Journal of the Knowledge Economy
https://doi.org/10.1007/s13132-024-01898-w

Cultivating Entrepreneurial Minds: Unleashing Potential in Pakistan's Emerging Entrepreneurs Using Structural Equational Modeling

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Received: 29 September 2023 / Accepted: 23 February 2024

Abstract

This research aims to analyze the impact of institutional elements, including students' exposure to entrepreneurship education, faculty support for students' development of entrepreneurial skills, and the prevalence of an entrepreneurial mindset, on undergraduate students' propensity to engage in entrepreneurial behavior. Additionally, the study considers the entrepreneurial mindset as a moderator and institutional backing as a facilitator. The research focused on a selection of private, middle-ranking universities in Lahore, Pakistan. A web-based survey was conducted, and 384 participants were chosen for the partial least squares structural equation modeling (PLS-SEM) analysis. All hypotheses regarding both direct and indirect connections were confirmed by the data. Furthermore, except for one, hypotheses regarding the moderating relationship of institutional support showed significant moderation. This study provides new insights into how universities can enhance entrepreneurial culture through a comprehensive teaching and mentoring program that considers institutional support. It serves as a guide for private, middle-class institutions aiming to cultivate an entrepreneurial spirit among their business students. The researcher's contribution to the existing literature includes a focus on the entrepreneurial mindset in the context of private higher education institutions in Lahore, Pakistan. The study employs entrepreneurial institutional factors, entrepreneurial attitude as a mediating variable, and institutional support as a moderating variable to foster a growth mindset among students, distinguishing it from previous research.

Keywords Entrepreneurial education · Entrepreneurial skills · Entrepreneurial culture · Entrepreneurial mindset · Entrepreneurial attitude · Institutional support · Societal impact

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Published online: 02 April 2024

Introduction

In contemporary economic life, social scientists view entrepreneurship as a fundamental activity (Fairlie et al., 2015) to improve the individual's lifestyle, shape the community, and enhance societal economic activities. As a result, entrepreneurial awareness increased rapidly (Wardana et al., 2021) and was considered essential (Kelley et al., 2016) for bringing about a positive change in lifestyle and enhancing societal economic activities. In this regard, (Amorós et al., 2013a, 2013b) reached a consensus after reviewing prior research, demonstrating that academicians and policymakers concur that entrepreneurship is one of the most important tools for the development and welfare of society (Kelley et al., 2016). Moreover, there is no doubt that entrepreneurship is the foundation for the development of business opportunities, the improvement of economic conditions, the promotion of economic growth, the promotion of both social and economic well-being, and sustainable progress. According to Fairlie et al. (2015) and Amorós and Mandakovic (2017), both developing and developed nations desire to encourage entrepreneurial activities. The term "entrepreneur' has come to refer to anyone who works for a large corporation, the government, or academia or develops small and medium-sized businesses (Amorós et al., 2013a, 2013b).

Considering the significance of entrepreneurial endeavors, the Pakistan Institute of Development Economics reports that 31% of Pakistan's youth are unemployed. Sixteen percent of men and 51% of women hold advanced degrees. In addition, Pakistan's higher education institutions failed to formulate policies against students and to assess their evolving needs. According to Shami (2005), Pakistan abandoned its 5-year education plan and disbanded its university grant commission. Prior to HEC (2002–2011), the national educational policy instituted a few educational reforms. Pakistan's new educational policy (NEP, 2009–2015) introduces the term "entrepreneurship," a necessity in the modern era. In this regard, higher education institutions are emphasizing the development of students' prosocial attitudes.

Personal history and the surrounding environment are two of the factors that might influence an individual's frame of mind and attitudes about entrepreneurship. Researchers, Jabeen et al., (2017), noted a bi-causal relationship between an entrepreneurial mentality and one's attitude. The connection between those several factors is shown here by an illustration of an entrepreneur (Jena, 2020; Ndou et al., 2019). Entrepreneurship plays a crucial role in fostering economic growth and innovation, and cultivating an entrepreneurial mindset among individuals is vital for nurturing a culture of entrepreneurship. In the context of Pakistan's emerging entrepreneurs within private sector universities, there is a need to understand the factors that contribute to the development of entrepreneurial minds (Shane & Venkataraman, 2021). Despite the increasing emphasis on entrepreneurship education, there is limited empirical research that systematically investigates the specific institutional elements influencing the entrepreneurial mindset among students in private sector universities in Pakistan. Identifying these factors is essential for designing effective educational interventions and support systems to unleash the entrepreneurial potential of students (World Bank, 2018).

The model that is being presented (shown in Fig. 1) for this research will assess an individual's entrepreneurial mentality in relation to their entrepreneurial attitude; nevertheless, the entrepreneurial image will only be acquired via the interpretation of these two variables. When respondents are willing to pursue entrepreneurial chances that are in most cases seen as suitable and desirable, it seems that a favorable image of entrepreneurship has been attained. Students have a duty to work on developing their thinking for their enterprise to be successful and continue to expand. To have the mentality of an entrepreneur, you need to be willing to take chances, always on the lookout for new possibilities, action-oriented, and committed to lifelong learning. In addition, you need to have a broad vision. In selecting Pakistan as the focal point for our study on cultivating entrepreneurial minds, we recognize the unique socio-economic landscape and the burgeoning entrepreneurial ecosystem within the country. Pakistan, as an emerging economy, presents a distinct set of challenges and opportunities for entrepreneurial development, particularly within the context of private sector universities (Botsaris & Vamvaka, 2016a, 2016b; Magdaraog, 2015; Mukhtar et al., 2021; Wardana et al., 2021).

This study contributes to the body of knowledge by focusing on the entrepreneurial mindset by using entrepreneurial knowledge, skills, and culture as independent variables under the heading of institutional factors. In addition, institutional support was chosen as a moderating variable that reinforces the attitude. According to the literature, entrepreneurial skills are linked to intention (Vega-Gómez et al., 2020), but less research has been conducted on entrepreneurial attitude. In addition, Mukhtar et al., (2021) stressed the importance of focusing on the entrepreneurial mindset and conducted a study on entrepreneurial culture, mindset, and entrepreneurial education as mediating variables. In this regard, this research has classified entrepreneurial skills, entrepreneurial education, and entrepreneurial culture as institutional factors that have received less attention in the literature. In addition, this study aids policymakers and higher education institutions in formulating policies to improve student attitudes. In addition, this research assists students in altering their attitudes and perspectives regarding entrepreneurship.

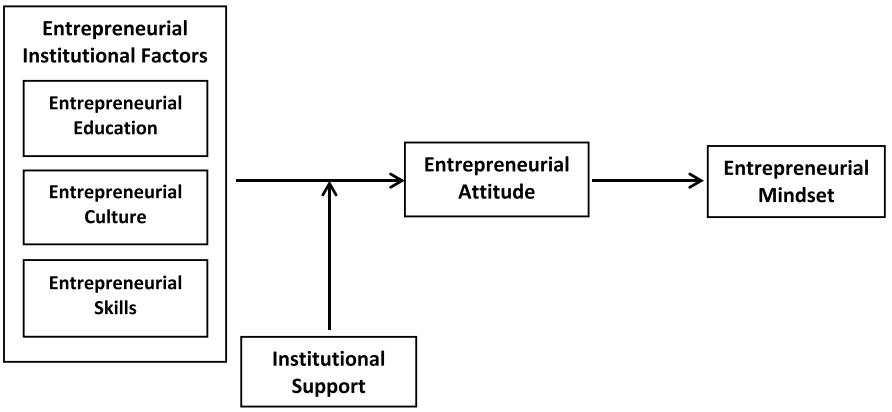

Fig. 1 Research framework

Research Gap

The existing literature on entrepreneurship education and the development of entrepreneurial minds often lacks a dedicated focus on private sector universities in Pakistan. While some studies have explored entrepreneurship in broader contexts, there is a notable research gap in understanding the unique challenges, opportunities, and determinants of entrepreneurial mindset development within the specific environment of private sector universities in the country (Smith, 2020). Furthermore, the literature lacks comprehensive investigations utilizing advanced statistical techniques, such as structural equation modeling (SEM), to analyze the intricate relationships between institutional elements and the cultivation of entrepreneurial minds (Johnson, 2018). Consequently, there is a need for a research study that employs a rigorous methodological approach to fill this gap and provide actionable insights for educational institutions, policymakers, and stakeholders involved in fostering entrepreneurship among Pakistan's emerging entrepreneurs within the private sector university setting (Brown, 2019).

Significance of the Study

The present study makes three significant contributions. Firstly, it offers valuable insights into the field of entrepreneurship research by delving into the realms of entrepreneurial attitude and mindset, which have been notably absent in previous studies. Despite the increasing body of literature on entrepreneurship, the omission of entrepreneurial mindset has recently come into focus (Cui et al., 2021). Secondly, this study explores the subjects of entrepreneurship education and entrepreneurial mindset across various geographical regions, including India (Jena, 2020), Malaysia (Pihie & Bagheri, 2013), and Africa (Puni et al., 2018). Surprisingly, these areas have garnered substantial scholarly attention, yet Pakistan remains relatively unexplored in this context. While Mahendra et al. (2017) previously examined entrepreneurial motivation and attitude and Sihotang et al. (2020) concentrated on women entrepreneurship, there exists a notable gap in the literature regarding entrepreneurial mindset in the Pakistani context. In essence, our study aims to bridge this gap by shedding light on the role of entrepreneurial mindset in Pakistan's entrepreneurial landscape. Since the institutional support is concerned as moderating variable which not considered with this framework. Therefore, institutional support is important to strengthen the attitude. Mainly, this framework helps to make the policies for the institutions which help to promote entrepreneurial activities. As a result, entrepreneurial activity helps business students to survive in the complex society. Hence, the final contribution of this research endeavors to explore how entrepreneurial attitude and self-efficacy play a pivotal role in elucidating students' entrepreneurial mindset, ultimately empowering them to embark on the journey of establishing new ventures.

Literature Review

Entrepreneurial Education and Entrepreneurial Attitude

Training is an important part of becoming an entrepreneur, says Drucker (1985). In contrast, training is the only way for an individual to acquire the knowledge, abilities, and character traits necessary to succeed as an entrepreneur (Kuratko, et al., 2014). Moreover, teaching people to be entrepreneurs improves the effectiveness of existing training resources. As the university's primary influencers and vital training resources, students were the primary focus of this research. Roomi and Harrison (2008) claim that a person's ability to think strategically and make decisions is enhanced by formal education. The researchers also noted the importance of education in illuminating potential new business avenues. As a result, numerous programs for training aspiring entrepreneurs are being developed by educational institutions such as universities and business incubators (Guerrero et al., 2014). Potential entrepreneurs who feel they are lacking in knowledge, skills, and attitude after launching a business often enroll in these types of programs in the hopes that they will help them develop the necessary skills to seize and pursue opportunities as they arise (Roomi & Harrison, 2008). Lundström and Stevenson (2005) made the point that a lack of emphasis on education is stifling the country's entrepreneurial potential. Education has a direct bearing on the managerial abilities and outlook of entrepreneurs. As Fiet (2001) summed up, the point of entrepreneurship classes is to help students and individuals develop entrepreneurial competency through the acquisition of knowledge, a positive outlook, and a wide range of practical abilities. Therefore, the study helps establish a connection between the mindset and training of college freshmen. Wardana et al. (2020) found that an entrepreneurial mindset can be fostered through formal education. According to research (Fellnhofer & Kraus, 2015), educating and training aspiring entrepreneurs can have a positive effect on college students' aptitude and mindset. Training in entrepreneurial activities helps to improve attitude and intention as well as performance, as discussed by several studies (Sauloet al., 2008). The preceding discussion leads one to the conclusion that obtaining an entrepreneurial education improves one's aptitude and disposition toward beginning a new venture.

H1: there is a significant impact of entrepreneurial education on entrepreneurial attitude.

Entrepreneurial Culture and Entrepreneurial Attitude

Aside from entrepreneurial schooling, the notion of entrepreneurship is formed because of the interaction of individual circumstances with the surrounding environment or culture (Kibler, 2013; Reynolds et al., 2007). Several authors, like Hofstede (2001) and Collins et al. (2004), believe that culture is concerned with a pervasive mental organization that distinguishes those who belong to one group from those who belong to another. Moreover, Iakovleva et al. (2013) argue that culture

may influence judgments about career possibilities and can help or impede the formation of a firm (Akcay et al., 2014; Kreiser et al., 2010; Vargas-Hernández et al., 2010). Culture has an impact on entrepreneurial intention and motivation, according to Ao and Liu (2014) and Seşen and Pruett (2014). But none of those researchers discovered any evidence of the effect of entrepreneurial education on entrepreneurial behavior. Several theoretical methodologies and empirical data reveal that attitude is not a one-dimensional term since its evaluation requires two interconnected components, one instrumental or rational, and the other experiential or subjective (Botsaris & Vamvaka, 2016a, 2016b). The instrumental aspect relates to more cognitive factors than to a behavior that seeks something helpful and in line with one's beliefs, knowledge, and perceptions, as the term suggests. The emotional component refers to the sentiments, emotions (e.g., enthusiasm, pleasure), and impulses that are triggered by the possibility of an individual's actions (Arkes et al., 1991; Botsaris & Vamvaka, 2016a, 2016b). Scholars have long questioned whether cognitive and emotional attitudes have a mutually reinforcing effect on one another as if they were causally related to one another (Fernández-Pérez et al., 2019; Georgia & Doss, 2013). Based on their findings, Wach and Wojciechowski (2016) concluded that there is a strong relationship between entrepreneurial mentality and the ambition to start one's own business. According to Taormina (2007), attitudes and environmental factors might have an impact on entrepreneurial inclinations. Attitudes, as measured by psychological qualities, have a significant impact on one's ability to start and run a business. Meanwhile, the environmental element, which encompasses social, economic, and political growth as well as the development of infrastructure, has a significant impact on the success of entrepreneurial ventures. Intention continues to be the most important and unbiased predictor of future job decisions (Sajjad & Dad, 2012). According to previous study findings, entrepreneurial attitudes have a statistically significant and strong impact on entrepreneurial intentions and actions (Hussain & Norashidah, 2015; Lins & Doktor, 2014).

H2: there is a significant impact of entrepreneurial culture on entrepreneurial attitude.

Entrepreneurial Skills and Entrepreneurial Attitude

Bolton (2004) defines entrepreneurship skills as the ability and readiness to start, grow, manage, and organize an enterprise, as well as the willingness to take financial risks to profit. People with entrepreneurial skills are those who see an opportunity and quickly set about creating something of value in response to it. However, prior research defined attitudes as people's aggregated emotions and assumptions about a topic. In addition, Moorhead and Griffin (2004) noted that an attitude can be broken down into three parts: intent, knowledge, and emotion. Hattab (2014) demonstrated that entrepreneurs discover opportunities by utilizing abilities learned through schooling within the context of the prior criteria. According to Moberg (2014), who investigated the connection between competence and an entrepreneurial outlook, entrepreneurial actions stem from competencies acquired through entrepreneurial

education. Rae (2005) argues that enterprise education has a major impact on entrepreneurial intention by providing a rich source of entrepreneurial knowledge and skills. Results demonstrated a causal link between entrepreneurial knowledge, mindset, and intent. Fayolle et al. (2006) and Dyer Jr. (1995) supported the relationship between EE and universities by offering modules that will enhance the skills related to entrepreneurship and starting a new business. To encourage more people to take risks and start their own businesses, entrepreneurial education has been shown to be one of the most useful methods (OECD, 2009). In addition, (Reyad et al. (2019) argued that one's outlook on entrepreneurial endeavors is highly correlated with one's aptitude in that area. Furthermore, Vega-Gómez et al. (2020) mentioned that entrepreneurial skills are a strong determinant of entrepreneurial attitude. According to the study's authors, an entrepreneur's ability to inspire optimism and extra effort depends on the breadth and depth of his or her skill set. Further, one's attitude and propensity to take risks are related to one's entrepreneurial skills (Carr & Sequeira, 2007; Miranda et al., 2017).

H3: there is a significant impact of entrepreneurial skills on entrepreneurial attitude.

Entrepreneurial Attitude and Entrepreneurial Mindset

According to Nolder and Kadous (2018) "Grounding the Professional Skepticism Construct in Mindset and Attitude Theory: A Way Forward" (Accounting, Organizations and Society, 67, 1–14.), mindset and attitude are interlinked. Furthermore, Wardana et al. (2020) also investigated the relationship between attitude and a mediating role between entrepreneurial education and entrepreneurial mindset. Personal background and environment are two aspects that influence entrepreneurial mindset and attitudes. Davis et al. (2016) and Jabeen et al., (2017) stated a causality found in the mindset and attitude which improves entrepreneurial activities (Commarmond, 2017; Ndou et al., 2019). The recommended model in this research assesses entrepreneurial attitude with an entrepreneur mentality; nevertheless, the entrepreneurial image is only acquired through the interpretation of these two characteristics. When people are prepared to put a stop to entrepreneurial chances that are widely considered legitimate and desirable, they have a positive impression of entrepreneurship. For their business to survive and prosper, students must develop their thinking skills. One of the five traits of attitude is that an entrepreneur must have a willingness to take chances and look for new opportunities. Other aspects of attitude include being action-oriented, learning continually, and having a broad vision (Botsaris & Vamvaka, 2016a, 2016b; Davis et al., 2016).

H4: there is a significant impact of entrepreneurial attitude on an entrepreneurial mindset.

Institutional Support and Entrepreneurial Attitude

Research has consistently shown that favorable institutional support, such as pro-entrepreneurship policies, access to funding, and business incubation programs, can positively influence an individual's entrepreneurial attitude. These supportive measures can enhance an individual's confidence, motivation, and willingness to engage in entrepreneurial activities (Arenius & Minniti, 2005). The legal and regulatory environment, including property rights protection and contract enforcement, is a crucial aspect of institutional support. A conducive legal framework can provide entrepreneurs with the confidence to invest in their ventures and innovate, thereby shaping their entrepreneurial attitude (Porta et al., 2008). Entrepreneurship education and training programs supported by institutions can play a vital role in developing entrepreneurial attitudes. These programs can instill skills, knowledge, and a growth mindset, fostering a more entrepreneurial orientation among individuals (Lorz et al., 2013).

H5: there is a significant impact of institutional support on entrepreneurial attitude.

Mediating Role of Entrepreneurial Attitude

Entrepreneurial attitude serves as a mediating variable that helps explain how entrepreneurial institutional factors impact entrepreneurial mindset. This understanding is essential for policymakers and researchers looking to enhance entrepreneurial ecosystems and promote entrepreneurial thinking within a given context. Entrepreneurial attitude mediates the impact of entrepreneurial institutional factors on entrepreneurial mindset. Entrepreneurial institutional factors influence an individual's entrepreneurial attitude (Ogunsade et al., 2021). A favorable business environment might enhance an individual's confidence and willingness to take risks. In turn, entrepreneurial attitude influences entrepreneurial mindset (Moraru & Rusei, 2012). An individual with a positive entrepreneurial attitude is more likely to have a mindset that is open to opportunities, innovative, and persistent in the face of challenges (Pihie et al., 2010). Therefore, entrepreneurial attitude serves as a mediator that transmits the effects of entrepreneurial institutional factors to entrepreneurial mindset.

H6: there is significant mediating role of entrepreneurial attitude between entrepreneurial education and entrepreneurial attitude.
H7: there is significant mediating role of entrepreneurial attitude between entrepreneurial culture and entrepreneurial attitude.
H8: there is significant mediating role of entrepreneurial attitude between entrepreneurial skills and entrepreneurial attitude.

Moderating Effects of Institutional Support

The numerous policy support systems are referred to as institutional support. Government agencies and other administrative authorities offer businesses cash, operational autonomy, licenses, information, and technology, among other things (Li & Atuahene-Gima, 2001). Governments play a vital role in institutional design and policy formation when it comes to institutional assistance or support. To achieve institutional support and organizational legitimacy in this context, the prevalent social norms, belief systems, and the pursuit of value must all be consistent with the local institutional environment. Institutional support has numerous advantages, including promoting entrepreneurship, ensuring the long-term viability of businesses, and reducing reliance on the periphery. Furthermore, institutional support makes it easier to obtain valuable funding. This encourages growth in external organizations and leadership authority while also compensating for defective procedures in firms at the same time (Guo et al., 2014; Tian et al., 2009; Xin & Pearce, 1996) whiles alleviating resource scarcity (Li & Atuahene-Gima, 2001). Therefore, entrepreneurs require institutional support to assure business growth and economic and social rewards. These types of assistance help young businesses access external resources to improve their performance. When there is a lack of institutional support in a context, motivation to engage in entrepreneurial activity decreases (Tucker & McCarthy, 2001).

H9: there is significant moderation between entrepreneurial education and entrepreneurial attitude.
H10: there is significant moderation between entrepreneurial skills and entrepreneurial attitude.
H11: there is significant moderation between entrepreneurial culture and entrepreneurial attitude.

Methodology

Sample and Data Collection

This study aims to delve into the entrepreneurial mindset of undergraduate business students, focusing specifically on six transitional middle-class private universities in Lahore. The selection criteria for these universities were based on their proactive integration of entrepreneurial education and mentorship within their undergraduate business programs, and for that purpose, we have select twenty-three universities of Pakistan. The study primarily targeted students who had engaged with entrepreneurship as a subject in their academic curriculum.

To gather relevant data, a self-administered questionnaire was employed, and respondents were chosen using a simple random sampling technique. The distribution of the questionnaires took place through various online platforms such as WhatsApp and email. Out of the 411 questionnaires returned, a total of 384 were deemed suitable for analysis, considering the presence of missing data. The statistical

tool employed for analysis was structural equation modeling, executed through SmartPLS.

This sample size aligns with the recommendations of Krejcie and Morgan (1970), who proposed that a minimum sample size of 384 is adequate for testing hypotheses of concern. Therefore, the study, by focusing on a carefully selected group of universities and utilizing robust sampling and analysis methods, seeks to contribute valuable insights into the entrepreneurial mindset of business students in the specific context of transitional middle-class private universities in Lahore.

Measures

The measurement instruments employed in this survey were constructed based on constructs and scales drawn from previous research studies. To assess entrepreneurial institutional factors, a 5-item scale was adapted from Liu et al. (2019) for entrepreneurial education, a 19-item scale adapted from Reyad et al. (2019) for entrepreneurial skills, and an 8-item scale adapted from Mukhtar et al. (2021) to assess entrepreneurial culture. Respondents provided their responses using a 5-point Likert scale, ranging from 1 = strongly agree to 5 = strongly disagree. Secondly, to gauge the entrepreneurial attitude, a 4-item scale adapted from Wardana et al. (2020) was employed. The responses were averaged to generate an overall measure of. Thirdly, to check the entrepreneurial mindset, a 6-item scale adapted from Mukhtar et al. (2021) was employed. Lastly, to assess the influence of institutional support, a 4-item scale adapted from Lukman et al. (2021) was used as a measurement tool in the study. Accordingly, 46 items were mainly used to measure the selected variable adopted from the literature with 5-point Likert scales after measuring the validity and reliability. The questionnaires were entirely based on a 5-point Likert scale.

Measurement Model Assessment

The overall model was evaluated, and the validity was measured based on reliability, factor loading, and average variance. Table 1 indicates that almost all the values of factor loading exceeded the recommended value of 0.60, except for a few factors. On the other hand, the value of composite reliability has also been as per the recommended value of 0.70. The analysis also indicated that all the values of average variance extract are also in acceptable range of 0.50 (Hair et al., 2016).

Convergent Validity

The assessment of the structural and measurement models was carried out using statistical software known as Smart Partial Least Squares (Smart-PLS). PLS-SEM is less sensitive to distribution assumptions than traditional SEM. It does not assume multivariate normality, making it suitable for analyzing data that may not meet the distributional assumptions of traditional SEM. This flexibility makes PLS-SEM a favorable choice in non-normally distributed or small-sample scenarios (Hidayanto et al., 2020). In PLS, the construct loadings associated with each latent construct

Table 1 Convergent validity

Constructs	Items	Loading	Alpha	CR	AVE
Critical thinking	CT1	0.899	0.918	0.942	0.804
	CT2	0.922			
	CT3	0.869			
	CT4	0.894			
Innovation	I1	0.776	0.782	0.850	0.537
	I2	0.862			
	I3	0.798			
	I4	0.639			
	I6	0.543			
Problem-solving	P1	0.834	0.804	0.871	0.595
	P2	0.881			
	P3	0.846			
	P4	0.829			
	P5	0.317			
Risk-taking	RT1	0.888	0.773	0.826	0.557
	RT2	0.919			
	RT3	0.592			
	RT4	0.495			
Ent. attitude	EA1	0.386	0.833	0.881	0.565
	EA2	0.869			
	EA3	0.755			
	EA4	0.705			
	EA5	0.799			
	EA6	0.882			
Ent. culture	EC1	0.886	0.892	0.911	0.564
	EC2	0.847			
	EC3	0.707			
	EC4	0.667			
	EC5	0.709			
	EC6	0.802			
	EC7	0.674			
	EC8	0.681			
Ent. Edu	EE1	0.852	0.882	0.919	0.739
	EE2	0.890			
	EE3	0.866			
	EE4	0.830			
Ent. mindset	EMS1	0.770	0.917	0.934	0.702
	EMS2	0.845			
	EMS3	0.876			
	EMS4	0.829			
	EMS5	0.893			
	EMS6	0.808			

Table 1 (continued)

Constructs	Items	Loading	Alpha	CR	AVE
Institutional support	IS1	0.855	0.865	0.908	0.712
	IS2	0.878			
	IS3	0.839			
	IS4	0.802			

are utilized to gauge the reliability of these constructs. Following data collection, an evaluation of the study's variables was conducted to ascertain their reliability and consistency. The reliability analyses yielded favorable results, as indicated in Table 1, where all constructs exhibited composite reliability values exceeding 0.7 and Cronbach's alpha values exceeding 0.6, in accordance with guidelines from Hair et al. (2019). Furthermore, factor loading was employed to gauge the proportion of variance explained by each variable on its respective factor. It was further assessed using composite reliability and average variance extract (AVE) (Hair et al., 2021). The AVE threshold, as displayed in Table 1, was set at 0.500. Notably, all items exceeded this threshold, with AVE values ranging from 0.503 to 0.740. Consequently, the current study has established satisfactory convergent validity. Table 1 shows the assessment of the model, in which loading, Cronbach alpha, composite reliability, and average variance extract values are shown. It is necessary to perform a confirmatory factor analysis before testing the hypothesis (Ali & Talha, 2022; Noreen et al., 2021). Therefore, all the factor loading is greater than 0.5 except for one item of problem-solving. According to Anderson (2001) and Aziz et al. (2020), a factor loading value, of 0.3 is also acceptable. Furthermore, Cronbach's alpha and composite reliability values are greater than 0.7, and the value of AVE should be greater than 0.5 (Hair Jr et al., 2021). Therefore, the results in Table 1 fulfill all the criteria of confirmatory factor analysis.

Discriminant Validity

As far as discriminant validity is concerned, there are different criteria offered to assess it, such as Fornell-Larcker, cross-loading, and HTMT. According to Henseler et al. (2015), cross-loading and Fornell-Larcker lack discriminant validity in common research. Therefore, this study used the HTMT ratio to assess the discriminant validity of the constructs recommended by Hair Jr. et al. (2021). Table 2 displays the HTMT ratio results, which show that the total value of the HTMT ratio was less than 0.9, indicating that discriminant validity was established to test the study's hypothesis.

Common Method Bias

We are aware of the problem of common method bias because all the independent, dependent, mediating, and moderating variables came from the signal source. In

Table 2 Discriminant validity

Constructs	Critical thinking	Ent. attitude	Ent. culture	Ent. Edu	Ent. mindset	Innovation	Institutional support	Problem-solving	Risk-taking
Critical thinking									
Ent. attitude	0.578								
Ent. culture	0.113	0.276							
Ent. Edu	0.621	0.682	0.222						
Ent. mindset	0.071	0.142	0.077	0.159					
Innovation	0.513	0.458	0.21	0.566	0.078				
Institutional support	0.553	0.607	0.185	0.767	0.148	0.432			
Problem-solving	0.626	0.517	0.22	0.599	0.087	0.890	0.54		
Risk-taking	0.828	0.487	0.185	0.475	0.085	0.649	0.491	0.715	
Ent. skills	0.418	0.533	0.142	0.667	0.125	0.367	0.538	0.397	0.308

this situation, a common method bias problem may have occurred, which misled the results. In this regard, Podsakoff (2003) proposed Harman's one-factor test for measuring the common method bias variance. The first factor is 27% of 56% of the total variance. This study also fulfills the criteria.

Results and Discussion

The researcher employed regression analysis to investigate the hypothesized relationship between the independent and dependent variables. This analytical approach, often referred to as predictive analysis, utilizes the widely used method of linear regression in research. The aim was to assess the direct impact of the independent variable on the dependent variable through a simple linear regression analysis. This analysis not only generates predictions about the dependent variable based on the independent variable values but also aids in determining the degree of dependency between the two variables. In the initial phase of this section, linear regression analysis was conducted to substantiate the research hypothesis. Subsequently, in the second phase, mediation and moderation analyses were conducted using SmartPLS-SEM. Table 3 reveals that the variable's significance level is 0.000, indicating its statistical significance in predicting the outcome variable.

For hypothesis H1, it is seen that the relationships among entrepreneurial attitude and entrepreneurial mindset are highly supported. In other words, entrepreneurial attitude has a positive impact on entrepreneurial mindset. The present findings are thus consistent with those of previous research in the domain of entrepreneurship, which showed the positive impact of entrepreneurial attitude (Wardana et al., 2020;

Table 3 Path analysis

Hypothesis	Relationship	Beta	SD	*t*-value	*P*-value	Decision
H1	Ent. Edu → Ent. Attitude	0.358	0.037	9.718	0.000	Supported
H2	Ent. Culture → Ent. Attitude	−0.122	0.023	5.220	0.000	Supported
H3	Ent. skills → Ent. Attitude	0.128	0.030	4.223	0.000	Supported
H4	Ent. Attitude → Ent. Mindset	−0.130	0.019	6.768	0.000	Supported
H5	Institutional Support → Ent. Attitude	0.207	0.047	4.356	0.000	Supported
H6	Ent. Edu → Ent. Attitude → Ent. Mindset	−0.047	0.009	5.288	0.000	Supported
H7	Ent. skills → Ent. Attitude → Ent. Mindset	−0.017	0.005	3.499	0.001	Supported
H8	Ent. Culture → Ent. Attitude → Ent. Mindset	0.016	0.004	4.403	0.000	Supported
H9	Ent. Edu*Institutional Support → Ent. Attitude	0.054	0.026	2.056	0.040	Not supported
H10	Ent. Skill*Institutional Support → Ent. Attitude	−0.048	0.029	1.645	0.101	Not supported
H11	Ent. Culture* Institutional Support → Ent. Attitude	0.092	0.040	2.331	0.020	Not supported

Fellnhofer & Kraus, 2015). Second, the results of H2 show that entrepreneurial culture is also useful for entrepreneurial mindset. These results are consistent with the findings of previous research (Wach & Wojciechowski, 2016; Taormina, 2007). Third, the findings of H3 indicate that entrepreneurial skills influence entrepreneurial mindset which indicates that having entrepreneurial skills can be helpful for utilization of entrepreneurial mindset as consistent with previous study (Miranda et al., 2017). Fourth, the findings of H4 reveal that entrepreneurial attitude is helpful for entrepreneurial mindset. The results are also consistent with previous research (Botsaris & Vamvaka, 2016a, 2016b; Davis et al., 2016). Fifth, the results of H5 show that institutional support is also helpful for entrepreneurial attitude. These results are consistent with the previous findings (Lorz et al., 2013; Porta et al., 2008).

Moreover, the result presented for hypotheses H6, H7, and H8 (shown in Fig. 1) indicated the significant mediation of entrepreneurial attitude between entrepreneurial institutional factors and entrepreneurial mindset as the results are also consistent with the previous studies (Ogunsade et al., 2021; Moraru & Rusei 2012).

Additionally, according to the result of this study, all direct null hypotheses (H9, H10, and H11) are rejected which reveals that institutional does not positively influence the relationship between entrepreneurial institutional factors and entrepreneurial mindset. The results contradict previous research.

Conclusion, Implications, Limitations, and Future Research Directions

The purpose of this study was to investigate the impact of institutional factors on entrepreneurial mindset by using the mediated moderating model. In this regard, institutional support is considered a moderating variable that strengthens the entrepreneurial attitude, and EA is used as a mediator between institutional factors and the entrepreneurial mindset. In this regard, in Table 1, we present an assessment of the model that contains the factor loading, composite reliability, and average variance; according to the criteria, all the values fulfill the basic assumption of the assessment of the model. As a result, we must also examine the discriminant validity, which is also established among the constructs as shown in Table 2. The hypotheses are divided into two main tables: direct and moderating results, with the mediating result in Table 3 and shown in Fig. 2. Direct relationships are all significant at 1%. The three main hypotheses are established for the moderating result in which institutional support insignificantly moderates entrepreneurial institutional factors and entrepreneurial attitude. Second, Table 3 also shows the mediating result, where entrepreneurial attitude significantly mediates between entrepreneurial education and entrepreneurial mindset, entrepreneurial skill and entrepreneurial mindset, and entrepreneurial culture and entrepreneurial mindset. It is concluded that entrepreneurial institutional factors play a vital role in measuring the business student's entrepreneurial mindset. The main reason for the selected universities and business graduate students is because universities are the main hub for sharing and providing information regarding entrepreneurship; they are also the source where all the culture is gathered. As a result, universities are regarded as the most influential source

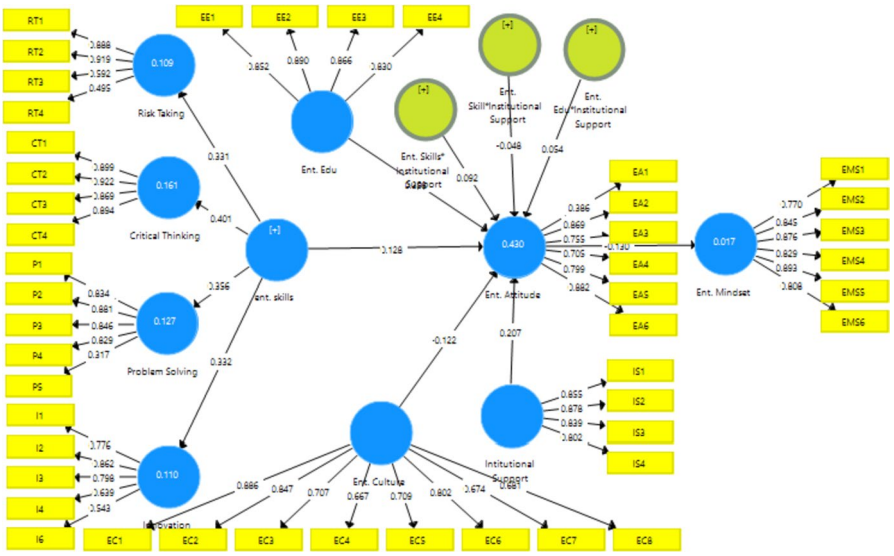

Fig. 2 Structural model assessment

of diverse knowledge, skills, attitudes, and mindsets. On the other hand, De Novellis (2021) mentioned five characteristics which are important to create the social impact by the business students. Among these characteristics, building sustainable future and funding new venture are related to these studies.

Theoretical Implications

First, the study contributes to the theoretical understanding of entrepreneurial mindset by delineating its relationships with key factors. The findings establish a robust framework, highlighting the positive impact of entrepreneurial attitude, culture, skills, and institutional support on entrepreneurial mindset. This framework enriches the existing theoretical perspectives on the development and cultivation of an entrepreneurial mindset (Wardana et al., 2020; Fellnhofer & Kraus, 2015).

Second, the incorporation of mediation and moderation analyses using Smart-PLS-SEM provides theoretical insights into the nuanced relationships among variables. The study identifies entrepreneurial attitude as a significant mediator between entrepreneurial institutional factors and entrepreneurial mindset, emphasizing the importance of individual beliefs in shaping the mindset (Li & Atuahene-Gima, 2001; Ogunsade et al., 2021). This adds depth to the theoretical understanding of how individual attitudes mediate the impact of broader institutional factors on entrepreneurial mindset.

Third, the study's identification of contradictory results regarding the influence of institutional factors on the relationship between entrepreneurial institutional

factors and entrepreneurial mindset challenges existing theoretical assumptions. This contradiction prompts a reevaluation of the role of institutional support in shaping entrepreneurial mindset and opens avenues for further theoretical exploration into the intricate dynamics involved.

Practical Implications

First, the results of recent studies are crucial for organizations. Several points were emphasized that may encourage students to adopt an entrepreneurial frame of mind and try new things. To help their students launch successful startups, universities need to create a full and comprehensive entrepreneurial ecosystem that features teaching, training, mentoring, and institutional support activities (Wardana et al., 2020).

Second, the framework developed in this study has the potential to be implemented at universities to foster an entrepreneurial environment conducive to paradigm shift. The study laid the groundwork for creating an entrepreneurial system that could aid schools in winning back the trust of their most important constituencies—their students and the public (Vega-Gómez et al., 2020). After studying entrepreneurship, many Pakistani university students and graduates are finding that their own businesses fail due in large part to a lack of institutional support.

Third, the current research found that these issues can be resolved through the appropriate application of this framework. Therefore, governments, higher education commissions, and universities must acknowledge the significance of entrepreneurial institutional factors and their influence on students' attitudes and mindsets toward entrepreneurship, and the significance of providing students with financial, training, and moral support from both governments and non-government institutions (Reyad et al., 2019). Teachers can also benefit from this study because it shows them how they can use innovative pedagogies to instill an entrepreneurial mindset in their students.

Fourth, policymakers can leverage the study's findings to formulate policies that promote entrepreneurship in the educational sector. Recognizing the significance of institutional support, the study advocates for the integration of supportive structures within universities to enhance students' entrepreneurial attitudes and mindsets (Lorz et al., 2013). This, in turn, can contribute to a more conducive environment for entrepreneurship at a national level.

Fifth, institutes seeking to foster entrepreneurial thinking among their employees and students can draw on the study's insights into the positive impact of entrepreneurial culture (Ao & Liu, 2014). Creating a work environment that promotes innovative thinking, risk-taking, and a proactive mindset aligns with the study's findings and can contribute to organizational success.

Limitations and Future Research Directions

There are several limitations of the study. First, the study primarily focuses on private, upper-middle-class universities in Pakistan, which may limit the generalizability of the

findings to different socio-economic and cultural contexts. Second, the use of cross-sectional data in the study provides a snapshot of the relationships between variables at a specific point in time. A longitudinal study design would offer a more dynamic perspective on the development of entrepreneurial mindset and its influencing factors. Third, the study acknowledges a limitation in considering a limited set of entrepreneurial abilities as potential independent variables. This narrow focus may overlook other essential abilities crucial to entrepreneurial success. Future research should explore a broader spectrum of entrepreneurial competencies to provide a more comprehensive understanding. Fourth, the study identifies institutional support as a significant moderating variable impacting entrepreneurial attitude; it acknowledges the potential existence of other moderators. The study's narrow focus on institutional support implies a limitation in recognizing other forms of support that may influence entrepreneurial mindset. Future research should explore a more diverse set of moderating variables. Fifth, information was collected from Pakistan's private, upper-middle-class universities so that it could be used in developing nations. So, future researchers are recommended to conduct the same study in other countries. Moreover, researchers should explore and identify additional moderating variables beyond institutional support. Considering various forms of support, such as social, financial, or governmental, can enrich the understanding of how different factors interact and influence entrepreneurial attitude and mindset.

Author Contribution Ahmad Bilal: conceptualization, data curation, methodology, and writing original draft. Shahzad Ali: concept, data collection, data handling, methodology, and analysis. Muhammad Haseeb Shakil: corresponding author, refining the concept, data handling, and data analysis. Muhammad Mukarram: writing, reviewing, and editing the final draft. Sayyed Zaman Haider: revision, review, and editing of the final draft.

Data Availability Data is available on request.

Declarations

Ethical Approval and Consent to Participate This research does not involve any human or animal testing.

Consent for Publication Not applicable.

Competing Interests The authors declare no competing interests.

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