg 2016).

Since utilise of individual riches to live SMEs growth in slightest developed nations like Malaysia is additionally a substitution approach, it's not however known whether EO impacts such measures (Eijdenberg 2016). Subsequently, the research utilised resources, deals and number of workers as measures of firm growth (Shepherd and Wiklund 2009).

1.4 Competitive Aggressiveness and Its Relationship with Firm Growth

Competitive aggressiveness is defined as the tendency of firms to keep challenging competitors. This is achieved through attaining access to other industries' operations and may result in a case whereby the competing industry would even perform better than previous levels of growth. The aim of the competition is also to enable firms retain their positions. Competitive aggressiveness may also imply the willingness of firms to be unique, instead of relying on methods that are conventional (Lumpkin and Dess 1996).

1.5 Innovativeness and Its Relationship with Firm Growth

Innovation is divided into four. First, is an invention that entails creating new products and services. Second is extensive, which entails expanding products or services. Meanwhile, third is a replication that refers to a process in which existing products and services are duplicated. The last is the synthesis process as it combines the existing products and services with new ones. An innovation process whose manifestation lies within the methods of selling, distribution system, internal and production system can only change the system of administration, although this is an incomplete list. The question raised, the manner in which innovativeness affect growth. Innovation as an aspect that had positively influenced firm growth (Kuratko and Hodgetts 2007).

1.6 Proactiveness and Its Relationship with Firm Growth

Based on a study by (Krauss et al. 2005) for small and medium businesses regarding proactiveness, a significant positive relationship was found between business successes and being proactive. (Lumpkin et al. 2006), on the other hand, observed that the continued growth in a relationship enabled firms to seize beneficial opportunities. Moreover, the relationship between proactiveness and growth in firms at initial stages of growth indicated a positive implication on the growth of firms. As such, this relationship experienced continued growth at all stages of exploration (Hughes and Morgan 2007).

1.7 Government Support Programmes

Dahi (2012) argued that since it is the mandate of the government's programmes to support the growth of SMEs, failure to provide capital to the firms adversely affects their growth. (Dahi 2012), nonetheless, agreed with (Okhomina 2008) that a positive environment fosters growth realisation among SMEs. The association between EO and psychological traits is moderated by supportive factors in the environment. (Stam et al. 2010) also agreed that an environment that lacks government support programmes in terms of capital provision has a negative influence on the operation of the business. On the other hand, a supportive environment positively influences the firm growth (Yeoh and Jeong 1995).

The agriculture training programmes were established with the aim to empower technopreneurs in the agro-based industry, by giving the necessary exposure and transfer of knowledge, especially on the processing of agro-food and specialty natural products. Through the training programmes, participants are given access to experienced speakers and industry representatives in various sectors; speakers well-versed in pharmaherbs, controlled environment farming, post-harvest handling technology, agro-organic and agro-food industries, business and marketing through e-commerce, bioscience and biotechnology will be invited to come and share their experience and expertise with participants.

2 Research Context

This research constitutes part of a larger research which determines the significant relationship between EO dimensions (i.e. competitive aggressiveness, innovativeness and proactiveness) with the firm growth and scientifically intends to examine the moderating effect of government support programmes on the relationship between EO dimensions and firm growth of small and medium agriculture firms in Sabah.

EO (independent variables) is a firm-level strategic orientation that captures an organisation's strategy-making practices, managerial philosophies and firm behaviors, which are entrepreneurial in nature. EO has become one of the most established and researched constructs in the entrepreneurship literature (Memili et al. 2010; Lumpkin and Dess 1996). To be precise, a general commonality among past conceptualisations of EO is the inclusion of competitive aggressiveness, innovativeness and proactiveness as the core defining aspects or dimensions of the EO. Moreover, EO has been shown to be a strong predictor of firm growth (Memili et al. 2010; Kuratko and Hodgetts 2007). Reviews of the EO literature had indicated that the majority of prior studies have adopted Lumpkin and Dess' perspectives of EO with the combination of competitive aggressiveness, innovativeness and proactiveness.

As for the firm growth (dependent variable), it has been measured in terms of profitability. The growth was measured by calculating the average sales growth in the past three years. Previous researchers had emphasised on firm growth as the common indicator of financial performance. Hence, the respondents measured the sales performance of the firm for the last three years (Antoncic and Zorn 2004; Aggarwal and Gupta 2006; Aktan and Bulut 2008).

On top of that, this research had been conducted in a way to contribute to the improvement of government support programmes as a moderator (moderating variable) based on the relationship between EO and firm growth. In this research, the government support programmes were incorporated as the moderator in order to determine if this construct played a significant role in strengthening the relationship of EO on firm growth (Dahi 2012). The above discussion also leads the researchers to formulate the following six hypotheses:

- Hypothesis_{1a}** The competitive aggressiveness dimension of EO has a significant relationship with the firm growth of the small and medium agriculture firms.
- Hypothesis_{1b}** The innovativeness dimension of EO has a significant relationship with the firm growth of the small and medium agriculture firms.
- Hypothesis_{1c}** The proactiveness dimension of EO has a significant relationship with the firm growth of the small and medium agriculture firms.
- Hypothesis_{2a}** The government support programmes moderates the relationship between competitive aggressiveness and firm growth of the small and medium agriculture firms.
- Hypothesis_{2b}** The government support programmes moderates the relationship between innovativeness and firm growth of the small and medium agriculture firms.
- Hypothesis_{2c}** The government support programmes moderates the relationship between proactiveness and firm growth of the small and medium agriculture firms.

3 Research Methods

The unit of analysis in this research concerning to all small and medium agriculture firms in Sabah, Malaysia. The small and medium agriculture firms mainly focus on the Interior Division within the State of Sabah, consisting of 1 division and 7 districts namely, Beaufort, Keningau, Kuala Penyu, Nabawan, Sipitang, Tambunan and Tenom. This analysis applied Partial Least Squares-Structural Equation Modeling (PLS-SEM) techniques by using the SmartPLS 3 software to analyse the relationship between the independent, dependent and moderating variables. Proportionate stratified sampling was applied supported 112 samples because the stratum of the populations within the Interior Division of Sabah. In getting the first data, self-administered questionnaire was the chosen method for this analysis, additionally to the quantitative responses from the respondents which based upon a 5-point of Likert-type scale reply.

3.1 Data Collection

Self-administered questionnaires were used for data gathering from the respective respondents. A multiple method of data collection was employed, whereby some questionnaires were mailed to the respondents, whilst some were e-mailed and personally administered. The process of distribution and collection of questionnaires was carried out over a period of six months. A total of 108 questionnaires were received and used for this analysis, which defined approximate of 96.4% response rate.

3.2 Construct Validity

Construct validity testifies on how well the results being obtained from the use of the measurement that fit the theories along the designate test (Sekaran and Bougie 2010). This can be assessed through convergent and discriminant validity. As such, if any, items which have a loading of higher than 0.5 on two or more factors, then they will be deemed to be having significant cross loadings. From Table 1, researchers can observe that all items measuring a particular construct were loaded highly on that construct and loaded lower on the other constructs, thus confirming construct validity.

Table 1 Loadings and cross-loading

	CA	FG	GSP	IN	PR
CA1	0.764	0.289	0.197	0.262	0.232
CA2	0.896	0.395	0.365	0.389	0.282
FG1	0.325	0.733	0.435	0.453	0.369
FG2	0.258	0.697	0.388	0.423	0.464
FG3	0.214	0.743	0.476	0.429	0.387
FG4	0.298	0.758	0.472	0.375	0.395
GSP1	0.325	0.417	0.694	0.395	0.342
GSP2	0.273	0.493	0.772	0.448	0.412
GSP3	0.289	0.494	0.747	0.389	0.392
GSP4	0.196	0.466	0.729	0.276	0.357
IN1	0.356	0.396	0.476	0.684	0.426
IN2	0.314	0.435	0.367	0.771	0.335
IN3	0.379	0.417	0.323	0.759	0.397
PR1	0.164	0.346	0.292	0.296	0.696
PR2	0.266	0.396	0.363	0.373	0.734
PR3	0.292	0.492	0.475	0.475	0.797

Bold values are loadings for items which are above the recommended value of 0.5

3.3 Convergent Validity

As suggested by (Hair et al. 2010), researchers had used the factor loadings, composite reliability and the average variance extracted to assess convergent validity. The loadings for all items exceeded the recommended value of 0.5 (Hair et al. 2010). Composite reliability values (see Table 2), which depicted the degree to which the construct indicators indicate the latent, construct ranged from 0.684 to 0.896 which exceeded the recommended value of 0.6 (Hair et al. 2010). The average variance extracted (AVE) had measured the variance captured by the indicators which relative to measurement error and it should be greater than 0.50 in order to justify the construct (Barclay et al. 1995). The average variance which has been extracted, were in the range of 0.509 and 0.675.

3.4 Discriminant Validity

The discriminant validity of the measures (the degree to which items differentiate among constructs or measure distinct concepts) was assessed by examining the correlations between the measures of potentially overlapping constructs. Items should

Table 2 Results of measurement model

Constructs	Measurement item	Loading	CR ^a	AVE ^b
Competitive aggressiveness	CA1	0.764	0.816	0.675
	CA2	0.896		
Firm growth	FG1	0.733	0.864	0.538
	FG2	0.697		
	FG3	0.743		
	FG4	0.758		
Government support programmes	GSP1	0.694	0.889	0.509
	GSP2	0.772		
	GSP3	0.747		
	GSP4	0.729		
Innovativeness	IN1	0.684	0.785	0.535
	IN2	0.771		
	IN3	0.759		
Proactiveness	PR1	0.696	0.794	0.548
	PR2	0.734		
	PR3	0.797		

^aComposite reliability (CR) = (square of the summation of the factor loadings)/{(square of the summation of the factor loadings)+(square of the summation of the error variances)}

^bAverage variance extracted (AVE) = (summation of the square of the factor loadings)/{(summation of the square of the factor loadings)+(summation of the error variances)}

load more strongly upon their own constructs in the model and the average variance shared between each construct and its measurements which should be greater than the variance shared between the construct and other constructs (Compeau and Higgins 1995). As shown in Table 3, the squared correlations for each construct are less than the average variance which has been extracted by the indicators measuring that construct indicating adequate discriminant validity. In total, the measurement model demonstrated adequate convergent validity and discriminant validity.

Table 3 Discriminant validity of constructs

Constructs	CA	FG	GSP	IN	PR
Competitive aggressiveness	0.733				
Firm growth	0.427	0.743			
Government support programmes	0.354	0.632	0.725		
Innovativeness	0.395	0.573	0.523	0.741	
Proactiveness	0.315	0.564	0.515	0.529	0.737

Diagonals (in bold) represent the average variance extracted while the other entries represent the squared correlations

3.5 Reliability Analysis

The composite reliability values also ranged from 0.785 to 0.889 (see Table 2). Interpreted exactly like a Cronbach’s Alpha in order to determine the internal consistency reliability estimate, a composite reliability of 0.70 or greater is considered acceptable (Fornell and Larcker 1981). As such, researchers can conclude that the measurements are reliable.

3.6 Hypotheses Testing

The validity of the hypotheses postulated, as well as the structural model, had been determined by assessing the path coefficient between two and three latent variables. Based on studies that had been conducted previously, the value of the path coefficients should be about 0.1 in order to explain a specific effect in the model (Hair et al. 2011; Wetzels et al. 2009). When the path coefficient was assessed in Table 4, it had been found that all of hypotheses are supported, with the exception of Hypothesis_{1a} -

Table 4 Path coefficients, T-value and significant level for all hypothesised paths

Hypothesis	Relationship	Coefficient	T-value	Sig. level	Results
H1a	Competitive aggressiveness -> Firm growth	0.125	2.186*	0.05	Supported
H1b	Innovativeness -> Firm growth	0.182	2.696**	0.01	Supported
H1c	Proactiveness -> Firm growth	0.194	2.612**	0.01	Supported
H2a	Competitive aggressiveness * Government support programmes -> Firm growth	-0.007	0.079	Not significant	Not supported
H2b	Innovativeness * Government support programmes -> Firm growth	0.009	0.094	Not significant	Not supported
H2c	Proactiveness * Government support programmes -> Firm growth	0.047	0.542	Not significant	Not supported

** p < 0.01, * p < 0.05

Hypothesis_{1c}. Based on the analysis, the supported hypotheses had projected significant levels at about 0.05, containing expected sign directions (for instance, positive) and path coefficient beta value (β) that ranged between 0.125 and 0.194.

As indicated by Table 4, researchers managed to identify a significant relationship between all measurements of the firm's growth and the independent variable (i.e. competitive aggressiveness) Hypothesis_{1a} ($\beta = 0.125$, $t = 2.186$, $p < 0.05$). In view of this, it may be imperative to infer that Hypothesis_{1a} does have its support. Hence, the growth of firms in small and medium agriculture in Sabah, was affected by this independent variable. The outcome in Table 4 showed a significant relationship between the firm's growth and competitive aggressiveness, innovativeness and proactiveness amongst small and medium agriculture firms in Sabah. There is support for Hypothesis_{1b} ($\beta = 0.182$, $t = 2.696$, $p < 0.01$) and Hypothesis_{1c} ($\beta = 0.194$, $t = 2.612$, $p < 0.01$). In view of this, it may be inferred that each firm manages to divert the competitive aggressiveness, innovativeness and proactiveness practices to standards of growth for small and medium agriculture firms in Sabah.

As illustrated in Table 4, researchers clarified that the government support programmes factor did not play a considerable moderating posit in creating the relationship between competitive aggressiveness, innovativeness and proactiveness with the growth of the small and medium agriculture firms. Hypothesis_{2a} ($\beta = -0.007$, $t = 0.079$, not significant), Hypothesis_{2b} ($\beta = 0.009$, $t = 0.094$, not significant) as well as Hypothesis_{2c} ($\beta = 0.047$, $t = 0.542$, not significant) do not have support. The relationship between competitive aggressiveness, innovativeness and proactiveness with firm growth was found not to be influenced by the government support programmes factor within small as well as medium agriculture firms in Sabah. To be concluded, Hypothesis_{2a} - Hypothesis_{2c} are not supported.

The results obtained from the research indicated that the government support programmes factor, nonetheless, did not play a considerable moderating role in the growth of the agriculture firms. Similarly, government support programmes might not be moderated positively by the relationship between EO dimensions (i.e. competitive aggressiveness, innovativeness and proactiveness) and growth of the firm within the small as well as medium agriculture firms in Sabah.

4 Discussion, Conclusions and Recommendations

The PLS-SEM analysis demonstrated that all the EO dimensions (i.e. competitive aggressiveness, innovativeness and proactiveness) of SMEs shown an impressive correlation with the growth of small and medium agriculture firms. This might be ascribed to the idea that an expansive number of agricultural firms took a portion of this research comprised small and medium agriculture firms. All through this see, it can be concluded that small and medium in agriculture firms' growth is to a great extent affected by the EO dimensions, in this way the selection of such components within the prepare of key arranging would upgrade growth and firm survival.

There is consistency between this result and the findings from studies conducted by (Lumpkin et al. 2006; Lumpkin and Dess 2001). The two studies established that competitive aggressiveness had a positive influence on the performance of firms, particularly those that are mature. As the firm grew, it took part in more comprehensive behaviors for sustenance of the assets (Lumpkin and Dess 2001). The concurrence with this research is based on the notion that over 77.3% had been in operation between 6 and 20 years, thus, competitive aggressiveness positively influenced the growth of these SMEs.

There is consistency between this result and the research undertaken by (Hughes and Morgan 2007) that identified a substantial relationship between innovativeness and the performance of firms ($\beta = 0.16$, $p < 0.01$). Moreover, several EO and firm growth researches have established a positive relationship between both variables (Kreiser and Davis 2010). High levels of collinearity within the independent variables, especially EO could have caused the absence of a relationship. Through the relationship analysis, it was found that innovativeness contained the highest correlation coefficient value with the exception of proactiveness, as well as competitive aggressiveness.

There is consistency between this result and the research conducted by (Hughes and Morgan 2007), where proactiveness had a significant positive effect on the growth of firms ($\beta = 0.23$, $p < 0.01$). The relationship strength was more significant in compared to this study, based on the t-values. This situation could be attributed to the differences in the age of firms because (Hughes and Morgan 2007) used start-up firms.

It had been uncovered that, the government had defined approaches which pointed to the creating small as well as medium agriculture firms in Sabah through provision of government support programmes. The finding is concurrent with the research conducted by (Dahi 2012). Based on the test comes about, was all had affirmed and can be concluded that government support programmes figure did not direct the impact of the EO dimensions (i.e. competitive aggressiveness, innovativeness and proactiveness) on the growth of a firm. This has demonstrated that government support programmes cannot be seen as a moderating variable due to illustrated not significant and non-influential to the relationship between competitive aggressiveness, innovativeness and proactiveness with the firm growth.

When entrepreneurs, especially young entrepreneurs, are well-acquainted with the factors that have an effect on the growth of SMEs in their area, they are able to formulate potentially powerful strategies that enable their businesses to achieve their targets and objectives. As a result, investigating into the factors that have enabled top SMEs to be successful would be imperative in helping new SMEs in the Asian region to build a foundation for success. Nonetheless, regardless of the many programmes established by the government to support small and medium businesses, the operations of SMEs are still impeded by numerous problems.

As a result, it has been concluded that government support programmes factor has been insufficient in aiding local SMEs in agriculture sector to grow and develop. This research endeavors to provide insights regarding how government support programmes factor should be tailored so as to help SMEs in agriculture sector

to achieve their maximum potential. As a result, the findings of this research should be capitalised on by policy makers when establishing policies and supporting programmes aimed at improving the accessibility of international markets, better technology and better financial support for the development of SMEs in agriculture sector. Furthermore, the government support programmes factor should be restructured and simplified. The increased awareness of the programmes that exist in the SMEs industry needs to be complimented by total simplification for the programmes provided.

The Sabah State Government must welcome the opportunities in working closely with the SMEs association of Sabah. As the one-stop authority for SMEs in Sabah, it offers various investment incentives and measures to support SMEs development in Sabah. Investment incentives offered under the Sabah State Government utilise a regional approach, which differ from the sectoral tax incentives generally offered throughout Malaysia. Several SMEs Sabah members are involved in agriculture downstream activities and was keen to hear about assistance provided by this industry. Entrepreneurs are encouraged to participate in the agriculture training programmes, which will be benefited the participants from throughout Sabah over the span of courses which will assist local SMEs in agriculture sector to enhance their skills, expertise and capabilities.

Meanwhile, having realised the potential of SMEs contributions to the state economy, the Sabah State Government must develop initiatives and actively involved in SMEs development in Sabah especially in the agriculture sector. The SMEs programmes are also must in line with one of the principles, which is capturing economic value activities. The SMEs programmes will help entrepreneurs, start-ups and companies discover business ideas, validate as well as scale up their ventures. The government support programmes must be aligned with the state and federal governments' efforts and initiatives to develop local and indigenous SMEs, so as to increase the number of locally developed businesses, products and services. The Sabah State Government must allocate for special funds and loan for entrepreneurial development, including for youths to help encourage the activities of SMEs in Sabah, especially in the agriculture sector, thus highlighting their importance and contribution to the state economy.

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A Conceptual Paper on the Role of Technologies in SMEs Islamabad Pakistan



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Abstract This study aims to explore the role of technology on the organizational performance of SMEs in Islamabad, Pakistan during the ravages of Covid 19 pandemic. It has been widely accepted that the proper adoption of digitalization not only helpful to cushion the impact of the said pandemic but it also aids SMEs to stay afloat and gains profits. SMEs need to equip themselves with up-to-date technology to weather adversaries in their business. Compare to other developing countries, Pakistani SMEs still far behind in leveraging digitalization. There is a dire need for them to practice and embrace digitalization in entrepreneurship to improve their performances. The present study will find out the effects of technology on the organizational performance of SMEs in Islamabad, the capital city of Pakistan and float a conceptual model. A conceptual framework, which was derived from the OECD, will facilitate the investigation. Realising the data in paramount important and urgently needed, the nature of this study will be a cross-sectional and quantitative. The key technologies including digitalization will be employed as predictors and organizational performance will be regressed as predicted variable. The findings of this study would be instructive, demanding SMEs and other related stakeholders to make a concerted effort to plan and executive viable strategies to ensure SMEs which provided the largest employability in Pakistan can successfully embrace technologies to ensure the highest level of their performance.

Keywords Digital entrepreneurship · Key technologies · SMEs · Organizational performance · Islamabad · Pakistan

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1 Introduction

Over the last two decades, digital technology has created a great revolution in the world. During twenty-first century, it is considered as an era of digitalization. Information technology is the main source and significant platform that everyone is connected with the latest technology & social media forums. Internet, indeed is a real source of connectivity. The the invention of internet in 1990 had taken the world by great surprise, the whole scenario of the world experienced great change that never observed and experienced before and the term “Global village” was created. That was the era which was considered as the most important era in world of technology. Hence this invention gained the attention & consideration in the both domain of industry & academia. At present this rapid advancement in digital technologies has transformed rule of the game as well as level playing field in economy, business, education, industry and career as well. In fact, digital economy is spreading & expanding due to new technologies such as mobiles devices, apps & many social media forums. Therefore, digital & information technology is everywhere, every time & no one cannot live in remoteness and isolation. In fact, the fastest connectivity is vital in business & economy. In highly competitive world, business ecosystems are constantly evolving & progressing. This economic change inevitably forced the firms to rethink & transform their businesses. In technological competitive era, digital advancement is forcing and pushing companies to move towards digital business model for organization performance. According to Westerman et al. (2011) the use of technology to radically improve enterprises’ performance and such is called digitalization in business.

2 Digital Entrepreneurship

Stolterman and Croon Forst define digital transformation as “the changes that digital technology causes or influences in all aspects of human life” (2004). Another perspective described by Lankshear et al. (2008) where according to them digital technologies is providing innovation & creation in business & this is the reason of change in business & knowledge domain. In the twenty-first century most the advance world is embracing in industry 4.0, and world is moving towards industry 5.0, so this is a high time and seems paramount important for developing countries to come up with actionable steps to follow suit because failure to do so means they will be left behind. Indeed, if SMEs in developing countries fully embrace digitalization it is not impossible for them to be as competitive as developed countries. The success of SMEs in China is a case in point, motivation others to unlocking their potential, with digital entrepreneurship developing countries can frog leap and be competitive.

According to Curley and Salmelin (2017), the world has already entered into the fourth industrial & technological revolution, henceforth it is a high time to take the advantage & stand with global competitive industry and business for real prosperity

and sustainability in the twenty-first century. After all, global prosperity is achieved if there is no or little gap between countries.

Digital transformation has been created and spearheaded by new digital technologies such as, wireless networks, cloud computing, Massive Open Online Course (MOOCs), artificial intelligence, advanced manufacturing, big data, social media, three-dimensional/four-dimensional (3D/4D) printing, cyber solutions, block chains, machine learning, robotics. These all are considered as new modes for altering & crafting classical patterns of business industry. Hence, now business economy is moving towards digitalization where digital economy is getting new fame and is connected with great prospect of industrial electronic progress in business industry. There is no doubt that in the 1990s internet was the most important emergence in information technology. This innovation rapidly changed the whole scenario of the world in all the fields of life and this advance changed created a new land scape globally. This advancement created a new horizon and created new opportunities in each and every field of life but besides this many issues and challenges emerge due to its cause (De Haan 2004, p. 67; Gunkel 2003). However, as it is bring more benefits to many it should be embraced.

Digital technologies have opened a new horizon and great fascinating doors for entrepreneurs (Yoo et al. 2010). It is considered a marvelous tool for transforming business globally (Zaheer et al. 2019). In fact, through digital technologies entrepreneurs can develop new ways of entrepreneurial actions, facilitating by big data, networks, new E-ventures and digital ecosystem. With the help of these technologies, entrepreneurs in both developed and developing countries at the same level playing field, where can share and communicate their products and services with their customers at large (Fitzgerald et al. 2014). It is further described by Oppong (2020), where he opined that in the present era the advance technology is taking place in the world and the central idea of innovation technology is electronic networking. Furthermore, according to Manning (2014), social media is also a great innovation in digitalization, through social media which is now the fastest and the most popular platform, innovative participation and communication is deemed possible. In social media technologies different apps (e.g. WhatsApp, Wee chat, Facebook, Instagram, Telegram and Twitter) are the main contributors. These media are contributing in a unique way and immensely playing fascinated role for new startups. It is further supported by Brooks et al. (2014), according to them social media activities through digital technology have provided the opportunity for competitive knowledge of market, product and customers especially their relationship with packing and others production and goods. It is further described by Rippa and Secundo (2019), on their opinion digitalization is an economy and technology based phenomena across the global business sector. This idea is created and promoted a new innovate idea and concept of Digital Entrepreneurship. This contemporary concept is gaining more recognition. Rippa and Secundo (2019), Oppong et al. (2020) recommended to investigate its potentials and opportunities and challenges towards entrepreneurship.

In advance countries, digital technology is the main component of curriculum for business schools at both undergraduate and graduate studies. On the other hand, in many developing countries, up until now digital technologies components in

entrepreneurship curriculum is not taught & learn as it is desired. Unfortunately, it's still remains an obsolete & slightly addresses few contents of technology without relevancy of contemporary world of digital business education. In contemporary world, business entrepreneurship is very different. According to Westerman et al. (2011), globally, SMEs are playing important roles in generating business—nearly 90 to 95%, along with are also generating employment opportunities—60 to 70%. It is also described and agreed by Rao (2014) that in developing countries role of SMEs can't be denied, they highlighted & agreed that in Pakistan SMEs are playing & contributing a significant role for the mainstreaming economy.

In Pakistan almost 90% business are based on small & medium enterprises. It is further described by Khalique et al. (2015), according to them, SMEs were the mainstay of economy, where about 3.2 million SMEs were actively engaged in business. The report of SMEDA (2010) and Global Entrepreneurship Monitor (2012), they explored the both reports and found that 90% Pakistani SMEs were based on private business, they hired 80% labour force & contributing in the GDP almost 30% & shared their 40% role in total exports of Pakistan. Further they said that if SMEs were stable in any country, SMEs played their progressive role in enhancing the enrichment in social status of people (Ahmed et al. 2010). By and large, Pakistani SMEs are working tremendously for growth & economic contribution to Pakistan, but not without any challenges. Khalique et al. (2015) found small & medium industry in the said country faced many problems & challenges such as financial issues, unskilled labour & workforce, infrastructure, & most alarming issue is lack of technology. Technology literacy & mindset of entrepreneurs regarding to the use of technology for business are very paramount important and paramount concerned. Therefore, there is a dire and urgently needs for Pakistani SMEs to know & practice the above mentioned digital transformation in their businesses. Nothing is impossible for Pakistani SMEs, there is a need to take the right approach to embrace digitalization Hence, against the above background, the primary aim of the present research is to empirically find out & investigate the impact of technology on the organizational performance of SMEs in Islamabad Pakistan.

3 SMEs in Pakistan—In Brief

Pakistan is an Islamic state situated in the south Asia region with more than 200 million population. It is a developing country, its economy & GDP is based agriculture, cotton products & service industries. According to the Pakistan Ministry of Finance (2011), SMEs in Pakistan had low performance and least competitive. The government of Pakistan realized this gap & try to develop and enhance i SMEs competitiveness.

According to Hyder and Lussier (2016), in Pakistan the national authority which is known as “Small and Medium Enterprises Development Authority” (SMEDA) is responsible to SMEs development.. The main responsibility of this authority is

to develop & design the policies & facilities the entrepreneurs. Furthermore, this government institution also trained the entrepreneurs.

In Pakistan the three main sectors contribute to significantly its economy are manufacturing, agriculture & service sectors. Like other countries, Covid 19 has badly ravaged its economy due to series of lockdown that halted its economic activities. Financial & Economic declines has badly affected its SMEs. In July 2020, an official government meeting was held in Islamabad to discuss the issues regarding difficulties & challenges faced by businesses including SMEs in COVID period. Pakistan has seen several major economic downturns since its inception. One of the major impacts as a result of the pandemic was the lockdown which has badly affected the SMEs.

The Committee emphasized on compliance of SOPs & ensuring the implementation of all measures formulated & design by Government of Pakistan to run the business. Together with, they stressed on full support & collaboration to business community especially SMEs with finance & technology.

Nowadays Digital Entrepreneurship has turned out to be a drone or buzz word in enterprise & business world. In the context of the Pakistan especially in the Epidemic context, it is critical and deemed important area, judging Pakistani SMEs are still far behind with other countries. Therefore, there is a dire need to practice and embrace Digitalization in Entrepreneurship to improve the performance of SMEs in Pakistan. Indeed, Pakistan, SMEs are facing multidimensional issues. IA phenomenon of digitalization is pressing SMEs into more competitive zoom, pushing them to the extreme to be more competitive to weather adversaries. In other words, addressing complex and unprecedented challenges, SMEs in Pakistan should to inhale the digitalization with full spirit.

4 The Aim and Importance of the Study

The main aim of present study is to investigate the effect of adoption of technology on the organizational performance of SMEs in Islamabad Pakistan. It will be a cross-sectional and quantitative study in nature. The conceptual framework is designed with the help of OECD Theoretical Model (2019) and the key technologies for digital transformation model. While organizational performance framework developed by Khalique et al. (2015). Survey method will be used for collection of data through self-designed questionnaire. Amongst others it explores and investigates the “the impact of technology on the organizational performance of SMEs in Islamabad Pakistan”.

The present study will provide the significance relationship of the relevant digital entrepreneurship elements and organizational performance indicators. This study also provides possible and viable implications of technology be suggested to business community of SMEs. This study will be beneficial for Pakistan, particularly for SMEs. With this understanding, participation in business world with the help of digitalization can level the playing field in business. This includes an understanding

of how SMEs can achieve excellent performance & profitability with digital transformation. Furthermore, study will also highlight and debate the bottleneck issues regarding mindset & use of technology & employees literacy regarding technology in SMEs. Therefore, this study is important for Pakistani entrepreneurs to know about how digitalization is playing a significant role in performance & innovation system of SMEs. In addition this study is to highlight the significance of technology that how it develops the innovative systems & sustainability in organization performance & upgrade the country's economy.

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Usage of Public Financial Support Services, Entrepreneurial Orientation and SMEs Performance



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Abstract SME has received much recognition as continue to be the backbone in the development and economic growth of a nation. Being the main players in economic activities, there were numbers of financial support made available by the government for SMEs. However, previous studies showed that the government business support services were not attractive to SMEs and perceived gave less impact on performance. Mixed results from empirical studies concerning the effectiveness of the services raise questions about the role of government business support services and SMEs characteristic on firms' performance. To address this issue, based on the Resource Based View Theory this study empirically investigated the relationship between one of the support services dimensions, financial support services and firm performance. In addition, this study intended to investigate how the entrepreneurial orientation moderates the relationship between the utilisation of the financial support services and the firm's performance. This study use Structural Equation Modelling to evaluate the impact of the financial support services on SME's performance. The sample for this study involved the SMEs in Malaysia. The result indicates that financial support services significantly associated with the firms' performance and entrepreneurial orientation failed to influence significantly the relationship between the usage of the services and the performance. The findings of this study could bring useful benefits for the government business support services providers to enhance further the quality of services and will provide an understanding of how effectively the characteristics of SMEs related to entrepreneurial orientation would help increase the effectiveness of the support services. To conclude, a number of suggestions were also made for service providers to assist in addressing the issue of effectiveness of the support services together with proposed future study.

Keywords Entrepreneurial orientation · Financial support services · Performance · SMEs

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1 Introduction

SME has received much recognition as continue to the backbone in the development and economic growth of a nation (Che Mat et al. 2020; Prasanna et al. 2019). As a small enterprise, SMEs operate with a myriad of disadvantages such as financial constraint and lacking in high skilled human resources (Park et al. 2020). These flaws make it difficult for small businesses to conduct their operations properly, and they may skew their growth (Penrose 1959; Blackburn et al. 2018). A study by Cravo and Piza (2019) found that the lack of performance among SMEs is among others contributed by the lack of capital. Being the main players in economic activities, there were numbers of financial support made available by the government for SMEs. The financial support programs cover; soft loan, fixed capital financing and working capital financing which comprise of the starts-up project, expansion and rehabilitation are among others.

The studies presented thus far provide evidence that there are numerous support programs are provided by the government in supporting SMEs. The issue of SMEs' performance becomes more critical in view of the fact that previous studies showed the government support were not attractive and perceived gave less impact on SMEs performance (Sciglimpaglia et al. 2013; Robson and Bennet 2000; Barry et al. 2014). This lead to low utilization of the services. Berry et al. (2006) argued that the frequency of utilization of support services give positive influence on SMEs performance. To further complicate, critic has also argued that government support services not only gave less effect, but to some extend gave negative effect on SMEs' performance (Arshed et al. 2014; Lewis et al. 2007). Lewis et al. (2007) argued that the negative effect emerged when SMEs unable to implement the support given due to the lack of expertise. Overall, there seems to be some evidence to indicate that the effect of external support for SMEs on performance are mixed. Thus, with the mixed result from past studies and the role of entrepreneurial orientation, what are the effects of the government support services on SMEs' performance and how entrepreneurial orientation moderates this relationship?

In view of all that has been mentioned so far this study applies resources-based view (RBV) theory with intends to fill the aforementioned gaps. From the RBV point of view, external support consists of sources that are able to build firms' internal capability. The RBV also proposes that the availability of external support is meaningless without firm knowledge to exploit and make use of it (Kraaijenbrink et al. 2010). Thus, this study exploits the fact that the financial support services is one of the valuable resource that is able to exert significant impact on performance and entrepreneurial orientation as one of the variables that moderate the relationship between the usage of the financial support services and the firm's performance. Thus, this study on the relationship of financial support services, entrepreneurial orientation and performance of SMEs may provide important insights into the effect of the financial support services and the role of entrepreneurial orientation on the SMEs performance.

2 Literature Review

A business support provider, according to Schaper and Vollery (2004) is someone who delivers one or more skills and knowledge in a field connected to business operations. According to Stanger (2004), a business advisor is an organization or an individual who provides support services either verbally or in written form in relation to the preparation of financial statements, tax compliance, law, financing, operation, and financial management. A business support adviser, according to both definitions, is someone who can offer advice to a business owner for the improvement of his or her company. A business support adviser also serves as a mentor and sells the idea to the company's management (Berry et al. 2006). A business adviser, on the other hand, plays an essential role in bridging the knowledge gap in SMEs and accomplishing company objectives (Cravo and Piza 2019; Bennett and Robson 1999; Adamson 2000).

There are two categories of suppliers for business assistance: government-sponsored business support and private business support. The government, which is non-commercial in nature, and private consultants, who give their expertise for a fee, are the most common suppliers of business support services. Both parties offer a variety of services to help small business owners succeed. Berry et al. (2006), based on the previous literature pertaining to the sources of support for SMEs, grouped them into six areas of function: professional specialists, professional generalists, market contacts, social contacts, business associates, and government agencies. Watson (2010) argued that SMEs seek support from formal and informal suppliers. Formal suppliers are well-structured businesses that specialise in providing support services. Banks, solicitors, industry associations, external accountants, tax offices, and business consultants are among the participants. Informal networks, on the other hand, are made up of friends, family members, local councils, and industry participants or competitors. Support is not a primary business activity in informal networks. Without a set procedure, support can be delivered and gained informally. In summary, the suppliers of support services can be grouped into three broad categories: firstly, the services offered by the Government via various agencies; secondly, the private sector; and thirdly, quasi-government institutions. Obviously, the government's roles in supporting SMEs' activities are of paramount importance, especially in developing countries. Concerning the vital roles of the Government in maintaining economic and social stability, the study focuses on the financial support services sponsored by the Government to assist the development of SMEs in Malaysia.

2.1 Financial Support Program

Financing is a major issue for SMEs, particularly during the start-up period. The ability to acquire funding contributed to the SMEs' failure (Moha Asri 1999; Ropega 2011). Thus, external participation in the form of financial facilities is much needed

by SMEs. The positive impact of financial assistance to SMEs business is widely discussed and supported by a number of studies. Xiang and Worthington (2016) posit that the financial support provided by the government has positively influenced the firm's performance. The financial position is of paramount importance to SMEs' operation is supported by a number of researchers in other countries. According to Bohatá and Mládek (1999), one of the impediments to SMEs' growth is a lack of financing to support business expansion. This finding is supported by Park et al. (2020) who found that the financial obstacle, referring to difficulties accessing financing and the high cost of financing has become a major threat for growing SMEs, beside the tax burden. The issue of the 'finance gap' among SMEs, particularly regarding bank finance, and the action taken to close the gap have been acknowledged by academics and practitioners (Rahman et al. 2016).

The government is cognizant of the challenges that SMEs confront, particularly in raising cash to fund their day-to-day operations. A variety of working capital financing financial products are devised and offered by various agencies and government-related organisations to assist SMEs in managing their finances. (Bin Yusoff and Zainol 2012) The products which group according to purpose of financing which are available in the market among others, are financing for acquisition of land and building, acquisition of machinery and modernisation, working capital financing and export financing. However, there were mixed results about the effects of the government support services on SMEs performance. Therefore, this study examines the usage of financial support programs provided by the government among SMEs and its impact on their performances.

2.2 Entrepreneurial Orientation and Performance

Entrepreneurs need a collection of competencies in order to manage their business resources and all the business functions effectively (Bin Yusoff et al. 2018). Entrepreneurial orientation explains about entrepreneur's behaviour in developing their businesses. That way, entrepreneurs with greater entrepreneurial orientation are capable to deal with the dynamic and challenging business environment. In general, entrepreneurial orientation refers to the entrepreneurs ability to run business and outline strategies pertaining to innovativeness, pro-activeness and risk taking (Bin Yusoff et al. 2018; Keh et al. 2007; Kumar et al. 2018; Rauch et al. 2009; Wiklund 1999; Zahra 1993; Alvarez-Torres Francisco et al. 2019; Baron and Kenny 1986; Lean et al. 1998; Ramsden and Bennet 2005; Kitchenham and Pfleeger 2002; Chin 2010; Henseler et al. 2009; Hair et al. 2011; Fornell and Lacker 1981; Tenenhaus et al. 2005; Henseler and Fassot 2010; Cohen 1988; Xiang and Worthington Andrew 2017; Krasniqi 2007; Krasniqi 2007; Mole 2016; Kamal Abu Amsha 2017). Entrepreneurial orientation is viewed to have strong influence on the performance of a firm. Researchers argue that entrepreneurs or firms with higher level of entrepreneurial orientation is superior than others who do not (Rauch et al. 2009; Wiklund 1999; Zahra 1993; Alvarez-Torres Francisco et al. 2019). Therefore,

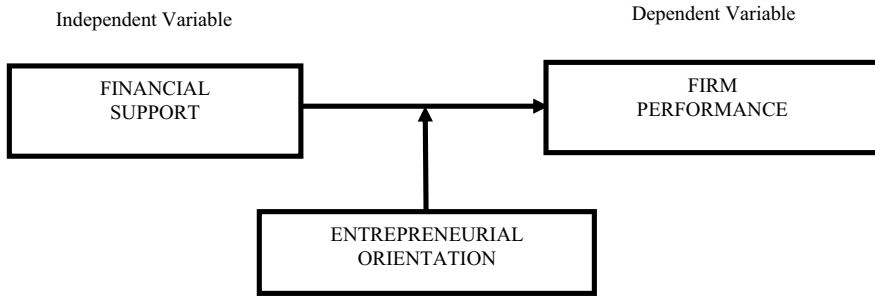


Fig. 1 Theoretical framework

this study viewed entrepreneurial orientation interacts with utilisation of the financial support and firm's performance. It is assumed that the presence of entrepreneurial orientation as third variable could affect the zero-order correlation between two other variables which are able to change the effect on causal relation between two variables (Baron and Kenny 1986).

It is also important to note that, the previous studies reviewed fail to address clearly whether the SMEs examined have the desire to grow or having high entrepreneurial orientation. As argued by Lean et al., (Lean et al. 1998) that few SMEs aspire to grow further but, many hoping for survival. So that, by excluding the role of entrepreneurial orientation in the study, existing research failed to clarify whether the impact of the financial support on performance were caused by low utilisation of the services or lack of entrepreneurial orientation (Berry et al. 2006; Bennett and Robson 1999; Ramsden and Bennet 2005)? So, one of the objectives of this study is to take into account, the presence and the influence of entrepreneurial orientation within the firm when measuring the effect of the financial support to SMEs' performance (Fig. 1).

3 Methodology

This study adopted a cross-sectional design with the target population, comprising of SMEs in Malaysia, and measured the relationship between financial support services, and entrepreneurial orientation, with the influence of entrepreneurial orientation as a moderating factor. The study used scales of assessment that had been established, tested, and used in prior studies to determine the impact of the factors on performance. This method was extensively used by researchers while creating survey instruments. According Kitchenham and Pfleeger (Kitchenham and Pfleeger 2002) this approach has two significant advantages: the instruments' trustworthiness based on validity and reliability testing, and the comparison of new results to earlier research' results.

The closed ended questionnaires used in this study and was distributed via mail among SMEs in Malaysia. There were 1,500 respondents selected as sample from 14 states in Malaysia and utilised a random sampling method. There were 3,832 sets

of questionnaires were sent to SMEs. The instruments was developed by adapt and adopt from previous literatures. All measurements were using 5 point Likert Scale which 1, represent strongly disagree and 5 refers to strongly agree. 728 questionnaires were returned and only 670 were accounted for used due to incomplete responses. The link between financial support services and performance as the moderating influence of entrepreneurial orientation was investigated using the Structural Equation Modelling-Partial Least-Square (SEM-PLS) technique. Apart from measuring data quality through the measurement model, the goal is to maximise the explained variation in the dependent constructs.

4 Findings

The largest respondents were from state of Selangor which represents 15.1% of total respondents followed by Federal Territory (12.2%), Johor (12.2%) and other states (>10%). The two largest respondents who used the financial support were from Selangor (18.4%) and Federal Territory (15.7%). The large responses from the two states are due to main business activities are concentrated in the central region of Peninsular Malaysia which the states are located (Table 1).

Table 1 Total respondents

State	Total		User	
	Frequency	%	Frequency	%
Kedah	51	7.6	19	5.6
Kelantan	48	7.2	20	5.9
Perlis	13	1.9	8	2.4
Penang	33	4.9	12	3.6
Perak	31	4.6	11	3.3
Federal Territory	82	12.2	53	15.7
Sabah	34	5.1	19	5.6
Sarawak	39	5.8	11	3.3
Pahang	58	8.7	49	14.5
Selangor	101	15.1	62	18.4
Melaka	35	5.2	15	4.5
N. Sembilan	20	3.0	9	2.7
Johor	68	10.1	38	11.3
Terengganu	57	8.5	11	3.3
Total	670	100.0	337	100.0

Table 2 Respondents demographic profile

Particular	N	%
<i>Age</i>		
<26	17	5.0
26–36	55	16.3
37–46	112	33.2
47–56	106	31.5
57–65	41	12.2
>65	6	1.8
<i>Gender</i>		
Men	229	68.0
Women	108	32.0
<i>Education</i>		
SRP	23	6.8
SPM	74	22.0
Certificate	52	15.4
Diploma	77	22.8
First Degree	74	22.0
Second Degree	32	9.5
Doctor of Philosophy	5	1.5
<i>Designation</i>		
Owner Manager	263	78.0
Chief Executive Officer	74	22.0

63% of the respondents were aged between 36 years old to 55 years old. 67% respondents were male and 33% were female. 22% of the respondents have first-degree qualifications, 9.5% master degree, 1.5% PhD and the balance 67% with Diploma, Certificate and other qualifications. 78% are owners and the other 22% are Chief Executive Officer of the firms (Table 2).

In terms of business experience 21% respondents having less than 5 years of experiences, 27% (10 years), 22% (15 years), 19% (20 years) and 10% of the respondents having more than 20 years of business experience. Only 10% of the respondents are under medium-sized firm, 55% is under small-sized and 35% is under micro-scaled firms. More than half of the respondents are located in urban areas (67%). Finally, 46% of the respondents are involved in services sector, 37% in manufacturing and the remaining 17% are in construction (Table 3).

Table 3 Respondents organisation profile

Demographic	Frequency	%
<i>Business experience</i>		
<5 y	71	21.1
6–10 y	91	27.0
11–15 y	76	22.6
16–20 y	64	19.0
21–25 y	26	7.7
>25 y	9	2.7
<i>No of employee</i>		
1–5 y	117	34.7
6–20 y	108	32.0
21–35 y	60	17.8
36–50 y	17	5.0
>50 y	35	10.4
<i>Age of firm</i>		
<1	13	3.9
1–5 y	83	24.6
6–10 y	103	30.6
11–15 y	60	17.8
16–20 y	45	13.4
>20 y	33	9.8
<i>Location</i>		
Urban	227	67.4
Rural	110	32.6
<i>Sector</i>		
Manufacturing	134	36.8
Services	154	45.7
Construction	59	17.5

4.1 Multivariate Analysis

The full model applied in this study comprises of one construct for independent variables, one construct each for moderator and dependant variable.

Measurement Model Results. As a result of the cross-loading computation, no items in one construct loaded lower than items in another, suggesting that the measures are conceptually distinct (Chin 2010) (Table 4).

The Composite Reliability coefficients of all constructs were exceed 0.9, its signify that the items are reliable (Henseler et al. 2009) (Table 5).

Table 4 Outer model loadings and cross loadings

Indicator	Fin support	Performance	EO
Fin1	0.813	0.429	0.423
Fin2	0.850	0.397	0.542
Fin3	0.889	0.489	0.547
Fin4	0.904	0.517	0.276
Fin5	0.910	0.526	0.564
Fin6	0.868	0.593	0.545
Fin7	0.857	0.467	0.152
Perf1	0.47	0.817	0.236
Perf2	0.439	0.858	0.344
Perf3	0.437	0.881	0.352
Perf4	0.571	0.871	0.36
EO1	0.454	0.205	0.812
EO2	0.468	0.204	0.862
EO3	0.471	0.193	0.901
EO4	0.467	0.24	0.893
EO5	0.468	0.243	0.905
EO6	0.474	0.226	0.892

Table 5 Reliability and validity test

Latent variable	Items measurement	CR	Loading range	Number of items
Fin support	Fin1 to Fin7	0.956	0.813–0.910	7
Performance	Perf1 to Perf4	0.917	0.817–0.881	4
EO	EO1 to EO5	0.953	0.812–0.905	6

Final items numbers (initial numbers)

Convergent validity test was performed to assess items used to measure constructs are in agreement. For this study, both CR and AVE were exceeded 0.6 and 0.5, respectively as shown in the Table 6 (Hair et al. 2011).

Discriminant validity was accessed by examining correlations between the measures of potentially overlapping constructs. The results in Table 7 demonstrated that all constructs had acceptable discriminant validity, as the squared correlations were smaller than the average variance retrieved thus, met the Fornell and Lacker (Fornell and Lacker 1981) criterion.

Goodness of fit (GOF) is also known as the geometric mean of the average communality and the average of R^2 is to test the overall model fit (Tenenhaus et al. 2005).

Table 6 Measurement model

Latent variable	Items	Loading	CR	AVE
Fin support	Fin1	0.813	0.956	0.757
	Fin2	0.850		
	Fin3	0.889		
	Fin4	0.904		
	Fin5	0.910		
	Fin6	0.868		
	Fin7	0.857		
Performance	Perf1	0.817	0.9274	0.761
	Perf2	0.858		
	Perf3	0.881		
	Perf4	0.871		
EO	EO_1	0.812	0.953	0.771
	EO_2	0.862		
	EO_3	0.901		
	EO_4	0.893		
	EO_5	0.905		
	EO_6	0.892		

Table 7 Discriminant validity of the constructs

	Fin support	Performance	EO
Financial support	0.758		
Performance	0.319	0.735	
EO	0.477	0.288	0.687

The GOF result 0.547 which is exceeding 0.5, therefore, the model has predictive relevance and performs well (Table 8).

Structural Model Results

The result in Table 9 indicates all hypotheses (H1 and H2) were accepted. The R² value for soft performance and hard performance were 0.360 and 0.335 respectively. These indicated that 36.0% of the variance of soft performance and 33.50% of the

Table 8 Goodness of fit

Construct	R square	Communality
Performance	0.360	0.735
Total	0.695	1.496
Average	0.347	0.748
$\sqrt{(\text{Ave R square} \times \text{Ave communality})}$		0.510

Table 9 Path coefficient and hypothesis testing

Hypothesis	Relationship	Coefficient (β)	t value	Result
H1	Fin support -> performance	0.360	5.312	ACCEPT***

Significant at $p > 0.01$ ***

variance of hard performance can be explained by financial support services. In the case of the present study, the value for both performance lie in between moderate and substantial (Chin 2010).

Moderating Effect of Entrepreneurial Orientation

This section presents the moderation analysis applying product-indicator approach. This approach was applied to detect the moderation effect of EO on the relationship of independent variable and dependant variable; performances.

This study follows the three steps approach as suggested by Baron and Kenny (1986) in order to test the moderation effect. In step 1, the direct effect of usage of financial support services on performance (a) was estimated. The result shows that there is a significant relationship between the usage of financial support service and performances ($t = 26.303$ and 24.589 , $p < 0.001$). In step 2, the direct impact of the moderating variable on criterion variable was measured. The result shows that there is a significant relationship between moderating variable and criterion variable ($t = 6.753$ and 7.391 , $p < 0.01$). In Step 3, to examine the moderating effect of EO on the relationship, the usage of financial support services (predictor) and EO (moderator) were multiplied to create an interaction construct (financial support services \times EO) and to predict continuance intentions (Chin 2010; Henseler and Fassot 2010). In this case, usage of financial support services comprises of seven items and six items of EO thus, the interaction construct represents a total of forty two items (7×6). The AVE and CR of this interaction variable are 0.752 and 0.924, respectively, which exceeds the minimum cut-off value (see Table 10) (Fig. 2).

In summary, according to Henseler and Fassot (2010), the moderator is said to be significant if the interaction effect is substantial. For the present study, the β for interaction is 0.587 which is not significant at $p < 0.05$. However, test on size effect indicates a moderating effect presence at small interaction (see Table 11).

Table 10 Hierarchical regression result

Step	Variables	Standardised value			
		Model 1	Model 2	Model 3	
1	Fin support -> performance	23.425	9.9069	7.305	
2	EO -> performance		6.1217	7.305	
3	Fin support * EO -> performance			0.7017	Not supported
	R square				
	Performance	0.3208	0.3603	0.3902	

Note: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

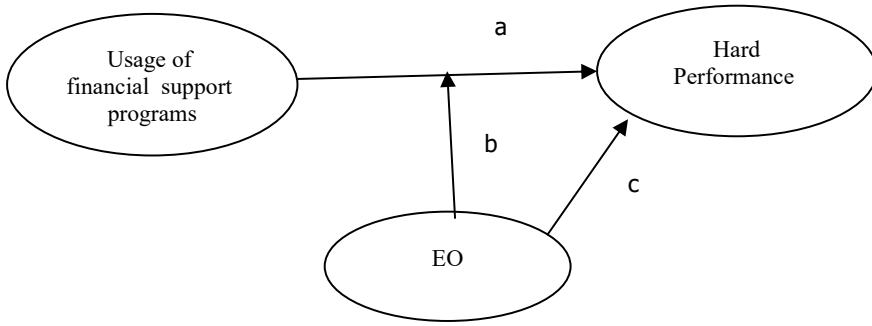


Fig. 2 A model with a moderating effect (c)

Table 11 Effect size (f^2)

Size effect	Performance
$f^2 = \frac{R_i^2 - R_m^2}{1 - R_i^2}$	$= \frac{0.339 - 0.297}{1 - 0.339}$
(<i>i</i> = interaction model, <i>m</i> = main effect model)	0.064

Table 11 shows that the size of the moderating effect is 0.064 which is categorised as small (Cohen 1988). Furthermore, the result of beta changes is also not significant ($\beta = 0.063, t = 0.587$). Therefore, EO does not moderate the relationship between the usage of financial support services and hard performance. Thus, statistically H2a was rejected. However, the moderator’s role should not be neglected even if the interaction is small. Chin (2010) states that;

“Even a small interaction effect can be meaningful under extreme moderating conditions, if the resulting beta changes are meaningful, then it is important to take these conditions into account”.

Thus, the entrepreneurial orientation as a moderator in the present study is considered important and have positive impact plus it is able to influence the firm’s performance. The moderating effect is small but should not be neglected.

5 Conclusion and Recommendations

In general, the results fully support the concept of external resources and firms’ performance in resource-based theory, which claims that firms’ resources are the determinants of their performance (Penrose 1959). The result also indicated that entrepreneurial orientation failed to influence significantly the relationship between the usage of the financial support services and the performance. From the theoretical point of view, supposed entrepreneurial orientation positively influenced the performance. In other words, firms that possessed higher entrepreneurial orientation were

inclined to perform better than others. However, this study found that entrepreneurial orientation did not significantly influence the relationship between the usage of the service and the performance.

This study found that the usage of financial support services by the Government has a significant positive effect on SMEs' performance. This result indicates that the usage of the services is able to increase SMEs' performance. The positive impacts of the financial support services of the Government reflect the success of the agencies in assisting SMEs to manage their business effectively and efficiently. It is argued that financial support is crucial for SMEs. The ability to fulfil financial requirements by constantly seeking external support would ensure the success of SMEs. Based on the result of this study, financial support is importance for SMEs' business activities. Without the right and proper financial support from the Government, SMEs' growth would be impeded. In contrast, to some extent, inadequate financial support can also contribute to the failure of SMES (Xiang and Worthington Andrew 2017). Krasniqi (2007) and Mole (2016) argued that inadequate financing and tax burdens are among the factors that slow down SMEs' growth. This implies that the current financial support services provided by the Government have successfully acted as a catalyst for growth and overcome the critical barriers to growing SMEs. The most important finding from the result of this study is that despite the failure of the market mechanism even in developed economies to address the financing needs of SMEs (Krasniqi 2007), the Malaysian government agencies have effectively delivered the services and SMEs have executed them. The usage of these services has further enhanced the adequate financial position of SMEs. As mentioned earlier, an adequate financial level is a crucial factor for SMEs' success. For that reason, the availability and usage of financial support have strongly influenced SMEs' performance. Broadly speaking, the government financial support services have successfully met the SMEs' need and supported their growth.

The result of this study also indicates that the level of SMEs' soft skills in terms of the ability to reduce cost, the improved ability to manage, increased networking, and increased business information is significantly related to the usage of the financial support services provided by the Government. The ability to improve soft skills, then has impacted on the achievement of hard performance. For instance, by reducing costs, firms may experience a higher level of productivity, which means more chances to gain higher profit. Besides that, the capability to manage effectively will avoid working on uneconomic activities, thus saving a great deal of time, which will further create a positive impact on performance.

This study provides evidence highlighting the importance of the usage of financial support services supplied by the Government to SMEs' performance. The SMEs that successfully secured financial support have experienced an improvement in performance achievement. This provides wider chances to fulfil the role of creator of new employment.

Entrepreneurial orientation did not work well as a moderator in the relationship between financial support services and firm's performance, possibly due to the financial products offered by the government agencies are inflexible. Apparently, the

variety of the products are very limited. For instance, most of the financial products offered by the various numbers of business support providers are similar which concentrated to the basic financing requirement such as working capital and fixed asset financing. These products are normally to fulfil basic business needs of SMEs who are the majority operating as micro-sized enterprise. Thus, the perception about the effect of the financial support services among SMEs with low entrepreneurial orientation and high entrepreneurial orientation were almost similar as similar products offered to both groups which may look for other type of financing. Perhaps, high entrepreneurial orientation firms which are more innovative and aggressive need other than basic financing. They may eyeing for flexible and customize product to accommodate their requirement for innovation activities. The restriction of the Banking and Financial Institutions Act of Malaysia limits the variety of financial products offered by non-banking institutions, in this case the suppliers of financial support services. There are no significant difference between high entrepreneurial orientation and low entrepreneurial orientation SMEs in terms of frequency of usage of the services. In terms of a direct relationship, financial support services have a significant positive relationship with firms' performance. However, the firms' entrepreneurial orientation clearly did not significantly influence the relationship.

Theoretically, the finding reflects that the impact of the usage of the financial programs is not significantly influenced by the presence of entrepreneurial orientation. This implies a positive impact of the services on firms' performance contributed by the services solely without the intervention by entrepreneurial orientation. The findings also indicate that despite the critiques about the weaknesses of government support services, they were successfully implemented and contributed to the success of the SMEs. The success of the implementation was not influenced by the degree of entrepreneurial orientation among the SMEs. From another point of view, this finding discloses the degree of importance of financial support services to SMEs. Every business, disregarding the characteristics of the firm (entrepreneurial orientation), size, and type of business, is in dire need of external financial support. SMEs believe that without financial support their performance will be affected. This means to say that low entrepreneurial orientation SMEs are also users of the services and recognize the importance of these services for their business.

Evidently, the issue of performance of SMEs and the role of financial support services in supporting their businesses is not much related to the level of entrepreneurial orientation of the firms. The issue that came into view was the effectiveness of the financial support services which may refer to the content of the services which are fit to SMEs need and timely delivered. In this study, the financial support services is perceived gave significant effect on the firm's performance when SMEs believed that the services practically fulfilled the basic business financing requirements of SMEs. To conclude, this study highlighted the significant effect of the financial support provided by the government to the SMEs' performance. SMEs who frequently use the services have better performance compared to those who do not. Furthermore, the role of entrepreneurial orientation has no significant effect in

moderating the relationship between the financial support services and SMEs' performance. However, the role of entrepreneurial orientation should not be side-lined as it might have a negative impact in the long run.

This study is not without limitations despite significant contributions. The measurement of the utilization of the financial support services did not cover all the types of services available for SMEs in the market since this would require expense and time. This study only focused on major services and those mostly known to and popular with SMEs. Future study could examine a single type of sector and different sizes of firms (micro, small, and medium) to confirm the results' similarity or differences. With the positive impact of financial support services on the SMEs' performance, it is essential to promote the usage of the services among SMEs further. Therefore, future studies could explore the antecedents to the usage of financial support services. This will provide an insight into the potential factors that influence the usage of the services.

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Financial Alternative Resources Among *Halal* Entrepreneurs: Challenges to Adopt Islamic Financing in Business



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Abstract *Halal* and Islamic finance is under Islamic law and has been established in the context of halal economic development. This study aims to investigate the financial alternative resources among Halal entrepreneurs that may become a barrier in the adoption of Islamic financing among Halal Entrepreneurs. This study was employed a qualitative approach using interviews with halal food entrepreneurs. The result indicated that financial alternative resources of users and non-users of Islamic financing products are the reason for low adoption among Halal entrepreneurs. The implication of this study is the role of Islamic banking to educate the customers towards shariah practicing in the operations that would have an impact on customer decision to patronize Islamic financing products. This study's finding is limited to producers of Halal Food Entrepreneur. Therefore, future research could extend beyond the current scope to Halal Pharmaceutical, Halal logistics, or Halal Cosmetic to investigate the research model in a different context. Also, future studies should include other Non-Muslim Halal entrepreneurs to enrich the attitude of Halal entrepreneurs towards Islamic financing adoption in their business survival.

Keywords *Halal* entrepreneur · Alternative financial resources · Islamic financing · Adoption

1 Introduction

Halal industry brings confidence to the customers due to its systematic procedure throughout the production and manufacturing of the *halal* product. It becomes a profitable market that creates huge opportunities for Muslim and non-Muslim to do business in the *halal* industry. Due to that demand, the *halal* industry is continuously growing and recording continued improvement up to recent years. In addition, the

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government has paid paramount attention to the development of *halal* products to become a global *halal* hub by 2020, as outlined in the *Halal Industry Master Plan (HIMP)* (Tieman 2015).

The *halal* industry refers to firms that produce *halal* products and provide *halal* services according to the principles of Islam (Othman et al. 2017). Islam covers all aspect of life, including the ethics of conducting the business according to the principle of Islam, which are free from *haram* (prohibited) and *syubhah* (uncertainty) element. The act of *halal* entrepreneur must be in line with the Islamic jurisdiction and *Maqasid Shariah* (objective of *Shariah*). *Maqasid Shariah* drives the human doings of the individual and the public to obey the rules of God and safe from the punishment in the hereafter.

Since the *halal* industry involves a whole process from getting the raw material to the customer, low adoption of Islamic financing from Islamic Banking products becomes a major concern. In the Islamic principle, *halal* production must utilize *halal* requirements fixed by Islam, including financing capital. Islamic Finance is under *Halal* industries product possess similar sharing practice as a religious business practice. Despite the similarities, there has been a disconnection between the two industries and impacts the low adoption of Islamic financing products among *halal* industries players (Jaffar and Musa 2016). According to Rahman et al. (2017), the *halal* industry is based on Islamic religious business. Therefore, all Muslim and non-Muslim who hold *halal* certification must follow Islamic law and do not manipulate the rules to maximize the profit in involving *syubhah* financing practice.

Even though the *halal* industry in Malaysia is growing, the rates of Islamic financing practice among *halal* entrepreneurs are poor. Many *halal* firms have been recognized as non-compliant by Shariah screening bodies due to their practice of conventional financing services. Most *halal* producers are not subscribed to Islamic finance since they are not obliged to adopt Islamic finance (Hughes and Malik 2012). As about 80% of *halal* companies controlled by non-Muslims, their participation in Islamic finance has no religious impulses (Hughes and Malik 2012). This exclusion leads to the low adoption by *halal* producers of Islamic financing. They should comply with Islamic rules on *halal* production and services, including a financial dimension, as a *halal*-certified company. Therefore, the performance of the *halal* sector should be based in particular on the religious perspective (Muhamad et al. 2017).

In the global *Halal* industry, the figure is estimated to be around \$3 trillion in 2021, with a total contribution of \$368 billion dollars for modest fashion, \$243 billion dollars for *Halal* travel, \$81 billion dollars for *halal* cosmetics, \$262 billion dollars for *Halal* Media and recreation, \$1,914 billion dollars for *Halal* food, and \$132 billion dollars for the *halal* pharmaceutical sector. It is predicted that Islamic finance and Islamic banks will reach around \$5 trillion by 2021 (Thomson Reuters 2017). If both markets are combine, the size is about \$8 trillion dollars (Qoyum and Fauziyyah 2019).

The issue of poor adoption of Islamic financing is become a major concern. Since the *halal* business must be *halal* from raw material until the end of the product including financial resources aspect, but the majority of *halal* industry players do not use Islamic financing in their business. Due to the limited use of Islamic financing by the *halal* entrepreneur, the present investigation must cover the impact of alternative resources towards low adoption of Islamic financing among *halal* entrepreneurs. The extensive study will strengthen Islamic financing among *halal* entrepreneurs and boost the *halal* economy in a strong economic income, particularly in Malaysia, for the future global *halal* economy.

2 Literature Review

A company's capital largely comes from both internal and external sources. Internal fund sources, including personal and family savings, surplus earnings, working capital, and the disposition of fixed assets, are considered the most suitable source of funding. However, their availability is largely dependent on a company's profitability. Meanwhile, external financing, such as equity (common and preferred shares, venture capital) and debt (bonds, bank overdrafts, leases, factoring, and so on) have their benefits and drawbacks. For example, equity financing is constrained by the need of a company's investors to preserve their majority stake. In contrast, debt financing can be backed up by the company's actual financial performance.

Another aspect of financing to consider is whether the financing is formal or informal. The system of external financing is typically controlled by informal sources, particularly for early entrepreneurs (Beck et al. 2008). There are two main sources of informal financing: investments made by founders, their family and friends (3Fs—“family, friends, and fools” or “love money”), or those provided by business angels, or inventors who invest in the business not because of family ties but due to the idea (Kaplan and Strömberg 2000). Formal financial sources are divided into an institutional venture of capital financing, bank loans, initial public offering (IPO), etc. This financial assistance can be given in even larger amounts, but accounting data transparency provisions are more stringent (Gudov 2013).

In Ghana, Assibey (2013) studied the impact of various systemic sources of start-up financing on the production growth of SMEs. The study reported that debt financing is positively correlated with productivity growth after adjusting firm characteristics such as age and ownership type. In contrast, gift or charity financing does not correlate with higher productivity. The study also found substantial positive correlations between SME higher performance and more formal financing sources such as formal and semi-formal financing sources. Lastly, external funding channels were found to be positively correlated with commodity as opposed to internal financing.

Meanwhile, Mand et al. (2018) looked into the effect of bank funding and internal financing channels on women's e-entrepreneurship motivation. The study's results indicate that funding from bank and internal sources in India have a positive effect on women's motivation for e-entrepreneurship. Family status, schooling, access to

new business knowledge, and location also have a positive effect on women's motivation for e-entrepreneurship. The results also show that, as opposed to internal funding outlets, bank financing has a greater effect on women's motivation for e-entrepreneurship.

Moreover, Daskalakis et al. (2013) investigated how small and micro businesses (SMEs) fund themselves. The study also examined their funding priorities and how SMEs determine financing sources with the different barriers they encounter in obtaining funding. The key assumptions are that when it comes to equity funding, companies depend primarily on their assets and will not collect new equity from outlets outside the family. Subsequently, external equity is hesitantly used, such as venture capital, business angels, etc. Companies indicated that they will use more leverage, especially long-term debt, than they do now in terms of debt funding, leading to limited access to funding.

3 Methodology

This study adopts qualitative research to explore the current issue and use subjective information on the behaviour of *halal* entrepreneur in adopting Islamic financing product. Emerging problems and techniques are part of the qualitative research process. Thus, data is gathered in the participant's context, including data processing that builds inductively from specific to broad themes and the researcher's explanations of the data. In this regard, the structure of the final report is adaptable (Mottern 2013). Researchers participating in this form of study advocate an inductive approach, which emphasises individual context and the importance of making a situation ambiguous (Creswell 2014). In qualitative research, the researcher stringently enforces an ethical code before, during, and after the research process (Allen 2015).

3.1 Data Collection

Eight interviews were held during the fieldwork with users and non-users of Islamic Financing customers. Each interview session lasted between 40 and 80 min. The informants' interviews were done in their offices, but some were conducted over the phone.

The eight interviews were recorded using a digital recorder and transcribed during a two-month cycle. Recording the interviews allowed the researcher to provide a complete focus to the informants during the interview process. The researcher also kept in mind to ensure that the interviews were transcribed correctly. The transcription process began by listening to each interview's entire recording. This procedure aided the researcher in comprehending the content of the interviews. Besides, it allowed the researcher to check the clarity of the interview process. This information relates to research questions and focuses on the right data to be included in the software later.

The transcriptions were checked by the academic expert to verify the trustworthiness of the researcher during transcribing of the right data given by the informants. The data were transcribed in the Malay language followed by a translation from an English expert. The translation process took three weeks to complete.

According to Yin (2014), the collection of qualitative data can be used through observations, interviews, and documents. Creswell (2014) added another point in the collection procedures in qualitative research, such as audio and visual. This includes pictures, artwork, videotapes, website, e-mails, instant messaging, social networking text, or other forms of audio, which are all acceptable. According to Saunders et al. (2009), using two or three separate sources of data or data-collection techniques within one sample is beneficial to ensure that the analysis produces a more accurate, comprehensive and qualitative illustration of the circumstance.

In this study, the researcher will conduct an interview and document review based on documentation such as administrative document pertaining to the *halal* certification by employing the triangulation technique. Merriam (2009) reports that an interview may be performed through telephone, focus group, or E-mail via a face-to-face encounter. It is quite beneficial to enable researchers to regulate the indirect data presented by the interpretations of the interviewees (Creswell 2014). The interviewee's effect is based on his technological expertise and standing as an information seeker (Ibrahim and Edgley 2015). The interviews are crucial for the inquiry since they appear in harmless and "endurable, disputed" forms in everyday social encounters (O'hare 2014). Therefore, the researcher will interview the *halal* entrepreneurs who has *halal* certification from Department of Islamic Development Malaysia (JAKIM) using semi-structured interviews. This is consistent with the research's use of the interpretivism model with a subjective approach.

A semi-structured interview allows probing questions and allows the interviewee to clarify or refine their replies (Saunders et al. 2009). Furthermore, semi-structured interviews are helpful because the interviewer adopts an interpretivism paradigm and is concerned with understanding participants' interpretations of different phenomena (Saunders et al. 2009). The ability to probe interpretations will increase the relevance and depth of gathered data. It leads to conversations that were not previously considered but are essential for interpretation and discussing, and formulating research goals and questions. It will also allow the interviewee to focus on something that was not previously considered (Saunders et al. 2009).

The use of semi-structured interviews allowed interviewees' interpretations of the acceptance of Islamic financing products by *halal* entrepreneurs, facilitating a more comprehensive collection of data (Saunders et al. 2009). Echchabi and Aziz (2012) using semi-structured interview in their study, revealed that interviewees shared their awareness of the current situation and criticisms of the *Shariah* compliance system of Islamic banks, which provided detailed information from the interview session. Thus, using semi-structured interviews helps the researcher gain more exposure and details of the study. This is supported by previous studies, namely (Anastassiou 2017; Bizri 2017; Fefer et al. 2018; Ghammari et al. 2017; Ltifi et al. 2016; Noordin et al. 2014).

4 Finding and Discussion

This study found that financial alternative is not an essential element to encourage *Halal* Entrepreneurs in choosing Islamic financing. It depends on the need of financing in the business performance. Another element found in the previous literature on financing adoption is on alternative sources of financing among entrepreneurs. According to Lerner (1995), internal and external sources are considered venture funding. Internal sources include personal and family savings, retained profits, working capital and fixed sale. In contrast, the types of external investment financing sources are equity (common and preferential stock, venture capital) and debt (bonds, bank overdraft, lease, factoring, etc.).

Meanwhile, Gill et al. (2016) define formal funding, including financial institutions' banks and venture capitalists, while informal sources such as family and friends. In Malaysia, the government provide financial aid as an alternative source of financing to support entrepreneurs like *SUPERB*, *TUBE*, *MARA*, *TEKUN*, *FAMA* and others (TERAJU 2016). But, only some of them prefer to grab the opportunity offered by the government. Thus, the uses of alternative sources of financing reduce the adoption of Islamic financing at an Islamic bank. Therefore, this study aims to look deeper and better understand the alternative sources of financing towards the adoption of Islamic financing products among *Halal* entrepreneurs.

There are several kinds of financial alternatives, including internal streams, private savings, family and friend borrowings and state-supported services. Therefore, these are the reasons for some informants to not applying for bank loans. All the non-users (NU) of Islamic financing use informal financial alternatives such as a personal budget, family financing, and formal financings such as loan state programs such as *TEKUN*, *MARA*, *FAMA*, and *Amanah Ikhtiar Malaysia*. For example, NU1 stated:

NU1: Verbatim Transcript 1.docx - 1:14 (144:144)

“Uh I actually use my own money. Okay, my main goal is to use my own money; maybe it is using low capital. It's still within its own budget. There is, for example, a friend, recommended loan... hmm... Malay Muslims, but when I think the percentages for returns are not worth it. Height. And I'm more comfortable using my own capital, ah, for profit. I think it's worth it”.

NU2, NU3 and NU5 have informed that they use loan state programs that organized by non-profit bodies under government agency such as:

NU2: Verbatim Transcript 2.docx - 2:16 (148:148)

“We're under *FAMA* To be honest, a business person will look into dollar cent or charge rate before apply for a loan. So, if the interest rate from this Islamic bank or Islamic loan financing has a low rate, automatic no matter what nation, no matter if you have halal certification or not, they will go for it”.

NU3: Verbatim Transcript 4.docx

“I borrow from *MARA*. We do not know what Islamic banks do, they need to inform us whether from media channel. Or the Islamic bank has to cooperate with JAKIM or call Islamic entrepreneurs who already have halal certificates to spread the awareness”.

NU5: Verbatim Transcript 4.docx

“We do not apply from the bank, but we use the fund from *TEKUN* and *Amanah Ikhtiar*”.

While for NU4, he continues the business using existing capital from his family business. He stated:

NU4: Verbatim Transcript 4.docx - 4:18 (125:125)

“Because we inherit the family business and we use the existing capital from the family business”.

In the meantime, users (U) also have the same experience using informal and formal alternative financing from families, loan state programs and grants. However, the loan provided is limited to a certain amount. Therefore, they apply from an Islamic bank, which provides a larger amount, and in respect to that, they can expand the business. U1 has described her experience of business financing:

U1: Verbatim Transcript 6.docx - 6:15 (122:122)

“Because we started by ourselves, and then our parents retired, they get their own pension. Actually, that one is a startup capital. So we don’t assume that we should get a loan from anybody or any banking institution. And then we’re starting a bakery business... Early of the business, we borrow five thousand from *TEKUN*, and only can do a small business. After settling down the loan from *TEKUN*, we then borrow from *Agrobank* to expand our business”.

In the same situation, U2 also shared his limitation while using government grants and finally using Islamic banks’ loans to expand the business. He calmly stated:

U2: Verbatim Transcript 8.docx - 8:15 (133:133)

“I have grant and apply loan from Islamic bank. Even though I have grant, but I still need to apply loan because I want to expand more. Previously, I use my home to prepare the product, but after I get the loan I upgrade the house to be a factory”.

The limitation of funding also been described by U3 with state government loan and she decided to have a loan with Islamic bank which offer larger amount such as:

U3: Verbatim Transcript 7.docx - 7:14 (125:125)

“Yes, I did. I used to borrow from *MARA*. At that time, my company was an enterprise, not yet Sdn Bhd, so I only get a hundred thousand to two hundred thousand”.

The evidence of her success story in expanding the market after having a loan and she added:

U3: Verbatim Transcript 7.docx - 7:15 (128:128)

“Before I borrow from the bank, I cannot expand my business. I just can deliver to my near hometown and friends, but after I have a strong capital, I can supply to all *Mydin* Supermarket in Peninsular Malaysia including *Sabah Sarawak* too”.

The uniqueness of this research is the criteria of financial alternative resources as a barrier element towards the adoption of Islamic financing among *halal* entrepreneurs. Even though majority of them do not use Islamic financing in their *halal* business, does not mean they adopting conventional resources due to another alternative financial resources such as family support, state grant and existing capital aids in the company. *Halal* entrepreneurs will choose Islamic financing from Islamic banking and finance as a formal financing if they want to expand the market, but they still use the existing capital from alternative financial resources if they want to maintain the market. From the finding, the majority of the informants have another financial alternative resources that prevents them from adopting Islamic financing. However, some alternative financing users take another action to enlarge their business performance with the bigger financing supporting from Islamic banking and financing institutions. Gudov (2013) highlighted financial investment sources between formal and informal sources among Russian micro and small firms. The finding highlighted those Russian informal investments are oriented to borrowers who have personal relations with lenders due to personal relationships in running the business. The study is in line with this finding mentioned that the customers were also motivated by the other source of financial alternative. This has also been supported by Frid et al. (2016) that formal financial support such as bank and venture capitalists has been linked to positive entrepreneurial outcomes. Also, Beck et al. (2008) pointed out that for early entrepreneurs, it is typical that informal financing structure informal sources dominate the structure of external financing. Thus, it is reasonable to consider this element since this influential criterion is valuable for *halal* entrepreneurs to accomplish the desired goal and sustainability business. This evidence is consistent with the previous study such as Ajide 2020; Daskalakis et al. 2013; Fernández-Oil et al. 2019; Gibson 1992; Mand et al. 2018; Osei-Assibey 2013; Prijadi et al. 2020).

5 Conclusion and Recommendation

Financial alternative as considered as another financial aids to the *halal* industry players. This is another criterion that hesitant *halal* entrepreneurs from using Islamic financing. The study found that non-users do not use Islamic financing due to another sources of income like government grant, specific loan for entrepreneurs, and other financial supporting. The data show that not only Islamic bank offer the loan facilities, but also another agency offers the same opportunity such as Mara, Amanah Ikhtiar, business grant, state loan program and etc. Therefore, Islamic bank must provide greater campaign awareness to enhance the use of Islamic financing among *halal* entrepreneurs such as create specific product or scheme for *halal* entrepreneurs. Besides that, Islamic bank can attach special consultancy and talk regarding financing resources for *halal* industry players in order to increase the Islamic financing adoption among *halal* entrepreneurs for both Muslim and non-Muslim.

In order to study the financing status of the production of *halal* products, another study should conduct semi-structured interviews with Muslim *halal* food

entrepreneurs. Therefore, another mechanism, like the in-depth or focus group, should be used to take on another dimension of the study and get a different view of the finding. It is also suggested that a case studies should be conducted on the individual programs offered by each organization to improve understanding of the different benefits of Islamic financing among *halal* entrepreneurs.

Future studies with larger samples of *halal* entrepreneurs may show a better understanding and a better validity of research findings in terms of financial management. In order to see the valuation of Muslim *halal* entrepreneurs funding to boost *halal* economy in Malaysia, the study can also be applied to other Malaysian states taking into account the strong impact of *halal* food in Selangor. Besides, the future research could extend beyond the current scope to *halal* Pharmaceutical, *halal* logistics or *halal* Cosmetic to investigate the research model in the different context. Also, future studies should include other non-Muslim *halal* entrepreneurs to enrich the attitude of *halal* entrepreneur towards Islamic financing adoption in their business survival.

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Entrepreneurial Intention and Pre-start-Up Behaviour Among Malaysian University Students



Chaw Su Su Thwin, Shaima Saeed Abdulrahman Ba Naga, Uma Thevi Munikrishnan, Abdullah Al Mamun, Noor Raihani Zainol, and Anas A. Salameh

Abstract This study examined the effects of innovativeness, risk-taking propensity, social integration, family support, entrepreneurship education services, and internship quality on entrepreneurial intention that leads to the start-up preparation among final year students in Malaysian private universities. A cross-sectional design was adopted in this study to collect quantitative data from 358 university students via an online survey. The study indicated the significant positive effects of innovativeness, social integration, entrepreneurship education services, and internship quality on entrepreneurial intention. The study also revealed the significant positive effect of entrepreneurial intention on the start-up preparation. In order to encourage entrepreneurship intention and start-up behaviour among students or graduates, related parties or policymakers should consider these findings. More entrepreneurship programmes and courses should be introduced to foster youngsters and students to pursue self-employment, rather than going for corporate jobs.

Keywords Attitude towards entrepreneurship · Entrepreneurial traits · Entrepreneurial education · Support system · Entrepreneurial intention · Start-up behaviour

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1 Introduction

Entrepreneurship, which is a range of business ownership and management actions, has long been regarded as one of the most essential strategy in economy and among the most successful approaches to improve the economy of a country and preserve its prosperity while facing the growing challenges of globalisation (Mamun et al. 2017). The entrepreneurial process relies on the sequence of transformation that involves viewing a start-up as a personal choice, depending on several factors, including job loss or fear of income loss. Such condition motivates certain individuals to pursue entrepreneurship as a revenue-generating medium, which then pushes them to imagine an idea or opportunity while exploring the possibility of starting a company based on the development of a new venture (Mahmood et al. 2019). The numbers of supporting mechanisms and policies instituted by the government for entrepreneurs have proved the new policy surrounding entrepreneurship education by the Malaysian Education Ministry through “The Entrepreneurship Growth Agenda of Higher Education”. Furthermore, the Strategic Plan on Entrepreneurship Growth in Higher Education 2013–2015 was initiated to promote the introduction of entrepreneurial education in the Malaysian higher education and assure the purpose of the Entrepreneurship Development Strategy for Higher Education is attained (Shamsuddin et al. 2013). Despite these initiatives and attempts to teach entrepreneurship, the level of business engagement after graduation remains low among graduates. According to the Graduate Tracer Research by the Ministry of Education Malaysia, only 2% of graduates, after six months of graduation, are interested in entrepreneurial activities. Considering the Malaysian government’s attempts to encourage entrepreneurship, these statistics are clearly less optimistic (Shamsuddin et al. 2013). Additionally, instead of focusing on jobs, governments and development agencies seek to inspire the young generations to participate in entrepreneurship practices.

The local governments and the establishment of sustainability organisations in Malaysia primarily concentrate on ways of fostering entrepreneurship practices among low-income households, including millennials group (Mahmood et al. 2018). The provided entrepreneurship programmes and facilities focus on five areas to encourage entrepreneurship behaviour, which include access to financing, human capital development, market access, innovation and technology adoption, and other entrepreneurial infrastructure. Recent studies have turned to future entrepreneurs in order to highlight the increasing need for more entrepreneurs to effectively engage in economic growth, satisfy consumer demand, and sustain expertise in a rapidly evolving technology climate (Shah and Soomro 2017; Piispanen et al. 2018). Understanding the functions and characteristics of entrepreneurial skills and deciding how these skills impact the student’s intention on entrepreneurship have become increasingly important (Mamun et al. 2017). Furthermore, while there is a prominent number of analysis on entrepreneurship education, there are minimal and inconsistent observational studies on its impact (Turker and Selcuk 2009). The significance of this

study is for the purpose of helping students to identify potential strengths, weaknesses and possible factors, which influence them to determine future career path choices, mainly towards entrepreneurship. Their attitude, personal characteristics, risk-taking behaviour, self-efficacy, and adaptability potentially assist them in identifying entrepreneurial intention. Therefore, the current study aimed to determine the effects of innovativeness, risk-taking propensity, social integration, family support, entrepreneurship education services, and internship quality on entrepreneurial intention that leads to the start-up preparation among final year students in Malaysian private universities. The structure of the study includes literature review, research methodology, and finding summary, conclusion, and discussion.

2 Literature Review

2.1 Theoretical Foundation

In psychology, theory of planned behaviour (TPB) is a theory that connects one's beliefs and behaviours. According to TPB, attitude, subject norms, and perceived behavioural control shapes one's intention and behaviour (Ajzen 1991). Intention and behaviour are the highlights of this analysis—TPB is considered as one of the best primary theory-driven models to explain entrepreneurial intention (Mamun et al. 2017). According to TBP, behavioural intention mediates the effects of one's beliefs regarding attitude, subjective norms, and perceived behavioural control on the actual behaviour (De Leeuw et al. 2015). Attitudes refers to one's favourable or unfavourable perception and evaluation towards the target behaviour; subjective norms catch the opinions of social reference groups, family members, and friends on whether to participate in the behaviour; and perceived behavioural control signifies the perceived ease or difficulty of executing the behaviour (Kautonen et al. 2013). The behaviour of starting a new venture is both intentional and planned (Al-Jubari et al. 2019). TBP has been shown to consistently predict entrepreneurial intention compare from other models. TBP provides a consistent and generally applicable theoretical framework that helps researchers to comprehend and analyse entrepreneurial motivations by identifying not just personal but also social factors (Iakovleva et al. 2011).

2.2 Malaysian Entrepreneurship Education

The positive atmosphere and entrepreneurial desire are the proof of the interactive system balances in entrepreneurship education. Entrepreneurship programmes usually assist the university students to develop awareness of becoming an entrepreneur. The entrepreneurship education service standard reduces the relationship between the obstruction of venturing into entrepreneurship and entrepreneurial

intention among university students (Zahra and Wright 2015). This may be clarified by implying those students with the lack of expertise and social capital (obstacles of starting a company) may still be inspired to pursue an entrepreneurial path if their lecturers are able to instill awareness and offer ways to address these obstacles. The institutions of higher learning in Malaysia in the early 1980s introduced entrepreneurship education, but it was not widely taken up by the community. Following in 2000, the extent of entrepreneurship education increased with the introduction of entrepreneurial training attachment in the forms of informal and co-curriculum education programmes (Othman et al. 2012). Apart from the Third Outline Perspective Plan (OPP3) in 2001, entrepreneurship education has expanded towards developing and promoting technological innovation and business growth. Consequently, higher education has widely offered entrepreneurship education to university students through formal and informal teaching and learning activities.

2.3 *Innovativeness*

Innovativeness is an important entrepreneurial precondition (Grillitsch and Asheim 2018). Entrepreneurs who are driven with innovativeness show a higher level of innovative behaviour towards the intention of developing and expanding profits. Innovation is a particular mechanism in which an individual act as an entrepreneur who exploits change surrounds their environment to gain opportunity for starting a business (Block et al. 2017). Entrepreneurs have the desire to seek innovative resources, environmental changes, and suggestive signs of opportunities for innovation (Wathanakom et al. 2020). In other words, innovativeness is the ability to do something in a creative and improved way. In the entrepreneurial context, innovativeness distinguishes one from others through creative thinking. They need to evolve in order to produce an excellent product, a powerful identity, and to develop a consumer network. Innovative ideas create competition. Innovation is an enabler of enterprise and a way to inspire individuals to take responsibility for their lives and economic growth. A previous study demonstrated a positive correlation between innovativeness and entrepreneurial intention (Guroi and Atsan 2006). Moreover, innovation had a significant effect on entrepreneurial intention, as mention by Armstrong and Hird (2009). The available literature has similarly confirmed that innovativeness is one of the factors that positively domination entrepreneurial intention (Ahmed et al. 2019). Also, the numerous numbers of scholars had examined the positive influence of innovativeness on entrepreneurial intention and entrepreneurial attitude (Law and Breznik 2017; Abubakar and Yazeed 2018; Wathanakom et al. 2020). Hence, this study proposed:

H1: Innovativeness positively affects entrepreneurial intention

2.4 Propensity of Risk-Taking

Taking a risk is refer on how it define the entrepreneur property and entrepreneurship (Antonic et al. 2018). Zaleskiewicz et al. (2020) stressed that highly trained entrepreneurs have higher risk tendency and uncertainty tolerance than non-entrepreneurs. Altinay et al. (2012) believe that, due to the family background, the effect of risk-taking propensity on entrepreneurial intention was not significant. Risk-taking is the degree to which an individual is prone to escape or face danger (Tang and Tang 2007). According to Shamsudin et al. (2017) risk-taking lead an individual willingness to take chances in decision-making. While, Tang and Tang (2007) believe that the urge to take chances is related to the risk-taking phenomenon, which is a critical element of entrepreneurship. Moreover, Altinay et al. (2012) further hypothesised the positive influence of risk-taking propensity on entrepreneurial intention in the uncertainties face. Earlier findings revealed that entrepreneurs show negative attitude towards taking risks and misconceive themselves as risk-takers. Deeper research on risk-taking attitude in relation to entrepreneurship is required. Therefore, the following hypothesis was established:

H2: Risk-taking propensity positively affects entrepreneurial intention

2.5 Family Support

As for family history, self-employed family members may be ideal counsellors or consultants for children who look to start their own company (Carr and Sequeira 2007). Family has an influence on one's entrepreneurial ambition in terms of role modelling, and parents may be considered as a significant role model in the entrepreneurial career of their children (Peng et al. 2013; Edelman et al. 2016). Earlier studies indicated that family support shapes the presumed desirability of entering a market. According to Jaskiewicz et al. (2015), a role model greatly influences the desire to launch a business enterprise. The desire to be self-employed is greatly influenced by one's background of an entrepreneurial family (Crant 1996). Entrepreneurial parents may act as mentors, provide potential advices for their children and implant the concept of initiating up their own business (Nguyen 2018). These findings explain the significant effect of family support on entrepreneurial intention during their study that supported by Osorio et al. (2017). This study suggested the following hypothesis:

H3: Family support positively affects entrepreneurial intention

2.6 *Social Integration*

Social integration is a way in which the individuals participate in various types of social activities and social relationships that include different groups of people coming together to form a society. Social networking refers to a set of ties that links individuals with family members, peers, friends, or colleagues to receive information that provides opportunities and resources and influences the way individuals consider for a new venture start-up. Social ties involve both strong and weak ties that differentiate the relationships with others to engage in the opening of a new venture (Mahmood et al. 2019). Social integration normally originates from the people surrounding the individual and the society that the individual resides in. In terms of entrepreneurship, it can be seen as the perception of what significant others, society, and social activities on whether to become an entrepreneur, depending on the motivation to comply with such perceptions and pressure. For example, if family members, friends, or the environment perceive entrepreneurship as risky, the individual tends to be discouraged from being involved in entrepreneurial behaviour (Mamun et al. 2017). Moreover, social integration has been considered as a critical incentive towards entrepreneurship (Aldrich and Zimmer 1986; Burt 1992). However, well-connected individuals are likely to have the aim of establishing their own business, as they are surrounded by equally passionate people and practices (Quan 2012). Thus, the following hypothesis was suggested:

H4: Social integration positively affects entrepreneurial intention

2.7 *Services of Entrepreneurship Education*

Entrepreneurship education is interpreted as an education system that provides skills that are obligatory to start a business. Regardless, the mode of delivering entrepreneurship education is different according to the objectives (Hytti and O’Gorman 2004). Accordingly, educational institutions play a crucial role in delivering necessary education relating to entrepreneurship (Kamaruddin et al. (2015). It can be seen as that the university environment can be a huge influence and the courses and facilities supported from the university regarding the entrepreneurship education and activities will likely to impact the behaviours and attitudes towards entrepreneurial intentions. According to Kent (1990), it is not possible to identify whether these young students (have the potential for entrepreneurship; therefore, entrepreneurship education is required to expand as much as possible throughout the curriculum to encourage students in understanding about entrepreneurship and in becoming entrepreneurs. In Malaysia, the introduction of Kembara Usahawan (KEMUSA) co-curriculum by Institut Teknologi Mara (ITM) currently known as Universiti Teknologi Mara (UiTM) in June 1982 was the starting point of entrepreneurship education to create entrepreneurial opportunities among students (Zakaria et al. 2011). The lack of entrepreneurship courses offered at the university

level is one of the main reasons that explain why fresh young graduates have poor involvement in new business ventures (Lanero et al. 2011).

Entrepreneurship education mainly focuses on enhancing youths with multiple skills, knowledge, and passion. The objectives of entrepreneurship education are to decrease the risks associated with entrepreneurship perceptions and to give proper guidance to the overall enterprise from the initial stage to the final stage (Izedonmi and Okafor 2010). Vanevenhoven and Liguori (2013) further agreed that the quality of entrepreneurship-related courses and services offered by universities has significant effect on the students' entrepreneurship intention to start their own business firm. Zhang et al. (2014) found that the exposure of entrepreneurship education significantly and positively affected entrepreneurial intention among the students from different universities. Therefore, the following hypothesis was proposed:

H5: Entrepreneurship education services positively affect entrepreneurial intention.

2.8 Internship Quality

Every entrepreneur should experience being an intern first (Roberts 2016). According to Beggs et al. (2008), there is absolutely no doubt that internship possesses a quite long history at the higher education level. The crucial role of internship is unlikely to be questioned, as internship can also be seen as an industrial learning process that exposes students to an actual workplace experience in the real industries before their graduation (Lu and Wang 2018). Recent studies have revealed that universities and industries should cooperate in creating quality internships that are beneficial for students, especially in assisting them in their decision to start up their own firm one day (Donina 2020). One advantage of internships is that they serve as a means for students to explore their future career paths. Apparently, internship helps to close the gap between theoretical learning and practical workplace in the real world (Lu and Wang 2018). It generally bridges the gap between classroom theory education and real-world industry experience, provides more useful learning experience, and enhances the valuable definition of academic programmes (Botha and Bignotti 2016). Moreover, internships at small businesses or entrepreneurial ventures may help foster the students' decision to pursue an entrepreneurial career. The experiences gained from an internship and the quality of the internship can have significant influence on whether the students decide to join an organisation or aim for an entrepreneurial career (Nabi et al. 2013; Zhao 2013). Accordingly, Lu and Wang (2018) confirmed the significant positive influence of internship quality on the students' entrepreneurial intention to start their own firm and their entrepreneurial spirit. Based on the above literature, the following hypothesis was formed:

H6: Internship quality positively affects entrepreneurial intention

2.9 Entrepreneurial Intention

The review of literature on entrepreneurship intention has grown swiftly since the published seminal works of Shapiro in some 30 years ago (Shapiro 1984). A great number of research papers related to this field have been published (Liñán and Fayolle 2015). It is no doubt that entrepreneurship intention plays an important role in influencing entrepreneurial behaviour. According to Krueger (2007), intention is associated with one's decision making process. Thus, entrepreneurship can be perceived as an intentional process and a deeply planned behaviour (Al-Jubari et al. 2019). According to TBP, attitudinal factors, which compose of beliefs about an outcome, highly influence entrepreneurial intention (Ajzen 1991). However, TBP does not interpret the reasons why entrepreneurship behaviour is pursued. However, there are a great number of studies on entrepreneurial intention among university students with respect to TBP, but none of the past studies concisely indicate whether these students or individuals who decide to pursue entrepreneurial-related activities are intrinsically or extrinsically motivated (Al-Jubari et al. 2019). Individuals are more likely to be an entrepreneur if they favourably perceive entrepreneurship as a suitable career to enable individuals desire achievement, to work on their own thoughts, and to realise monetary gains from being self-employed (Ni et al. 2012). Moreover, students with positive self-efficacy and high entrepreneurial interest have stronger intention to start their own business (Sivarajah and Achchuthan 2013). Based on the above literature, the following hypothesis was formed:

H7: Entrepreneurial intention positively affects the pre-start-up behavior

3 Research Methodology

A quantitative approach that quantifies and generalises the results of samples to the target population was adopted in this study (Mahmood et al. 2019). In general, research design refers to the overall methodology used to reliably and rationally integrate different components of the study. It is the basis of data collection, measurement, and interpretation (Kautonen et al. 2013). According to Krejcie-Morgan formula for sample size calculation, about 322 respondents were required for the study (Kenpro 2012). The online questionnaire survey was conducted (using Google form) across various online platforms, such as Facebook, WhatsApp, and email. Accordingly, this study successfully gathered data of 358 final year students from private universities in Malaysia, which was higher than the recommended sample size required.

3.1 Instrument

The questionnaire design was thoroughly prepared and interpreted to ensure the presentation of easy and impartial wordings for respondents to simply recognise the questions and give responses to the questions based on their own experiences and perceptions. All questionnaire items were adopted from previous empirical studies with minor modifications. The developed questionnaire included six independent variables (i.e. innovativeness, risk-taking propensity, family support, social integration, entrepreneurship education services, and internship quality) and two dependent variables (i.e. entrepreneurial intention and pre-start-up behaviour). The items of innovativeness and social integration were adopted from Mahmood et al. (2019); the items of risk-taking propensity were adopted from Asmara et al. (2016); the items of family support were selected from Shen et al. (2017); internship quality items were adopted from Yi (2017); and the items of entrepreneurial intention were adopted from Iakovleva et al. (2011). Lastly, the items employed to measure entrepreneurial education services and pre-start-up behaviour were selected from Mamun et al. (2017). The considered scale of the questionnaire, ranging from “strongly disagree” (1) to “strongly agree” (5), was used for all variables in the study.

3.2 Data Analysis

PLS-SEM is a causal modelling approach aimed at maximising the explained variance of the dependent latent constructs (Hair et al. 2011). This study used variance-based structural equation modelling (SEM) to maximise the explanation of the variance. The obtained results of this analysis were ensured to be in line with the indications by Khan et al. (2019), which included reliability indicator, internal consistency reliability, convergent validity, discriminant validity, average variance extracted (AVE), effect size, path coefficient estimates, and predictive relevance.

4 Finding Summary

4.1 Demographic Profile

Table 1 demonstrates that 65.4% of the total respondents were females, which were higher than the total male respondents (34.6%). Besides that, 75.1% of the total respondents were single, and 24.9% of the total respondents were married. A majority of the respondents (89.2%) attended entrepreneurship course, while 10.0% of the respondents did not attend any entrepreneurship course. There were five age categories. Majority of the respondents (41.1%) were between 22 to 24 years old, followed by those of between 19 to 21 years old (21.8%), 25 to 27 years old (18.4%),

Table 1 Demographic characteristics of respondents

	N	%		N	%
<i>Gender</i>			<i>Marital Status</i>		
Female	234	65.4	Single	269	75.1
Male	124	34.6	Married	89	24.9
Total	358	100.0	Total	358	100.0
<i>Age Group</i>			<i>Education</i>		
19–21 years	78	21.8	Bachelor degree or equivalent	317	88.5
22–24 years	147	41.1	Master’s degree	24	6.7
25–27 years	66	18.4	Doctoral degree	17	4.7
28–30 years	22	6.1	Total	358	100.0
> 30 years	45	12.6			
Total	358	100.0	<i>Average Monthly Income</i>		
			None	165	46.1
<i>Attended Entrepreneurship Courses</i>			RM1000 to RM2000	132	36.9
Yes	282	89.2	RM2001 to RM4000	25	7.9
No	34	10.8	More than RM4000	24	6.7
Total	316	100.0	Total	358	100.0

30 years and above (12.6%), and lastly, 28 to 30 years old (6.1%). In addition, most of these respondents were Bachelor’s degree students (88.5%), followed by Master’s degree students (6.7%), and doctoral students (4.7%). Moreover, most of these respondents (46.1%) reported no average monthly income, while 36.9% of these respondents reported earning RM1,000 to RM2,000 per month. Another 7.9% of the respondents reported earning RM2,000 to RM4,000 per month, and 6.7% of respondents earned more than RM4,000 per month.

4.2 Reliability and Validity

The reliability of the constructs in this study was measured in terms of Cronbach’s alpha coefficient (α), DG rho-A, and composite reliability (CR). Table 2 presents the results of Cronbach’s alpha coefficients—items with values of above 0.70 (threshold value) are deemed accurate and reliable (Hair et al. 2019). Furthermore, the recorded DG rho values exceeded the cut-off value of 0.7; with the lowest recorded DG rho value was 0.760. Meanwhile, the recorded CR values for all constructs indicated

Table 2 Reliability and validity

Variables	No. Items	Mean	SD	CA	DG rho	CR	AVE	VIF
IN	4	3.209	0.736	0.748	0.760	0.831	0.539	2.134
RP	5	3.440	0.785	0.790	0.823	0.856	0.548	2.310
FS	5	3.567	0.992	0.914	0.921	0.935	0.743	2.076
SI	6	3.244	0.820	0.860	0.870	0.895	0.589	2.205
SQ	5	3.056	0.964	0.928	0.928	0.946	0.777	1.757
QI	4	3.229	0.856	0.850	0.864	0.898	0.687	2.259
EI	4	3.299	0.889	0.794	0.835	0.866	0.623	1.000
SB	10	2.718	0.888	0.927	0.941	0.938	0.605	

Note IN: Innovativeness; RP: Risk Taking Propensity; FS: Family Support; SI: Social Integration; SQ: Entrepreneurship Education Service Quality; QI: Quality of Internship; EI: Entrepreneurial Intention; SB: Pre-Startup Behavior; SD: Standard Deviation; CA: Cronbach’s Alpha; DG rho - Dillon-Goldstein’s rho; CR - Composite Reliability; AVE - Average Variance Extracted; VIF - Variance Inflation Factors

Source Author’s data analysis

values of more than 0.70, where the minimum value of CR in this study was 0.831. These results further confirmed the reliability of the model constructs. The square root of AVE for all items of each construct must exceed 0.50 to support the unidimensionality concept, as suggested by Hair et al. (2019). As tabulated in Table 2, items for each construct exhibited acceptable convergent validity, with VIF values of less than 3.3 (threshold value). In addition, no sign of multicollinearity for each construct was observed.

Besides that, Fornell-Larecker criterion and HTMT ratio were used to determine the discriminant validity of each construct in this study. In order to achieve discriminant validity for each construct, the required HTMT ratio should be lower than 0.85. HTMT value that approaches 1 indicates the lack of discriminant validity (Henseler et al. 2014). Thus, the tabulated results in Table 2 and Table 3 reaffirmed the discriminant validity of all constructs in this study.

Table 4 presents both loadings and cross-loadings to confirm the outcomes of discriminant validity. The obtained results reaffirmed the discriminant validity of all constructs in this study.

Table 3 Discriminant validity

	IN	RP	FS	SI	SQ	QI	EI	SB
<i>Fornell-Larcker Criterion</i>								
IN	0.705							
RP	0.667	0.741						
FS	0.580	0.620	0.862					
SI	0.579	0.612	0.636	0.767				
SQ	0.441	0.482	0.465	0.507	0.881			
QI	0.576	0.569	0.548	0.609	0.628	0.829		
EI	0.543	0.615	0.520	0.459	0.505	0.592	0.790	
SB	0.289	0.300	0.264	0.313	0.435	0.444	0.484	0.778
<i>Heterotrait-Monotrait Ratio (HTMT)</i>								
IN								
RP	0.853							
FS	0.682	0.708						
SI	0.704	0.713	0.700					
SQ	0.521	0.562	0.499	0.561				
QI	0.708	0.674	0.617	0.706	0.698			
EI	0.689	0.753	0.601	0.525	0.568	0.688		
SB	0.318	0.315	0.265	0.336	0.447	0.473	0.504	

Notes IN: Innovativeness; RP: Risk Taking Propensity; FS: Family Support; SI: Social Integration; SQ: Entrepreneurship Education Service Quality; QI: Quality of Internship; EI: Entrepreneurial Intention; SB: Pre-Start-up Behaviour

Source Author’s data analysis

Table 4 Loadings and cross-loadings

Code	IN	RP	FS	SI	SQ	QI	EI	SB
IN—Item 1	0.683	0.366	0.322	0.352	0.277	0.358	0.324	0.203
IN—Item 2	0.745	0.546	0.455	0.437	0.350	0.456	0.453	0.269
IN—Item 3	0.663	0.393	0.405	0.458	0.297	0.401	0.316	0.124
IN—Item 4	0.767	0.588	0.506	0.458	0.376	0.472	0.440	0.220
RP—Item 1	0.416	0.665	0.410	0.357	0.371	0.411	0.431	0.249
RP—Item 2	0.411	0.537	0.306	0.327	0.275	0.268	0.239	0.078
RP—Item 3	0.572	0.833	0.569	0.547	0.388	0.486	0.552	0.263
RP—Item 4	0.544	0.818	0.491	0.524	0.360	0.459	0.483	0.224
RP—Item 5	0.520	0.805	0.474	0.474	0.385	0.441	0.496	0.246
FS—Item 1	0.542	0.600	0.847	0.573	0.390	0.474	0.515	0.248
FS—Item 2	0.534	0.591	0.888	0.569	0.450	0.519	0.479	0.265
FS—Item 3	0.448	0.493	0.870	0.529	0.372	0.460	0.401	0.218

(continued)

Table 4 (continued)

Code	IN	RP	FS	SI	SQ	QI	EI	SB
FS—Item 4	0.429	0.441	0.852	0.507	0.313	0.405	0.366	0.167
FS—Item 5	0.517	0.513	0.852	0.548	0.459	0.485	0.449	0.221
SI—Item 1	0.545	0.626	0.573	0.749	0.408	0.500	0.453	0.194
SI—Item 2	0.366	0.377	0.387	0.733	0.319	0.428	0.300	0.322
SI—Item 3	0.388	0.424	0.430	0.783	0.381	0.445	0.307	0.212
SI—Item 4	0.414	0.437	0.484	0.816	0.413	0.490	0.303	0.252
SI—Item 5	0.452	0.442	0.525	0.830	0.442	0.511	0.365	0.317
SI—Item 6	0.444	0.435	0.473	0.684	0.347	0.400	0.327	0.157
SQ—Item 1	0.362	0.431	0.381	0.430	0.866	0.513	0.430	0.369
SQ—Item 2	0.453	0.429	0.401	0.497	0.880	0.566	0.443	0.371
SQ—Item 3	0.390	0.397	0.434	0.433	0.907	0.542	0.428	0.384
SQ—Item 4	0.345	0.397	0.393	0.441	0.898	0.565	0.451	0.430
SQ—Item 5	0.393	0.464	0.439	0.431	0.854	0.575	0.470	0.363
QI—Item 1	0.451	0.468	0.414	0.462	0.533	0.831	0.550	0.399
QI—Item 2	0.434	0.429	0.453	0.538	0.492	0.824	0.381	0.291
QI—Item 3	0.468	0.429	0.470	0.488	0.470	0.820	0.429	0.381
QI—Item 4	0.543	0.539	0.484	0.539	0.568	0.840	0.556	0.381
EI—Item 1	0.494	0.572	0.450	0.432	0.459	0.546	0.867	0.467
EI—Item 2	0.388	0.446	0.392	0.349	0.430	0.466	0.854	0.386
EI—Item 3	0.349	0.399	0.331	0.218	0.200	0.297	0.582	0.143
EI—Item 4	0.469	0.511	0.458	0.405	0.445	0.513	0.822	0.448
SB—Item 1	0.241	0.269	0.273	0.279	0.315	0.342	0.391	0.611
SB—Item 2	0.305	0.308	0.319	0.319	0.492	0.429	0.474	0.745
SB—Item 3	0.297	0.323	0.213	0.288	0.378	0.398	0.517	0.821
SB—Item 4	0.160	0.163	0.134	0.202	0.320	0.300	0.329	0.850
SB—Item 5	0.194	0.240	0.191	0.214	0.342	0.342	0.370	0.864
SB—Item 6	0.200	0.201	0.180	0.230	0.282	0.315	0.325	0.848
SB—Item 7	0.238	0.249	0.221	0.288	0.368	0.380	0.370	0.801

(continued)

Table 4 (continued)

Code	IN	RP	FS	SI	SQ	QI	EI	SB
SB—Item 8	0.216	0.199	0.192	0.197	0.291	0.343	0.295	<i>0.794</i>
SB—Item 9	0.156	0.098	0.118	0.165	0.209	0.219	0.252	<i>0.694</i>
SB—Item 10	0.105	0.116	0.081	0.122	0.222	0.247	0.221	<i>0.709</i>

Note (1) IN: Innovativeness; RP: Risk Taking Propensity; FS: Family Support; SI: Social Integration; SQ: Entrepreneurship Education Service Quality; QI: Quality of Internship; EI: Entrepreneurial Intention; SB: Pre-Startup Behaviour

(2) The Italic values in the matrix above are the item loadings and others are cross-loadings

Source Author’s data analysis

4.3 Path Coefficients

The reliability and validity from the structural assessment in this study were deemed satisfactory. Following that, the effects of innovativeness (IN), risk-taking propensity (RP), family support (FS), social integration (SI), entrepreneurship education services (SQ), and internship quality (QI) on entrepreneurial intention were determined. The adjusted R2 value for all seven exogenous constructs (IN, RP, FS, SI, SQ, and QI) explained 49.2% of total variance in entrepreneurial intention among Malaysian private university students. The Q2 value of 0.297, suggesting high predictive relevance of all six variables on entrepreneurial intention. However, the adjusted R2 value of 23.4% of variance in the pre-start-up behaviour. The recorded Q2 of this model was 0.123, suggesting medium predictive relevance.

Table 5 presents the recorded standardised path values, t-values, and significance levels. The recorded path coefficient for the path between IN and EI ($\beta = 0.113$, $t = 1.970$, $p = 0.025$) showed significant positive effect of IN on EI; thus, supporting H1. The recorded path coefficient for the path between RP and EI ($\beta = 0.315$, $t =$

Table 5 Path coefficients

Hypo		Beta	CI - Min	CI - Max	t	p	r ²	f ²	Q ²	Decision
H ₁	IN → EI	0.113	0.028	0.210	1.970	0.025	0.492	0.012	0.297	Accept
H ₂	RP → EI	0.315	0.206	0.415	4.937	0.000		0.085		Reject
H ₃	FS → EI	0.119	-0.007	0.241	1.610	0.054		0.013		Reject
H ₄	SI → EI	-0.102	-0.200	0.002	1.659	0.049		0.009		Accept
H ₅	SQ → EI	0.138	0.032	0.250	2.104	0.018		0.021		Accept
H ₆	QI → EI	0.258	0.133	0.365	3.914	0.000		0.058		Accept
H ₇	EI → SB	0.484	0.410	0.552	11.361	0.000		0.234		0.305

Notes Note: IN: Innovativeness; RP: Risk Taking Propensity; FS: Family Support; SI: Social Integration; SQ: Entrepreneurship Education Service Quality; QI: Quality of Internship; EI: Entrepreneurial Intention; SB: Pre-Startup Behaviour

Source Author’s data analysis

4.937, $p = 0.000$) indicated insignificant positive effect of RP on EI; thus, rejecting H2. The insignificant positive effect of FS on EI ($\beta = 0.119$, $t = 1.610$, $p = 0.054$) showed no support for H3. The path between SI and EI ($\beta = -0.102$, $t = 1.659$, $p = 0.049$) presented a significant positive relationship; thus, supporting H4. The recorded path coefficient for the path between SQ and EI ($\beta = 0.138$, $t = 2.104$, $p = 0.018$) indicated significant positive effect of SQ on EI; thus, offering significant statistical support for H5. The recorded path coefficient for the path between QI and EI ($\beta = 0.258$, $t = 3.914$, $p = 0.000$) revealed a significant positive relationship; thus, supporting H6. The recorded path coefficient for the path between EI and SB ($\beta = 0.484$, $t = 11.361$, $p = 0.000$) signified significant positive effect of EI on SB; thus, accepting H7.

5 Discussion

This study presented empirical evidence on the effects of innovativeness, risk-taking propensity, social integration, family support, entrepreneurship education services, and internship quality on entrepreneurial intention and pre-start-up preparation among final year students in Malaysian private universities. Using the sample drawn from final year students of any private universities in Malaysia, the study adopted the TPB model and related empirical studies to examine these relationships. With respect to TPB model, the pre-start-up behaviour was used as an indicator of perceived behavioural control in determining the relationship between attitude and intention towards pre-start-up preparation of entrepreneurship. In this study, the effects of attitude, subjective norms, and perceived behavioural control towards entrepreneurship (i.e. innovativeness, risk-taking propensity, social integration, background family support, entrepreneurship education services, and internship quality) on entrepreneurial intention and subsequently, start-up preparation among university students were examined.

The results of this study revealed the significant effect of innovativeness on entrepreneurial intention among final year students in Malaysian private universities. This particular finding on the significant relationship between innovativeness and entrepreneurial intention is in line with a study by Armstrong and Hird (2009). Likewise, the research finding has also supported by several studies (Abubakar and Yazeed 2018; Law and Breznik 2017; Wathanakom et al. 2020) stating positive influence of innovativeness on one's entrepreneurial intention. However, this study casted a light on risk-taking propensity that contribute insignificant positive effect on entrepreneurial intention. However, Tang and Tang (2007) was found that these findings oppose with his finding that entrepreneurship risk-taking phenomenon is a critical element in entrepreneurship and have significant positive effect on the entrepreneurial intention. Besides that, the study revealed insignificant positive effect of family support on the students' entrepreneurial intention. This particular finding contradicts the study by Peng et al. (2013), which revealed the substantial effect of support from the family on entrepreneurial aspirations. The study noted the

crucial role of parents in the entrepreneurial career of their children. Mahajar and Yunus (2012) believed that family provides support for entrepreneurship by ensuring conducive economic climate and accessible services, such as knowledge and capital.

In addition, social integration and entrepreneurship education services were also revealed to exhibit positive effects on the students' entrepreneurial intention. These results are backed by the results of prior studies (see Zafar et al. 2012), which revealed that most of the people whom they have strong connection with tend to have strong bonds with others, guiding them towards more resources and interactions. Meanwhile, the quality of entrepreneurship-related courses and services offered by universities can inspire students to have favourable entrepreneurship intention and subsequently, put more effort to start their own business (Vanevenhoven and Liguori 2013). Furthermore, studies on whether internship quality significantly and positively affects students' entrepreneurial intention have been lesser, as compared to those that explored other factors. However, the current study found the positive relationship between internship quality and students' entrepreneurial intention. This particular finding is in line with previous empirical findings by Yi (2018), as internship can also be identified as learning by doing in a real workforce setting with its long heritage of learning process towards becoming an entrepreneur. Thus, internship may not lead students to start their own firm, but it certainly helps them to polish their talent and skills and boost their motivation towards entrepreneurship (Lu and Wang 2018). Finally, the results also indicated the significant positive effect of entrepreneurial intention on the pre-start-up preparation and behaviour in accordance with TPB in this study. However, unlike the other identified factors, risk-taking propensity and family support in this study did not have significant effect on entrepreneurial intention. Thus, this study did not have adequate evidence to fully support and confirm TPB.

6 Conclusion

Apart One of the critical issues that the Malaysian economy faces today is graduate unemployment. In most cases, graduates prefer to be paid employees, instead of becoming entrepreneurs. However, fostering entrepreneurship among students and graduates is one of the alternatives that can be implemented to address unemployment issues. The effects of attitude, subjective norms, and perceived behavioural control towards entrepreneurship on entrepreneurial intention and start-up planning were explored empirically in this study. Despite the extensive number of studies on the effects of attitude, subjective norms, and perceived behavioural control on entrepreneurship intention, only a handful of studies examined these effects on entrepreneurial intention and subsequently, the pre-start-up behaviour. As mentioned above, there have not been much studies on the entrepreneurial spirits among students in Malaysian private universities. Many graduates have been reported to have the willingness to become an entrepreneur, but they were discouraged due to the lack of support, confidence, or encouragement. Besides that, a lot of individuals out there

who do not consider entrepreneurship as a career, as it is not widely popular and they do not have adequate knowledge in the field. Surprisingly, the respondents in this study who did not attend any entrepreneurship course or learn about the importance of entrepreneurship demonstrated entrepreneurial spirits through their attitude and perceived behavioural control towards entrepreneurship, leading to start-up preparation. However, the other respondents who had the opportunity to take up entrepreneurship education or entrepreneurship-related programmes were even more positive towards pre-start-up behaviour. Thus, highlighting the importance of entrepreneurship education services and quality programmes at the university level since the respondents taken entrepreneurship courses shows more positive attitudes and behaviours towards self-employed.

These findings give merit to the Malaysian government in its efforts of improving the current policies and programmes and developing new, advanced programmes and activities for students and graduates to pursue entrepreneurship. In addition, the Malaysian government should consider enhancing the existing practices, providing the younger generations with high-quality entrepreneurship courses, and adopting programmes in partnership with universities and other higher education institutions to induce tendency towards an entrepreneurial career and a lower unemployment rate. The current study also highlighted the urgent need for more entrepreneurs in Malaysia to achieve better economic development and meet the high advanced market demands in the ever-changing business environments.

Undoubtedly, this study had several limitations. Firstly, the elements in this research framework did not represent all possible explanations that may affect entrepreneurship intention and pre-start-up preparation among university students. Moreover, the sample size of this study was small, with the focus on private universities only, due to the limited time available for the actual data collection. Hence, it is recommended for future research to expand the population to other industries or institutions for broader range of demographics, to research on various specific fields of study such as students from Engineering, Information Technology, Computing, Medicine, law and so on and other factors, for instance, the influence of Entrepreneurship Development Programs, Government Support and Need for Achievement on the entrepreneurial intention among the targeted groups of respondents. Besides that, there were limitations in the design of the instrument and the lack of resources to conduct this study. Future research with thorough knowledge of this study is crucial since entrepreneurship has a very significant role in the ever evolving socioeconomic in global context. In addition, it is also recommended for future research to validate, examine other factors that potentially influence entrepreneurship, and expand the TBP model for more in-depth interpretation of the framework of various cultural, demographic or geographical settings towards entrepreneurial intention.

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The Influence of Electronic Word-of-Mouth Communication on Consumer Purchase Intention



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Abstract The innovation of the Internet has led to the revolution of consumer behaviour and purchase intention throughout the consumer decision-making process. It provides a huge opportunity for businesses to anticipate the increasing value of online retail. Particularly in Malaysia, the number of Internet users has given rise pertaining to current trends which involved exhaustive use of social networking in terms of patterns of getting information among users and e-commerce experience. As social media becomes a vital part of people's daily life, the influence of electronic word-of-mouth (eWOM) surpasses the influence of traditional face-to-face WOM communication on consumers' decision making. The purpose of this study is to examine the impact of the persuasiveness of eWOM messages and consumer's attitude to use information which turns into behaviour intention in the online context among Malaysian young consumers. Convenience sampling was employed to select sample among young generation who at least have one social media account. Data were collected using questionnaires. A total of 440 effective samples were collected and the analyses were carried out using both descriptive analysis and structural equation modelling (SEM). The findings showed Source credibility, Source presence, eWOM quantity and eWOM attractiveness are the factors that influence online purchase intention.

Keywords Internet · Social media · Online purchase intention · Electronic word of mouth

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1 Introduction

Consumers have been given great opportunity to search for information on products and services by the advent of social media. Erkan and Evan (2016) and Wan Zulkiffi et al. (2017) defined word of mouth (WOM) as an action that exchange opinions and experiences among peoples. Variety of past research regarding WOM has been carried out towards consumers' product judgements (Chung and Austria 2010; Yildirim 2011), and purchase intention (Kudeshia and Kumar 2017; Zhao et al. 2017). Thus, making the presence of Internet a great platform for consumers to exchange their opinions towards a larger audience. The advantages of eWOM (such as increasing brand popularity and sales) has led to many studies on eWOM been carried out (Cheung and Thadani 2012; King et al. 2014). The results from most of these studies showed eWOM is an effective marketing instrument (Bickart and Schindler 2001).

Some of the platforms used for eWOM are blogs, consumer review websites, discussion forums, shopping websites and social media websites (Cheung and Thadani 2012; Ismail et al. 2019). These platforms are used by consumers to find suitable information on products and services. For example, blogs by studies from Chu and Kamal (2008) and Lin et al. (2012), consumer review websites (Cheung et al. 2008; Gauri et al. 2008), discussion forums (Chiou and Cheng 2003; Huang and Chen 2006), and shopping websites (Lee et al. 2008; Li and Zhan 2011; Hong et al. 2019). However, less attention towards eWOM on social media (Cheung and Thadani 2012; Erkan and Evans 2016) even though there are a few existing studies (See-To and Ho 2014; Wang et al. 2012).

Therefore, the purpose of this study is to identify persuasiveness of eWOM messages (source credibility, social presence, eWOM quantity, and eWOM attractiveness) towards online purchase intention in social media platform among Malaysian young consumers. It commences with the overview of the eWOM messages, which emphasizes social media communication as part of online marketing platform and relates to consumer buying intention. The problem statement pertaining to as to how eWOM messages shapes the attitudes towards information acceptance and influences consumer purchase intention is highlighted.

2 Literature Review

2.1 eWOM and Purchase Intention

According to Huang (2013), See-To and Ho (2014), and Zhang et al. (2010), eWOM have a great influence towards online purchase intention, where eWOM could affect the buying decision behaviour of consumers (Wu et al. 2014). Barton (2006) has claimed that eWOM has become great determinants towards consumers' purchase intention neither in companies' website nor shopping websites. Indeed, this can be

explained that eWOM becomes the greatest chance for researchers to identify how influential of eWOM towards purchase intention.

The first study on the influence of eWOM towards purchase intention was carried out by Bickart and Schindler (2001). The study detailed the comparison effect between consumer-generated eWOM and marketers-generated eWOM. The findings posit consumers adopted consumers-generated eWOM as information reference due to the information being more reliable and derived from consumers' experience. Wang et al. (2012), has also found eWOM to have a positive effect towards purchase intention made in social media. In short, eWOM not only influences purchase intention online but influences purchase decision offline too (Matute et al. 2016).

2.2 *Source Credibility*

Cheung and Lee (2012) stated most individuals are likely to make interaction through social networks such as Facebook, Twitter and others. These are some preferable channels where consumers are willing to share information such as review towards products, retailers or services. Besides, individuals are prepared to share their information by using online chat boards in social media (Cheung and Lee 2012).

In general, consumers are more likely to adopt information that is generated by experienced consumers from social media rather than the information generated by the advertisers (Bataineh 2015). Thus, source credibility is seen as another important tool in influencing consumer purchase intention. Therefore, based on the above studies, the first hypothesis is developed to test whether eWOM credibility influence consumer purchase intention.

H1: There is a significant relationship between eWOM credibility and consumer purchase intention.

2.3 *Social Presence*

According to v. Wangenheim and Bayón (2004), consumers will trust the information they obtained through online based on certain factors such as the relationship between the human web interface and intentions to purchase in its specific social presence. This study assumes that human warmth and sociability interaction through the Internet are reinforcing factors with trust that enhance the intention to purchase online. Indeed, the researcher believes that Social Presence represents the social context based on notions of social presence and trust. Thus, the second hypothesis is condensed to test whether social presence influence consumer purchase intention:

H2: There is a significant relationship between social presence and consumer purchase intention.

2.4 *eWOM Quantity*

Cheung and Thadani (2012) claimed the quantity of eWOM makes the reviews more valuable since consumer searches for online reviews. Furthermore, the volume of eWOM represent the popularity of a product in online market. Apart from that, reading numerous reviews by others could reduce consumer fearless when making a purchase decision (Chatterjee 2001). Therefore, the third hypothesis is formulated to investigate the influence of eWOM quantity on consumer purchase intention:

H3: There is a significant relationship between eWOM quantity and consumer purchase intention.

2.5 *eWOM Attractiveness*

The attractiveness of online platform has an impact on purchase intention on social commerce sites but often ignored by many sellers. This can be supported by study from Liang et al. (2011) who claimed consumers will not purchase products from high credibility online sellers due to the inability of the products in fulfilling their desire. Similarly, consumers are more reluctant to pass on a message or content online if the product is not appealing. This means that the viral effect is less likely to occur for such products. However, eWOM attractiveness has a high contribution in social commerce business, due to its high influence towards consumers' purchase intention (See-To and Ho 2014). Therefore, the fourth hypothesis is developed to test the influence of eWOM attractiveness on consumer purchase intention.

H4: There is a significant relationship between eWOM attractiveness and consumer purchase intention.

3 Methodology

This research was designed in a cross-sectional and quantitative approach. The target respondents in this research were individual whose age range between 18 to 35 years old and owned at least one social media account in a higher education institution. These respondents were selected based on non-probability method, convenience sampling. 7 points Likert-scale were adopted in this study to identify the respondents' level of agreement or disagreement with the statements in this study.

The researchers successfully obtained 479 out of 600 questionnaires from the target respondents. In the first stage of data filter process, the researchers discarded 11 responses due to incomplete questionnaires filled by the respondents. This is followed by the second stage where the researchers removed 28 sets of questionnaires due to the suspicious response pattern. Therefore, the 440 questionnaires remained, were used in this study. Then, the data was analysed using Smart PLS 3.0 software.

4 Results and Discussion

4.1 Frequency Analysis

Table 1 showed the demographic profile for the respondents in this study. 76.5% and 24.5% were female and male respondents, respectively. As for the age, majority of the respondents were in the age group of 15–21 years old (79.9%) while 15.8% and 4.3% of respondents were in the age group of 22–27 and 28–35 years old respectively. As for race, Malays were the majority in this study with 79.1% among all respondents.

Most respondents in this study were full-time bachelor's degree program student, from all over the states of Malaysia, with the highest from the Federal Territory with 12.7%, followed by Sabah at 12.3%. In this study, 344 had Facebook while 80 respondents had Instagram accounts. As for product review, apparels, gadgets, and food and beverages are the top three categories that respondents discussed on social network sites. Majority of the respondents in this study get useful information by browsing reviews or comments. Finally, apparel is the most recommended products that would likely to be purchase by respondents in this study.

4.2 Measurement Model Assessment

As shown in Table 2, all variables were reliable and valid as suggested by Hair et al. (2012) where the average variance extracted (AVE) must not be less than 0.5. While, Henseler et al. (2009) recommended the value for composite reliability (CR) value must be 0.8 and above. Furthermore, Hair et al. (2012) added that the loading values must more than 0.708. However, if the loadings values fall to between 0.4 to 0.7, they are still acceptable since other loadings have high scores of loadings by fulfilling AVE value and CR value criteria. In short, all items in this study were found to be reliable and valid.

Table 1 Respondent's demographic characteristics

Demographic	Frequencies	Percentage
Gender		
Male	104	23.6
Female	336	76.4
Race		
Malay	420	79.1
Chinese	14	16.4
Indian	6	4.5
Age		
15–21	348	79.1
22–27	72	16.4
28–35	20	4.5
Education		
SPM	27	6.1
Certificate	27	6.1
Diploma	6	1.4
Bachelor's degree	349	79.3
Master's degree	2	0.5
Others	29	6.6
Occupation		
Professional staff	39	8.9
Managerial/supporting staff	33	7.5
Part-time student	367	83.4
Full-time students	1	0.2
State		
Kelantan	30	6.8
Terengganu	27	6.1
Pahang	17	3.9
Perak	14	3.2
Penang	28	6.4
Perlis	31	7.0
Kedah	18	4.1
Johor	37	8.4
Negeri Sembilan	23	5.2
Melaka	35	8.0
Selangor	46	10.5
Federal Territory	56	12.7
Sabah	54	12.3

(continued)

Table 1 (continued)

Demographic	Frequencies	Percentage
Sarawak	24	5.5
Type of social network		
Facebook	344	78.2
Twitter	1	0.2
Instagram	80	18.2
Others	15	3.4
Number of usages for social network		
1–2 times	344	78.2
2–3 times	1	0.2
4–5 times	80	18.2
More than 6 times	15	3.4
Product review		
Gadgets	67	15.22
Food and beverages	57	12.9
Apparel	197	44.7
Shoes	54	12.2
Books	45	10.2
Cosmetics	20	4.5
Purpose of browsing reviews/comments		
To save time	98	22.2
To save money	87	19.7
For convenience	110	25.0
To get useful information	145	32.9
Product recommended		
Gadgets	81	18.5
Food and beverages	71	16.1
Apparel	127	28.9
Shoes	60	13.6
Books	64	14.5
Cosmetics	37	8.4

Table 2 The measurement model analysis result

Constructs	Item	Loading	CR	Ave	Validity
Source credibility	CRE 1	0.567	0.903	0.617	Yes
	CRE 2	0.607			
	CRE 3	0.767			
	CRE 4	0.828			
	CRE 5	0.931			
	CRE 6	0.933			
Source presence	PRE 2	0.862	0.846	0.583	Yes
	PRE 5	0.706			
	PRE 6	0.826			
	PRE 7	0.639			
eWOM quantity	eQuan 2	0.752	0.861	0.601	Yes
	eQuan 4	0.842			
	eQuan 5	0.815			
	eQuan 7	0.707			
eWOM attractiveness	eATTR 1	0.588	0.854	0.601	Yes
	eATTR 3	0.720			
	eATTR 4	0.932			
	eATTR 5	0.820			
Consumer purchase intention	CPI 1	0.745	0.901	0.606	Yes
	CPI 2	0.747			
	CPI 3	0.608			
	CPI 4	0.916			
	CPI 5	0.789			
	CPI 6	0.830			

4.3 Structural Model Assessment

Table 3 showed the hypothesis testing result based on path coefficient test. Hair et al. (2016) suggested the directional hypothesis can be accepted in a research study if the t-value more than 1.96 and a p-value less than 0.05. This signified that all hypotheses in this study were accepted by testing t-value and p-value at the same time.

Table 3 The path coefficient result

Relationship	Hypothesis	Direct effect (β)	Standard error	T-statistic	P-value	Significant
CRE > CPI	H ₁	0.072	0.019	3.884	0.000	Significant
PRE > CPI	H ₂	0.103	0.020	5.246	0.000	Significant
eQUAN > CPI	H ₃	0.114	0.025	4.575	0.000	Significant
eATTR > CPI	H ₄	-0.041	0.015	2.727	0.006	Significant

Note CPI: Consumer Purchase Intention; CRE: Source credibility; PRE: Source presence; eQUAN: eWOM quantity; eATTR: eWOM attractiveness

5 Conclusion, Suggestion and Limitation of the Study

The path coefficient result showed all independent variables are significant towards consumer purchase intention. Firstly, source credibility is significant in influencing consumer purchase intention based on the path coefficient result (β : 0.072, t : 3.884, $p < 0.000$). This finding is supported by the study from Bataineh (2015), where credibility of the source plays a vital role in developing consumer perspective that relates to eWOM. In reality, individual is likely to adopt marketing messages from trusted online platform. This is due to individuals can develop a clear attitude by comparing information from trusted or familiar people and information from advertisers. Therefore, the researchers justify that eWOM is the credibility of the extent to which the consumer feels that the product information, comments or suggestions are facts, true or reliable.

Next, the findings in this study found social presence (β : 0.103, t : 5.246, $p < 0.00$) significantly influences consumer purchase intention. This is supported by study from Lu et al. (2016) who stated that social presence of the web, perception of others, as well as social presence of interaction are three factors for social presence variables. Social presence becomes value-added towards the nature of social aspects in social commerce marketplace based on three determinants. Therefore, the researchers justify that individual who are active users for social networking tools are likely to communicate and interact with other consumers and sociability occur by the web-interface which result in significant result in this study.

Thirdly, eWOM quantity has a significant relationship with consumer purchase intention based on the findings (β : 0.114, t : 4.575, $p < 0.000$). The researchers justify that eWOM quantity can refer as product popularity and consumer purchasing decision can be affect based on the amount or quantity of the eWOM (Hyrnsalmi et al. 2015; Senecal and Nantel 2004). Indeed, the number of reviews and ratings can be determinants towards electronic word-of-mouth and provides positive relationship towards sales which indicated positive eWOM were increasing the sales number (Bataineh 2015).

Last but not least, the findings in this study discovered that eWOM attractiveness (β : -0.041, t : 2.727, $p < 0.006$) significantly influence consumer purchase intention. Teng et al. (2014) defines eWOM attractiveness as individuals who find messages as attractive when many consumers posted familiar or almost similar opinions on online reviews. Thus, this justifies that respondent viewed eWOM attractiveness significantly influence purchase intention. In relation, the online reviews were perceived to be helpful and useful form of information resulted from the attraction of positive online review from past consumers that posted similar messages.

Based on the results of this study, the recommendation for future research is to examine if eWOM is part of other companies' marketing strategies rather than just consumer service companies. In addition, it could be interesting to compare, for example, how consumer service and product companies' eWOM actions differ, or business-to-business' and business-to-consumer's practices vary. Furthermore, differences that online and offline WOM have in their effectiveness should be

researched more thoroughly, as well as how eWOM and WOM could work in collaboration.

For limitations of the study, this study considered all social media websites together instead of specifically focusing on one website such as Facebook, Instagram, or Twitter. Further research could examine the eWOM on one social media website. Also, a comparison between social media websites in the context of eWOM can bring valuable theoretical and managerial insights. Care must be taken when extrapolating the findings to other types of online communities. Hence, the knowledge acquired and reported may only be generalised within the perspective of social networking in Malaysia. Therefore, the findings cannot be generalised and do not suit the perspective of other online community channels such as blogs, online consumers' reviews, and discussion forums. Third, the data were gathered from young consumers who belonged to the new cohort, i.e., Generation Y. Although the age group of the young generation constitutes most social media users, they may not precisely reflect the whole population. As such, the extent of the knowledge acquired in this study is limited and suited to represent the perspectives of young consumers in online communities. Due to that reason and because they are currently the major generation or cohort which represents an Internet-savvy group, a more diverse sample of potential users in different age categories and professions should be examined in future research.

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Investigating the Intention to Use Social Media as Online Business Platform Among Female University Students in Malaysia



Xiao Ting Cheah, Li Yoon Chen, Mcxin Tee, Abdullah Al Mamun, and Anas A. Salamah

Abstract This research examined effect of entrepreneurship education, technological adaptability, and self-perceived creativity on attitude towards entrepreneurship; and the effect of attitude towards entrepreneurship and subjective norms on intention to use social media as online business platform among the female university students in Malaysia. This study implemented quantitative approach and collected data from a total of 108 respondents through online survey. Findings of this study revealed that entrepreneurship education and self-perceived creativity have a significant positive influence on female university students' attitude towards entrepreneurship and intention to use social media as online business platform. Besides, subjective norms are proved to have significant positive impact on female students' entrepreneurial intention. Attitude towards entrepreneurship significantly mediates entrepreneurship education and self-perceived creativity on female students' entrepreneurial intention. However, technical adaptability is proved not related to attitude towards entrepreneurship and female students' entrepreneurial intention. With the aim of increasing female entrepreneurial intention, university can introduce entrepreneurship relevant training, seminar, and course in the campus and emphasize on creative and practical approach such as interaction and experimentation in the real world with real customers' feedback to train students' creative mindset.

Keywords Entrepreneurship · Online business · Attitude toward entrepreneurship · Female students' entrepreneurial intention · Social media platform

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1 Introduction

Entrepreneurship has always been a topic of interest for a long time since the beginning of the nineteenth century and it is gradually being pursued in this globalization era. There is no doubt on the crucial role of entrepreneurial activities in regional economic development. According to Bhardwaj (2014), there is a steady increase in number of female entrepreneurs who have a strong passion for their inventions and a desire to become successful leaders in the business world. In year 2016, there are about 163 million females started a new company in 74 economies around the world (Global Entrepreneurship Monitor 2017). Whereas there are 111 million females held leadership roles in existing corporations. Furthermore, contribution of female entrepreneurs in developing countries become a crucial driving force for the country's social development and economic growth (Hossain and Rahman 2018). Moreover, in year 2019, RM 2.3 billion was invested by the Malaysian government to strongly provide supports for the involvement of female in business. Hence, there is a need to study female entrepreneurial development in Malaysia by identifying determinants of female entrepreneurial intention through entrepreneurial opportunities on social media as business platform.

The usage of digital networking sites has developed over the past decade with rapid growth in the number of cyberspace users. Utilization of social media rises gradually from individuals to businesses. Lots of corporations proactively utilize social media as a tool to reach millions of potential clients every day. Social media has been revolutionized by businesses around the world, in different areas of the world albeit at different levels. The digital technologies are posited as a significant basis of the transformation of entrepreneurial environment. The way people work and communicate has been altered by modern digital paradigms, altering way people do business. However, role played by digital networking in facilitating changes in female students' entrepreneurship is little known. Although academic research has begun to examine position of emerging technology in entrepreneurial environments in recent years (Ughetto et al. 2019), gender perspective still largely remained unexplored. Rapid technological development highlights importance of social media in the global business climate. Hence, this study aims to identify determinants influencing the intention of female university students towards starting up their business through social media platform.

2 Literature Review

2.1 *Female Students' Entrepreneurial Intention on Social Media Platform*

Entrepreneurship is often connected to the operation, production, or growth of a new company geared to benefit, value creation, and the creation of new, unique,

and creative products or services. Female entrepreneurs can represent active, driving forces, and productive members of political, technical, and economic management societies. Suryana et al. (2017) have categorized the success of a female entrepreneurs on two basic parameters: sales turnover and generation of jobs. Few researchers have investigated gender disparities in female students' entrepreneurial intention by examining the impact of various intrinsic and extrinsic motivation (Arora and Jain 2019). However, it is a difficult path for female students to start a business venture with conventional method as systematic preparation and business experience are required. Hence, social media platform offers a micro-scale opportunity for female students' entrepreneur who are unable to operate on conventional method (Genç and Öksüz 2015). Social media can be an advantageous tool for businesses because of its ability to provide low-cost information, instant messaging, and robust networking. Digital developments transform the entrepreneurial landscape through emerging technologies and applications to widen opportunities for start-ups and prospective entrepreneurs.

2.2 Entrepreneurship Education

Entrepreneurship education is the scope of curricular courses or lectures in the pursuit of an entrepreneurial career that provide business skills, expertise, and competencies. Inadequate business education can lead to risk-averse behavior and reduce entrepreneurial activity (Lee et al. 2012). The earlier research has not shown conclusively whether a degree in university will improve the prospect of success of an entrepreneurial company (Bhardwaj 2014). Later, Razmi and Firoozabadi (2016) found out people with higher education level are more expected to be involved in entrepreneurship. Female entrepreneurs act a key role in the growth of world economy. Entrepreneurship education can be one of the crucial means to achieve this goal. An educational environment that emphasizes the mindset of embracing innovation, imagination, risk-taking, and the ability to plan and execute strategies can cause entrepreneurship to become a more appealing career choice. Shastri et al. (2019) have stated if government and policy makers can manifest supports to entrepreneurship education, it is able to foster more female entrepreneurs into the development of new business. This leads us to pose our first hypothesis:

Hypothesis (H1): Entrepreneurship education as a significant positive influence on female students' attitude towards entrepreneurship.

2.3 Technological Adaptability

Advances in information technologies change the essence and function of the business climate globally. It has been regarded as a transformative and progressive process component. Before the "information age" expanded, female workers were forced to

work in the shadow economy, such as doing works like knitting and sewing, working as farmers in rural areas, as first-line workers in factories, or as housewives at home (Genç & Öksüz 2015). All these have been changing in today's world because of technological changes. The use of social networking technologies provides lower entry barriers which leads to small businesses can use social media for marketing campaigns as large corporations and without the need for small businesses to invest significant capital in the businesses (Mukolwe and Korir 2016). The ease of use of social media platform enables new ways for marketing campaigns and business opportunities for small businesses. Hossain & Rahman (2018) have exhibited that technical adaptability of female entrepreneurs positively influences entrepreneurial opportunities on social media platform. Hence, we propose the following hypothesis:

Hypothesis (H2): Technological adaptability has a significant positive influence on female students' attitude towards entrepreneurship.

2.4 Self-perceived Creativity

Creativity is a valuable weapon for entrepreneurs as it is one of the main entrepreneurial traits. Through impact of creativity on innovation capability, people can picture situation in which it is possible to generate new ideas, invent new markets, products, and services, and also able to explore alternative courses of action. People with creativity can interpret new associations within the current data and attempt to construct a picture of future could look like (Entrialgo and Iglesias 2020). Creative and innovative mindset is the prerequisite for entrepreneurship. To explore opportunities or identify problem in the society, entrepreneurs must be able to view their environment creatively (Laguía et al. 2019). If the individuals trust in their creative thinking skills, entrepreneurship will turn out to be more appealing as their career choice. Shastri et al. (2019) have stated females who have the urge for creativity made them quit their jobs and be determined to start their own businesses. This leads us to pose our third hypothesis:

Hypothesis (H3): Self-perceived creativity has a significant positive influence on female students' attitude towards entrepreneurship.

2.5 Attitude Towards Entrepreneurship

Attitude represents personal conviction which individuals may have about on a certain activity or action. The more constructive and beneficial the behavior is, the greater the intention to participate in it. Previous researchers have proved attitude towards entrepreneurship is the best predictor of entrepreneurial intention (Al-Jubari et al. 2019). Attitude towards entrepreneurship refers to entrepreneurial attributes such as being innovative, risk-taking, competitive, and willing to change to take part in entrepreneurship. Entrepreneurship can be a way to inspire people to make

a decent living too. Existing researchers have stated that social media platform can provide new entrepreneurial opportunities to female entrepreneurs (Hossain and Rahman 2018). Hence, female university students may have positive attitude towards entrepreneurship and entrepreneurial intention too while using social media as business platform. Therefore, we propose the next two hypotheses:

Hypothesis (H4): Attitude towards entrepreneurship has a significant positive influence on female students' entrepreneurial intention.

Hypothesis (H5): Attitude towards entrepreneurship mediates the relationship between entrepreneurship education, technological adaptability, and self-perceived creativity on female students' entrepreneurial intention.

2.6 Subjective Norms

Subjective norms are about understanding of individuals on how others will perceive their actions on a certain activity such as engaging in business venture. It reflects social pressure such as to get approval or disapproval of conduct from others (Ahmad et al. 2019). This kind of pressure could come from members of family, friends or the society that regulate individual's action or decision to perform certain actions. Subjective norms towards intention to select entrepreneurship as a career choice means an individual may be influenced by expectation of others. In current society, people may assume female would be much more likely to comply with conventional ways rather than risk-taking (Tamprateep et al. 2019). However, some researchers have shown subjective norms will significantly influence intention towards entrepreneurship. Family members, role models, and friends can offer emotional and financial supports to potential future entrepreneurs (Gelaidan and Abdullateef 2017). This leads us to pose our sixth hypothesis:

Hypothesis (H6): Subjective norms have a significant positive influence on female students' entrepreneurial intention.

3 Research methodology

3.1 Research Design

This research measured determinants of female students' entrepreneurial intention among Malaysian female university students. All relationship hypothesized are presented in Fig. 1. It was exploratory research to study associations between variables. Quantitative research method was applied for collecting data in target population to further understand characteristics of variables empirically.

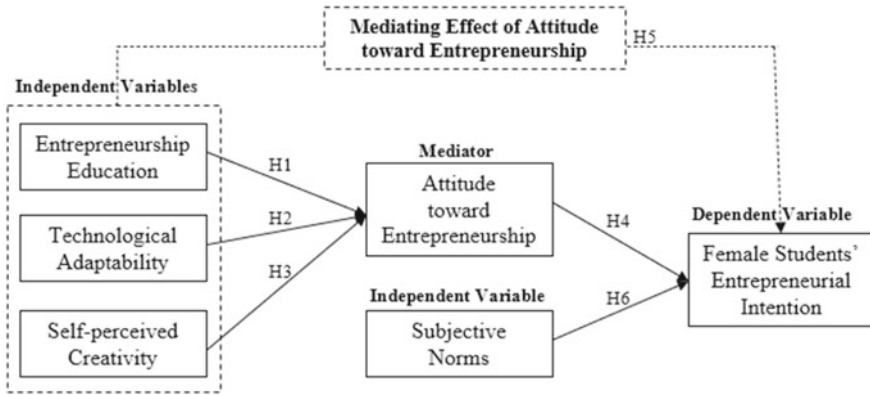


Fig. 1 Research framework

3.2 Population and Sample

Malaysian female university students were targeted as sample population for this research. Sample size was estimated by G*Power software, which the minimum sample size was 74 samples. This research adopted non-probability convenience sampling technique to recognize potential respondents because this technique can reach cost and time efficiency.

3.3 Survey Instrument

Measurement items were adapted from previous literature (Table 1). Questionnaire design was 5- point Likert scale, close-ended questions.

3.4 Data Collection and Analysis

A web-based online questionnaire (Google Form) was conducted due to it can reach larger target audiences, cost, and time efficiency. Online tools can immediately capture primary data once respondents submit their responses. Data analysis was conducted with PLS-SEM method and by following all thresholds suggested by Hair et al. (2016).

Table 1 Survey instrument

Variables	No of Items	Sources
Entrepreneurship Education	4	Keat and Ahmad (2012) Gurbuz and Aykol (2018) Liñán (2014)
Technological Adaptability	2	Malhotra et al. (2007)
Self-perceived Creativity	4	Mueller and Thomas (2001)
Attitude towards Entrepreneurship	4	Liñán and Chen (2009)
Subjective Norms	3	
Female Students' Entrepreneurial Intention	4	

Table 2 Demographic characteristics (N = 108)

Age Group	%	Monthly Expenses	%
18–20 years	9.9	Less than RM1000	46.5
21–25 years	84.6	RM1001 To RM2000	16.3
26–30 years	3.0	RM2001 To RM3000	20.3
31 and above	2.5	RM3001 To RM4000	8.9
Total	100.0	RM4001 To RM5000	5.0
		RM5001 and above	3.0
		Total	100

4 Data Analysis

4.1 Demographic Characteristics

Table 2 exhibits demographic profile of respondents, with a total of 108 respondents. All respondents are female as the research studied on female university students.

4.2 Measurement Model Evaluation

As shown in Table 3, loadings of most items are higher than 0.708 except EE1 (0.451) and SC1 (0.455). Ramayah et al. (2018) have mentioned that items with loadings lower than 0.708 sill can be kept if minimum of AVE result of 0.5 is reached. Hence, we will keep EE1 and SC1 as their AVE is higher than the threshold of AVE of 0.5 (0.509 and 0.585 respectively). Next, CR of all the variables is higher than 0.7.

Table 3 Measurement model for the constructs: reliability and validity

Construct	Items	Loadings	CR	AVE	VIF
Entrepreneurship Education (EE)	EE1	0.451	0.799	0.509	1.210
	EE2	0.713			
	EE3	0.846			
	EE4	0.779			
Technological Adaptability (TA)	TA1	0.781	0.848	0.737	1.224
	TA2	0.930			
Subjective Norms (SN)	SN1	0.832	0.897	0.745	1.390
	SN2	0.889			
	SN3	0.867			
Self-perceived Creativity (SC)	SC1	0.455	0.843	0.585	1.057
	SC2	0.852			
	SC3	0.841			
	SC4	0.837			
Attitude towards Entrepreneurship (ATE)	ATE1	0.715	0.888	0.667	1.390
	ATE2	0.807			
	ATE3	0.872			
	ATE4	0.863			
Female Students' Entrepreneurial Intention (FEI)	FEI1	0.793	0.891	0.672	-
	FEI2	0.799			
	FEI3	0.838			
	FEI4	0.847			

The results prove that all measurement instruments are reliable and valid for further analysis. Hence, it can be indicated that convergent validity is achieved.

Since data collected is using single source of questionnaire technique, to ensure there is no potential collinearity problem among the variables, Variance Inflation Factor (VIF) should be ≤ 3.3 (Ramayah et al. 2018). Table 3 demonstrates the inner VIF values for variables are ≤ 3.3 . The result shows collinearity is not a concern in this research.

Fornell-Larcker criterion is implemented to test discriminant validity. Results in Table 4 display there is no issue with discriminant validity as all values are below 0.90.

Table 4 Discriminant Validity: Fornell-Larcker Criterion

	ATE	EE	FEI	SC	SN	TA
ATE	0.816					
EE	0.302	0.713				
FEI	0.800	0.366	0.820			
SC	0.364	0.179	0.403	0.765		
SN	0.530	0.161	0.516	0.324	0.863	
TA	0.151	0.405	0.226	0.207	0.228	0.859

4.3 Path Analysis

Path coefficient results are shown in Table 5, which suggests that hypotheses of this study: H1, H3, H4 and H6 are positive and statistically significant (with std Beta > 0.1; t-value > 1.645; p-value < 0.05). However, the data analysis shows H2 is not supported.

4.4 Mediation

Bootstrapping procedures are implemented to acquire estimation of indirect effects of 5th hypothesis (H5). Results in Table 6 prove that attitude towards entrepreneurship significantly mediates entrepreneurship education and self-perceived creativity on female students’ entrepreneurial intention.

5 Discussion

H1 is supported with std Beta: 0.252 > 0.1; t-value: 2.102 > 1.645; p-value: 0.018 < 0.05. It shows entrepreneurship education as a significant positive influence on female

Table 5 Hypothesis testing on direct effects

Relationship	Std. Beta	Std. Error	t-value	p-value	Confidence Interval (BC)		Decision
					LL	UL	
H1: EE -> ATE	0.252	0.120	2.102	0.018	0.088	0.447	Supported
H2: TA -> ATE	-0.018	0.121	0.147	0.442	-0.170	0.214	Not supported
H3: SC -> ATE	0.323	0.103	3.131	0.001	0.166	0.510	Supported
H4: ATE -> FEI	0.733	0.061	12.03	0.000	0.623	0.824	Supported
H6: SN -> FEI	0.128	0.071	1.810	0.035	0.019	0.257	Supported

Table 6 Hypothesis testing on mediation (H5)

Relationship	Std. Beta	Std. Error	t-value	p-value	Confidence Interval (BC)		Decision
					LL	UL	
EE -> ATE -> FEI	0.184	0.087	2.122	0.017	0.053	0.334	Supported
TA -> ATE -> FEI	-0.013	0.084	0.155	0.439	-0.114	0.160	Not supported
SC -> ATE -> FEI	0.237	0.076	3.124	0.001	0.139	0.374	Supported

students’ attitude towards entrepreneurship. H3 is supported with std Beta: 0.323 > 0.1; t-value: 3.131 > 1.645; p-value: 0.001 < 0.05. The result proves self-perceived creativity has a significant positive influence on female students’ attitude towards entrepreneurship. H4 is supported with std Beta: 0.733 > 0.1; t-value: 12.03 > 1.645; p-value: 0.000 < 0.05. The data analysis proves attitude towards entrepreneurship has a significant positive influence on female students’ entrepreneurial intention. H6 is supported with std Beta: 0.128 > 0.1; t-value: 1.810 > 1.645; p-value: 0.035 < 0.05. It exhibits subjective norms have a significant positive impact on female students’ entrepreneurial intention. However, H2 is not supported in this research as the data analysis shows std Beta: -0.018 < 0.1; t-value: 0.147 < 1.645; p-value: 0.442 > 0.05. Next, H6 discusses the mediating effect of attitude toward entrepreneurship between three independent variables and dependent variable. Results proves that attitude towards entrepreneurship significantly mediates entrepreneurship education (std Beta: 0.184 > 0.1; t-value: 2.122 > 1.645; p-value: 0.017 < 0.05) and self-perceived creativity (std Beta: 0.237 > 0.1; t-value: 3.124 > 1.645; p-value: 0.001 < 0.05) on female students’ entrepreneurial intention.

Female university students’ entrepreneurship education and self-perceived creativity are proved to have a significant positive relationship on attitude towards entrepreneurship and entrepreneurship intention on starting an online business through social media platform. The results are consistent with previous findings. Female students who have opportunities to gain education and training about learning principles of starting a business, pitching ideas more effectively, and developing business model, they are more likely to involve in entrepreneurship. Moreover, creativity is the core of an entrepreneurial mindset. Female students with self-perceived creativity can be prepared for better opportunity recognition in the current market mechanism. However, technical adaptability is proved not related to attitude towards entrepreneurship and female students’ entrepreneurial intention. Nowadays, social networking sites have enabled new ways of conducting business with wider audiences. One of the possible reasons may be due to the current female university students have been exposed to smartphones, mobile internet use and social media since their very young age. Social media platform is a significant component of their daily lives. Hence, they can deal with technology changes and learn new-age skills quickly. Besides, the relationship between subjective norms and female university

students' entrepreneurial intention are proved positive significant. Family members, role models, and friends can offer emotional and financial support to the potential female students to start their entrepreneurial activities. This finding is coherent with the past findings. Lastly, attitude towards entrepreneurship is concluded has positive and significant relationship with female university students' entrepreneurial intention. The more constructive and beneficial behavior is viewed, the greater the intention to participate in it. The result is consistent with past findings.

6 Conclusion

This research presents entrepreneurship education and self-perceived creativity have a significant positive influence on female university students' attitude towards entrepreneurship and intention to use social media as business platform. Besides, subjective norms are proved to have significant positive impact on female students' entrepreneurial intention. Moreover, attitude towards entrepreneurship significantly mediates entrepreneurship education and self-perceived creativity on female students' entrepreneurial intention. However, technical adaptability is proved not related to attitude towards entrepreneurship and female students' entrepreneurial intention. Nowadays, government and society are promoting gender equality and strongly encouraging females to take part in entrepreneurial activities. From the view of practical implications, the results of this research can contribute to institutions and universities to support female university students to boost up their entrepreneurial intention by introducing entrepreneurship relevant trainings, seminars, and courses in the campus. The trainers or instructors should be more focused on the entrepreneurial process by highlighting the role of entrepreneurial mindset and skills. Moreover, creativity is a critical skill for entrepreneurship training as it is the central of the unstructured entrepreneurial process. The trainers or instructors should emphasize on creative and practical approach such as interaction and experimentation in the real world with real customers' feedback to train students' creative mindset. Because the entrepreneurial process is largely implicit, one of the important aspects is the explicit labelling of creativity of entrepreneurship for female students can boost up their entrepreneurial intention. Besides, due to subjective norms will significantly influence intention towards entrepreneurship, the society should also continuously provide supports to potential future female entrepreneurs, such as giving emotional supports to female students who have the intention to start a business. Furthermore, this research can also allow Malaysian government and policy makers to have insight into the determinants of encouraging females to start business on social media platform. Therefore, more female young adults can be encouraged to participate in entrepreneurial activities and then contribute a positive impact to the nation's economy.

Two limitations have discovered during the process of conducting this study. Firstly, due to limited resources, the study only includes a small sample size which

may limit the scope of respondents. Secondly, due to time constraints, during Covid-19 pandemic situation, it is difficult to collect data. The respondents are only from few private universities in KL area. Therefore, the research results are unable to speak for the thoughts of all university female students as there are many higher-educational institutions situated in Malaysia. To achieve high-accuracy results, in the future, the researchers should extend the sampling location to include universities throughout whole Malaysia, to better represent the views of the entire female students' population in both private and public universities in Malaysia. This research can be an empirical source for future researchers to refer to by providing them insights on female university students' entrepreneurial intention towards starting up business through social media platform. Moreover, future researchers can conduct a longitudinal research with the aim of studying whether the female university students' entrepreneurial intention has turned out to be an actual entrepreneurial activity in their life.

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The Development of Entrepreneurial Intentions: An Institutional Perspective



Tze Cheng Chew 

Abstract This study contributes to the existing literature regarding the relationship between institutions and entrepreneurship. Building upon the institutional perspective, this study examines the influence of institutions on entrepreneurial intentions. While there is a growing number of studies on entrepreneurial intentions, the influence of various facets of institutions in supporting the development of entrepreneurial intentions has not been adequately studied. In an effort to contribute to this emergent area of inquiry, this study considers the interactive effects among the three institutional dimensions—regulatory, normative, and cognitive—in facilitating entrepreneurial intentions. Using Malaysia as the main context of the study, the hypotheses are supported based on data collected from 323 university business students. The findings reveal that normative institutions in which the students are embedded play a more substantial role in shaping their intentions to become entrepreneurs than regulatory institutions. Moreover, the findings suggest significant interactive effects between the three institutional dimensions on entrepreneurial intentions. The findings have important implications for policymakers.

Keywords Entrepreneurial intentions · Institutional context · Malaysia · Developing country

1 Introduction

Entrepreneurship is well-acknowledged as the major driver of the social-economic development of countries, hence the need for a deeper understanding that shapes entrepreneurship. It continues to be a promising stream of research which can be seen from the growing number of studies using entrepreneurial intention as a robust theoretical framework (Fayolle and Liñán 2014). Entrepreneurial intention is regarded as “the conscious state of mind that precedes action and directs attention toward entrepreneurial behaviors such as starting a new business and

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becoming an entrepreneur” (Moriani et al. 2012, p. 165). The development of entrepreneurship depends on internal and external factors (Gartner 1990). The majority of entrepreneurial intention studies focus on its relationship with internal factors (Amofah et al. 2020; Hsu et al. 2017; Nasip et al. 2017; Nowinski and Haddoub 2019). Knowledge of external factors and a more context-bound analysis is relatively under-developed (Fayolle and Liñán 2014; Jafari-Sadeghi et al. 2020; Shahid et al. 2018; Turulja et al. 2020; Urbano et al. 2020). This study addresses this gap and builds on the institutional perspective to examine the association of institutions on the development of entrepreneurial intentions based on a developing country context, Malaysia.

Welter (2011) and Welter and Smallbone (2011) claim that the quest to capture and understand the phenomenon of entrepreneurship is incomplete without examining the institutional context in which individuals are embedded as it plays a critical role in shaping their entrepreneurial intentions. Accordingly, the role of context and institutions has become a promising new direction in entrepreneurial intentions research (Fayolle and Liñán 2014). The impact of institutions, broadly defined as “the humanly devised constraints that structure social behaviors and interaction” (North 1990, p.3) and the most well-established classification of institutions differentiates formal (e.g., regulations, rules systems, and laws) and informal components (e.g., conventions, values and norms, and code of conducts) (North 1990).

Like North’s classification, Scott (1995) proposes three dimensions of institutions: regulatory, normative, and cognitive. While different authors tend to use different terms in classifying institutions, Peng et al. (2009) remark that both classifications by North (1990) and Scott (1995) are complementary, i.e., formal—regulatory vs. informal—normative and cognitive. Hence, it is logical to consider the combined effect of the different classification of institutional components (Aparicio et al. 2016; Fayolle and Liñán 2014; Webb et al. 2020). Nonetheless, empirical research that examines the institutions-entrepreneurial intention relationships is relatively limited. The institutions are often treated as independent constructs having exclusive direct effects on entrepreneurial intentions, falling short of identifying any potentially interactive effect between the different classification of institutional components (e.g., Engle et al. 2011).

This study seeks to advance understanding of the institutions-entrepreneurial intentions link in Malaysia by articulating the interactive influence of the three institutional dimensions, i.e., regulatory, cognitive, and normative. Specifically, it investigates two core sets of associations: 1) the direct association of each institutional dimension on entrepreneurial intentions; and 2) the moderating role of the formal institution (i.e., regulatory) on the association between informal institutions (i.e., normative and cognitive) on entrepreneurial intentions.

This study claims to contribute to entrepreneurship literature and research on the role of institutions in developing entrepreneurial intentions. First, this study responds to the call to account for the institutional context in which individuals are embedded to conceptualize the development of entrepreneurial intentions. Second, this study enriches the understanding of how different classifications of institutions simultaneously interact with each other in shaping entrepreneurial intentions.

The paper is organized as follows. The following section discusses a thorough review of the theoretical framework and relevant literature and presents the development of hypotheses in this study. The third section outlines the research methodology employed in the study. The fourth section presents and discusses statistical analysis. The fifth section presents a discussion of findings, and the paper concludes with the implications and limitations of the study.

2 Theoretical Framework and Hypotheses

2.1 *Entrepreneurial Intentions: An Institutional Perspective*

The number of studies that aims to contextualize entrepreneurial phenomena by investigating how institutional contexts enable and constrain entrepreneurial activities has grown dramatically over the years (Welter 2011; Welter and Smallbone 2011; Zahra et al. 2014), and an institutional perspective has become a popular theoretical lens in the entrepreneurship literature. There is a consensus that entrepreneurial intentions are bounded by, and so can only be fully understood through, the institutional context in which they are embedded (Busenitz et al. 2000; Bruton et al. 2010; Chowdhury et al. 2019; Urbano et al. 2020).

Extant literature generally acknowledges that institutions are divided into two main classifications. On the one hand, there are formal institutions (North 1990) or, as Scott (1995) labels, the regulatory dimension of institutions. On the other hand, there are informal institutions (North 1990) that, according to Scott (1995), could be divided into the normative and cognitive dimensions of institutions. Formal (regulatory) institutions encompass officially codified and enforced laws, rules, regulations, and systems that will incentivize or constrain entrepreneurial activities (North 1990; Nikolaev et al. 2018; Williamson 2000). Baumol (1990) identifies the link between the quality of formal institutions (political, economic, and legal) and the level of productive and unproductive entrepreneurship in an economy, supported in subsequent studies (e.g., Aidis et al. 2008; Sobel 2008; Chowdhury et al. 2019).

In contrast, informal institutions (normative and cognitive) constitute tacit incentives and constraints through “codes of conduct, norms of behavior, and conventions” that prescribe legitimate and acceptable norms (North 1990, p.36). They may not be codified but are deeply embedded in a society, exercising “a lasting grip on the way a society conducts itself” (Williamson, 2000 p. 597). The influence of informal institutions is channeled through individuals’ perception and consideration of social desirability and cultural legitimacy of entrepreneurial behavior (Ajzen 1991; Douglas and Shepherd 2000; Lee and Peterson 2000; Hayton et al. 2002, Shane et al. 2003). As a result, informal institutions shape the way individuals value and perceive the significance of entrepreneurial activities (Bruton et al. 2010). More importantly, they also act as motivational stimulants that spark individual intentions to become

entrepreneurs (Baumol et al. 2009; Muralidharan and Pathak 2017; Stephan and Uhlaner 2010; Stephan et al. 2015).

Formal and informal institutions thus can either facilitate or hinder entrepreneurship activities. Nonetheless, extant literature acknowledges that entrepreneurial activity results in a significant part from the presence of favorable institutions (Busenitz et al. 2000). Building on the three institutional dimensions proposed by Scott (1995), this study develops several hypotheses in the following discussion.

2.2 *Institutional Dimensions and Entrepreneurial Intentions*

The *regulatory institutions* derive most directly from studies in economics and thus represent a rational actor model of behavior based on the laws and policies that the government formulates to encourage or discourage some types of behavior (Scott 1995). In entrepreneurship, regulatory institutions could be referred to as the presence of government policies aimed at defining entrepreneurial opportunities and providing access to vital resources for entrepreneurial activities, both tangible and intangible (Bruton et al. 2010). Supportive and favorable government policies could assist entrepreneurs and would-be entrepreneurs to embark and run their entrepreneurial activities more efficiently and effectively. Extant studies (e.g., Estrin et al. 2013; Lee et al. 2011; Raza et al. 2018; Stephan et al. 2015) show that supportive and friendly regulations positively influence various facets of entrepreneurship. Hence, individuals who perceived supportive regulatory institutions are more likely to have a higher intention to become an entrepreneur. Considering these arguments, the following hypothesis is developed:

Hypothesis 1 A favourable perception of regulatory institutions is positively associated with the development of entrepreneurial intentions.

While regulatory institutions emphasize the formal role of government in supporting entrepreneurial activities, both normative and cognitive institutions focus on the values, norms, and shared knowledge in society derived principally from studies in sociology. The normative and cognitive institutions are deeply embedded within, and largely synonymous with, the culture of a society (Hofstede et al. 2002; Redding 2005) and have a very strong influence in determining the acceptance towards specific behavior and action.

The *normative institutions* represent models of organizational and individual behavior based on obligatory dimensions of social, professional, and organizational interaction and are composed of values (i.e., what is preferred or considered proper) and norms (e.g., how things are to be done, consistent with those values) that further establish consciously followed ground rules to which people conform (Scott 2008). In the context of entrepreneurship, the normative institutions determine whether entrepreneurial action and behavior are encouraged or discouraged by a society (Bruton et al. 2010; Busenitz et al. 2000). Whether entrepreneurship is viewed as a positive phenomenon and an entrepreneur is an admirable career profession. De

Clercq et al. (2010) find that societies do not always view entrepreneurship as a positive phenomenon. As a result, it has a negative influence on entrepreneurial intentions. It is, therefore, expected that individuals who perceived supportive normative institutions are more likely to have a higher intention to become an entrepreneur, and the following hypothesis is proposed:

***Hypothesis 2** A favourable perception of normative institutions is positively associated with the development of entrepreneurial intentions.*

The *cognitive institutions* represent models of individual behavior based on subjectively constructed realities and meanings that limit appropriate beliefs and actions (Scott 1995). In entrepreneurship, it reflects the knowledge of individuals about business opportunities available in the country. That includes assembling resources to start a business or general confidence to manage and grow a business (De Clercq et al. 2010). Individuals who perceived supportive cognitive institutions thus would tend to have higher entrepreneurial intentions. The following hypothesis hence is put forward:

***Hypothesis 3** A favourable perception of cognitive institutions is positively associated with the development of entrepreneurial intentions.*

2.3 The Interactive Effects Among Institutional Dimensions on Entrepreneurial Intentions

The previous discussion focuses on the direct effect of each institution on the development of entrepreneurial intentions. Given that, in reality, individuals are exposed to both formal and informal institutions at the same time, scholars have increasingly embraced them both in explaining variations in entrepreneurship and suggested their interdependence (Aidis et al. 2008; Chowdhury et al. 2019; Urbano and Alvarez 2014). However, knowledge of the interaction between formal and informal institutions is emergent and still limited (Eesley et al. 2018; Webb et al. 2020).

Hence, this study argues that different institutions, particularly the three institutional dimensions, will have different influences on the development of entrepreneurial intentions. Rather than considering the institutional dimensions (i.e., regulatory, normative, and cognitive) as separate variables that have exclusive direct effects, this study contends that the three may synergistically interact when predicting entrepreneurial intentions. It is suggested that informal (normative and cognitive) institutions have a more salient, persistent, and deeply rooted influence on individuals in society than formal (regulatory) institutions (Estrin and Prevezer 2011; Meyer and Peng 2016). Hence, informal institutions largely determine the individual's behavior, particularly attitudes towards entrepreneurial opportunities and activities. While as a type of enforced intervention, formal institutions need to work in conjunction with informal institutions to affect long-term attitudinal and behavioral changes (Holmes Jr. et al. 2013; Williams and Vorley 2015). Accordingly, this

study proposes that regulatory institutions have a moderating effect on the relationship between 1) normative institutions and entrepreneurial intentions and 2) cognitive institutions and entrepreneurial intentions.

As argued earlier, while individual attitudes are deeply influenced by informal institutions, the actions or inactions of governments are influential in setting the opportunity conditions for potential would-be-entrepreneurs (Lee and Peterson 2000; Mallett et al. 2019). Extending this point, informal institutions need to be supported by favorable formal institutions to enhance the likelihood of generating the desired effect on entrepreneurial intentions (Williams and Vorley 2015). Formal institutions can either foster or limit human behavior by inhibiting the capacity of individuals in the search for entrepreneurial opportunities (Boudreaux et al. 2019). In other words, coherent and supportive regulatory institutions will help reinforce the informal institutions favorable to entrepreneurship. Hence, the strength of the influence of informal institutions on the development of entrepreneurial intentions is likely to be enhanced by the presence of consistent and favorable regulatory institutions that encourage the pursuit of entrepreneurial initiatives and opportunities (Eesley et al. 2018; Lee and Peterson 2000; Raza et al. 2018).

In accordance with the arguments above, this study expects that the positive effects of normative and cognitive institutions on entrepreneurial intentions will be strengthened when individuals perceive strong support from the regulatory institutions. As such, the following hypotheses are put forward:

Hypothesis 4a A favourable perception of regulatory institutions moderates the relationship between the normative institutions and entrepreneurial intentions

Hypothesis 4b A favourable perception of regulatory institutions moderates the relationship between the cognitive institutions and entrepreneurial intentions

3 Method

3.1 Sample and Data Collection

This study draws on data collected from Malaysia, a developing country in Southeast Asia, to test the proposed hypothesized relationships. Most of the research on the institutional context focused on developed countries (e.g., Doh et al. 2019; Engle et al. 2011), commonly known to have a well-established institutional context for entrepreneurship. Research on developing countries is relatively under-studied and mainly focused on rapidly emerging countries such as China and India. Accordingly, more studies should be conducted in developing countries as these countries have depended mainly on entrepreneurial activities for their economic development (Shahid et al. 2018). Among the countries in the Southeast Asian region, Malaysia has made a significant effort to ensure finance and physical infrastructure support entrepreneurship are widely available in the nation (SME Corp. Malaysia 2017). In line with Malaysia's vision to become a fully developed country by 2050,

entrepreneurship has become a significant agenda on the country's development, both in terms of policy and initiative, thus making it a suitable context for this study.

Following the common practice in extant studies (e.g., Chew et al. 2021; Gupta et al. 2014; Shahid et al. 2018), data were collected from university students which majoring in business fields because 1) they are exposed to business knowledge theoretically and practically hence are likely to have higher entrepreneurial intentions; and 2) in developing countries, they represent a significant share of the pool of potential entrepreneurs (Gupta and Fernandez 2009; Linan and Chen 2009).

The questionnaire was distributed to all the universities in East Malaysia (i.e., Federal Territory of Labuan, Sabah, and Sarawak) in an online setting and administered in English, where the official language of university education for business schools is English. A total of 349 questionnaires were received, and 13 were rejected for redundancy related to the major field of study (i.e., non-business students). After purification of data from outliers, the final sample size was made up of 323 useable questionnaires.

To address the possibility of common method biases, this study employed the recommendations by Podsakoff et al. (2003) and reverse-coded some items, and organized the items into separate sections to reduce or eliminate biases in response. Additionally, the result in Harman's single-factor analysis indicated that no single factor (<50%) is explaining by most of the variance (Podsakoff et al. 2003).

3.2 Measures

To ensure the validity and reliability of measurement for the variables measured in this study, previously established and validated scales were employed. A seven-point Likert scale (strongly disagree = 1 to strongly agree = 7) was used for all the items in the study.

Entrepreneurial Intentions. This study adopted six items developed by Linan and Chen (2009) to measure the entrepreneurial intentions of university students. This scale has been widely employed across contexts and shows high reliability and validity (e.g., Guerrero et al. 2008).

Institutional Dimensions. This study adopted Busenitz et al.' (2000) scale, which consists of thirteen items that measure the three institutional dimensions (i.e., regulatory, cognitive, and normative) to promote entrepreneurship. The regulatory dimension was measured with five items, the cognitive dimensions with four items, and the normative dimension with four items.

This measurement has shown high reliability and validity in various studies (e.g., Chew et al. 2021; Manolova et al. 2008).

Control Variables. This study controlled two variables that might influence the proposed hypothesized relationships: 1) gender and 2) age.

4 Analysis and Results

The analysis for this study was conducted in three parts: 1) the descriptive analysis, 2) the measurement model, and 3) the structural model. The IBM SPSS software was used to define the sample characteristic, whereas the partial least squares structural equation modelling (PLS-SEM) was used to examine the hypothesized relationships in the proposed model. Table 1 summarizes the demographic profile of the respondents in this study.

4.1 Measurement Model

The measurement model analysis demonstrated an acceptable fit (standardized root mean square residual (SRMR) = 0.06, normed fit index (NFI) = 0.83, Chi-Square/df = 3.56) (Henseler et al. 2015). In addition to the model fit criteria, this study conducted several tests (i.e., composite reliability, Cronbach’s alpha, and average variance extracted (AVE and discriminant validity) with the measurement model to assess the validity and reliability of the measurement items (see Table 2). The analysis shows that composite reliability, Cronbach’s alpha, and AVE values exceeded the recommended threshold values of 0.70, 0.70, and 0.50, respectively (Nunnally 1978). Thus, all variables had acceptable values for measurement reliability. Finally, to assess the discriminant validity of the measures, the square root of the AVE is calculated. The analysis shows that all scores (in bold) are greater than the values in related columns and rows, indicating acceptable discriminant validity of the measures (Barclay et al. 1995).

Table 1 Respondents demographic profile

Demographic profile	Frequency	Percentage (%)
Gender		
Male	70	21.7
Female	253	78.3
Age	Mean: 22 years old	
Educational year		
1 st year	21	6.5
2 nd year	108	33.4
3 rd year	194	60.1
Prior entrepreneurial experience		
Yes	53	16.4
No	270	83.6

n = 323 respondents

Table 2 Summary of the measurement model assessment

Variable	CR	Cronbach's alpha	AVE	Mean	SD	1	2	3	4
1 Regulatory	0.89	0.84	0.64	4.83	1.26	0.89			
2 Normative	0.93	0.92	0.75	5.32	1.23	0.25	0.87		
3 Cognitive	0.90	0.86	0.70	4.51	1.43	0.26	0.25	0.83	
4 EI	0.87	0.94	0.70	5.20	0.99	0.38	0.20	0.27	0.84

CR: composite reliability; EI: entrepreneurial intentions.

4.2 Structural Model

Upon confirming the validity and reliability of the measurement model, the structural model was examined. The proposed hypothesized relationships were tested using path coefficients and level of significance with the structural model. Following Hair et al. (2017), the bootstrap sampling method with 500 subsamples was applied to test the significance of structural paths in the model.

Analysis of the structural model shows that only two of the three direct hypothesized relationships significantly affect the respondents' entrepreneurial intentions (see Table 3). These results suggested that normative institutions had the stronger effect on entrepreneurial intentions ($\beta = 0.435, t = 8.527, p < 0.01$) followed by regulatory institutions ($\beta = 0.206, t = 2.348, p < 0.05$). The hypothesized relationships between entrepreneurial intentions and normative institutions and regulatory institutions were statistically significant. Thus, *Hypothesis 1* and *Hypothesis 2* were supported. Additionally, these two significant hypothesized relationships explained 43% (see Table 3) of the variance in entrepreneurial intentions. However, the hypothesized relationship between cognitive institutions and entrepreneurial intentions was insignificant, so *Hypothesis 3* was not supported.

To assess the moderating role of the regulatory institutions (*Hypothesis 4a* and *Hypothesis 4b*), this study employed a product-indicator-method (PIM) using PLS-SEM (Chin 2010). Regarding *Hypothesis 4a* (regulatory institutions moderate the normative institutions-entrepreneurial intentions relationship) and *Hypothesis 4b*

Table 3 Summary of the structural model assessment

Hypothesis	Path coefficient	t-value	R ²	Result
Direct effect				
H1 Regulatory - EI	0.206	2.348*		Supported
H2 Normative - EI	0.396	6.524**	0.430	Supported
H3 Cognitive - EI	0.045	0.827		Not Supported
Moderation effect				
H4a Normative*Regulatory - EI	0.116	3.124**	0.476	Supported
H4b Cognitive* Regulatory - EI	0.107	2.413*		Supported

EI: entrepreneurial intentions; *p < 0.05, **p < 0.01

(regulatory institutions moderate the cognitive institutions-entrepreneurial intentions relationship), the interaction terms for both (*Hypothesis 4a*: $\beta = 0.116, t = 3.124, p < 0.01$; *Hypothesis 4b*: $\beta = 0.107, t = 2.413, p < 0.05$) were significant, respectively. Hence, *Hypothesis 4a* and *Hypothesis 4b* were supported. The moderating effect of regulatory institutions increased the variance on entrepreneurial intentions to 47.6% (see Table 3). Furthermore, the size of the moderating effect of regulatory institutions was moderate, with f^2 values of 0.31 (normative-entrepreneurial intentions) and 0.22 (cognitive-entrepreneurial intentions).

Figure 1 and Fig. 2 show that entrepreneurial intentions increase at a combination of high levels of the normative institutions and high levels of cognitive institutions with high levels of regulatory institutions. With a positive interaction with entrepreneurial intentions, the direct relationships between normative institutions-entrepreneurial intention and cognitive institutions-entrepreneurial intention become stronger when moderated by a high-level perception of the regulatory institutions. Overall, these results suggest that when the perception of the regulatory institution is high, the impact of both normative and cognitive institutions on entrepreneurial intentions tends to be stronger.

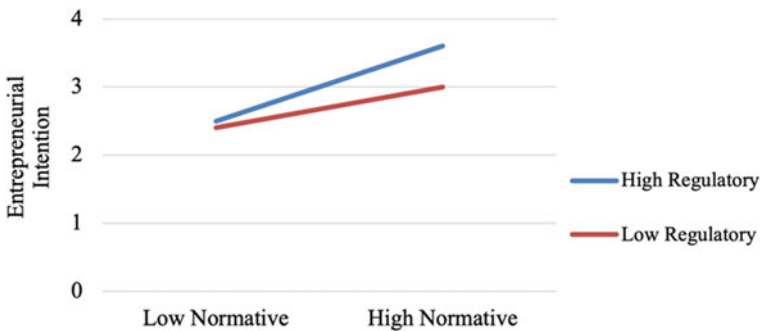


Fig. 1 Moderation Effect (Normative*Regulatory—Entrepreneurial Intentions)

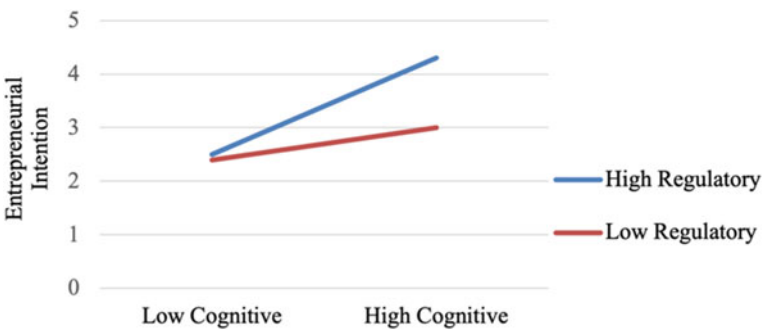


Fig. 2 Moderation Effect (Cognitive*Regulatory—Entrepreneurial Intentions)

4.3 Robustness Tests

In addition to the results reported here, this study conducted a hierarchical multiple regression analysis as a robustness check. The results showed that the direct effects of the three institutional dimensions and the moderating effect of regulatory institutions on normative institutions- and cognitive institutions-entrepreneurial intentions relationships were in line with the results presented in the PLS-SEM analysis. Therefore, the results appeared to be robust.

5 Discussions

Building on the core argument that individuals are embedded in an institutional context, this study argues that the three institutional dimensions, i.e., regulatory, normative, and cognitive, do not act separately but interact simultaneously in developing entrepreneurial intentions.

The findings confirm the direct effects of institutions, particularly *regulatory and normative institutions, to be significantly associated with entrepreneurial intentions*; these are mainly consistent with existing studies (e.g., Engle et al. 2011; Shahid et al. 2018). More importantly, the findings show significant interactive effects between formal (regulatory) and informal (normative and cognitive) institutions in explaining the development of entrepreneurial intentions. The findings reveal that the *positive associations of 1) normative-entrepreneurial intentions and 2) cognitive-entrepreneurial intentions were enhanced when moderated by supportive regulatory institutions to entrepreneurship*.

It is also important to note that while the direct relationship between cognitive institutions and entrepreneurial intentions was insignificant, this relationship is positively and significantly moderated by the regulatory institutions. As discussed in Sect. 2.2 *Institutional Dimensions and Entrepreneurial Intentions*, cognitive institutions reflect the knowledge of individuals about business opportunities available in the country. Hence, the effects of cognitive institutions on entrepreneurial intentions are moderated by regulatory institutions, perhaps due to the government efforts in enforcing entrepreneurship education at the university level that allows the respondents (i.e., students) to know about business opportunities in the formal study channel (Fayolle and Liñán 2014; Shahid et al. 2018).

5.1 Implications for the Entrepreneurship and Institutions Literature

Research on entrepreneurial intentions has been vibrant because high entrepreneurial intentions positively impact a country's total entrepreneurial activity. To enrich the

extant theoretical and empirical investigations of entrepreneurial intentions, first, this study employs the institutional perspective to respond to the recent calls to contextualize entrepreneurial phenomena by investigating how institutional contexts influence entrepreneurial intentions (Welter 2011; Welter and Smallbone 2011; Zahra and Wright 2011). Building on the institutional perspective, this study articulates how external factors embedded in the environmental context, i.e., formal and informal institutions shape individual intentions towards entrepreneurship. It is interesting to find that individuals' who perceived their institutions favourably will fuel their entrepreneurial intentions. In particular, the findings reveal that perceptions of the informal (normative) institutions have a more significant influence on the Malaysian students' entrepreneurial intentions as compared to what they perceive of the country's formal (regulatory) institutions. It is essential that being an entrepreneur is considered a more socially endorsed career path in society than the tangible formal regulations and policies supporting entrepreneurial aspirations in the country. This is also corroborated with the national culture of Malaysia as the country is a collectivist nation. Thus, individuals tend to emphasize what they are doing or how they are behaving in order to ensure that they comply with the approval of society (e.g., family or in-group) in their behaviour and action (Hofstede 1980).

Second, not only does this study contribute to the paucity of research that explores both formal and informal institutions in shaping entrepreneurial intentions, but it also further enriches the extant knowledge and understanding by testing the interactive effects among the three institutional dimensions on entrepreneurial intentions (De Clercq et al. 2013). Extant studies have mainly focused on the individual direct effects of each institution in isolation while actors (e.g., individuals, firms, etc.) in society are exposed to both formal and informal institutions simultaneously. Hence, the interactive effects as proposed in this study provides a clearer understanding of the interplay between formal and informal institutions in explaining the development of entrepreneurial intentions.

5.2 Implications for the Policymakers

This study offers some insight into practices and policies directed at enhancing entrepreneurial intentions. The findings suggest that the entrepreneurial intentions may be assisted and encouraged by favourable normative institutions that the career profession as an entrepreneur is admired in the country. Consequently, policymakers need to consider more carefully the informal institutions as the formal institutions could influence the country's social values and norms (i.e., normative and cognitive) over time. Hence, policymakers and related organizations such as universities or industries that want to promote entrepreneurial intentions may implement practices and policies that positively align with the country's social desirability and feasibility towards entrepreneurship.

5.3 *Limitations and Future Research Directions*

Notwithstanding the implications mentioned earlier, the study results have few limitations that could be the basis for future studies. First, data were collected from the context of a single country only, limiting the generalizability of the findings to other populations. A cross-country study can add additional insights into the study results as it could yield some crucial differences between different contexts. Second, this study employed a quantitative research method, whereas mixed methodology can capture the richness and diversity of contexts. Thus, future studies should use other methodologies to triangulate their findings (Fayolle and Liñán 2014). Third, this study only focuses on the interactive effects of the three institutional dimensions proposed by Scott (1995). However, there are other factors (e.g., individual or country) could affect the relationships between institutional factors and entrepreneurial intentions. Examining other possible interactive variables can provide more robust findings.

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Exploring Entrepreneurship Theories Within Religious Perspective Based on *al-Kutub al-Tis'ah*: A Proposed Model



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Abstract Entrepreneurship agenda is an important agenda and one of the areas that can generate a country's economy. Previous study of entrepreneurship focuses on economic, psychological, cultural and social perspectives. However, entrepreneurship in a religious perspective still gives less emphasis. Therefore, this study will fill the gap by exploring the phenomenon of entrepreneurship from a religious perspective based on the hadith of Prophet PBUH. The specific goals are 1) to identify and collect the entrepreneurship substance in *al-Kutub al-Tis'ah*; 2) to explore the relation between selected substance and entrepreneurship phenomenon; 3) to segregate those substance into relevant disciplines in entrepreneurship. Qualitative research will be employed to achieve the mentioned objective. The narratives that explained the phenomenon were sought from the stories text hadith which also helped to increase the understanding of the entrepreneurship phenomenon. This also includes a model conceptual framework of entrepreneurship based on the relationship between individual, society, environment and Allah. This study is expected to fill up the gap in entrepreneurship from the perspective of Islam. In addition to being a catalyst for entrepreneurial development towards complementing and enriching existing theories and practices.

Keywords Entrepreneurship · Islamic entrepreneurship · Al-hadith

1 Introduction

The concept of entrepreneurship has a very broad meaning and discussion if viewed from various perspectives of figures and disciplines of knowledge. The debate in current entrepreneurial, notes that it began with the use of the term entrepreneur associated with economic activity by Richard Cantillon (1680-1734M). Subsequently, the concept and theory of entrepreneurship continues to evolve to this day, according to the needs and scope of discussion in many aspects of human life whether in the

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context of economics, psychology, sociology and culture (Rosli et al. 2010; Norita et al. 2010).

Ratten et al. (2017) acknowledge that religion is an important phenomenon in research business management that should be acknowledged and discussed in more detail. In fact, religion influences economic and business performance because of its embedded role in society (Pistrui and Fahed-Sreih 2010). This means that Islamic entrepreneurship and religious behavior are important because they play a role in influencing behavioral decisions and choices. The impact of religion on business stems from religious beliefs, which are influenced by cultural values associated with entrepreneurship (Dana 2009). This means that Islamic entrepreneurial desires are influenced by the religious attitudes of individuals and society (Ratten et al. 2017). Thus, on this basis, the entrepreneurial phenomenon not only depends on how one views the phenomenon, but is also influenced by interactions between individuals, society and the environment (Hansen et al. 2007).

Furthermore, entrepreneurship has become an important phenomenon around the world as it is the main driving force behind the economic growth and development of a country, especially in the current covid-19 pandemic season (Harian 2020). Past studies have focused heavily on entrepreneurship from economic, psychological, cultural and social perspectives. However, entrepreneurship in a religious perspective is still being given less emphasis (Dana 2010). It is undeniable that there has been an increase in the number of studies related to religion and entrepreneurship, but research on Islam and entrepreneurship is more difficult, especially the empirical relationship between Islam and entrepreneurship (Balog et al. 2014).

This research will fill in the gaps by looking at the phenomenon of entrepreneurship through the lens of religion. The role of Islam in entrepreneurship is based on the interlinkage between the textual sources and contextual setting. Therefore, the question is 1) Which of the hadiths that narrate and illustrate the entrepreneurship substance? 2) How does the selected substance above relates to the existing entrepreneurship phenomenon 3) How to segregate those substances into relevant entrepreneurship theories. Qualitative research will be employed to address the question. Other qualitative researchers have employed interview and observation approaches in the past, but this study will use narrative analysis. Because this narrative style has a thickness and depth that is specific to the area, and it highlights the setting's personal and significant elements (Burg et al. 2020).

2 Literature Reviews

2.1 Review on Entrepreneurship Theoretical Background

Mohanty (2005) has shown that the phenomenon of entrepreneurship can be supported by the background of theories such as sociology theory, psychological theory, cultural theory, economic theory, and possibly newer theories such as expert

opinions on entrepreneurship. According to Rengiah (2013), there are four main entrepreneurial perspectives discussed which are economic, psychological, social and cultural perspectives.

Economic Perspective

Economic theory suggests that entrepreneurship and economics are interdependent, and economic incentives are key drivers for growth in entrepreneurial activity. The economy creates business opportunities and in turn generates entrepreneurship. The increased demand for goods and services is reflected in the likelihood that a person will seize the opportunity to embark on an entrepreneurial career (Aldrich et al. 1986; Birley 1986). Among the theories from this economic perspective are Schumpeter's (1934) theory of innovation, Leibenstein's (1978) theory that developed the concept of competitiveness theory through the development of x-Efficiency theory, Kizner's (1973) theory that prioritizes profit elements and Marshall's (1946) theory that defines entrepreneurship as an evolutionary process that is the life of a business from the initial stage until it continues to disappear from the market.

Sociological Perspectives

Sociological perspective, among others, argues that the following theories will explain how sociological factors accelerate the growth of entrepreneurship, namely the theory of religious belief and the theory of social change. Theory of religious belief states that entrepreneurship is a function of religious beliefs and the effect of religion will shape the culture of entrepreneurship in individuals (Weber 2009). Meanwhile, Hagen (1963) in his theory of social change, has submitted that creativity as a key element of social transformation and economic growth in the field of entrepreneurship. Scholars found sociological and psychological factors to be linked with entrepreneurs behavior (Carlsson et al. 2013; Nesselroade and Molenaar 2016).

Psychology Perspective

Psychological theory focuses on the characteristics of an individuals in a society in which it supplies entrepreneurship to society. Some believe that entrepreneurs have unique values and attitudes toward work and life, and this requires a drive for individuals to behave in a certain way. Characteristics include: a tendency to take risks (Begley and Boyd 1987), high achievement (McClelland 1965), or internal locus of control (Brockhaus and Horwitz 1986), and having qualities such as innovation leaders and catalysts, initiating economic growth and development (Berger 1991). According to Sulaiman (2019), one of the ways entrepreneurs choose in dealing with this difficulties and challenges in their entrepreneurial journey is to resort to religious believe. Religion has been shown to have a significant effect on emotion regulations, motivation and behavior. Religion, as of the most important sources of values, is full of emotions that connect people to God and other created beings. The cognition, imbued with religious values, interacts with emotions, might be transformed into energized religious motivation leading to certain form of entrepreneurial behavior. In other words, emotions from being religious strengthen the motivation for a particular course of action.

Culture Perspective

Cultural theory claims that entrepreneurship is a cultural product of a society. Cultural values shape entrepreneurial talent in individuals and are embedded in society. Personalities, behaviors, firms, economic conditions and socio-political systems are all embedded in the culture from which they originate (Berger 1991). Some countries have yet to experience a cultural shift to a paradigm that supports entrepreneurial behavior.

Overall, previous research has elaborated on the phenomenon of entrepreneurship from a variety of perspectives. Psychology, sociology, social psychology, and religion are the perspectives used in the field of social science. However, the phenomenon of entrepreneurship from a religious perspective is still under-emphasized (Dana 2010). This is because religious perspectives on entrepreneurship are different, as they usually encompass narratives and contain specific and detailed practices from specific scriptural sources and different metaphysical objectives. Therefore, there is a need for a holistic approach to entrepreneurial research that incorporates religion to complement and enrich existing entrepreneurial theories and practices (Gümüşay 2015). It is hoped that this study can fill the gap in the knowledge of entrepreneurship with the use of religious perspective in explaining the phenomenon of entrepreneurship.

2.2 Religious and Entrepreneurship

Previously, it has been mentioned that the theory of religious believe has been used to explain the phenomenon of entrepreneurship. This theory states that entrepreneurship is a function of religious beliefs and the effect of religion will shape the entrepreneurial culture in an individual (Weber 2009). This theory is a combination of psychological and religious perspectives grounded in non-Muslim perspectives. In this regard, non-Muslim perspectives discuss moral values and do not focus on the belief in one God as a guide to their practices. Whereas, the Islamic perspective shows that the practices derived from the actions of individuals should be based on the Quran and hadith.

In order to form the framework of Islamic entrepreneurship, they must rely on one another and interact in accordance with Islamic law. According to Rahman (2015), combining social psychological and religious perspectives into the definition of knowledge will result in a more holistic understanding. This is because social psychological researchers argue that a person's actions are based on knowledge gained from multi-level analysis generated by individual and societal interactions, and that they are interdependent (Rogers 2003; Hewitt 2007; Hollway 2007). Individuals' thoughts, feelings, and behaviours are also influenced by their membership in social groups and social institutions (Rogers 2003; Hewitt 2007). Finally, it should be combined with a religious perspective based on a religion's moral values.

Islam is a religion which is a complete way of life. Thus, this shows that the Qur'an and hadith are very important as a guide in every action of individuals and society. The hadith of the Prophet PBUH is the second source of reference for Muslims after

the Qur'an. Hadith means the narration of the sayings, doings or approvals (*taqrir*) of Muhammad (peace be upon him). As is well known, the Prophet Muhammad PBUH is the best idol for human life and an example of a successful entrepreneur (Mubarak 2016). It contains the provisions and narration of everything that happens. Therefore, this study will explore the relationship of the collected hadiths and the phenomenon of entrepreneurship and isolate and explain it into the discipline of knowledge in the field of entrepreneurship whether it is relevant or not.

2.3 Islamic Entrepreneurship

Entrepreneurship is an activity that is highly encouraged in Islam. Entrepreneurial activities belong to the pursuit of wealth or generally the pursuit of halal livelihood (Rosli et al. 2010). This can be seen in firman Allah SWT in Surah al-Jumu'ah verse 10 which means: “*And when the prayer has been concluded, disperse within the land and seek from the bounty of Allah, and remember Allah often that you may succeed*”. This verse illustrates how Islam encourages its ummah to seek the blessings of Allah SWT who possesses all the treasures of *dunia* and *akhirat* (Al-Tabari 2000) after fulfilling his obligations or worshipping Him. Allah's gift is everywhere as long as people want to work and work together there is farming, farming, business and trading and all kinds of jobs for halal sustenance (Hamka 1987).

The entrepreneurship is an important agenda and one of the areas that can contribute significant to the growth of the economy for Muslims. It is stated by (Gholami and Al Tahoo 2021; Gunnarsson and Malin 2010) that entrepreneurship has been found to influence the personal growth, social relationships and family life of entrepreneurs. According to the Islamic view, the implementation and its achievements through business activities are bound to sharia (Shariah) and manners based on al-Quran and al-Sunnah in principle, which not only emphasizes the material achievement but also the pleasure of Allah SWT. However, the words entrepreneurship and entrepreneur are generally not used directly in the Islamic scientific tradition. The term is different from the terms business, trader and trading (*al-Tijarah*, *tajir* and *al-Bay'*) as for debated in *Fiqh al-Tijarah* (التجارة) and Islamic economics. The term has also been mentioned directly in the Qur'an and Sunnah in relation to its position and encouragement in Islam, morals, as well as practices related to business or economics in principle as well as in practice (Mubarak 2016).

The latest findings by Block et al. (2020) shows that the topics most frequently discussed in research related to religion and entrepreneurship in 2014 to 2019 are concerning (a) women and social entrepreneurship, (b) religious, values and spirituality, (c) ethnicity, payables and comms, (d) Culture and social capital and (e) microfinance, economic development etc. The article on entrepreneurship in an Islamic perspective, most frequently referred by researchers is the article by Gümüşay (2015). His article answers about Islam as a religion of entrepreneurship and its role. Gumusay (2015) also comments that the Islamic entrepreneurial

perspective is a complex and contested concept based on three interlinking pillars: the entrepreneurial, socio-economic/ethical and religio-spiritual.

There are also studies on Islamic social entrepreneurship such as the studies of Rahman (2015) and Nawi (2015). Meanwhile, other studies focus on intention, values, traits and attitude and behavior, for example the study of Ratten et al. (2017), Fozia (2016), Safar (2016), Hoque et al. (2014), Dean (2014), and Davis (2013). In terms of research methods, most of other past articles are conceptual studies (Gümüşay 2015; Iman and Mohammad 2017; Ramadani et al. 2018; Kabir et al. 2014) and case studies (Kayed and Hassan 2010). There are also articles that use a qualitative approach through observation and interview techniques Sidek et al. (2018), as well as there are also quantitative studies that use questionnaires and secondary data (Rabderson. 2017; Mohd et al. 2015).

However, from an Islamic point of view, the phenomenon of entrepreneurship is still under-emphasized. According to Ratten et al. (2017), there is a need for a study on the development of the history of Islamic entrepreneurship because religious entrepreneurship research is still in its early stages when compared to other types of entrepreneurial research. This could lead to a discovery that is more robust than the others. It is obvious that research is required to collect, filter, analyse, and consolidate data. Entrepreneurship from an Islamic perspective, on the other hand, contains its own methodology to achieve its understanding. It needs to be understood and analyzed holistically containing entrepreneurial activities, religious values, Islamic religious obligations, societal influences, scriptural sources and ecosystem movers, and institutions that provide interpretations in the context of religious spirituality (Gümüşay 2015; Aminova et al. 2020).

Therefore, there is a need for a holistic study in exploring the phenomenon of entrepreneurship in a religious perspective. According to Garud et al. (2014), entrepreneurship scholars who seek to capture the features of such unique phenomena should provide a “thick” narrative description of the entrepreneurial processes involved, either at the individual or at the level of more general entrepreneurial processes (Gartner 2007). This type of narrative has a thickness and depth that is unique to the context and displays the setting’s personal and important aspects. Later on, more specialised narrative bracketing and storying approaches can be employed to describe a general series of events in a more analytical way and to replace a rich empirical description with a full-bodied narrative explanation (Burg et al. 2020).

In this case, Muslims are endowed with a very valuable source of reference that is the holy book of the Quran and hadith as a guide in every aspect of life to achieve well-being to individuals, communities and countries. As mentioned in the words of the Prophet PBUH which means: *“I leave behind me two things, you will not go astray as long as you adhere to both, (namely) the kitab (al-Qur’an) and my sunnah”*. (Narrated by al-Hakim, Hadith No. 318). The Qur’an and sunnah are the main sources of reference that are valuable for all Muslims in every aspect of life, including business and buying and selling. However, these two sources have not been fully used in the daily lives of Muslims, especially in the field of entrepreneurship, which is a framework of worship that is closely related to the relationship with Allah SWT and also fellow human beings. To understand more about the phenomena of

entrepreneurship, researchers will apply thematic analysis and narrative analysis, as opposed to other studies, by focusing on text hadith. Therefore, it is clear that to know the true Islamic entrepreneurship must be guided by the essence found in the Qur'an and hadith. Furthermore, from these two main sources, researchers are able to understand an entrepreneurial phenomenon that occurs through interactions between individuals, society and the environment.

3 Research Methodology

This study uses a qualitative approach appropriate to the purpose of the study to explore and understand more deeply about the field studied and be able to provide a detailed understanding of the phenomena studied (Creswell 2014). Accordingly, researchers need a procedure for data collection. At the initial stage, the researcher needs to collect data relevant to the study and understand the data as a whole (Elo and Kyngas 2007). Therefore, this study will use the main secondary data that is the hadith along with *syarah*. Meanwhile, general secondary data is from the point of view of Muslim and non-Muslim scholars in journal articles, proceedings, *sirah* (history), scholarly books and newspaper or magazine.

As it is known that the function of hadith to the Qur'an is as an explanation and reinforcement of the laws contained in the Qur'an. Therefore, one of the efforts of the previous scholars to preserve the hadith of the Prophet PBUH is to write and record it. Through the hadith texts there are messages that contain the deeds practiced by the Prophet PBUH in his daily life. Business is one of the activities undertaken by Prophet PBUH. Therefore, the phenomenon of entrepreneurship can be collected from the hadith texts found in the famous hadith books. Thus, to identify and collect the entrepreneurship substance, this study going to choose famous hadith books such as *al-Kutub al-Tis'ah* (*Sahih al-Bukhari, Sahih Muslim, Sunan Abu Daud, Sunan At-Tirmidzi, Sunan An-Nasa'i, Sunan Ibnu Majah, Musnad Ahmad, Muwatta' Malik and Sunan Ad-Darimi*).

At the beginning of the hadith search, researchers use the method of searching hadith through the index of traditional hadiths by referring to the book *al-Mu'jam al-Mufahras li al-Alfaz al-Hadith al-Nabawi* by Wensink (1936). Wensink (1936) contains an index of hadiths from the nine books of hadith (*al-Kutub al-Tis'ah*). At the same time, researchers will also use the modern method of searching hadith using the software *al-Maktabah al-Shamilah*. Thus, the researchers combine these two methods to avoid the probability of dropping the hadith during the hadith collection process.

After identifying the hadith, researchers will refer to the book of *syarah* hadith to know and understand the meaning more clearly from the text of the hadith. The researchers choose only one book of *syarah* for each of the above books of hadith because it is the most famous and the explanation includes all other books of *syarah*. In addition, researchers also take the opinions of scholars of Islamic and non-Islamic scholars in journal articles, proceedings, scientific books, *sirah* notes and related

Fig. 1 Data collection process



newspaper articles. The researchers take into account the opinions of islamic and non-Muslim scholars to ensure that the results of this study are in line with contemporary studies. Figure 1 shows the process of data collection more clearly.

The process of analyzing the data of this study will use a thematic approach which is one way of analyzing the data to identify patterns or to find themes through the data that has been collected (Braun and Clarke 2006). Thematic Framework Analysis starts with familiarisation, identifying the thematic framework and emerging themes, indexing, charting and mapping, and interpretation. This method is a very effective method for exploring in detail qualitative data to find the relationship of patterns in a phenomenon and explain the extent to which a phenomenon occurs through the glasses of researchers (Fereday and Muir-Cochrane 2006).

Unit of analysis is the specific parameters of what was the subject for study (Hart 2003). The unit of analysis in this study was the Prophet PBUH and *al-Sahabah* experiences that were narrated their stories through text hadith (Hansen et al. 2007). As we know that the Prophet Muhammad PBUH and *al-Sahabah* were icons of successful entrepreneurs (Mubarak 2016). Therefore, researcher will analyze the hadith texts collected using narrative analysis techniques. Narrative analysis will also be used to analyze hadith texts that explain the phenomenon of entrepreneurship and its relation to existing entrepreneurial theories. Whether they have similarities or differences in terms of strategy, management, creativity and innovation or from other angles. Narrative analysis occurs when hadith narrators are involved in sharing and recounting and experiences or events. This analysis focuses on the surroundings or those directed at individuals, groups, communities and cultures (Blaike 2010).

At the same time, researchers should simplify the process of constructing meanings and explain what and how meanings are contained in selected hadith text (Kayed

and Hassan 2010). In this case, Blumer (Sidek et al. 2018) warned that interpretation should not be considered an easy meaning to express but it is an influential process in which the meaning is used and should be reviewed as an instrument for the guide and formation of actions. Therefore, in this study, the meaning of entrepreneurship phenomenon is obtained through Arabic as a medium for understanding this knowledge. Arabic language from hadith texts will be taken as a window to understand the phenomenon of entrepreneurship based on the interaction between individuals, society, environment and Allah SWT.

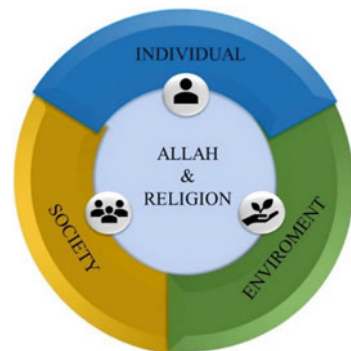
4 A Proposed Conceptual Model

The entrepreneurship substance will be collected using symbolic interactionism theoretical background. The theoretical background is important to researcher since it enables for framing of analysis in order to make it more structural and understandable (Blaike 2010). Therefore, in accordance with the second objective of this study to explore the phenomenon of entrepreneurship, then the theory of symbolic interaction is suitable for the framework of the study. This is because it answers the question of how individuals and society are interconnected (Hewitt 2007) which can explain the phenomenon of entrepreneurship. The phenomenon of entrepreneurship does not only depend on how one views the phenomenon, but is also influenced by interactions between individuals, society and the environment (Hansen et al. 2007). The background of this theory is also in line with the Islamic perspective which encourages believers to maintain the relationship between muslim and Allah SWT (see Fig. 2).

Proposition 1: Based on the text hadiths acquired, entrepreneurship activities will be identified through interaction between the Prophets PBUH, Sahabah, Arab society, and environment.

Proposition 2: The prophets' and sahabah's entrepreneurial activity will show how religion motivates people to be creative and innovative entrepreneurs.

Fig. 2 A propositional model



Proposition 3: This research will develop a model that can explain the phenomenon of entrepreneurship through interactions between individuals, society, and the environment, while also maintaining the relationship between Muslims and Allah SWT in all entrepreneurial activities.

5 Conclusion

Due to lack of studies on above addressed problem in religious perspective, attempts were made to identify hadiths from *al-Kutub al-Tis'ah*. The interaction between the Prophet PBUH, the Sahabah, the Arab community, and the environment as stated in the hadith text will be used to identify entrepreneurial activities that occur. We believe that there are also elements of entrepreneurship in the hadiths of the Prophet PBUH as the Prophet PBUH is the best example of examples for Muslims to follow. Which is where all the behaviors and actions of the Prophet PBUH became a sunnah and also followed by the Companions of The Prophet PBUH in the past until now. If the phenomenon of entrepreneurship can be explored from the hadiths of the Prophet Muhammad PBUH, it can further strengthen the existing theories and entrepreneurial activities and help the development of Islamic entrepreneurship in Malaysia. In addition, it can form knowledgeable entrepreneurs among the Malaysian community. As well as inculcating Islamic values in every entrepreneurial activity to achieve the blessings of Allah SWT. In turn, it can help the development of Islamic entrepreneurship in Malaysia and the country's economy to continue to develop and develop in accordance with Islamic shariah as Malaysia is known as 'Halal Hub Business'. This study's data are limited to the *al-Kutub al-Tis'ah* and Syarah hadith books in the Arabic language. Future research should include more reference sources from other hadith books.

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Determinants of Business Development: Importance of Microfinance for Startups



Nargiza Alimukhamedova

Abstract Entrepreneurship is a vital engine for economic growth and development. The success of small enterprises and startups is an important agenda given that the failure rate tends to be high. Failure is often caused by lack of reliable sources of financing, which most entrepreneurs cannot obtain from formal sources such as commercial banks or crowdfunds. In this paper, we analyze the role of microcredit as an important alternative source of business startup financing. In contrast to the mainstream literature, we analyze the role of both formal and informal sources of financing. Empirical findings are based on a unique household dataset compiled from a household survey of entrepreneurs and non-entrepreneurs in Uzbekistan. The findings indicate that startup capital, gender, education, and household size constitute the determinants of business success. However, these factors differ slightly depending on whether entrepreneurs can borrow from microfinance institutions or not.

Keywords Microfinance · Formal borrowing · Informal borrowing · Startup

1 Introduction and Motivation

Small enterprises are considered an important driver of economic growth, employment creation, research and development, and innovation. According to Clark (2021), as of 2020, there were estimated to be 213 million small and medium size enterprises (SMEs) globally. By comparison, their number was 122 million in the year 2000, representing a 1.7 increase over the past two decades. According to the World Bank's Doing Business publication, SMEs face various obstacles, one of which is access to reliable financing (World Bank 2017),

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Many SMEs, and especially startups, face challenges arising from a lack of prior entrepreneurial experience and collateral that would make them eligible for borrowing from formal sources, such as commercial banks, crowdfunds, or angel investors. Consequently, SMEs must resort to alternative sources of financing, such as informal borrowing from networks of friends, family, and colleagues. The problem with informal sources, however, is that the loan amount and terms are not always acceptable for the borrowers.

In this context, the role of microcredit has become vital in providing an alternative source of financing. Microcredit is defined as the provision of small-size loans for low-income households to support their entrepreneurial activities. The first microfinance concept was pioneered by Bangladeshi economist Dr. Muhammad Yunus in the early 1970s. After five decades of rapid development, the microfinance model has become popular throughout the world, with both developing and developed countries adopting micro-lending in various forms.

Small entrepreneurship also envisages a comparatively high level of risk tolerance. Therefore, it is assumed that entrepreneurs exert considerable effort in making various decisions related to their businesses, including location, type of business, level of demand, infrastructure, precedent business of the same type, and others. There is a lack of empirical evidence and theoretical framework to explain the link between the source of financing and enterprise success factors. Under financing, we consider loans from banks, formal borrowings, and informal borrowings, including from friends, relatives, and connections.

In this paper, we explain how the source of business financing could affect business performance in terms of profitability, income generation, size, innovation, and other dimensions. We provide novel evidence from household survey data on entrepreneurs and non-entrepreneurs in Uzbekistan. The unique dataset comprises 1,086 households surveyed in 2011, which constitutes a country-representative sample. Empirical evidence from Uzbekistan provides important contributions to understanding how microcredit works in different markets, specifically the post-transition experience and the unique evolution of the sector. Given the rapid growth and substantial improvements in the business environment in Uzbekistan, the country case brings important and valuable insights for other developing countries.

Our sample consists of 1,086 households, of which 70% engage in entrepreneurial activity. Households were randomly selected in three dense regions of the country, thus well representing the business environment in the country. In this respect, we provide an important contribution to the microfinance literature examining the role of informal sources of financing for SME success.

The paper is structured as follows. In Sect. 2, we review related studies and identify our novel contribution. Section 3 describes microfinance development in Uzbekistan and its unique evaluation compared to international peers. Section 4 describes the dataset and main variables. Section 5 defines the methodology. Section 6 presents the results and findings, while Sect. 7 concludes.

2 Related Studies

Our paper is related to a stream of empirical studies that shed light on the determinants of enterprise development primary in developing countries.

Berrone et al. (2014) develop a theoretical multilevel framework to study the determinants of microenterprise performance. Their empirical findings are based on a unique dataset of 300 small enterprises in Argentina. The authors find that public policies provide important support to small enterprises that arise from unemployment. Relevant to our study, Berrone et al. (2014) find the following three determinants of the success of small businesses: human capital, innovation, and the use of own capital.

Thapa (2015) provides empirical evidence on factors determining microenterprise performance in Nepal. The author uses a primary dataset based on a survey of 501 micro-entrepreneurs randomly sampled from different strata such as gender, caste, ethnicity, enterprise category, and ecological belts during 2011–2013. The authors find that the following factors play an important role in the success of a small enterprise: gender, managerial skills, need for achievement, need for autonomy, creative tendency, internal locus of control, and managerial foresight. Similar to our hypothesis, Thapa (2015) also finds that enterprise-related factors, particularly enterprise age, enterprise size, and initial financial constraint also matter.

Welsh et al. (2013) analyze microenterprise performance and the role of microenterprise zones in China. The authors analyze 150 randomly-selected microenterprises located in microenterprise zones in Changchun, an industrial city in North-east China. Factor analysis was performed on 11 management issues and a correlation analysis was also performed. The authors find that key management practices, marketing capability, and the technology capability of microenterprises in microenterprise zones have a significant and positive impact on sales, net profit, and growth of small enterprises.

Munoz et al. (2015) provide the determinants of microenterprise success in Malaysia. Using a survey of 151 Malaysian microenterprises, the authors find that the performance and entrepreneurial choices were significantly affected by the key management activities of small enterprises. The performance of enterprises was not significantly influenced by external financing or government support.

Compared to these country studies, our novel contribution and research gap are defined as follows. First, we analyze the role of formal and informal sources of financing jointly. In contrast, all other studies focus predominantly on formal loans. We also analyze the role of microcredit as a viable alternative. Secondly, our dataset is based on a household-level sample of 1,086 respondents, which includes both existing entrepreneurs and potential future ones, which is not covered in previous studies. In addition to enterprise success factors, we analyze whether existing entrepreneurs engage in rational decision-making. Finally, to the best of our knowledge, we are the first to provide novel empirical evidence from the Central Asia region, thus contributing to understanding the business models in different contexts and regulatory frameworks.

3 Microfinance Environment in Uzbekistan

3.1 Overview of SME Sector in Uzbekistan

Uzbekistan is a lower-middle-income country located in the heart of the Central Asia region. With a current population of around 34 million, Uzbekistan is the most populous country in the region. Entrepreneurship plays a pivotal role in the country's socio-economic development. According to official statistics, the share of small businesses in the GDP of Uzbekistan was 53.9% in 2020.¹ There were 15,6 small businesses per 1,000 residences registered in 2020. In terms of sectors, the largest number of small enterprises and micro-firms was established in trade (35,213 enterprises); industry (18,596 enterprises); agriculture, forestry, and fisheries (14,969 enterprises); construction (6,009 enterprises); accommodation and food services (5,637 enterprises); and transportation (2,397 enterprises).

Geographically, Uzbekistan consists of 14 regions and the capital is Tashkent. SMEs are disbursed unevenly throughout the regions, given the diversity in natural environments, focusing on agriculture and manufacturing processes in each region. As such, the largest share of SMEs is in Tashkent, where the overall number of newly created SMEs was 15.5% in 2020. Similar ratios in other regions are as follows: Samarkand region 9.3%, Tashkent region 8.9%, Fergana region 8.7%, Andijan region 8.2%, Surkhandarya region 8.1%, Namangan region 6.6%, Bukhara region 6.3% (State Statistics Committee of Uzbekistan 2020).

3.2 Overview of the Microfinance Sector in Uzbekistan

The first microfinance movement was introduced in Uzbekistan in the early 1990s to smoothen the hardships of the transition process from a centrally-planned economy to the free market. To this end, United Nations Development Programs (UNDP) supported two pilot microfinance projects that were implemented in remote regions of Uzbekistan.

The success of these pilot projects in terms of business startup, creating new job places and support of low-income households inspired further development of the microfinance sector. An important milestone was the adoption of microfinance legislation² that allowed for microfinance provision to broader layers of the population and in all regions.

After the adoption of laws, the microfinance sector flourished during 2002–2011. Specific features of the evolution of the microfinance sector were envisaged

¹ Source: The State Statistics Committee of Uzbekistan. Retrieved from: <http://www.uzdaily.com/en/post/63253>.

² Law on Credit Unions (2002), Law on Microfinance (2006), Law on Microcredit Bank Establishment (2006).

by the emergence of new types of non-bank microfinance institutions (MFIs) – Credit Unions and Microcredit Organizations. See Alimukhamedova (2014) for a detailed description of the non-bank microfinance sector and comparison of MFIs in Uzbekistan with Central Asian and international peers.

The rapid growth of these two non-bank MFIs by 2011 was characterized by exponential growth in number and countrywide coverage in all regions. Operating on very different lending terms, microcredit provided by these non-bank MFIs was highly flexible and prompt compared to commercial lending. The impact evaluation of microcredit issued by these two types of MFIs on business and household development outcomes was found to be positive and transformative (Alimukhamedova et al. 2017). This is a rather different and important impact compared to international microcredit impact evaluation, which tends to find modest and marginal effects on borrowers. See Banerjee et al. (2015) for a summary of prominent Randomized Control Trials (RCTs) impact evaluations of microfinance programs worldwide.

4 Dataset description

Our dataset is comprised of 1,086 respondents including a sub-sample of entrepreneurs and non-entrepreneurs. See Table 1 for the sample composition.

The survey took place during January-March 2011. Respondents were selected based on multi-stage stratified random a for the non-borrowers' group, and purposes sampling for the borrowers' group.

The data collection and field work was undertaken by the researcher herself and with the engagement of professional interviewers. The survey questionnaire consisted of five blocks including family grid, household income, assets and expenses, business assets and business performance indicators, and borrowing history from formal and informal sources. It also contained a set of cognitive measures that determine entrepreneurial activity.

Sampling in the borrowers' group was conducted in three regions of Uzbekistan. The choice of regions was determined by the ratio of non-bank MFIs located in these regions. Table 2 provides a summary of the sampling of non-bank MFIs.

Table 1 Sample composition of respondents

Respondents	Definition	Sample size
Borrowers Group	MCO borrower	224 [21%]
	CU borrower	262 [24%]
Non-Borrowers Group	Non-borrower, with entrepreneurship	312 [29%]
	Non-borrower, w/o entrepreneurship	288 [27%]
Overall sample: 1,086 [100%]		

Source: Author's computations

Table 2 Sampling of non-bank MFIs in survey regions

Region	Definition	Total number of MFIs in region
(1) Tashkent city (capital)	Number of MCOs: 25	72
	Number of CUs: 47	
(2) Tashkent region	Number of MCOs: 6	16
	Number of CUs 10	
(3) Fergana region	Number of MCOs 10	25
	Number of CUs v 15	

Source: Author's computations

These three regions constitute 70% of the microfinance market. Therefore, we could be sure that our sample is representative of both borrower and non-borrower groups, and that our empirical findings are country-representative and generalized to all SMEs in the country.

5 Methodology and Sample Characteristics

We assume a linear trend and estimate our empirical model using ordinary least squares.

This is in line with other related studies, such as Thapa (2015), who used multiple linear regression models. A similar method was employed by Berrone et al. (2014), who tested ten hypotheses using a multiple linear regression model. Welsh et al. (2013) employed factor analysis on 11 management-related variables and the correlation analysis.

We estimate the following baseline regression model (1):

$$y_i = X_i\beta + \varepsilon_i \quad (1)$$

where y are outcome variables; X is the vector of individual and household characteristics; and ε_i is an error term that is assumed to be i.i.d.

For predicting the probabilities of borrowing from the formal, informal, bank, and non-bank MFIs we used probit (2) and logit (3) models given that outcome variables are in binary form (Cameron and Triverdi 2005):

$$p = \Lambda(\mathbf{x}'\beta) = \frac{e^{\mathbf{x}'\beta}}{1 + e^{\mathbf{x}'\beta}} \quad (2)$$

$$p = \Phi(\mathbf{x}'\beta) = \int_{-\infty}^{\mathbf{x}'\beta} \phi(z)dz \quad (3)$$

Table 3 defines the variables used for empirical analysis. We group them into the following categories: (i) respondent and household characteristics; (ii) business-related variables; and (iii) cognitive measures.

Table 3 Definition of variables

Category	Variable name	Definition
(i) Respondent and household characteristics	Age	Age of respondent
	Education	Dummies representing classification by type of education: educ1_not finished basic education, educ2_basic (7–9 grades), educ3_secondary (10–11 grades), educ4_vocational (lyceum, college), educ5_higher (university, post doc)
	Female	Gender dummy equals “1” if respondent is female and “0” is male
	Occupation	13 classifications used in the original survey instrument are regrouped into the major four ones and respective dummies (occup1_own business, occup2_hired, occup3_self-employed, occup4_unemployed, occup5_students)
	Household size	Number of members in the family including children, pensioners, students
	Household assets per capita	Sum of current market value of household assets (i.e. consumer durables, vehicle, livestock) and housing divided by the number of members in households
(ii) Business related variables	Business possession	Dummy equals “1” if the respondent has done any entrepreneurship activity for the 5 years and “0” if none
	Business number	Is an average number of all and any type of business/entrepreneurship activities done in the family
	Registered business number	The number of registered businesses in the family

(continued)

Table 3 (continued)

Category	Variable name	Definition
(iii) Cognitive measures	Financial literacy	Three levels of financial literacy based on the composite score: “1” fully literate, composite equals to 5–11, “2” literate, composite score equals to 12–17, “3” illiterate, composite score equals to 18–21
	Trust to MFIs	Dummy based on a composite score measuring the trust in MFIs
	Locus of control	Three levels of locus of control are defined: “1” strong, score equals to 3–6, “2” moderate, score equals to 7–9, “3” weak, score equals to 10–12
	Financial literacy	Three levels of financial literacy based on the composite score: “1” fully literate, composite equals to 5–11, “2” literate, composite score equals to 12–17, “3” illiterate, composite score equals to 18–21
	Trust to MFIs	Access Dummy based on a composite score measuring the trust in MFIs. Beyond measuring the trust, this indicator also captures the knowledge of respondents about these institutions
	Locus of control	Represents a simplified version of Rotter’s test of locus of control. Levels of locus of control are defined: “1” strong, score equals to 3–6, “2” moderate, score equals to 7–9, “3” weak, score equals to 10–12

We present the summary statistics of the main variables in Table 4. We provide the summary based on the following groupings: overall sample, for the borrowers’ group, and the non-borrowers’ group:

Table 4 Descriptive statistics of main variables

Categories	Variables	Overall Sample:		Borrowers' Group:		Non-borrowers' Group:	
		Mean	St. dev.	Mean	St. dev.	Mean	St. dev.
(ii) Respondent and household characteristics	Age	40.51	10.51	39.75	10.49	41.13	10.50
	Female dummy	0.47	0.50	0.51	0.50	0.43	0.50
	HH size	4.76	1.76	4.73	1.65	4.79	1.85
	HH assets per capita	15,478	17,832	17,236	17,258	14,055	18,173
	Basic education dummy	0.04	0.19	0.03	0.16	0.05	0.21
	Secondary education dummy	0.28	0.45	0.28	0.45	0.29	0.45
	Vocational education dummy	0.43	0.50	0.39	0.49	0.46	0.50
	Higher education dummy	0.25	0.43	0.31	0.46	0.21	0.40
	Hired employee occup. dummy	0.27	0.45	0.26	0.44	0.28	0.45
	Business owner occup. dummy	0.54	0.50	0.64	0.48	0.46	0.50
	Self-employed occup. dummy	0.08	0.26	0.03	0.18	0.11	0.31
Unemployed occup. dummy	0.10	0.31	0.06	0.23	0.14	0.35	
(iii) Business related variables	Business possession	0.69	0.46	0.83	0.38	0.58	0.49
	Business number per HH	0.76	0.53	0.89	0.45	0.65	0.57
	Registered business	0.23	0.42	0.27	0.45	0.21	0.40
(iv) Cognitive measures	Financial literacy	11.77	3.44	11.22	3.04	12.21	3.67
	Trust in MFI	0.54	0.50	0.73	0.44	0.39	0.49
	Locus of control	0.18	0.39	0.16	0.37	0.20	0.40
	Risk aversion	0.48	0.50	0.47	0.50	0.49	0.50
	<i>No. obs</i>	1086		486		600	

Notes: Business income and profits are measures in local currency, thousands of Uzbek soums
Official exchange rate is 10,700 Uzbek soums to one US dollar, in November 2021.

6 Results, Findings and Discussion

Table 5 provide results for startup financing of enterprises by the following eight types of sources: 1) own funds 3) donations 4) raw materials from business 5) credit from bank 6) credit from Credit Union 7) credit from Microcredit Organization 8) borrowing from informal moneylender and 9) from informal savings clubs named “gaps”.

As can be seen, the startup financing of entrepreneurs comes mainly from own funds, followed by donations. Regarding borrowings from non-bank MFIs for startup development, CUs are first (28.620), followed by MCOs (25.930) (Table 4). The share of lending from commercial banks for the purpose of starting a business is comparatively low: 17.326. We analyze the determinants of the success of a business based on three outcome variables: business profit, business income, and business size (measured by the number of employees).

First, we present the determinants of business success for the overall sample, which combines both groups of borrowers and non-borrowers (Table 6). As we can see, there are different sets of determinants for business success specific to each of the outcome variables.

For *business profit*, important determinants are the startup amount, vocational education, number of businesses in the family, and whether the business is registered. The importance of vocational educational is explained by that fact human capital and its type is important for business success. Vocational education includes specialized education in colleagues and lyceums. Gender has a very significant impact on business size measured by the number of employees. For *business size*, all levels of education, including basic, secondary, and vocational, matter substantially. This evidence suggests the importance of human capital for business success, which is in line with the finding of Berrone et al. (2014).

In Table 7, we present similar simpler findings for *sub-group of borrowers*. The results indicate that the following factors determine the success of business enterprises for individuals who borrow from non-bank MFIs. Specifically, for *business*

Table 5 Descriptive statistics of start-up composition variables

	Count	Mean	Sd.	Min	Max
Overall startup amount	10,663	37.085.480	11,435.57	10.00	200,000
1) Startup: Ownfunds	10,663	1.980.936	3487.22	0.00	100,000
2) Startup: Donatin	10,572	58.309	18.72	0.00	100.00
3) Startup: Rawmater	10,559	15.022	10.11	0.00	100.00
4) Startup: Bank	10,559	17.326	11.88	0.00	100.00
5) Startup: CU	10,559	28.620	15.50	0.00	100.00
6) Startup: MCO	10,559	25.930	14.27	0.00	100.00
7) Startup: Monlender	10,559	0.1847	3.68	0.00	100.00
8) Startup: Gap	10,559	15.123	10.45	0.00	100.00

Table 6 Business success determinants – overall sample

Variables	(1)	(3)	(7)
	Business Profit	Business Income	Business Size
startup	1.665*** (0.0897)	2.379*** (0.106)	4.78e-05*** (4.75e-06)
female	-1,716 (2,102)	239.5 (2,475)	-0.585*** (0.111)
educ2_basic	-9,283 (6,268)	-26,617*** (7,382)	-3.304*** (0.332)
educ3_secondary	364.9 (2,842)	-10,424*** (3,347)	-3.354*** (0.151)
educ4_vocational	7,932*** (2,479)	-3,500 (2,920)	-3.438*** (0.131)
occup1_biz	-2,979 (20,428)	-4,625 (24,059)	0.241 (1.083)
occup2_hired	-10,836 (20,606)	-23,283 (24,269)	-0.433 (1.092)
occup3_self	-14,108 (20,933)	-25,088 (24,654)	0.627 (1.110)
occup4_unemp	-19,890 (21,115)	-31,963 (24,868)	2.291** (1.119)
HHsize	91.25 (558.6)	-1,264* (657.9)	0.528*** (0.0296)
biz_numb	60,763*** (4,596)	62,426*** (5,413)	0.685*** (0.244)
regist_biz	9,334*** (2,237)	23,984*** (2,634)	2.697*** (0.119)
Constant	-59,151*** (21,035)	-31,962 (24,774)	1.210 (1.115)
Observations	10,663	10,663	10,663
R-squared	0.060	0.086	0.198

Standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

profit, the following determinants are important: startup amount, gender, education, occupation, size of household, number of businesses, and whether a business is registered. There are overlapping determinants for *business income* and *business size*, which implies that entrepreneurs have similar business development characteristics captured by profit, income, and size.

Table 8 reports regression estimation results for the sub-group of non-borrowers from MFIs. Two striking findings were observed. Given that the non-borrowers

Table 7 Business success determinants: sub-group of borrowers

Variables	(1)	(2)	(3)
	Business Profit	Business Income	Business Size
startup	0.551*** (0.0240)	1.396*** (0.0620)	7.15e-05*** (3.20e-06)
female	1,296** (574.7)	9,501*** (1,487)	0.475*** (0.0767)
educ2_basic	-9,754*** (1,896)	-23,509*** (4,906)	-1.753*** (0.253)
educ3_secondary	-8,499*** (774.1)	-13,677*** (2,003)	-0.976*** (0.103)
educ4_vocational	-5,280*** (695.7)	-9,120*** (1,800)	-1.085*** (0.0929)
occup1_biz	-7,119 (5,681)	-11,538 (14,702)	0.428 (0.758)
occup2_hired	-16,162*** (5,722)	-37,704** (14,807)	0.284 (0.764)
occup3_self	-11,632** (5,917)	-30,243** (15,313)	1.867** (0.790)
occup4_unemp	-11,190* (5,918)	-19,883 (15,315)	1.628** (0.790)
HHsize	-345.5** (173.1)	-438.7 (447.9)	0.0936*** (0.0231)
biz_numb	-2,814** (1,307)	-17,441*** (3,383)	-0.0865 (0.174)
regist_biz	6,938*** (618.6)	18,450*** (1,601)	1.090*** (0.0826)
Constant	26,377*** (5,843)	65,897*** (15,120)	1.533** (0.780)
Observations	5,343	5,343	5,343
R-squared	0.182	0.173	0.174

Standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

group of households includes entrepreneurs and households without entrepreneurship activity, for this group occupations in general are not found to be very essential. What matters most for non-borrowers are the availability of startup financing, gender, size of household, number of businesses, and registration of the business. This finding implies that any individuals with sufficient startup financing and household characteristics could succeed with the business. Thus, a specific type of occupation is not a prerequisite for business success.

Table 8 Business success determinants: sub-group of non-borrowers

Variables	(1)	(2)	(3)
	Business Profit	Business Income	Business Size
startup	2.784*** (0.187)	3.327*** (0.212)	3.50e-05*** (9.06e-06)
female	-1,067 (4,392)	-9,373* (4,968)	-1.359*** (0.213)
educ2_basic	-14,548 (11,559)	-34,952*** (13,077)	-4.417*** (0.559)
educ3_secondary	1,345 (5,778)	-17,617*** (6,536)	-5.588*** (0.280)
educ4_vocational	13,346*** (4,937)	-5,688 (5,585)	-5.589*** (0.239)
occup1_biz	-11,581 (39,962)	-12,720 (45,208)	0.772 (1.934)
occup2_hired	-18,331 (40,437)	-28,710 (45,745)	-0.445 (1.957)
occup3_self	-28,578 (40,582)	-35,540 (45,909)	0.541 (1.964)
occup4_unemp	-47,062 (41,066)	-61,431 (46,457)	2.269 (1.988)
HHsize	545.2 (1,029)	-2,273* (1,164)	0.614*** (0.0498)
biz_numb	110,091*** (8,881)	129,734*** (10,047)	1.700*** (0.430)
regist_biz	10,875** (4,444)	28,466*** (5,028)	3.819*** (0.215)
Constant	-114,265*** (41,221)	-96,146** (46,632)	1.198 (1.995)
Observations	5,320	5,320	5,320
R-squared	0.090	0.110	0.268

Standard errors in parentheses. *** p < 0.01, ** p < 0.05, * p < 0.1

7 Conclusion

Entrepreneurship is a vital source of economic prosperity and the self-sustainability of personal income. However, it is challenging to start given the lack of experience, knowledge, and access to sufficient startup financing.

In this paper, we provide novel evidence on the determinants of business success measured by business profit, income, and the size of enterprise measured by the

number of employees. Building on existing studies and anecdotal evidence from developing countries, we shed light on the determinants of entrepreneurial success in the private sector in Uzbekistan.

Our findings indicate that startup financing constitutes an important determinant of business success. The niche of alternative sources of financing, such as those provided by microfinance institutions, plays a pivotal role in startup financing. Flexibility in lending procedures, ease of document requirements, and lower cost compared to bank lending are important comparative advantages of MFI practices.

In the case of Uzbekistan, we find that startup financing amount, vocational education, number of businesses in the family, and whether the business is registered are important determinants for entrepreneurial success. We also find that determinants of business success differ across groups of borrowers and non-borrowers. Specifically, the type of occupation is not a prerequisite for business success compared to business startup financing, education, registration status of the business, and size of the household.

Our results suggest the important policy implication that access to financing, including alternative sources of financing, should be provided to SMEs to ensure success in early startup development.

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Entrepreneurial Intention Among Vietnamese Students: The Role of Family Background and Entrepreneurship Education



Huynh Thi My Dieu, Syed Ali Fazal, Noor Raihani Zainol, Abdullah Al Mamun, Muhammad Mohiuddin, and Anas A. Salameh

Abstract This study aims to determine the factors affecting entrepreneurial intention among Vietnamese students, particularly in terms of family background and entrepreneurship education service quality. Quantitative data was collected from 422 students of selected universities in the South of Vietnam. It was found that specific dimensions of family background and entrepreneurship education service quality had a positive and statistically significant effect on entrepreneurial intention among Vietnamese students. It was recommended that government and policymakers focus on creating quality academic programmes and enhancing non-academic process to enhance innovative start-up among students. Besides, certain constructs of the family background paradigm could be utilised to develop future entrepreneurs.

Keywords Entrepreneurial intention · Family background · Entrepreneurship education · University students · Vietnam

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1 Introduction

Given the research findings that lower unemployment rates in areas had a higher number of business initiatives, entrepreneurship is an effective method of managing unemployment issues (Bhasin and Gupta 2019). According to Thanh et al. (2020), entrepreneurs play a key role in improving the national economy, employment rates, innovations, and overall well-being of society. They also represent one of the crucial economic sectors, which significantly contribute to boosting national economic growth and solving poverty issues while providing new jobs (Resurrection 2011). Entrepreneurs have further been credited for rejuvenating social production structures, re-launching the business sector, and promoting the innovation process (Santos 2012; Moica et al. 2012). In Vietnam, entrepreneurship is considered a new source of motivation for the development of the national economy, which results in economic, political, and social reinforcement. For this reason, entrepreneurial activities are present in almost every area of Vietnam, which are then developed into countless forms and diverse scales, making entrepreneurship the driving force of the national economy in recent years (Khuong and An 2016). According to Khuong and An (2016), the rapid development of private entrepreneurship within the country has a significant contribution to the industrialization and GDP of Vietnam.

The existing research argued that entrepreneurial intention could help professionals, advisors, and policymakers gain further knowledge about the influence of formation and beliefs, perceptions, experiences, and start-ups on the perceptions of entrepreneurship (Wang et al. 2011; Zellweger et al. 2011). As a result, researchers around the world are actively attempting to determine the factors of individuals' intention to become an entrepreneur. In this context, one of the most investigated areas is the role of entrepreneurship education in developing entrepreneurial intent. According to Roxas (2014), entrepreneurship education is gaining increasing attention, given that business knowledge needs to be developed to provide students with the confidence and willingness to participate in entrepreneurship. In an earlier study, (Turker and Selcuk 2009) demonstrated that if universities ensured special knowledge and inspiration about entrepreneurship, the young people, especially students, had more likeliness to initiate a business.

In general, given that entrepreneurship plays an important role in promoting the development of entrepreneurial intention, educational institutions need to provide business knowledge on the planning, implementation, and development of businesses. This is followed by training and instilling the necessary character set within individuals to become successful entrepreneur (Hutasuhut 2018). Higher education institution creates entrepreneurial awareness and inspiration, cultivates an attitude, builds confidence, and equips the students with the basic knowledge necessary to start a business and see entrepreneurship as a career option. Apart from entrepreneurial education, the other approach related to the factors of students' entrepreneurial intent is related to family background. While others have less possibility to see opportunities and pursue passion through innovative and creative means, successful entrepreneurs act otherwise due to their innate distinctive traits (Dew et al. 2015). (Anderson

and Miller 2003) stated that a good family background increases resource, thus affecting the profitability and growth potential of start-ups. It is noteworthy that different studies of successful entrepreneurs have sparked a debate about the role of entrepreneurship education on entrepreneurial performance (Ranwala 2016), leading to inconclusive research findings in this matter.

While the prospect of starting a business is considered highly positive as entrepreneurs are regarded as valuable in society, the number of Vietnamese who attempt to become entrepreneurs in Vietnam remains low compared to other countries with a similar level of development. The Global Business Report (Monitor and – GEM.: Report Global Entrepreneurship Monitor Vietnam 2017) recorded that the percentage of adults who intended to start a business in Vietnam amounted to 25% (ranked 19/54), although the rate of a start-up in businesses in Vietnam remained low at 0.6% (ranked 45/54), while 46.4% of adults in Vietnam recognised business opportunities (business opportunity awareness). Specifically, the General Statistics Office (GSO), Ministry of Labour, Invalids and Social Affairs—MOLISA (Q4-2019) reported that among the 1.06 million unemployed individuals, a total of 431,000 were unemployed youth, with the highest percentile of unemployment representing the university graduates or individuals who held higher degrees.

It was indicated from the above statistics that starting a business should be one of the career options to be considered by students before or after graduation (Beeka and Rimmington 2011). However, it was found that university graduates were lacking of skills, given that higher education institutions placed sole focus on technical issues instead of equipping students with the necessary knowledge in the field of entrepreneurship, such as business planning, market demand assessment, or presentations skills for seeking investment among others. Moreover, individuals with higher levels of education and expertise and experiencing several opportunities for successful entrepreneurship often worked as hired labourers. To address the problem of job creation, incubating for future entrepreneurs who could begin their own business is important. The process of international integration of the Vietnamese economy and the impact of the industrial revolution 4.0 has made further research necessary to provide solutions to renovate economic and financial policies, including economic management to adapt to the new norm.

It was argued that the research on the impact of entrepreneurship education service quality on student entrepreneurial intentions is important, particularly in the context of emerging economies including Vietnam. To illustrate, stakeholders must assess the impact of the quality of university programmes on entrepreneurial intentions in the future. Besides, emphasis on the factor of family background, which was focused on in a few previous studies, is also recommended. In bridging the gaps in the literature and forward policy implications for various stakeholders, this study examined the effect of family background and education service quality on entrepreneurial intention among the students of selected universities in Vietnam. The following section explains the relevant literature, the method use in this study, the findings, and discussion and conclusion.

2 Literature Review

2.1 *Entrepreneurial Intention*

The first In general, entrepreneurship intention refers to the willingness of an individual to conduct business activity, engage in a business operation, or establish a new business (Souitaris et al. 2007; Krueger and Welpé 2014), where individuals search and retrieve information that could be used to help accomplish goals creatively (Devonish et al. 2010). (Pihie and Akmaliah 2009) suggested that intention is a state of mind or attitude that influences business behaviour and reflects the process taken place for an individual over time. Therefore, it was argued that the intention to start a business plays a highly important role in shaping the business behaviour of students in their future career orientation. Based on the related studies, (Liñán and Fayolle 2015) specified the factors of entrepreneurial intention into five categories: core entrepreneurial intention model, personal-level variables, entrepreneurship education, context and institution, and entrepreneurial process. It was found that other factors such as age, gender, role models, and institutional variables influence entrepreneurial motivation.

The quality of entrepreneurship education leads to entrepreneurial intent (Al Mamun et al. 2016) as it cultivates the skills and ability to determine entrepreneurial spirit. Scholars studied the relationship between entrepreneurship education and students' entrepreneurial intention from different perspectives. It was found that students with good knowledge of entrepreneurship would be motivated to start a new venture. However, whether the nature of an entrepreneur is nurtured or naturally present remained inconclusive (White et al. 2007). Apart from entrepreneurship education, other factors such as cultural values, support (Begley and Tan 2001), character traits, and attitudes including one's ability to have self-confidence in performing a certain task (Kristiansen and Indarti 2004), a student's business orientation and specific demographic and socio-cultural factors (Hutasuhut 2018; Nguyen 2018) were known to affect entrepreneurial intention.

2.2 *Entrepreneurship Education Service Quality*

Education plays an important role in guiding learners towards entrepreneurship to create a desire and transform it into action (establish new companies). As a result of the extremely high cognitive value of entrepreneurship, many universities develop entrepreneurship-training programmes as a discipline or a part of the entire curriculum. According to Turker and Selcuk (2009), the full knowledge and inspiration for entrepreneurship offered by the university increase students' ability to choose and start a business. Successful education programmes were perceived as an important factor to create entrepreneurial intent in students. Entrepreneurship education is a key tool to energise entrepreneurial intentions, thinking, and behaviour,

although the effectiveness of it remains inconclusive. Therefore, it was highlighted that the measurement of the success of entrepreneurship education is important for understanding its influence on students' startup intention.

Entrepreneurial learning refers to the active and cognitive processes employed by individuals as they acquire, retain, and use entrepreneurial knowledge (Young 2000). In the context of this article, entrepreneurship education is perceived as the process of imparting knowledge, behaviours, skills, and attitudes used by individuals when they acquire, retain, and use the knowledge when starting and growing a new business. Educational service quality could be captured as a student's overall evaluation of services received as a part of their educational experiences (Holdford and Reinders 2001). According to Petruzzellis et al. (2006), students would be satisfied when educational service quality meets their expectations. There has been a growing concern regarding the issue of assessment in terms of educational service quality by scholars for decades in the context of education access and academic institutions with specific criteria (Heyneman 2004).

There have been interests among researchers regarding what is needed by entrepreneurs to gain success in education. Meanwhile, educational institutes attempt to identify the satisfaction of clients in terms of the quality of their programmes (Antoncic et al. 2004). It was assumed that when students are satisfied with the quality of educational service, they would have an intention to begin their own business based on what they have learnt from the school. In respect of adequate knowledge and inspiration of entrepreneurship, (Turker and Selcuk 2009) highlighted that educational support is considered the most significant factor to enhance entrepreneurial intention. Education could enhance and inspire entrepreneurship via course contents, teaching approaches, and assessment methods (Hamzah et al. 2016). Furthermore, an effective educational programme equips students with the business knowledge required to sustain long-term interest in entrepreneurship (Wang and Wong 2004). The quality of entrepreneurial education could determine entrepreneurial intention (Al Mamun et al. 2016). Based on Table 1, this study aims to capture the context of Vietnam higher education service quality as a criterion to examine students' perception of new business, with the main focus on the following six dimensions: academic facilities, academic programmes, academic staff, non-academic process, delivery of teaching, and industry interaction.

Academic Facilities. Only Academic facilities are the tangible factors related to physical facilities, equipment, and appearance of personnel (Manaf et al. 2013), which include resources such as the library, computer facilities, and laboratories (Owlia and Aspinwall 1998; Joseph and Joseph 1997; Holdford and Patkar 2003; Lagrosen et al. 2004). Moreover, the location of the campus and accommodation environment is a part of this sub-dimension, which could lead to students' happiness or dissatisfaction with the school. Therefore, the first hypothesis was developed as follows:

H1: *Entrepreneurial intention is directly influenced by academic facilities in terms of entrepreneurial education service quality.*

Table 1. Summary of the dimension measurement of service quality in higher education

Authors	No. of dimensions	Criteria
Parasuraman et al. (1991)	5	Tangibles, reliability, responsiveness, assurance, empathy
Lockwood (1995)	10	Reliability, responsiveness, competence, access, courtesy, communication, credibility, security, understanding the customer, tangibles
Hill (1995)	20	Teaching, course contents, teaching quality, teaching methods, personal contact with academic staff, feedback, student involvement, joint consultation, work experience, computing facilities, library service, university bookshop, career counseling/general welfare, financial service, health service, accommodation service, students' union, catering service, physical education, travel agency
Owlia and Aspinwall (1998)	4	Academic, resources, competence, attitude, content
LeBlanc and Nguyen (1997)	7	Facilities, responsiveness, curriculum, contact personnel/administration, physical evidence, reputation and contact personnel/faculty
Joseph and Joseph (1997)	7	Program issues, academic reputation, physical aspects, career opportunities, location, time, others
Athiyaman (1997)	8	Emphasis on teaching students well, availability of staff for student consultation, library services, computing facilities, recreational facilities, class sizes, level and difficulty of subject content, student workload
Kwan and Ng (1999)	7	Course contents, concern of students, facilities, assessment, medium of instruction, social activities, people
Oldfield and Baron (2000)	3	Requisite (essential to enable students to fulfill their study obligations), acceptable elements (desirable but not essential to students), functional elements (are of a practical or utilitarian nature)

(continued)

Table 1. (continued)

Authors	No. of dimensions	Criteria
Holdford and Patkar (2003)	5	Resources, interpersonal behavior of faculty, faculty expertise, faculty communication, administration
Abdullah (2006)	6	Non-academic aspects, academic aspects, reputation, access to facilities, campus to facilities, curriculum
Mahapatra and Khan (2007)	5	Learning outcomes, responsiveness, physical facilities, personality development, academic
Arokiasamy and Abdullah (2012)	7	Teaching, administrative/management support, library, computer labs and general labs, accommodation, sports and medical facilities, transportation, classroom and prayer facilities

Academic Programmes. Academic programmes are related to students’ perception of academic reputation, flexible timetabling, and expertise of academic staff (Manaf et al. 2013). Accordingly, the programme contents related to start-ups help students learn and identify new business opportunities (Hien and Cho 2018) while having significant impacts on personal competence (e.g., risk-taking and self-efficiency), which is considered necessary and related to the intention to start a business (Sánchez 2011). Krueger and Brazeal (1994) argued that the right curriculum helps improve students’ feasibility and desires by enhancing their knowledge and confidence, which influences their entrepreneurial intentions. Moreover, academic programmes affect the development of personal competence in leading a group or a specific project (Boissin et al. 2009). Thus, the second hypothesis was developed as follows:

H2: *Entrepreneurial intention is directly influenced by academic programmes in terms of entrepreneurial education service quality.*

Academic Staff. Students’ satisfaction is known to be associated with the academic staffs’ positive attitude, good communication skills, adequate consultation to students, and regular feedback provided to improve students’ performance (Manaf et al. 2013). Academic staffs were found to have a significant influence on overall students’ satisfaction in terms of their perception of service quality in education. However, no empirical evidence has confirmed the positive influence of academic staff on students’ entrepreneurship intention. Therefore, the following hypothesis was made to extend the body of knowledge:

H3: *Entrepreneurial intention is directly influenced by academic staff in terms of entrepreneurial education service quality.*

Delivery of Teaching. Delivery of teaching refers to the ability of academic staff that allows proper communication in the classroom, a positive attitude toward students,

and sufficient knowledge to respond to questions in the class (Manaf et al. 2013). Developing a future entrepreneur primarily involves the creation of attitude and motivating students to become entrepreneurs. In the context of teaching entrepreneurship education, the method of teaching is the main focus instead of what is being taught (Filion 1994). Patricia (2016) highlighted that students improved their knowledge and cognitive skills, including the feelings of satisfaction or frustration related to learning and achievement through the delivery of teaching. Therefore, this study predicted that lecturers' enthusiasm for teaching would have a positive contribution to the formation of students' entrepreneurial intentions. Based on the above arguments, the following hypothesis was proposed:

H4: *Entrepreneurial intention is directly influenced by the delivery of teaching in terms of entrepreneurial education service quality.*

Non-academic Process. The non-academic process refers to extracurricular activities, social activities, counselling services, and personality development activities (Jain et al. 2011). Extracurricular activities aim to help students get familiar with the startup culture and provide information, forms, and tools to develop startup projects. Extracurricular activities such as start-up incubators, information centres, and financial support are factors supporting entrepreneurial intentions (Souitaris et al. 2007; Fayolle et al. 2006; Liñan 2008). Besides, (Souitaris et al. 2007) found that the available support resources also influence entrepreneurship-setting attitudes and behaviours due to the ability of access to these resources to stimulate student startups as a desired and feasible career choice. It was predicted that after students participate in the extracurricular activities, a positive attitude towards entrepreneurship would be developed, leading to further interests in starting a business in future (Denny et al. 2011). Thus, the following hypothesis was made:

H5: *Entrepreneurial intention is directly influenced by non-academic processes in terms of entrepreneurial education service quality.*

Industry Interaction. Students are provided with practical and industry experience throughout their course in the school (Joseph and Joseph 1997). According to Jain et al. (2011), students' satisfaction with the quality of industry interaction refers to the student's perception of how the service is delivered during their encounter with this service in which the attitude and behaviour of students are highlighted. Hence we expect that the combination of industry interaction with entrepreneurship education programme will enhance the probability of students' entrepreneurial intention. Therefore, the following hypothesis was proposed:

H6: *Entrepreneurial intention is directly influenced by students' industry interaction in terms of entrepreneurial education service quality.*

2.3 Family Background

As the head of the family, it is rational that parents will influence the personality of their children. Given that parents are entrepreneurs and role models for family members, they become an inspiration for children to continue their career in the future and the key for the development of future entrepreneurs (Papadaki et al. 2002). Several different approaches related to students' entrepreneurial intentions were derived from the family background. (Anderson and Miller 2003) highlighted that students with a good family background would possess resourcefulness, which might assess them in terms of profitability and growth potential during the start-up phase. (Mcelwee and Al-Riyami 2003) stated that children who grow up with business parents are more likely to choose self-employed careers. Similarly, (Fairlie and Robb 2007) demonstrated that the family history of entrepreneurs originates from self-employed parents. Meanwhile, other studies on the impact of family background on entrepreneurial intention recorded that self-employed parents could influence the business intention of their children (Bosma et al. 2012).

Ayodele (2014) advocated that family background is the source of positive experience with a significant impact on entrepreneurial intentions for students. Sivarajah and Achchuthan (2013) found a positive relationship between the involvement of parents in business and the entrepreneurial intention of students. Meanwhile, (Alsos et al. 2011) illustrated that a family business strengthens the development of entrepreneurship among family members. Similarly, (Chaudhary 2017) confirmed that a self-employed family platform would have a positive relationship with the intention to start a business, while (Gordon and Davidsson 2013) did not support the notion that family background influences the children's entrepreneurial intentions. To gain a deeper understanding of this issue, this study focused on specific indicators of family background, leading to the following hypotheses:

H7: *Family members with business background has a positive effect on entrepreneurial intention.*

H8: *The family need for financial support has a positive effect on entrepreneurial intention.*

H9: *Household head's level of education has a positive effect on entrepreneurial intention.*

H10: *Monthly household income has a positive effect on entrepreneurial intention.*

H11: *The number of dependent household members has a positive effect on entrepreneurial intention.*

3 Research Methodology

3.1 Data Collection

The respondents in this study consisted of students from four universities in the South of Vietnam. All association hypothesised in this study presented in Fig. 1. Data were gathered using structured questionnaires through face-to-face interviews and online Google forms. To achieve objective-based responses and ensure the confidentiality of the respondents, the questionnaires did not require respondents to provide private information. After understanding the research objectives and methods of implementation, respondents voluntarily answered the questionnaire of the study. Although a total of 480 responses were collected, only 422 responses were found to be valid, therefore used in the final analysis.

3.2 Measurement and Scale

Items for the questionnaires were adapted from the previously validated scales. Four items were adopted from Chen et al. (1998) to capture entrepreneurial intention. Academic facilities were evaluated using four items from Holdford and Reinders (2001); Owlia and Aspinwall (1998); Lagrosen et al. (2004); Joseph et al. (2005), respectively. Academic programmes, academic staff, and delivery of teaching were assessed using items borrowed from Manaf et al. (2013). Non-academic processes were investigated using six items from Hill (1995); Lagrosen et al. (2004); Joseph et al. (2005); Pariseau and McDaniel (1997); Harvey (1995). Finally, six items were adopted by Joseph and Joseph (1997) to assess industry interaction. The questionnaire used a seven-point Likert scale and was translated into Vietnamese to develop a better understanding of data collection from the local students.

3.3 Data Analysis Method

This study used SmartPLS 3.1 based on partial least square-structural equation modelling (PLS-SEM), which is a multivariate exploration tool for assessing implicit, structured path models with composites (Hair et al. 2019). PLS-SEM could assess non-normal and small datasets linked to random prediction properties, which could function with complex models based on composites without convention rules. The estimation of relevance could be measured using an SEM-based covariance tool, such as SmartPLS (Chin 2010). Moreover, PLS-SEM analysis was performed in two steps. Step 1 analyses the measurement model to assess the reliability and validity of the research instrument (Hair et al. 2019), including the validity of discrimination (Fornell and Larcker 1981; Henseler et al. 2015). This is followed by the associations of structural models to confirm research hypotheses with significance levels (Chin

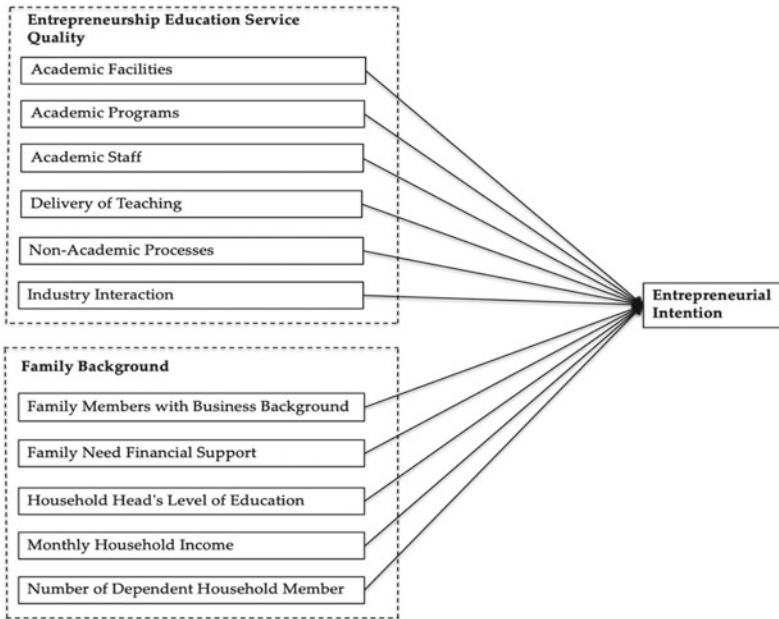


Fig. 1 Research model

2010). The model estimation was performed with r^2 , Q^2 , while the effect size f^2 was used to describe the path effect from exogenous to endogenous variables (Hair et al. 2019).

4 Summary of Findings

4.1 Demographic Characteristic

The data for this study included 422 valid responses. As shown in Table 2, 73.9% of the respondents were females, while the remaining 26.1% were males. The majority of students were in the age group of younger than 20 years old (46%), followed by 155 people (36.7%) from the age group of 21 to 25 years old, people aged 26 to 30 years old (6.6%) and above 30 years old (10.7%). As for education, most of the respondents were from Business and Management (38.9%) and Finance and Banking (28.7%). In terms of household background, most of the respondents revealed that their household heads possessed higher educational qualification (48.8%). A total of 71.8% of respondents confirmed that their family members did not have experience in the business. Moreover, approximately 39.8% of the respondents reported that there are two dependent household members, while 28.9% of respondents stated that

Table 2 Profile of the respondents and households

	n	%		n	%
<i>Gender</i>			<i>Age</i>		
Male	110	26.1	Less than 20 years old	194	46.0
Female	312	73.9	Between 21–25 years old	155	36.7
Total	422	100.0	Between 26–30 years old	28	6.6
			Above 30 Years	45	10.7
<i>Interested industry</i>			Total	422	100.0
Manufacturing	41	9.7			
Education	73	17.3	<i>Field of study</i>		
Agriculture	9	2.1	Business & management	164	38.9
Science technology	59	14.0	Finance & banking	121	28.7
Service	208	49.3	Tourism	29	6.9
Others	32	7.6	Accounting & auditing	23	5.5
Total	422	100.0	Engineering	3	0.7
			Information technology	11	2.6
<i>Household head's level of education</i>			Others	71	16.8
None	29	6.9	Total	422	100.0
Primary	14	3.3			
Secondary	173	41.0	<i>Family members with business background</i>		
Higher education	206	48.8	No	303	71.8
Total	422	100.0	Yes	119	28.2
			Total	422	100.0
<i>Number of dependent household member</i>					
No dependent	23	5.5	<i>Monthly household income</i>		
One dependent	122	28.9	Under 30 million VND	284	67.3
Two dependents	168	39.8	Between 30–50 million VND	97	23.0
Three dependents	84	19.9	Between 50–100 million VND	23	5.5
Four dependents	16	3.8	Above 100 million VND	12	2.8
Five dependents	8	1.9	None/Unknown	6	1.4
Six dependents	1	0.2	Total	422	100.0
Total	422	100.0			
			<i>Family need financial support</i>		
			No	304	72.0
			Yes	118	28.0
			Total	422	100.0

one dependent household member was present. Additionally, a significant portion of respondents (72.0%) mentioned that their families did not need financial support.

4.2 The Reliability and Validity

This study applied Cronbach’s alpha, composite reliability, and average variance extracted (AVE) to assess the reliability and validity of scales. As seen in Table 3, the reliability coefficient Cronbach’ alpha of all variables ranged from 0.941 and 0.960 (>0.8), which indicated that the items were reliable. The value of composite reliability for all indicators was found to be over 0.7 (Henseler and Sarstedt 2013), representing reliable items. Furthermore, all the AVE values for the constructs were higher than 0.5 (Chin 1998; Hock and Ringle 2010), which represented acceptable convergent validity. As shown in Table 4, the cross-loading values were below the outer loadings, which suggested good discriminant validity. This was followed by

Table 3 Reliability analysis

Variables	No. of items	CA	DG Rho	Composite reliability	AVE
Academic facilities	4	0.943	0.946	0.959	0.855
Academic programs	5	0.941	0.944	0.955	0.811
Academic staff	4	0.950	0.950	0.964	0.870
Delivery of teaching	5	0.960	0.962	0.969	0.864
Non-academic processes	6	0.958	0.958	0.967	0.831
Industry interaction	6	0.953	0.957	0.963	0.811
Family members with business background	1	1.000	1.000	1.000	1.000
Family need financial support	1	1.000	1.000	1.000	1.000
Household head’s level of education	1	1.000	1.000	1.000	1.000
Monthly household income	1	1.000	1.000	1.000	1.000
Number of dependent household member	1	1.000	1.000	1.000	1.000
Entrepreneurial intention	4	0.941	0.942	0.957	0.849

Note AVE: Average Variance Extracted, Source Author’s data analysis

Table 4 Loadings and cross-loading

		AF	AP	AS	DT	NP	II	EI
AF1	The institute has clean, spacious and well-equipped classrooms	0.922	0.747	0.680	0.685	0.694	0.665	0.423
AF2	The institute's library offers wide range of resources	0.914	0.734	0.670	0.680	0.694	0.673	0.409
AF3	The institute provides easy access to information sources, e.g. books, journals, software, information networks	0.934	0.770	0.759	0.710	0.758	0.715	0.461
AF4	The institute provides clean and safe accommodation	0.801	0.920	0.737	0.801	0.781	0.739	0.484
AP1	The university offers highly reputable programs	0.777	0.919	0.715	0.818	0.787	0.740	0.474
AP2	Academic staff are highly educated	0.750	0.930	0.725	0.805	0.792	0.763	0.507
AP3	The GSM offers programs with flexible timetabling	0.654	0.870	0.739	0.683	0.632	0.680	0.436
AP4	Complaints are dealt with efficiently	0.690	0.861	0.751	0.701	0.652	0.709	0.445
AP5	Recreational facilities are adequate	0.727	0.765	0.920	0.722	0.697	0.718	0.453
AS1	Academic staff provide students individual attention	0.666	0.735	0.926	0.701	0.634	0.710	0.458
AS2	Academic staff provide feedback about my progress	0.708	0.762	0.954	0.735	0.696	0.729	0.458
AS3	Academic staff allocate convenient time for consultation	0.747	0.773	0.931	0.751	0.693	0.749	0.454
AS4	Academic facilities are adequate	0.721	0.790	0.709	0.925	0.776	0.772	0.459
DT1	Academic staff have the knowledge to answer my questions relating to the course content	0.730	0.817	0.728	0.951	0.784	0.784	0.483
DT2	Academic staff communicate well in the classroom	0.727	0.810	0.718	0.946	0.776	0.789	0.461
DT3	Academic staff show positive attitude towards students	0.669	0.772	0.740	0.919	0.665	0.739	0.467
DT4	Academic staff try to get us excited about starting our own business	0.653	0.749	0.728	0.905	0.644	0.742	0.432
DT5	Academic staff enjoy teaching about entrepreneurship	0.706	0.736	0.744	0.662	0.772	0.637	0.480
NP1	Administrative process like registration, examination, etc. are hassle free	0.682	0.738	0.634	0.716	0.944	0.720	0.467
NP2	The institute provides opportunities to participate and organize variety of sports activities	0.683	0.702	0.604	0.707	0.939	0.704	0.455

(continued)

Table 4 (continued)

		AF	AP	AS	DT	NP	II	EI
NP3	The institute provides opportunities to participate and organize variety of cultural activities	0.688	0.718	0.620	0.716	<i>0.943</i>	0.719	0.464
NP4	The institute provides opportunities to participate and organize variety of social activities	0.725	0.746	0.663	0.727	<i>0.941</i>	0.740	0.467
NP5	The institute provides opportunities to participate and organize variety of co-curricular activities	0.745	0.790	0.704	0.756	<i>0.918</i>	0.771	0.475
NP6	The institute provides career information and guidance	0.759	0.815	0.798	0.824	<i>0.761</i>	0.903	0.474
II1	Contemporary teaching methods are used	0.660	0.709	0.698	0.693	0.697	<i>0.913</i>	0.411
II2	The institute organizes for industrial tours	0.639	0.682	0.668	0.675	0.641	<i>0.883</i>	0.381
II3	The institute organizes for summer training	0.671	0.729	0.680	0.758	0.704	<i>0.926</i>	0.394
II4	Guest lectures from industry experts are organized	0.615	0.705	0.680	0.729	0.644	<i>0.893</i>	0.374
II5	The institute organizes for on-the-job training	0.677	0.707	0.665	0.753	0.784	<i>0.884</i>	0.416
II6	Seminars/workshops are organized	0.422	0.464	0.429	0.457	0.496	<i>0.424</i>	0.909
EI1	I intend to become an entrepreneur	0.408	0.471	0.463	0.423	0.438	0.405	<i>0.929</i>
EI2	I am likely to become an entrepreneur	0.473	0.520	0.457	0.512	0.528	0.457	<i>0.917</i>
EI3	I am likely to work very hard to become an entrepreneur	0.380	0.467	0.450	0.430	0.432	0.393	<i>0.930</i>
EI4	I will be an entrepreneur soon	0.922	0.747	0.680	0.685	0.694	0.665	<i>0.423</i>

Note (1) AF: Academic Facilities; AP: Academic Programs; AS: Academic Staff; DT: Delivery of Teaching; NP: Non-Academic Processes; II: Industry Interaction; EI: Entrepreneurial Intention (2) The Italic values in the matrix above are the item loadings and others are cross-loadings
Source Author’s data analysis

an assessment of the discriminant value of the scale through the Fornell-Larcker criterion. As seen from Table 5, for all variables, the square root of AVE was higher compared to any correlation coefficient value in the column and the row containing it, suggesting adequate discriminant validity. The Heterotrait-Monotrait (HTMT) ratio was tested to evaluate the discriminant value between two related variables. According to Garson (2016), the discriminant value between two related variables was proven when the HTMT index was lower than 1. Besides, (Henseler et al. 2015) proposed that the HTMT should be lower than 0.9 to confirm discriminant validity. As shown in Table 4, given that the values of the HTMT index of each structure were lower than 0.9, the criteria for discriminatory values were established. From

Table 5 Fornell-Larcker Criterion and Heterotrait-Monotrait Ratio

<i>Fornell-Larcker Criterion</i>	AF	AP	AS	DT	NP	II	EI
Academic facilities	0.924						
Academic programs	0.817	0.900					
Academic staff	0.763	0.813	0.933				
Delivery of teaching	0.754	0.848	0.779	0.929			
Non-academic processes	0.776	0.813	0.729	0.786	0.912		
Industry interaction	0.748	0.808	0.779	0.824	0.787	0.901	
Entrepreneurial intention	0.458	0.522	0.489	0.496	0.515	0.457	0.921
<i>Heterotrait-Monotrait Ratio</i>							
Academic facilities	–						
Academic programs	0.866	–					
Academic staff	0.805	0.862	–				
Delivery of teaching	0.791	0.890	0.816	–			
Non-academic processes	0.814	0.852	0.762	0.817	–		
Industry interaction	0.784	0.848	0.815	0.857	0.819	–	
Entrepreneurial intention	0.483	0.553	0.517	0.520	0.540	0.478	–

Note AF: Academic Facilities; AP: Academic Programs; AS: Academic Staff; DT: Delivery of Teaching; NP: Non-Academic Processes; II: Industry Interaction; EI: Entrepreneurial Intention
Source Author's data analysis

the results of the analysis discussed above, it could be concluded that the scales used by the research instrument achieved good reliability and validity.

4.3 Path Analysis

The evaluation of the structural model path coefficient of the model was performed through bootstrapping method (Hair et al. 2019). The bootstrap results were used to calculate the importance of t statistics related to path factors. Table 6 presents the important values for the path factors determined from the bootstrapping process. The path coefficients of the academic programme (AP) and non-academic process (NP) were found to have a positive and statistically significant effect on the entrepreneurial intention of students (EI) (p -value < 0.05). Furthermore, the family's need for financial support (FN), household head's level of education (HE), and monthly household income (MI) were found to have a positive and statistically significant effect on EI (at the selected 5% level of significance). However, academic facilities (AF), academic staff (AS), delivery of teaching (DT) and industry interaction (II) were found to have no statistically significant effect on EI. Family members with a business background (FM) and the number of dependent household member (DM) were also found to

Table 6 Path coefficients

Hypo		Beta	CI- Min	CI - Max	t	p	f ²	Q ²	Decision
<i>Entrepreneurial education service quality on entrepreneurial intention</i>									
H ₁	AF → EI	-0.022	-0.195	0.134	0.215	0.415	0.000		Reject
H ₂	AP → EI	0.200	0.022	0.373	1.816	0.035	0.010		Accept
H ₃	AS → EI	0.146	-0.014	0.299	1.543	0.062	0.009		Reject
H ₄	DT → EI	0.065	-0.098	0.222	0.670	0.251	0.001		Reject
H ₅	NP → EI	0.262	0.107	0.415	2.796	0.003	0.027		Accept
H ₆	II → EI	-0.054	-0.220	0.103	0.564	0.287	0.001	0.276	Reject
<i>Family background and entrepreneurial intention</i>									
H ₇	FM → EI	0.055	-0.008	0.123	1.343	0.090	0.004		Reject
H ₈	FN → EI	0.100	0.025	0.169	2.195	0.014	0.014		Accept
H ₉	HE → EI	-0.076	-0.143	-0.015	1.898	0.029	0.008		Accept
H ₁₀	MI → EI	0.111	0.051	0.170	2.986	0.001	0.016		Accept
H ₁₁	DM → EI	0.008	-0.053	0.085	0.203	0.420	0.000		Reject

Note AF: Academic Facilities; AP: Academic Programs; AS: Academic Staff; DT: Delivery of Teaching; NP: Non-Academic Processes; II: Industry Interaction; FM: Family Members with Business Background; FN: Family Need Financial Support; HE: Household Head’s Level of Education; MI: Monthly Household Income; DM: Number of Dependent Household Member; EI: Entrepreneurial Intention

Source Author’s data analysis

have no statistically significant effect on the EI of Vietnamese students (p-value > 0.05).

Based on the above, the study accepted the hypotheses H2, H5, H8, H9, H10 and rejected hypotheses H1, H3, H4, H6, H7, and H11. According to the effect sizes (f²), NP was found to have a strong effect on EI. Accordingly, AP, FN, and MI displayed a medium effect on EI among the sample. It was found that HE has a minor impact on EI. The coefficient of determination (r²) of all endogenous latent variables was considered moderate and acceptable. The (Q²) value assessed the relative predictive relevance of a predictor construct on an endogenous construct value and a value higher than 0 indicated that the path model’s accuracy was acceptable (Hair et al. 2019). Based on Table 6, the Q² values = 0.276 were higher than 0, indicating the predictive relevance of the factors on entrepreneurial intention among Vietnamese students.

5 Discussion and Conclusion

To promote the start-up movement in universities, it was emphasised by Prime Minister Nguyen Xuan Phuc during the working visit at Hanoi National University on 16 October 2016 that one of the measures of success for the university is

the number of students who start-up a business and become successful. The Prime Minister requested educational institutions to include entrepreneurial contents in training programmes to concretise Resolution No. 35/NQ-CP of 16 May 2016 for the support and development of enterprises by 2020. Therefore, this study focused on proposing suggestions to enhance the role of education and family background, which could contribute to nurturing and promoting the start-up intention of Vietnamese students. Through the above analysis, this study determined that the students' intention to start a business was represented by entrepreneurship education service quality, which included academic programme and non-academic process. It was also related to certain criteria of family background (such as the family's need for financial support, qualifications of the household head, and monthly income level of the household). It was found that academic facilities, qualifications and teaching skills of lecturers, and industry interaction activities had no positive effect on students' entrepreneurial intentions. This result was in line with (Patricia 2016) research on Indonesian students, in which the lectures' enthusiasm in promoting and teaching entrepreneurship was not directly related to entrepreneurial intention. At the same time, family's business background had no role in influencing the students to start a business, which was compatible with the research of Gordon and Davidsson (2013), however contrary to previous studies by Alsos et al. (2011); Chaudhary (2017), and (Nguyen 2018).

Findings of the research indicated that the factors of entrepreneurial education service quality and family background influenced the entrepreneurial intention of students. The state, agencies, higher education institutions, and students should pay attention to the improvement in the spirit of entrepreneurship among Vietnamese students using the identified factors. To reinforce the need for entrepreneurship and entrepreneurial thinking among students, schools and society should be equipped with the foundation of knowledge about entrepreneurship through inspirational activities and entrepreneurship education activities. For state, agencies and policymakers, it is necessary to incorporate entrepreneurship education content in higher educations at its initial stage, where start-up spirit should be promoted among young people. The reforms of the education system from high school to university level towards incorporating education and training with practical activities, including the promotion of entrepreneurship and entrepreneurship culture should be a prerequisite in the higher education curriculum. Moreover, effective implementation of preferential policies on tax, capital, and property among others for new, small, and medium enterprises is required. The state needs to establish consistent and synchronised policies, creating the most favourable environment for startup activities, especially for university and college students. Meanwhile, the government agencies should be involved to seek sponsors, successful entrepreneurs, banks, financial leasing companies, venture capital funds, and other organisations to support start-up activities. In addition, government agencies could proactively set up financial institutions for supporting universities to create startup incubators on campus and organise more activities to boost the spirit of students, making them ready to start a business.

For higher education institutions, the focus on incorporating entrepreneurship-related subjects into a curricular programme is essential. Introducing the subject of

entrepreneurship in the university will help students improve their knowledge, start-up awareness, and shape the ideas and core values when starting a business. To create an enabling environment for the support to students in forming and identifying startup ideas and projects, universities should establish support centre and information channels to provide materials and trainers, and develop a startup mentoring community. Handling real-case solving helps learners understand the mindsets of entrepreneurs and choose the best decisions in a specific context. Hence, learning methods such as group discussions, case studies, setting up plans, small business projects, increasing hours of practice, and making projects among others are the methods to enhance the applicability of students in real life and help them present new ideas. The school could organise talks and exchanges with successful entrepreneurs, young business owners of Vietnam and the world, thereby creating a bridge between students and the business community, enhancing social capital for students. Besides, extracurricular activities could also be enhanced on entrepreneurship and related idea competitions. Overall, these activities provide students with practical social skills. This is followed by business fairs or handmade stalls to allow students to exchange their homemade goods. This approach helps students gain sales experience, self-entrepreneurial experience, and collaborative experience with others. Moreover, universities should organise annual writing start-up projects competitions with participation, advice, and support from local businesses. University could also assist students in seeking investment for outstanding projects through funds or building investment funds for the start-up of the university.

The participation and cohesion of businesses and entrepreneurs should be emphasised at schools, which allow students to learn about the operating mechanism and the organisation of the personnel structure of the business. This could assist students in improving their view about how a business operates. Individual students could find entrepreneurial models through learning, research, and internships. For students, it is necessary to change their attitude towards entrepreneurship by actively and continuously improving the necessary skills to start a business. Notably, learning activities in class and extracurricular activities offer good opportunities for students to practise their life skills. Students should actively participate in classes organised by the school or off-campus units with a successful entrepreneur to enhance their life skills, business skills, and sales skills among others. It is suggested that students actively participate in seminars related to startup ideas or difficulties in starting a business. This approach could assist them in acknowledging the pressure in running a business and determine whether they are suitable for starting a business or vice versa. Most importantly, the students will gain the opportunity to identify what should be cultivated in terms of knowledge and skills to start a business in today's integrated world. However, this research was limited to four universities in the south of the nation. Therefore, the findings could vary due to differences in region, location, family ideals, resources, and student's characteristics. Lastly, future studies were suggested to consider a larger number of diverse samples to deliver more effective and generalised results.

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The Influence of Safety Management Practices on Safety Performance of SMEs in Kelantan



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Abstract Occupational safety in workplace is the main issues in many organizations. This issue particularly significant for labour intensive industry such as Small Medium Enterprise due to low implementation and lack of intention has been paid on safety in their operation. Based on previous study regarding the relationship between safety management practice and safety performance are somewhat inconsistent finding. This study examine the moderating effect of safety climate on the relationship between safety management practice and safety performance of SMEs in Kelantan. Data were collected from the SMEs in Kelantan using quantitative survey questionnaire and individual as unit of analysis. A total of 300 respondents from selected SME manufacturing in Kelantan voluntarily participated in this survey. The Partial Least Square – Structural Equation Modelling (PLS-SEM) estimation procedure to examine the hypotheses developed. The result indicated that safety management practice (management commitment, employee involvement, safety management system, safety culture, safety training) provided statistically significant contributions to the prediction of safety performance in SMEs. The research findings provide a substantial body of knowledge to the that enable SMEs to have better understanding on safety management practice and safety performance. For the future research, the need to consider other variable in safety management practice towards safety performance of the SMEs.

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Keywords Safety management practices · Safety climate · Safety performance · Small medium enterprise

1 Research Background

Safety at workplace is one of the key issues in many organizations. This issues become more complicated and dynamic due to the variety of system, operations and diversity of the workforce in workplace. At the same time, the increasing of accidents at workplace have triggered high-risk industry strives to reduce accidents by instilling beliefs, attitudes and behaviours relate to employee safety in the workplace (Hazlyena 2015). Therefore, the organizations should pay attention to winning the hearts of their employees while making an investment in an occupational health and safety management system with intended to prevent and mitigating occupational accidents and improving safety performance (Wachter and Yorio 2014). According to the International Labour Organization (2018), global statistics indicate about 2.78 million annual fatalities in workplaces due to poor safety systems, management practices, human error factors and structural inefficiencies. In Malaysia, based on Social Security Organization of Malaysia (2017), a total of 35,898 (2013), 35,294 (2014), 34,258 (2015), 35,304 (2016) and 36,661 (2017) industrial cases of accidents has been reported. While, the Occupational Safety and Health Act 1994 places the burden on the employers to ensure safety at the workplace, however, the statistics shows there is a long way to go before the goals can be considered accomplished. More effort need to be observed and achieved closely by all related parties including Small and Medium Enterprises (SMEs).

Despite the positive economic growth of SMEs, various challenges still lie ahead, related to occupational safety (Surienty et al. 2011; Aziz et al. 2015). Currently, SMEs are of major government concern in improving occupational health and safety due to their low implementation and lack of attention has been paid of safety issues. There seems to be a general understanding that SMEs do not implement a formal, structured OSH management system for various reasons, such as lack of resources, low level of management and training skills, burden of compliance with regulations, and cost of using OSH consultants (Legg et al. 2015) even though safety performance has become an important topic among employees in the manufacturing companies in Malaysia (Ong and Lim 2014). Previous studies by Wang et al. (2018) describe that, SMEs have higher accident and injury rates than large and medium enterprises, not only because SMEs are numerous, but also because safety management is insufficient and no effective. Besides that, most SMEs are unable to execute safety policies and laws because of limited resources and lack of safety awareness. Studied by Kaewboonchoo et al. (2016) found that SMEs in ASEAN countries were less safety awareness. The working environment and ergonomic conditions in SMEs may not be well controlled and maintained and have the high possibility of affecting the workers' health. However, little attention has been paid to the problems of OHS in SMEs, even if current OHS laws cover SME workers, there still is a lack of

implementation (Kaewboonchoo et al. (2016). Although workplace safety has been widely investigated, less attention is given to the small and medium enterprises (Subramanian et al. 2016). Despite SMEs were the vital contribution towards the national economic development, high cases of workplace accident within the SMEs seemed is a serious problem for Malaysia. There were 80 to 90 per cent of industrial accidents and injuries in Malaysia were contributed by the SMEs (Aziz et al. 2015).

In order to reduce the percentage number of accidents, more safety management practice and enforcement should be carried out. In previous study by Fennia Herma Yunita et al. (2017) stated that, the government is trying to improve the implementation of the quality of occupational health and safety (OHS) in various sectors, especially in small to medium enterprises (SMEs). Serious attention has to be given to safety issues as it can affect the employee's confidence and slow down productivity. Even the existing studies were limited in their examination of employee perception by focusing mainly on management practices such as safety training, leadership style, and safety communication and feedback. Hence, to what extent other facets of employee perceptions in determining safety compliance are unclear (Subramanian et al. 2017). Meanwhile, Ong and Lim (2014) stated that safety performance has become an important topic among employees in the manufacturing companies in Malaysia. An introduction of safety performance towards safety management practices can be seen as a systematic solution towards the establishment of zero accident in the workplace.

Furthermore, Vinodkumar and Bhasi (2011) stated that safety performance as a result of interactions of features like practices of safety management, attitudinal and behavioral features of workmen and managers. Previous studies by Fatini Hanim et al. (2016) mention that safety management practices are very important to be provided to the community as well as for employees. The benefits that employees can get from safety management practices are they know how to work and live safely within their daily working environments and to act in case of emergency at their workplace.

2 Literature Review

2.1 Safety Performance

Safety performance is an all-inclusive set of regulations, laws and activities directed towards improving safety in organizations (Kohli 2007; Xia et al. 2018), which is customarily self-reported (Andersen, et al. 2018) but eventually directed towards promoting the safety and health of workers (Zahoor et al. 2017). In recent iterations, safety performance refers to the level of safety in an organization as occasioned by actions and inactions of organizational members, systems and structures (Fernández-Muñiz et al. 2017; Gunduz and Laitinen 2018; Jahangiri et al. 2017). Characteristically, safety performance is used to refer to the level of safety that determines the

incidences of workplace accidents, injuries and fatalities (Curcuruto et al. 2015). Consequently, numerous researchers and industry practitioners have suggested that organizations implement practices that are capable of influencing the behaviours of workers to improve safety performance outcomes (Cigularov 2010; Kao et al. 2017). Characteristically, accident metrics (Vinodkumar and Bhasi 2010) and human factor components (Cooper, 2015; Curcuruto et al. 2015; Mullen et al. 2017) are noted as the core components of the indicators of the level of safety performance in organizations.

2.2 Safety Management Practices

Safety management practices are able to make employees compliant with the safety standards in the course of accomplishing their job performance and help enhance the safety performance. Furthermore, prevention in workplace accidents involves a conscious decision of the employee him/herself. Many previous studies contain empirical evidence of the role that management practices can play in enhancing the safety performance of their subordinates (Hofmann et al. 2017; Neal, et al. 2000; Vinodkumar and Bhasi 2010). Consequently, numerous researchers and industry practitioners have suggested that organizations implement practices that are capable of influencing the behaviors of workers to improve safety performance outcomes (Kao et al. 2017). Notwithstanding the large number of empirical endeavors that have been conducted in the safety research area with the aim of suggesting workplace practices capable of improving safety performance outcomes, many dangers and hazards have not been completely eliminated from the workplace (Maguire 2017).

2.3 Safety Management Practices and Safety Performance

Safety performance could be expected to have an impact in the prevention of accidents and injuries, as well as in measuring workplace safety. Study by Chong et al. (2018) found few dimension of safety management practice have significant relation with safety performance via internal control. Previous studies by Zaidi et al. (2016), organizational safety practices and safety performance indicated that these practices can help improve safety performance among employees. Moreover, previous studies on organizational safety practices have indicated that the role of employee participation, training, management commitment and communication and feedback in improving safety performance (Zaidi et al. 2016). Furthermore, Vinodkumar and Bhasi (2010) mentioned that safety management practice is the implementation of policies, strategies, procedures and activities of the management of an organization towards employees. Besides that, Labodova (2004) stated that the safety management practice is a tool which is organized in an organization and made to control the hazards from harming the employees. It is the vital items for it will determine how effective the safety management is being applied to employees and how far it complies with

the legislation application to the organization as a whole. Below are dimension of safety management practice and their relationship with safety performance based on previous studies.

2.4 Management Commitments and Safety Performance

In the Malaysian context, Hussain (2009) found a positive and significant association between management commitment and safety performance among healthcare workers. They explained that workers would be motivated to improve safety behavior for long as it is apparent that the management is committed to the safety of the workers and the workplace. Management has to communicate to employees to promote trust as it enhances a positive safety culture and climate in the workplace, thereby fostering employee's motivation to work safely, and reduces accident involvement and injuries. It is important that leaders communicate openly with employees, sharing the vision and organizations safety goals, in so doing by creating openness and good working relationships, management displays their concern about safety in the workplace. Perceptions that management values safety and encouragement of two-way safety communications help promote trust (Taderera 2012). Therefore, the hypothesis for this study is:

H1: There is a positive relationship between management commitments and safety performance.

2.5 Employees Involvement and Safety Performance

Past studies have evidenced the benefit of Employee Involvement in the area of Occupational Safety and Health in several areas: (i) improving Occupational Safety and Health performance, Occupational Safety and Health management practices and management compliance with regulatory standards (ii) enabling improvement of safety related behavior (iii) enabling low cost ergonomics improvement beneficial to the organization (Aziz et al. 2015). According to Chandrakantan et al. (2016) found that involving workers in the safety management process was the key to organization's safety performance because such involvement empowered the workers psychologically via their participation in safety committees. Organizational safety influence that has recently been identified as being important for understanding safety performance is perceived safety obligations within organizations which are described as employee perceptions and beliefs about workplace safety responsibilities that may be derived from societal and organizational influences (Mohd Said et al. 2012). Therefore, the hypothesis for this study is:

H2: There is a positive relationship between employee involvements and safety performance.

2.6 Safety Management Systems and Safety Performance

Based on Wachter and Yario (2014) mentions that, organizations often adopt safety management system or behavior-based system approaches for their employees to managing their safety functions in an attempt to achieve performance excellence on safety. Organizations typically prefer for employees to adopted one system versus the other probably due to both pragmatic (for example, resource and implementation constraints) and philosophical reasons. Besides that, used of an SMS to integrate safety policies and augment safety performance at both organizational and individual levels (Chen and Chen 2012). In addition, Wachter and Yorio (2014) suggested that when organizations invested in a safety management system, they approached towards improving the performance of accident reduction/prevention and the occupational safety among employees. The evaluation of safety management systems presents an opportunity to evaluate how solid and effective are the safety programs that are implemented in the organizations to employees. Safety management systems have been identified as a vehicle that the organization's management has available as a way to demonstrate their commitment to the employees' safety. Therefore, the hypothesis for this study is:

H3: There is a positive relationship between safety management systems and safety performance

2.7 Safety Cultures and Safety Performance

According to Robert et al. (2014) states that a positive culture is good for business, not only from an ethical standpoint, but also in terms of productivity and efficiency of employees. However, they also state that an organization's management should be convinced that a positive safety culture leads to improved overall organizational performance especially for the employees. A development of positive safety culture provided little guidance on how organizations might reduce the numbers of accident occurred at a workplace (Makhtar et al. 2018). They argue that, if an improvement in the organization's financial performance is highlighted in conjunction with a reduction in the organization's legal liability, employees will realize the benefits and positively contribute towards achieving a positive safety culture. Previous studies by DuPont (2015) states that, in a mature safety culture, safety incident and injury rates approach zero, and the safety culture is truly sustainable. In a mature safety culture, employees feel empowered to take action as required to keep working safely. However, a positive safety culture can only be achieved by commitment from leadership to employees. In order to develop a good safety culture, the attitude of the employees needs to be reoriented by adopting best practices, good house-keeping, and changes in work culture and work practices. Occupational accidents are common in India, as in many other developing countries. Prediction of various types of accidents helps managers to formulate organizational policies for improving safety performance (Surienty et al. 2011). Therefore, the hypothesis for this study is:

H4: There is a positive relationship between safety cultures and safety performance.

2.8 Safety Training and Safety Performance

With regard to the influence of organizational safety training as a contextual safety antecedent, Huang et al. (2012) meta-analysis of experimental studies found that safety training meaningfully increased individual safety knowledge (as well as safe behavior), particularly when training was administered using more engaging methods (for example, experiential learning). Besides that, Huang et al. (2012) also revealed that safety training tends to have a greater impact on safety-related knowledge attainment when work conditions are more hazardous due to the greater salience of personal safety under more dangerous circumstances. Their findings also suggest that the ineffectiveness of safety training may not help to reduce the occupational accidents and injuries. (Ali et al. 2009) In order to improve the quality of safety and health for all employees, organizations should implement a systematic, comprehensive safety program and health training program for new employees. According to Blakstad et al. (2010), in addition, earlier studies discovered the link between safety training and increased safety performance (Huang et al. 2006). Consequently, effective training facilitates workers to have a sense of belonging and thus is more accountable for safety in their workplace. Previous studies also found an association relating to training and the improvement of healthy and safe working situation where elements such as management support to safety training, goals setting, and feedback from management, incentives and rewards were critical in enhancing safety performance (Huang et al. 2006). Therefore, the hypothesis for this study is:

H5: There is a positive relationship between safety training and safety performance.

Figure 1, the conceptual model of the study. It shows the relationship between safety management practices and safety performance moderated by safety climate.

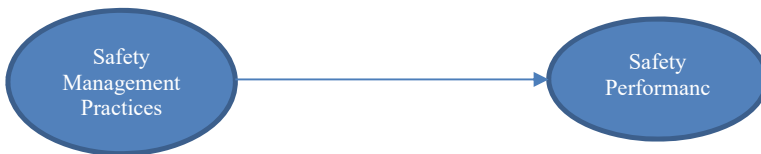


Fig. 1 Conceptual model

Table 1 Sources for questionnaire

Variables	Item	Source	Cronbach Alpha
Safety Performance	5	Boughaba et al. 2014	0.923
Management Commitment	5	Agumba et al. 2014	0.868
Employee Involvements	5	Agumba et al. 2014	0.842
SafetyManagement Systems	5	Chen et al. 2012	0.950
Safety Culture	5	Boughaba et al. 2014	0.822
Safety Training	5	Agumba et al. 2014	0.864

3 Methodology

A quantitative research study was adopted in this study. Moreover, this study applied a random sampling to identify the related respondent. This method is the best way to achieve valid conclusions and the most effective way the collection of information from populations (Sekaran and Bougie 2013). The population of this study based on small and medium enterprises (SMEs) industry in Kelantan and employees is unit of analysis. According to SMEs website, total of SME enterprise in Kelantan from manufacturing sector that recorded by SME Corporation are 27 enterprises and 1,814 employees in Kelantan (SMEs 2015).

A close ended questionnaire was designed consisted of two section. Section A consists of demographic profile of the respondents. Meanwhile Section B consists of multiple items to measure the proposed research model, namely safety performance, management commitment, employee involvement, safety management system, safety culture, and safety training. A total of 30 items were selected and develop using a five-point rating scale from '1' strongly disagree to '5' strongly agree. Table 1 below about sources of instrument used in this study:

G*Power (v3.1.9.7) software was employed to calculate the minimum sample seize with a significant level of 0.05, 6 predictors and the power of 0.95 for this study is 74. A total of 350 questionnaires were distributed to the respondents and 300 returned and useable for further analysis approximately 85.7% for its survey and far more exceed the minimum response rate. The Partial Least Square – Structural Equation Modelling (PLS-SEM) estimation procedure to examine the six hypotheses developed.

4 Results

4.1 Respondent Profile

The descriptive statistics were utilized to get the general information of the respondents. Table 6 below shows the demographic profile of the respondent of this study.

Table 2 Background information

Parameter	Information	n	Percentage (%)
Gender	Male	182	60.6
	Female	118	39.4
Age	20–29 years	95	31.7
	30–39 years	117	39
	40–49 years	79	26.3
	50 years and above	9	3
Educational Levels	PMR	43	14.3
	SPM	129	43
	Diploma	48	16
	Degree	55	18.3
	Postgraduate	25	8.4
Duration of service	Less than 1 year	54	18
	2–5 years	121	40.3
	More than 5 years	125	41.7
Types of job	Technical	222	74
	Non-Technical	78	26

n = 300

The complete of the demographic profile is presented in Table 2. Of the 300 respondents, the majority of respondents were male 182 (60.6%) compare to female 118 (39.4%). For the respondents age majority of the respondents were 30 to 39 years old (*n* = 117, 39%), 20 to29 years old were (*n* = 95, 31.7%) of the respondents, 26.3% (*n* = 79) were 40 to49 years old and 3% (*n* = 9) were above 50 years old. Academically, most of the respondents were Sijil Pelajaran Malaysia (SPM), which was (*n* = 129, 43%), bachelor degree (*n* = 55, 18.3%), diploma (*n* = 48, 16%), PMR (*n* = 43, 14.3%) and postgraduate (*n* = 25, 8.4%). The duration of service, majority of the has work more than 5 years (*n* = 125, 41.7%) and most of them were based on the technical jobs which (*n* = 222, 74%).

4.2 Assessment of the Measurement Model

First, confirmatory factor analysis (CFA) was conducted to test the reliability, convergent validity and discriminant validity of the measurement scales. The manifest variables with outer loading 0.7 or higher are considered highly satisfactory (Henseler et al. 2009). While all loading value of 0.5 is regarded as acceptable, the manifest variables with loading value of less than 0.5 should be dropped (Chin 2010; Bagozzi et al. 1991), thus, the internal consistency was achieved. In term of convergent validity, it is refered to the items of construct be at least moderately correlated. The finding confirmed that all the composite reliability (CR) value were above the minimum cut off point of 0.7 (Chin 2010) and all the average variance extracted (AVE) value meet the minimum criteria of 0.50 (Hair et al. 2014) (Table 3).

Table 3 Results of measurement model

Construct	Items	Loadings	CR	AVE
Management Commitment (MC)	MC1	0.806	0.763	0.6161
	MC2	0.763		
Employee Involvement (EI)	EI1	0.828	0.801	0.573
	EI2	0.808		
Safety Management System (SMS)	SMS1	0.724	0.787	0.553
	SMS2	0.780		
	SMS3	0.728		
Safety Culture (SC)	SC1	0.743	0.780	0.643
	SC2	0.857		
Safety Training (ST)	ST1	0.765	0.765	0.523
	ST2	0.762		
	ST3	0.773		
Safety Performance (SP)	SP1	0.920	0.811	0.5242
	SP2	0.876		
	SP3	0.810		
	SP4	0.740		

Note: Composite Reliability (CR) = (sum of the summation of the factor loading) / ((square of the summation of the factor loading) + (square of the summation of the error variance))
Average Variance Extracted (AVE) = (summation of the square of the factor loadings) / ((summation of the square of the factor loading) + (summation of the error variances))

According to Fornell and Larcker (1981) proposed the discriminant validity can be accepted when the value is greater than 0.50. Based on Fornell and Larcker (1981) criterion, Table 4 shows the results of the discriminant validity of the constructs where AVE was square rooted to affirm in contradiction of the inter correlations of the construct together with other constructs in the model. This is basically to determine the discriminant validity (Chin 2010; Fornell and Larcker 1981). It was initiated that every part of the square root of the AVE surpassed the correlations

Table 4 Discriminant validity of constructs (Fornell-Larcker Criterion)

Constructs (N = 300)	MC	EI	SMS	SC	ST	SP
Management Commitment (MC)	0.724					
Employee Involvement (EI)	0.364	0.757				
Safety Management Systems (SMS)	0.219	0.271	0.785			
Safety Culture (SC)	0.253	0.316	0.288	0.802		
Safety Training (ST)	0.364	0.361	0.404	0.350	0.744	
Safety Performance (SP)	0.489	0.551	0.564	0.478	0.633	0.796

with other variables. Hence, the entire requirement for convergent validity, construct reliability, Cronbach alpha or internal reliability, and communality is achieved.

4.3 Assessment of the Structure Model

In order to assess the structural model, the significance of path coefficient, coefficient of determination (R^2), effect size (F^2) and predictive relevance (Q^2) were generated (Hair et al. 2014). As shown in Table 6, management commitment has ($B = 0.198$, $P < 0.01$), employee involvement has ($B = 0.247$, $P < 0.01$), safety management system has ($B = 0.292$, $P < 0.01$), safety culture has ($B = 0.148$, $P < 0.01$) and safety training has ($B = 0.286$, $P < 0.01$) were positively related to safety performance, thus H1, H2, H3, H4 and H5 were supported.

In summary, the result of the hypotheses testing of the direct relationship as shown in Table 5 above revealed that all the accepted hypotheses possess a t-value above the critical value of 1.635 (5% significance level, one-tail test). According to Chin et al. (1996) affirm that the researchers should not only indicate if the relation between the variables is significant, but also the effect size between these variables, given that it helps the researchers to assess the global contribution of the research. Table 6 shown the value of the effect size of each relationship and their respective ratings. Based on the findings, safety management systems (SMS) and safety training (ST) has medium effect size (F^2) safety performance (SP). However, it should be noted

Table 5 The result of direct relationship

Hypotheses	Path-Coefficient	Beta	Std. Error	T-value	Hypothesis testing
H1	MC → SP	0.198**	0.036	5.547	Support
H2	EI → SP	0.247**	0.035	7.139	Support
H3	SMS → SP	0.292**	0.038	7.470	Support
H4	SC → SP	0.148**	0.039	3.861	Support
H5	ST → SP	0.286**	0.039	7.360	Support

Note: * $P < 0.01$, Indicates the item is significant at 0.01** and 0.05* significant level. All hypotheses were supported based on their t-values

Table 6 Effect size of the direct relationship

Relationship	R^2 Included	R^2 excluded	Effect Size (F^2)	Rating
MC → SP	0.658	0.633	0.0731	Small
EI → SP	0.658	0.613	0.1316	Small
SMS → SP	0.658	0.597	0.1784	Medium
SC → SP	0.658	0.637	0.0614	Small
ST → SP	0.658	0.597	0.1784	Medium

Table 7 The Result of Construct Cross validated Redundancy Value

Total	SSO	SSE	1-SSE/SSO
Safety Performance (SP)	1200	791.0163	0.3408

Note: SSO-Sum of square of Observations; SSE – Sum of Squares of Prediction Errors; while Q^2 value = $1-SSE/SSO$

that those relationships with small effect sizes are important statistically with the other medium effect size. This was argued by Hence, considering that f^2 coefficients of 0.02, 0.15 and 0.35 indicate small, medium and large effects, respectively (Hair et al. 2013).

Upon the determination of the effect size (F^2) in this study, next is the predictive relevance (Q^2) of the model which was conducted to assess the predictive capacity of the model. According to Hair et al. (2013), Q^2 assesses not only the built around of values of the model but also the parameter estimates of the model. The calculation of Q^2 in this study was conducted by using the blindfolding procedures of PLS through which the estimated results were obtained from the variable score from which the cross validated redundancy score was obtained. The extracted cross validated result determines the predictability of the endogenous constructs and thus, reveals the model quality. Meanwhile, Hair et al. (2013) affirmed that $Q^2 > 0$ in a reflective endogenous variable indicates the model predictive relevance while a value of $Q^2 < 0$ indicates the lack of predictive capability of the model. Table below shows the construct's cross validated redundancy value.

As indicated in Table 7 above, it is shown that the model has a predictive relevance of 0.3408 for safety performance (SP). Therefore, it can be concluded that the model has a good predictive relevance.

5 Discussion

In this study, safety management practice dimensions (management commitment, employee involvement, safety management system, safety culture and safety training) are found to be significant determinant in explaining safety performance in SMEs industry. As expected, safety management practice are strongly related safety performance. The present finding also in line with the past research finding by Zaidi et al. (2016), organizational safety practices and safety performance indicated that these practices can help improve safety performance among employees. Furthermore, Vinodkumar and Bhasi (2010) mentioned that safety management practice is the implementation of policies, strategies, procedures and activities of the management of an organization towards employees improved safety performance.

This confirms our argument that, management's commitment to safety is a key factor associated with positive safety culture, positive employee safety behavior, and positive employee safety attitudes (Biggs et al. 2013). This finding support by

Hussain et al. (2009) found a positive and significant association between management commitment and safety performance among healthcare workers. Management commitment towards safety is a critical component for organization to reducing and prevention for an accident in organization. This commitment are demonstrating through its action as sharing an organization vision on safety will lead to increased employee commitment and job satisfaction.

Beside that employee involvement also shows significant relationship with safety performance. This finding also similar with study by Chandrakantan et al. (2017) found that involving workers in the safety management process was the key to organization's safety performance. This finding also in line with Taderera (2012), when the employees involve in the design and implementation, monitoring, and follow-up of the safety management process, they will have a sense of ownership of the programs, which will eventually lead to the reduction in accidents and injury rates. When employees involved in any safety protocol and their input is taken seriously by management, these employees are more motivated and productive will reduce accident rate in organizations. Through commitment of employee in safety will nurtures their mindfulness of workplace threats, strengthens the importance of safety and boots a company safety culture.

The present study also found that safety management systems have significant relationship with safety performance. The results consistent with Wachter and Yorio (2014) when organizations invested in a safety management system, they approached towards improving the performance of accident reduction/prevention and the occupational safety. In other words, this system used in organization will help SHO identify and control safety risk in operations. With effective series of policies and procedures used in organization it will helps reducing accidents and illness among employees.

The results of this study found that safety culture have significant relationship with safety performance. This finding support form previous study by Morgan et al. (2014) states that a positive culture is good for business, not only from an ethical standpoint, but also in terms of productivity and efficiency. However, they also stated that an organization's management should be convinced that a positive safety culture leads to improved overall organizational performance. The safety culture indicates that much needs to be done to improve the effectiveness of safety performance. In order to develop a good safety culture, the attitude of the employees needs to be reoriented by adopting best practices, good housekeeping, and changes in work culture and practices.

Consistent with previous research found that safety training have significant relationship with safety performance. This result is in the line with the previous studies by Blakstad et al. (2010), in addition, earlier studies discovered the link between safety training and increased safety performance (Huang et al. 2006). Consequently, effective training facilitates workers to have a sense of belonging and thus is more accountable for safety in their workplace. Previous studies also found an association relating to training and the improvement of healthy and safe working situation where elements such as management support to safety training, goals setting, and feedback from management, incentives and rewards were critical in enhancing safety performance (Huang et al. 2006).

6 Limitations

This research study suffers from several limitations. The first limitation is regarding the study sample. The study population of this study were active employee in the chosen SME manufacturing in Kelantan. The are other stakeholder such as employer (management) point of view may be different with the existing employees. Secondly, the study is limited to only SMEs manufacturing located in Kelantan State. Therefore, the results obtained may not be representative enough to generalized as to the perception of overall employee in Malaysia.

7 Conclusion

The finding steers us to draw conclusions that safety management practice are significant predictors in order to strengthen safety performance in SMEs. These results confirm that the safety management practice in the present study is contributed to the safety performance. For those who are owner of SMEs, this study suggested them to look into safety management practices and strengthen the safety climate to their employees in order to build positive attitude and behaviors towards safety performance. It is hoping that more empirical studies to be done on the safety performance construct in future study. Study can ben done to investigate the factor that contribute to safety performance such as safety awareness, safety knowledge, government regulations, environment factors and so on in order to gain better insight as to which particular aspect could be focused in orders to increase safety performance of SMEs.

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High Demand of Car Carriers During Automotive Seasonal Trends



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Abstract The car carrier is the heart of global shipping nowadays. This sector has often been considered one of among the foremost industry's long-term challenges and Malaysia was offered vast opportunities for global automotive with competent manufacturers to line up manufacturing and distribution operations within the country. Looking at the statistic of registered passenger cars, Malaysia is ranked 44th with 341 cars per 1,000 people, one rank above Brunei's as at 327 cars (Nielson 2014) and this showed that the demand for car ownership will be getting higher in the future. Most of the automotive companies was using car carrier companies or we call transporter to deliver their goods because they are going to be receiving a lot of advantages like company specialization service, expertise or professionalism, insurance, easier to select and drop competitive rates where the customer can choose the company since it has many car carriers' companies. Besides that, most of the automotive companies were practising a different level of management, either it is good or poor in their service quality. Therefore, this study has focused on determining the critical factors that influence the high demand for car carriers during automotive seasonal trends and proposed the guidelines to overcome the shortage of car carriers by managing their resources.

Keywords Car carrier · Automotive industry · Automotive seasonal trends · High demand

1 Introduction

The automotive industry in Malaysia nowadays is rapidly growing and currently, 28 manufacturing plants are producing composite body sports cars, commercial vehicles

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as well as motorcycles. The Malaysian Industrial Development Authority report (2010), indicates that the car industry market has recovered impressively from the consequences of the Asian financial crisis of the 1990s. Normally this industry will have its seasonal trend and received a high demand for their model. The seasonal trend is about the automotive industry was receiving the high demand from the customers regarding their model. Normally it was occurring when the new car models for the coming year come out. In another situation when the price of a car normally reduces or receiving a certain rebate by the government (The Investopedia Team 2020).

This situation can be observed through the National Automotive Policy (NAP) (2020) that was introduced on 22nd March 2006 to facilitate the automobile industry and also through *Pelan Jana Semula Ekonomi Negara (PENJANA)* (2020) has shown that the government of Malaysia is very concerned about developing the automotive industry. At the same time provide further opportunities for the companies involved in this industry. This enhancement of the Malaysian automotive industry has given leverage to the car carrier providers in providing their services. Most of the car carrier providers in Malaysia are third-party companies. The function of these car carrier companies is to support the movement of newly assembled vehicles from the manufacturing plant to its dealers.

Due to the high value of transportation goods, the implementation of safety and security measures are always upheld by these companies. Based on the current development of the nation's automotive industry, which has increased the demand for car carrier services, both automotive manufacturers and car carrier providers are cooperating to ensure that the demand and supply can be fulfilled.

Therefore, in this paper, the researchers highlighted some of the contributions of the car carrier industry as a reflection of receiving the higher demand from the automotive industry. The structure of this study was started by giving an overview of this topic in the introduction section and the details about this study were highlighted in the section of a discussion on the issues. Apart from that, the researchers also providing the framework to address the factors that were being used in this study. Besides that, the technique and method for getting data collection was discussed under the research approach and the result was stated and clearly discuss under the finding and discussion section. At the end of this paper, the researchers were providing the recommendation for future research together with some limitation that was facing in this study.

2 Discussion on the Issues

Based on Malaysia's Automotive Industry (Malaysia's Automotive Industry Report 2010), Malaysia offers vast opportunities for global automotive and competent manufacturers to line up manufacturing and distribution operations within the country. The rapid growth of the economy and the high purchasing power of people have made up Malaysia the largest passenger car market in ASEAN. Toyota, Honda, Nissan,

Mercedes Benz, Volvo, BMW, and Peugeot are a number of the worldwide automotive companies which have found out the operation in Malaysia to take advantage of the consumer demand. This statement shows that the automotive industries in Malaysia keep growing and influencing the demand for car carriers.

However, by increasing numbers of demand on private vehicles, it has given a major problem toward road traffic movement, such as congestion and accident (Mohammed et al. 2019). In other that, the current trend showed that private vehicle ownerships are consistently increasing in Malaysia due to economic growth, rising incomes and urbanization. In the year 2018, the Road Transport Department has reported that there are 500,313 private cars have been registered (Pocket Stats Quarter 2018).

Besides that, the different company has given different levels of satisfaction to the customer and the critical time, like peak season that show the credibility of the car carriers company. Therefore, from this study, the evaluation on optimizing the high demand for car carriers during the peak season has been evaluated and the researchers had proposed a guideline in managing the current problem practices. Other than that, the unknown number of car carrier demand during peak season due to the promotion of the car either for public or dealer can make car carrier shortage also been covered.

Transportation Standard Industry Guide (2010) from the Florida Department of Revenue indicates that Motor carriers may operate in several ways. A trucker may transport full loads from a transporter's location to a different destination. Certain of these carriers are engaged in providing this service for several clients, while others operate in a more specialized manner, transporting a special product for one producer. During this situation, a highway carrier could also be a member of a pool. A pool is a collection of vehicles received from numerous motor carriers that are assigned to move the production of a given factory. The carrier is generally involved in the sharing of expenses and revenues of the pool vehicles furnished by these carriers.

Besides that, Automobile Transport Trailer Manufacturing in North America (2013) indicates that every new vehicle that is delivered from the manufacturing facility to the dealer or customer that is transported by road is recognized as a car carrier, automobile transporter or car haulier. Car carriers can be open or enclosed which is most of the commercial trailers have built in ramps for loading and unloading cars. The open car carrier trailer is often loaded between three to four vehicles, five to six vehicles and seven to eight vehicles and for the enclosed car carrier are box type carriers that provide complete protection to the vehicles being transported.

In other that, as in Busse et al. (2003) the researchers were conducted a study about Asymmetric Information in Auto Manufacturer Promotion. Cashback payments are frequently being used by automobile manufacturers as their promotion. There are two types of common cashback promotion which are rebates to customers, which are extensively publicized to potential customers and the other one is a rebate to customers depends on what price the two parties mutually negotiate. The finding shows that 80%–90% of the extra supplied by the manufacturer is under customer cash promotion, but half or less of the surplus cash promotions under dealer. From this study, it is truly showed that the promotion of cars is one of the factors contributing to the high demand for car carriers during peak season.

Besides that, as in the study as in Albuquerque (2011), the behaviour of consumers, dealers and manufacturers in the automotive sector can be used by companies and policymakers to inspect the impact of a significant demand shock on profit, price and dealer network. They had found that the demand for the car depends on the location which is 10% of consumers travel more than 20 miles, whereas about 27% purchase the car at a dealer located less than 5 miles from their residence area. Based on this study, the factors that can be used for further research are vehicle products and the location that can influence the demand for car carrier services.

2.1 Conceptual Framework

The promotion was given a big influence towards demand on buying a new car and based on the current situation there is seasonal time for the promotion of the car either involved the public or car dealers. Moreover, this can make the high demand for car carriers during automotive seasonal trends and give a big competition among car carrier companies. Most of the developed countries already used this method to burst the car selling. In addition, automobile manufacturers' promotions play a vital role in product market strategies (Sudhir 2001).

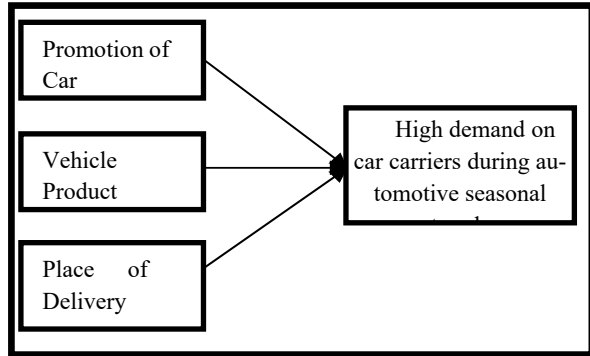
Apart from that, the vehicle product also contributes towards the high demand for car carriers during automotive seasonal trends. Vehicle products were included the brand of the car and the characteristic of the car like transaction price, fuel, transmission type and engine size and because most of the car buyers have their own choice to buy a car. While as a study in Petrin (2011) was suggests that manufacturer competitive behaviour may depend on the car type. Regarding the introduction of new products in the car industry, analyses of market structure and consumer preferences during the introduction also need to evaluate (Luan et al. 2007).

Place of delivery is the last factor involved in this study and it was included the location of carload and unload where the customer or client wants to pick up and drop the new car by hiring the car carrier companies. The location of consumers relative to retailers is central under the literature on spatial competition. Indeed, the location has been shown to attend as input for managerial decisions on store customization, pricing and store locations (Ellickson and Misra 2008).

The researchers also believed that the customer's relative location to dealerships is one of the important factors of car manufacturers, especially in the case where manufacturers try to find or change their dealer networks. In other that, a good understanding of this competitive environment and classification across geography is lacking in the literature.

During automotive seasonal trends, there is a high demand for car carriers either in an urban area or suburban area. According to company A, car carriers had faced a shortage and need to hire a sub-contractor third party to deliver the car. Different place of delivery has difference charge that should be calculated by both parties (car carrier companies and client).

Fig. 1 Conceptual framework



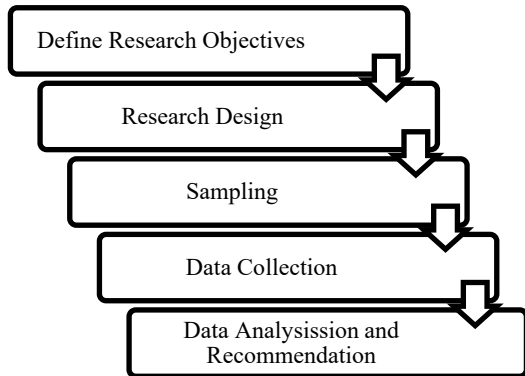
3 Research Approach

The research approach of this research is divided into six steps as shown in Fig. 2. It also shows which research approach has been taken to accomplish research objectives.

3.1 Research Flow

In the preliminary stage, a broad range of studies was required to receive proper knowledge within the area of the car carrier. This includes identifying past and current trends, management issues, factors that influence and contribute to the high demand for a car carrier. This is because to urge an honest foundation data and understanding of this research reviewed from previous literature, collected ideas, issues and articles associated with car carriers.

Fig. 2 Research approach



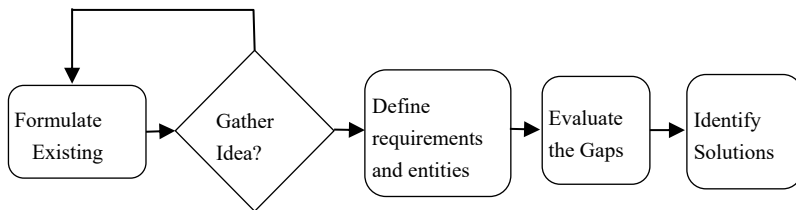


Fig. 3 Systematic literature review

This phase in Fig. 3 was adapted from a Systematic Literature Review (SLR) as in Kitchenham et al. (2017), was divided into two subsections theoretical study and empirical study. The theoretical study focused on the current problems with the car carrier, processes and barriers to business growth. The empirical study focused on data collection through questionnaires from the actual working environment and analyses the collected data.

3.2 Sampling

There are many challenges due to time, money and access which may prevent the researchers from successfully collected the data from the entire population of the study. Therefore, it is important to choose the right sampling technique to get higher accuracy and faster results. In this study, the researchers have used a random sampling technique for distributing the questionnaires to ensure that all groups are represented when they are involved with a huge number of respondents (Al-Afifi 2019).

The target population is automotive manufacturer manager, automotive dealer manager, sub-contract company manager and all employees because they are involved directly in company A daily activity. The population in this area is 420 and based on Raosoft Sample Size Calculation (Greene 2018), the target respondent should be 200. The researchers distribute 200 questionnaires. However, this study received 110 questionnaires out of 200 participants.

The sample of this research has been narrowed down to the Klang Valley area because most of the freight forwarder industries are located in this area compared to other areas and it is more convenient and effective to gather information. Other than that, most of the industry players operating in this area as listed in the Malaysia Logistics Directory 2017/18 (2017). There are 10 companies involving in this research and the participants involved were 200 from 420 populations. The 10 companies that were selected are part of the company A client and sub-contract and it makes it easier to collect the data. This study directly gave the questionnaires to the individual, via email and fax.

3.3 Data Analysis

This study had used the Statistical Product and Service Solution (SPSS) software to analyze the ten (10) car carrier company's data from the sampling. It started with Descriptive analysis to analyze demographic data before proceeding to Reliability Analysis, followed by Pearson Correlation Analysis and Regression Analysis.

4 Findings and Discussion

The recommendation and guidelines were developed through the method of how the results responding to all the research questions. First and foremost, the results of this study from data analysis strongly reflected the promotion, vehicle product, and place of delivery does list as the related factors with the dependent variable which is High demand on car carriers during automotive seasonal trends.

Among the four independent variables, vehicle product influences the most like the relationship indicated in the Pearson Correlation Analysis was the highest. It means that the high demand for car carriers during automotive seasonal trends is strongly affected by the vehicle product. This shows that most of the people in Klang Valley are influenced by the vehicle products, it was supported by the question, ask for "good vehicle specification is highly demanded by the people" and this situation affected the demand for a car carrier to deliver the car.

Place of delivery shows a moderate correlation with the high demand for car carriers during automotive seasonal trends. This situation indicates those places of delivery are less influenced comparable the vehicle product and Promotion to the high demand for car carriers during automotive seasonal trends. This is proven by the respondent of the car dealer, manufacturer, car carrier and car services show the result urban area like Kuala Lumpur just have marked or moderate relationship with demand on a car carrier. Therefore, it meant that other places also have a high demand for car carriers during automotive seasonal trends.

The first objective of this research is to determine the factors that influence the high demand on car carriers during automotive seasonal trends and related to the first research question which is 'what are the factors influencing the high demand on car carriers during automotive seasonal trends?'. The first objective is accomplished when the result shows the all the factors have high reliability which is 84.4%. This means that the items of independents variables are influencing the dependent variable that answer the first research questions.

The second objective is to assess the major factors that influence the high demand on car carriers during automotive seasonal trends and related to the research question of 'What are the major factors that contribute to managing the higher demand on car carriers during automotive seasonal trends?' The second objective also achieves the goals since the result in correlation show that the relationship between the dependent variable and independent variable is highly and moderately related to each other.

The analysis was interpreted by referring to Guildford’s Rules of Thumbs which indicates;

The Promotion has a high relationship with dependent since the value of “p” is 0.709, while Vehicle product also has a high relationship with value or “p” is 0.786 and lastly is Place of delivery have a moderate relationship with the value of “p” is 0.658. When the result indicates the higher influences toward the dependent variable, it means that the organization should prepare the flow of car carrier movement earlier before peak season. The detailed result has been shown in the table below.

Meanwhile, Table 3 show the standardized regression coefficient that displays all the High demand on car carrier during automotive seasonal trends (DV), Promotion of car (IV1) and Vehicle product (IV2) Place of delivery (IV3) have significant unique contribution result since it bellows than 0.05 which is 0.00. Meanwhile, it shows that there are correlations between managing high car carriers during automotive seasonal

Table 1 Guildford’s Rules of Thumbs

“r” value	Interpretation
0.00–0.29	Slightly or negligible relationship
0.30–0.49	Low correlation or relationship
0.50–0.69	Moderate or marked relationship
0.70–0.89	High correlation or relationship
0.90–1.00	Very high, dependable relationship

Table 2 Pearson correlation matrix

		Promotion	Vehicle product	Place of delivery	Demand car carrier
Promotion	Pearson Correlation	1	0.651**	0.352**	0.709**
	Sig. (2-tailed)		0.000	0.000	0.000
	N	110	110	110	110
Vehicle Product	Pearson Correlation	0.651**	1	0.427**	0.786**
	Sig. (2-tailed)	0.000		0.000	0.000
	N	110	110	110	110
Place of Delivery	Pearson Correlation	0.352**	0.427**	1	0.658**
	Sig. (2-tailed)	0.000	0.000		0.000
	N	110	110	110	110
Demand Car Carrier	Pearson Correlation	0.709**	0.786**	0.658**	1
	Sig. (2-tailed)	0.000	0.000	0.000	
	N	110	110	110	110

** . Correlation is significant at the 0.01 level (2-tailed)

Table 3 The standardized regression coefficient

Model	Unstandardized coefficients		Standardized coefficient	t	Sig.
	B	Std. Error	Beta		
(Constant)	-1.383	0.414		-0.3.344	0.001
Promotion	0.452	0.090	0.295	5.048	0.000
Vehicle product	0.462	0.064	0.437	7.221	0.000
Place of delivery	0.457	0.61	0.368	7.494	0.000

trends (DV) with independent variables Promotion of car (IV1) and Vehicle product (IV2) Place of delivery (IV3) and the correlation between the dependent variable and independent variables are also strong.

The Beta shows the comparisons contribution of the independent variable. The largest Beta has come from the Vehicle products which is 0.437. This means that the Vehicle product makes the strongest influence to explaining the dependent variable when the variance explained by all other variables within the modal is under controlled. The Beta of Place of delivery lower than Vehicle product which is 0.368 followed by Promotion with 0.295.

From the beta analyses, the researchers conclude that the first major factor that contributes to high demand on car carriers during peak season is vehicle product, second is a place of delivery and followed by promotion. The specification of the car, types of car and trends which are in vehicle product factors show the most influence in managing car carrier demand during peak season compare to other factors. The result obtained in this study can give an impact on the car carrier companies in handling the demand on a car carrier and also know the pattern of demand during auto-motive seasonal trends.

Apart from that, the management of the company can take this study as a guideline to develop proper planning before facing high demand on car carriers during auto-motive seasonal trends and at the same time, car dealer and manufacturer also can manage their resources. Other than that, this study also can help other researchers to further studies with the related car carrier’s industry, especially in Malaysia where there is limited information about automotive regarding car carrier industry.

5 Limitation of Study

In this study, there are several limitations that the researchers found out while doing this study and due to this limitation, it was dragging the time frame to completed this study. The first limitation to run this study is about the availability of the information about car carrier itself because most of the information was not in the public written and just keep in the company or industry itself. In addition, there is still a lack of information from the previous study that makes the researchers spend a lot

of time finding the extra information to support this study. Besides that, in getting data collection there are several problems in cooperation with the respondents in all companies since it involves 10 companies. The communication between respondent and researchers via email and fax make the process become more challenging compare directly distribute questionnaire to the respondents. There are 200 questionnaires distribute and there are only 110 complete questionnaires that can be used to analyse and this situation will influence the result in this research.

6 Future Research and Recommendation

Some recommendations and suggestions have been addressed in this study to the company, industry and also the researchers that want to further investigate and study about car carrier in the future.

6.1 Management System

The management system is crucial in the company in order to manage the high demand for car carriers during seasonal trends. The manager should be prepared when the peak season coming. The schedule of the driver and location of all car carrier demands should be acknowledged by the manager and the flows of work should be done before the driver works on the other day. The manager of the operation department also should be more effective by updating the current situation and location of driver to all staff in the operation department because all staff will be alert with the situation and if any problems occur should be known by the whole staff to overcome it. There are stages that should be followed to solve a problem. The manager can solve the problem by himself or herself if the manager can handle it but if it involves too many people the manager should communicate or solve it with other colleagues. If the problems do not solve yet take them to the top management and do not let it pass without any solution because it will become worse in the future.

Other than that, there are should have good communication and interaction between the manager and employees to overcome the problems due to the high demand for car carriers. The lack of communication and interaction will make the management system become poor. Furthermore, the spirit of teamwork is very important to make the flow of work become smooth. During peak season, level of stress of manager and employees are high and this situation will make the communication and interaction become weak. The manager should overcome the situation by control the staff or employees under him or her.

The researchers feel that a better relationship with all parties involved can help in effectiveness in the management system not only in the peak season also in the normal demand of car carriers.

6.2 Knowledge of Handling the Driver Schedule

Knowledge of handling the driver schedule is very important because it involves the systematic movement of drivers. The manager of operations should provide the driver with a structured itinerary and notify drivers in advance before travel. The manager also should handle the driver to take responsibility when the driver takes the task and if they are not taking the task, the manager should take any action to the driver to educate the driver to become more disciplined. For example, the manager can give a warning that should be done for the first offence by the driver. If the drivers make the offences again, the other actions like suspension of work and again the communication between managers with drivers should be effective to overcome the problem become worse.

Furthermore, the manager of the operation should know the whole process and situation of the management to make the manager handle the situation and at the same time make the flow of work between colleagues and driver become smooth. This should be done to control the effectiveness of management because the manager is the main role in educating employees.

Researchers feels that manager and staffs that are related in this procedure needs to have proper training by expertise from other company that provides training. Training that related with management will help the manager staffs to gain knowledge on improving the management of car carrier demand.

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