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Androniki Kavoura
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Strategic Innovative Marketing and Tourism in the COVID-19 Era

9th ICSIMAT Conference 2020

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Invited Speakers

Professor Spiros Gounaris, University of Strathclyde, Scotland
The Need for Revising Demand Forecasting Approaches in the Tourism Sector during the Pandemic; and beyond!
Victor Erukhimov, CEO of Itseez3D, Inc.
The Rise of Avatars for Work and Entertainment

Preface

Aims and Scope of the Conference

The International Conference on Strategic Innovative Marketing and Tourism (ICSIMAT) 2020 was held virtually from 26 to 28 of September while the conference included special sessions. It was broadcasted live all three days

26 September: https://www.youtube.com/watch?v=6lRoGfn5boU
27 September: https://www.youtube.com/watch?v=ww2lG1xTnBU
28 September: https://www.youtube.com/watch?v=KAcyQZoqcxo

ICSIMAT provided a timely and interactive international platform for academics, government and industry practitioners in order to discuss and develop new perspectives in the unchartered waters humanity has come due to COVID-19 in the fields of marketing, innovative technologies, tourism, communication and management. They were able to discuss and debate issues that affect the future direction of marketing and tourism research and practice in a digital and innovation era. ICSIMAT community includes worldwide well-known scholars, faculty members, doctorate students, researchers and business practitioners who network and exchange research work and inter-institutional co-operations.

ICSIMAT accepted and hosted 33 original research papers, after a double-blinded peer review process. Eight were part of the established industry session that is organized during ICSIMAT conferences. Nine sessions in total were held in order to advance and contribute to specific research areas in the field of strategic innovative marketing and tourism in the COVID-19 era. Papers that were only related to COVID-19 in the associated disciplines were presented although potential delegates asked for a more broad conference in terms of specialization. It was a one-way approach to focus on COVID-19 issues to reignite tourism and marketing under these new conditions.

The sessions that were created under ICSIMAT were:

Specialized Industry Session on: Learning From Greece: Tourism and Hospitality Resilience in the COVID-19 Era
Session Chair: Professor Dimitrios Buhalis, Bournemouth University, UK

Session on: Consumer Behavior Issues

Session Chair: Professor Andreas Andronikidis, University of Macedonia, Greece

Session on: Information and Communication Technologies in Marketing and Tourism

Session Chair: Professor Stanislav Ivanov, Varna University of Management, Bulgaria

Session on: Cultural and Tourism Issues

Session Chairs: Ms. Maria Zisouli, Development Consultant for New Markets, Greece and Dr. Stella Sylaiou, Hellenic Open University, Greece

Specialized Session on: Success Industry Stories in the COVID-19 Era

Session Chair: Professor Spiros Gounaris, University of Strathclyde, Scotland
Session on: Hospitality and Tourism Issues

Session Chair: Professor Stathis Kefallonitis, State University of New York at Oswego, USA

Session on: Innovation and Social Issues in Management

Session Chair: Dr Andreas Masouras, Neapolis University Pafos, Cyprus

Session on: Health Management Issues

Session Chair: Professor Maria Tsirintani, University of West Attica, Greece

Session on: Education-Employability Issues

Session Chair: Mounir Elatrachi, HASSAN II University II, Casablanca, Morocco

Topics Related to COVID-19 on:

Marketing, Social Media Marketing, e-Branding and Brand Experience Management, Digital marketing, Marketing Analytics, Marketing Research, Services Marketing, Integrated Marketing Communications, Consumer Behaviour, New Product Design and Development, Sports Marketing, B2B and B2C Marketing, Pricing Strategies, Art and Cultural Marketing, Mobile Services, Gaming, Gamification and Augmented Reality, Location-based Services, Internet-of-Things, Heritage and Museum Management in the Digital Era, Cross-cultural marketing, Tourism and Destination Marketing, Enogastronomic Tourism, Event Tourism, Health Tourism, Transport Industry Marketing, Social Media, Experiential and Sensory Marketing, Customer Relationship Management and

Social CRM, Collaborative Marketing, Safety Marketing, Economics of Business Strategy, Accounting Marketing, Global Business, Marketing Finance, Healthcare Management, Accounting Education, Skills and Competences, Higher Education, Retail Marketing, Sales Management, Public Relations and Crisis Management, E-commerce, Marketing Strategy, Sectoral Marketing, Safety Management and Marketing, Enterpreneurship.

Aigaleo, Greece — Androniki Kavoura
Sudbury, Canada — Stephen J. Havlovic
Sudbury, Canada — Natalya Totskaya

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- The members of the scientific committee that honored the conference with their online presence and provided a significant contribution to the review of papers as well as for their indications for the improvement of the conference;
- All members of the organizing committee for their help, support and spirited participation before, during and after the virtual conference;
- The session organizers for their willingness to organize sessions of high importance and for their editorial work, contributing in the development of valued services to the conference,
- Mantolinata—music from Zakynthos 1958 Mandolinata ensemble that play songs by local poets and composers specially for virtual ICSIMAT 2020;
- Aptaliko.gr and Charis Tsalpara—musician and musicologist who played Greek Musical Memories specially for virtual ICSIMAT 2020.

Contents

Pursuing Alternative Demand Forecasting Approaches in the Tourism Sector

Spiros Gounaris

1 Why a New Approach in Understanding Demand for Tourism Is Necessary

Probably the cases of Venice and Barcelona in summer 2017 are the most recent and better-known instances of local inhabitants protesting against tourism and tourists visiting their region. According to the Guardian, people in Santorini (Greece) have also raised very serious concerns about the impact tourism has for the local community [1]. Not surprising, various destinations in the UK have been raising similar concerns as early as in the mid 1990s [2]. Whilst this could easily be treated as yet another expression of a 'populist' view that could potentially fade with time, for academics involved with the marketing of tourist destinations such protests and reactions are far from being astonishing.

In fact, the possibility that the local population can turn hostile to continuously increasing numbers of tourists has been considered since the mid 1970s, as Fig. 1 shows, demonstrating that the overall feeling of the local population can/will change from friendly and welcoming ("euphoria") to hostile and rebuffing.

The reason behind this picture is the dominant business model, world-wide, for tourism and touristic development. Becoming an attractive tourist destination, in principal, is considered positive for a destination and the locals as long as the benefits tourists generate for the local population and the community outperform the costs associated with their hosting, since tourists consume resources such as lodging and sustenance, while taking their share of space and leisure opportunities the locals enjoy.

For many modern societies, the impact the tourism industry has on their local environment is increasingly becoming another important concern. Hence, for tourism to have a positive contribution to a region and the society in that region, the

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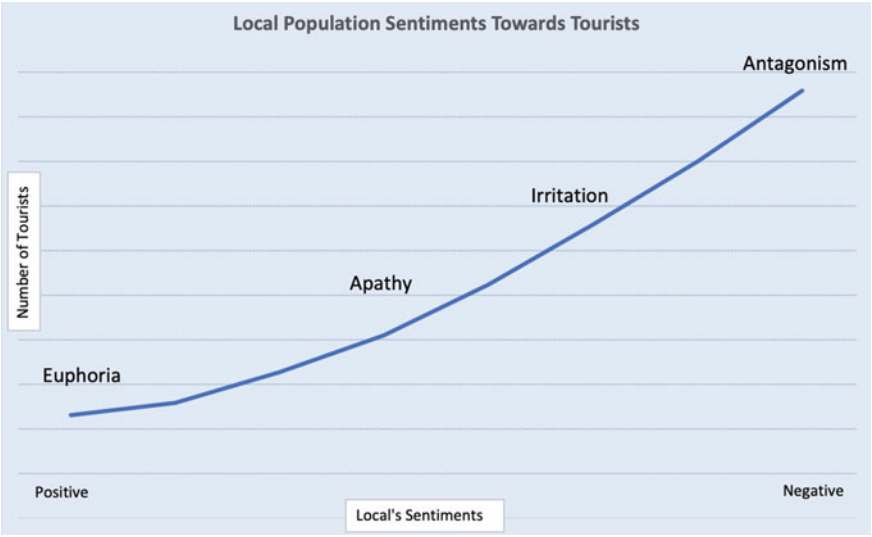

Fig. 1 Locals reaction to increasing numbers of tourists (*Source* Doxey [22])

benefits (usually of economic nature) have to outperform the various (monetary and not) costs associated with the hosting of tourists (national or international).

So far, the business model for economic development through tourism has relied on either or both the following conditions: (a) the destination has a surplus of resources (lodging and sustenance capacity or 'space' in the broader sense) that can 'sell' to tourists (in a way of 'exporting'); (b) compared to the price the locals 'pay' to 'replace' the resources they export through the tourism industry (so locals can maintain their levels of prosperity and well-being), tourists will buy the locals' resources at a premium (allowing the community to 'arbitrage' for societal resources). The latter requires a sustainable ability to sell the destination at a premium allowing thus to generate the price differential and margin the local communities need before they can arbitrage for the resources they condone to tourists. However, during the past ten to fifteen years, the tourism section (particularly in Europe) is increasingly becoming more and more sensitive to price due to such developments as the growth of low-budget air carriers and the popularity of all-inclusive packages. The newly emerged trend for shared lodging (of the likes of Airbnb) has only added more pressure to the price tourists are willing to pay for their visit. As a result, the wealth the tourism industry can generate for the local community is increasingly and continuously under pressure, contracting the ability of the locals to compensate for the resources the tourist industry takes away.

Certainly, not every destination within a country is necessarily in the same situation. Different destinations (within a county) have different surpluses of resources and approach the saturation levels with a different pace, which also depends on the number of tourists visiting the destination. The Tourist Saturation

Index (TSI) [3], defined as the product of the proportion of the annual number of tourists to the resident population (T/P) and of tourist revenues to the gross domestic product (TR/GDP), is used to measure the intensity of tourism in a given region within a nation. TSI provides a measure of the potential influence for disruption that can result from the influx of tourists both regionally and nationally. Subsequently, to alleviate the potentially (negative) impact touristic development may have in one or more regions without disrupting the contribution from tourism to the national economy, it is necessary to model the trajectory for tourists' visits (both from home and abroad) and their demand for resources against the income they generate. This allows to manage tourist demand at the macro (national) level, with the aim to reshuffle tourists' arrival across the various destinations (micro level) a country has to offer. For such intervention to be successful, it is necessary to untangle what drives tourist demand for specific regions, map the distribution of visits different regions are likely to receive in the near (five years) future and develop an appropriate plan for developing the attractiveness of the value proposition alternative, less-saturated, regions have to offer. Unfortunately, the pertinent models that policy makers, regional and national authorities rely upon to estimate and chart demand in the sector suffer from serious constrains. To overcome these limitations, innovative consumer data-driven approaches are needed. To deliver such data and improve the quality of the modelling techniques, the proposed project will unfold the analogies between natural and market phenomena and through the use of bio-inspired approaches will offer fresh and novel insights into how to more accurately model the demand for specific tourist destinations.

2 Tourist Development, Massification and Disruption

The development of a destination over time has been monitored widely since Butler's [4] introduction of the tourist area cycle. Consisting of six stages, Butler's theory aptly explores the progression of a destination, from the initial exploration stage of a destination by tourists, through increased involvement, development, and consolidation, before reaching stagnation, and either rejuvenation or decline of the destination.

Factors influencing the speed at which a destination moves through these phases include visitor preferences, deterioration and maintenance of physical elements, or changes (including disappearances) of existing attractions which first drew tourists to the destination [5]. Increased tourism development brings important economic benefits, such as increased employment and liveability [6]. Yet, as the popularity of the destination increases, the local residents may witness negative side-effects, including a rise in prices throughout the destination or decreased levels of life quality due to overcrowding. Such adverse conditions have recently fuelled anti-tourism movements and discrimination against tourists in various parts of the world [7]. Thus, it is necessary to consider how many tourists a destination can

serve before both the residents' and tourists' satisfaction starts diminishing, suggesting that the destination has reached a saturation threshold.

Outlined in the academic literature since the 1960s (see for example [8, 9]), we define tourism carrying capacity as "the maximum number of persons who could visit a location within a given period, such that the local environment, physical, economic, and socio-cultural characteristics are not compromised, and without reducing tourist satisfaction or the quality of life for the residents [10]. Once carrying capacity is exceeded, it can be managed through the development of further resources. However, this ultimately changes the very nature (and potentially the identity) of the destination, and may result in the attraction of even more tourists with an increased tolerance for tourist modifications within destinations [11, 12]. Alternatively, arguments have been made to either de-market such destinations, or redirect tourists' demand to other destinations within the country to enhance sustainability. Either way, an accurate and reliable approach to forecast and charter future tourist demand is necessary.

However, with literature spanning more than five decades there is still no consensus on a forecasting method to evaluate tourist demand [13]. One specific area of interest has been the econometric modelling of tourist demand, with an initially strong focus on the use of regression models to forecast tourist demand: 89% of tourist demand studies had used regression as an analysis method. More recent studies have expanded the spectrum of techniques to include gravity models, artificial neural networks, and univariate time series models [13].

Also, throughout this period, the literature on tourist demand forecasting has developed an overarching focus on certain variables mainly geared around income (either tourist or host), price, (including comparisons and indices), gross domestic product (GDP), and tourist arrivals/receipts/expenditures. This remains the prevalent approach, in spite the long established relatively low success of causal models that rely on such parameters to forecast demand in the tourism sector with an acceptable level of accuracy [14]. Hence, before it becomes feasible to improve the accuracy of our forecasts for demand in the tourism sector, "newer and more advanced (forecasting) techniques" are necessary and thus required [15]. At the same time, reconsidering the explanatory variables could also prove to help improve further the accuracy of the forecasts. Next, we present a very promising alternative in the quest for improving the accuracy of tourism demand forecasting.

3 Use of Flocking Algorithms to Model Tourism Demand for a Destination

Flocking behaviour is the behaviour exhibited when a group of birds (the 'flock') are foraging or in flight. There are parallels with the shoaling behaviour of fish, the swarming behaviour of insects, and herd behaviour of land animals. Basic models of flocking behaviour are controlled by three simple rules: (1) Separation—avoid

crowding neighbours (short range repulsion), (2) Alignment—steer towards average heading of neighbours and (3) Cohesion—steer towards average position of neighbours (long range attraction). With these three simple rules, the flock moves in an extremely realistic way, creating complex motion and interaction that would be extremely hard to create otherwise.

Flocking behaviour was first simulated on a computer by Craig Reynolds in 1987 [16]. The original program simulates simple agents (boids) that are allowed to move according to a set of basic rules and without any central control; each bird (thus the boid too) behaves autonomously. In other words, each 'bird' has to decide for itself which flocks to consider as its natural environment. The result is akin to a flock of birds or school of fish. The basic model has been extended in several different ways since it was originally proposed and developed. In 1990 Heppner and Grenander proposed to consider ***interaction between the boids*** as one additional parameter when simulating the flocking behavior [17]. This addition has allowed to include random disturbances; a feature upon which Delgado-Mata et al. [18] built to extend the basic model to also incorporate ***the effects of fear*** in the simulation.

The principles of flocking and the resulted algorithms have also been considered in relation to various behaviour of the humans, such as crowding [19] or the collective reaction to threats [20]. Interestingly, when it comes to the tourism industry 'flocking' has received anecdotal attention usually as a metaphor. This is surprising because the main principles of separation, alignment, cohesion when considered together with interaction provide an intuitively very strong conceptual framework for understanding what drives tourists to gravitate in a specific destination. For example, certain segments of tourists would appear to find attractive a destination that is not overcrowded ('separation'), not too distant ('cohesion') and relatively safe ('interaction'). Different combinations of these four key pillars upon which the flocking algorithms ground may explain equally well the attractiveness different segments of tourists in other destinations, as pertinent studies in the broader context of the service sector have shown [21].

4 Methodology: Research Design and Approach to Data Analysis

In this section, we will offer an abstracted description of the kind of design that can potentially deliver the data for such modelling as well as of the analysis strategy for such data.

The analogies between natural and market phenomena are revealing. Nature has become a source of inspiration for understanding and dealing with difficult decision problems in applied business settings. Bio-inspired models mimic biological processes to handle big datasets and address managerial problems that are otherwise too difficult to solve using conventional methods. At the same time, tourists make discrete destination choice decisions in the sense that choosing an option rules out

the possibility of choosing another and individual preferences manifest themselves as qualitative responses.

Choice modelling is a practical way to empirically determine individual preferences and assess the trade-offs that tourists make in considering various destinations. Many alternative choice models have been presented in econometrics, applied psychology, marketing science, and other related fields. This said, to move forwards and deliver a fresh approach in forecasting tourism demand, both qualitative and quantitative data are required.

For instance, to produce a more inclusive TSI that does not rely exclusively on the economic and the econometric perspective when calculating the tourism saturation threshold requires considering the impact a number of parameters, such as equality in the sharing of the benefits tourism generates among the local population, their phobia against culturally divergent visitors or the tourists' misbehaviour while visiting (and so on) have on carrying capacity. To generate these insights, we require rich data that only in-depth interviews with both tourists and locals can produce. There are no strict rules in deciding the number of interviews required; information saturation (i.e., the marginal contribution from each additional interview) is the most reliable approach the researcher can rely upon. Past experience shows that saturation is usually achieved once around 25–30 interviews have been completed.

The next task is to generate the data to feed the heuristic modelling. For this purpose, the researchers will need quantitative approaches. First, some experimental or observational method must be used to determine individual preferences. One such method is a hybrid conjoint analysis, which allows to estimate part-worth values for a variety of salient (tangible and intangible) attributes describing tourism destinations (e.g., infrastructures, economic development, population, attractions, reputation, heritage), as well as travel idiosyncrasies and other situational aspects (e.g., destination's distance, type of visit, access to information sources). The exact specification of the attributes that will actually be considered will rely on the set of in-depth interviews described earlier, as well as on the extant literature.

Next, the derived measures of individual preferences (i.e., part-worth values) are used to (a) estimate the utility scores for all alternative "hypothetical profiles" of tourism destinations, across the entire sample, and (b) identify the optimal profile(s) that maximize the proposed objective function. As a result, it is possible to generate an objective function that will be capturing the overall "attractiveness" of a given destination, by considering the utility scores derived from the conjoint experiment, as well as a variety of secondary variables, including current TSI scores. This large-scale conjoint experiment will produce an extremely large number of possible optimal "solutions", which means that a full search of the entire solution space will be practically infeasible with conventional approaches.

Optimally, data should be collected quarterly (unbalanced panel data through, for instance, a survey over the internet), for at least 12 months. Depending on the resources available the data collection could extend to more than a year as this can reveal a rolling change in tourists' attitudes and perceptions thus enabling further fine-tuning of the heuristic algorithms.

5 Expected Contribution and Impact

The contribution from this recommended approach is manifold both for academia and practice. To start with, academics, particularly in the field of Business and Management, will benefit from adapting nature-inspired approaches to capture real life problems in business and thus advance how academics grasp and research pertinent phenomena. So far, pertinent work in academia has been excessively relied on linear models and approaches all of which have received significant and valid criticism. Thus, forecasting modelling will hugely benefit from a more realistic approach that incorporates individuals' behavioural parameters when attempting a prognosis of future demand.

When it comes to tourism in particular, academics will also benefit from having a reliable approach to assess tourism demand in the future a lot more accurately. Studying further a large number of phenomena, such as the measurement of tourists' satisfaction and experience, the life-time-value of the tourist or the effectiveness (and growth potential) of a portfolio of investment in the (tourist) section, all rely heavily on having a calibrated tool that can reliably estimate future tourist demand. Also, revising the TSI will enable a broader and more inclusive understanding of the impact the tourism industry has for the local population. This in turn will allow to amalgamate the economics-based views and models in tourism studies with invaluable insights drawing from the fields of sociology (symbolic interactionism and utilitarianism) and behavioural psychology. As a result, a much more holistic apprehension of the implications different levels of concentration in the tourism industry bear upon the local communities and the national economy will become possible for academics.

Local societies and the pursue for sustainable models of tourism development will also benefit from this proposal through the policy opportunities for policy makers (national and regional tourism organisations or sector-specific associations). As such, my proposed approach feeds the wider stream of research in transformative services. Local communities and the society as a whole, hold policy makers responsible for creating policies that address both the prosperity and the well-being of the people, while protecting and preserving the natural environment. When it comes specifically to the tourism section, the derived responsibility for the various policy makers is to ensure that the tourism industry continues to fuel the economic development (both locally and nationally) but in a way the preserves both the life quality and the natural environment of the various destinations that host the yearly influx of visitors. To deliver such policies, one necessary condition is that policy makers have the right tool to predict future tourist demand, which they can then benchmark against the various destinations' capacity saturation threshold (the latter defined in broader societal terms and not within the confinements of the economics perspective). What we are describing here informs the effort to generate such policies.

Practitioners will also benefit greatly from this new approach, which delivers a reliable process and tool for forecasting tourist demand vis-à-vis the degree of

tourism saturation for individual destinations. Hence, practitioners can improve their planning and make better use of the amount of resources they invest across alternative destinations, with the aim to maximise the yield from the investment, while contributing to the sustainability of both the local community and the local environment for different destinations and societies.

References

1. The Guardian (2017) Helena Smith in Santorini, Monday 28 August 2017, https://www.theguardian.com/world/2017/aug/28/santorini-popularity-soars-but-locals-say-it-has-hit-saturation-point
2. Nicholson-Lord D (1994) Wednesday 25 May 1994, The Independent, https://www.independent.co.uk/voices/consumerism-with-a-shrunken-vision-david-nicholson-lord-looks-at-which-magazine-and-finds-its-1438391.html
3. Šergo Z, Gržinic J, Saftic, D (2015) Modelling saturation intensity on the destination of Croatia: a panel approach. In: 3rd international scientific conference tourism in Southern and Eastern Europe 2015, Tourism in Southern and Eastern Europe, vol 3, pp 383–397. Available at SSRN: https://ssrn.com/abstract=2637374
4. Butler RW (1980) The concept of a tourist area cycle of evolution: implications for management resources. Can Geogr XXIV: 5–12. https://doi.org/10.1111/j.1541-0064.1980.tb00970.x
5. Butler RW (2006) The concept of a tourist area cycle of evolution: implications for management of resources. In: Butler RW (ed) The tourism area life cycle: applications and modifications. Channel View, Clevedon
6. Pike S (2005) Tourism destination branding complexity. J Prod Brand Manag 14:258–259. https://doi.org/10.1108/10610420510609267
7. Simpson PM, Siguaw JA (2008) Perceived travel risks: the traveller perspective and manageability. Int J Tour Res 10:315–327. https://doi.org/10.1002/jtr.664
8. Coccossis H, Mexa A (2004) The challenge of tourism carrying capacity assessment: theory and practice. Ashgate, Aldershot
9. Sousa RR, Pereira L, Marinho da Costa R, Jiménez J (2014) Tourism carrying capacity on estuarine beaches in the Brazilian Amazon region. J Coastal Res 70:545–550. https://doi.org/10.2112/SI70-092.1
10. https://responsibletourismpartnership.org/wtm-london-november-2017/
11. Butler RW (1997) The concept of carrying capacity for tourism destinations: dead or merely buried? In: Cooper C, Wanhill S (eds) Tourism development—environmental and community issues. Wiley, Chichester, pp 11–21
12. Olafsdottir R, Haraldsson H (2017) Tourism spatial dynamics and causal relations: a need for holistic understanding. In Muller DK (ed) A research agenda for tourism geographies, Edward Elgar Publishing
13. Peng B, Song H, Crouch GI (2014) A meta-analysis of international tourism demand for forecasting and implications for practice. Tour Manag 45:181–193. https://doi.org/10.1016/j.tourman.2014.04.005
14. Chu FL (2004) Forecasting tourism demand: a cubic polynomial approach. Tour Manag 25:209–218. https://doi.org/10.1016/S0261-5177(03)00086-4
15. Song H, Li G (2008) Tourism demand modelling and forecasting—a review of recent research. Tour Manag 29:203–220. https://doi.org/10.1016/j.tourman.2007.07
16. Reynolds CW (1987) Flocks, herds and schools: a distributed behavioral model. In: Proceedings of the 14th annual conference on computer graphics and interactive techniques, pp 25–34, August. https://doi.org/10.1145/37402.37406

17. Heppner F, Grenander U (1990) A stochastic nonlinear model for coordinated bird flocks. In: The ubiquity of chaos, pp 233–238. https://doi.org/10.12691/jcsa-6-2-5
18. Delgado-Mata C, Ibanez J, Bee S et al (2007) On the use of virtual animals with artificial fear in virtual environments. New Gener Comput 25:145–169. https://doi.org/10.1007/s00354-007-0009-5
19. Lamarche F, Donikian S (2004) Crowd of virtual humans: a new approach for real time navigation in complex and structured environments. Comput Graph Forum 23:509–518. https://doi.org/10.1111/j.1467-8659.2004.00782.x
20. Dezecache G (2015) Human collective reactions to threat. WIREs Cognitive Sci 6:209–219. https://doi.org/10.1002/wcs.1344
21. Baltas G, Tsafarakis S, Saridakis C, Matsatsinis N (2013) Biologically inspired approaches to strategic service design: optimal service diversification through evolutionary and swarm intelligence models. J Serv Res 16:186–201. https://doi.org/10.1177/1094670512468215
22. Doxey GV (1975) A causation theory of visitor-resident irritants: methodology and research inferences. In: Travel and tourism research associations sixth annual conference proceedings, pp 195–98. Travel Research Association, San Diego

The Impact of COVID-19 on Consumer Behaviour: The Case of Greece

Prokopis K. Theodoridis and Androniki Kavoura

1 Introduction

As of 10 June 2020, the number of cases reported has increased to more than 7.38 million, whereas the number of deaths to more than 410,000 worldwide [1]. Apart from creating awareness, governments suggest simple precautions from self-care to social distancing to avoid contracting or spreading Covid-19. Regularly washing hands and using sanitiser; following respiratory hygiene rules; limiting visits to public places; maintaining at least 1.5–2 m distance from others; and self-isolation are a few suggestions published by the World Health Organization [2].

Scientific and medical communities are coordinating across regions to assess, respond and mitigate the impact of the virus, find an effective treatment for humans in need and accelerate research for a Covid-19 vaccine; political leaders are justifying social distancing and lockdowns with the rhetoric of 'wartime' sacrifice, embracing self-isolation and taking measures to support their public health systems; economists process analyses and commentaries on the impact of the pandemic on international mechanisms of contagion (trade, capital flows, financial institutions, etc.) as well as the domestic impact on fiscal and monetary policies [3]. The industries and sectors impacted, however, can range further to include high tech and telecommunications, education, environment, travel and transportation, manufacturing and media. The virus itself and its economic impact has changed and will most likely continue transforming lifestyle, financial choices and consumer behaviour for every generation.

People's response to the coronavirus has differed from country to country, from region to region, but there is also a great variety in their severity. Lockdown

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measures and quarantine were ubiquitous, but not everybody reacted essentially to the measures of precaution. Reduced availability of goods and limited access to food due to restricted store opening hours can result in changes in lifestyle and nutritional habits. The reduction or increase in physical activity will contribute to weight changes; negative psychological factors for the unknown future might lead to depression, hostility and anxiety. The aforementioned factors might also have long-term consequences on people's well-being, lifestyle and life values. The Covid-19 pandemic has changed the world. People have started to live differently, buying differently and in many ways, thinking differently [4].

The objective of this research is to investigate how the coronavirus and the lockdown have affected consumer behaviour in Greece, with a focus on shopping habits relative to supermarket purchases, preferences towards branding and examining the potential changes regarding on line purchases of goods. We analyse and compare data to reveal how specific aspects of daily actions taken during the quarantine period have affected the buying procedure. The following paragraphs provide insights into the objectives of the research. Next, the methodology is presented, and the results are analysed and discussed. A dedicated section with conclusions, limitations of the research and a proposal for further analysis can be found at the end.

2 Covid-19 and Consumer Affection

Covid-19 or SARS-CoV-2 (severe acute respiratory syndrome coronavirus 2) is proven to have significant alterations and major differences from most of the known diseases that had led to an epidemic or a pandemic. SARS-CoV-2 significantly differs due to its unlimited period of highly probable infection, high transmissibility, clinical severity, and highly contagious nature in the community. Even a healthy person can be a carrier without any symptoms and be responsible for the transmission of the disease in the community. Thus, social isolation is essential and an effective way of keeping at a controllable level the possibilities of transmission, to break the chain of infection not only for patients but also for healthy individuals [5]. In 2019, the World Health Organization [6] declared SARS-CoV-2 a pandemic soon after the first confirmed case of infection in Wuhan, China. The disease has already caused thousands of deaths globally and led governments to enforce quarantine measures to prevent the disease from spreading [6].

Across the globe extreme measures have been taken to control Covid-19; governments have enforced quarantines to keep the community healthy. Lockdowns, closed airports, and harbours, banning social gatherings and unnecessary movements, establishing healthcare centres and quarantine hospitals are a few of the precautionary measures [7]. This is the first time that governments across the globe have enforced quarantine measures, including social distancing, social awareness, and informational initiatives to educate the public and stop the virus from spreading in the communities.

The first Covid-19 case in Greece, a 38-year-old woman from Thessaloniki who had recently visited northern Italy, was confirmed on 26 February 2020. In the following months, Greece reported confirmed cases from people who had travelled to Italy and pilgrims returning from Israel and Egypt, as well as their contacts. The first Covid-19 death in Greece, a 66-year-old man, was reported on 12 March. As of 23 September 2020, Greece has recorded 16,286 confirmed cases and 357 deaths. Travel restrictions were lifted June 2020 onwards, and the daily confirmed cases since then have included those detected positive after tests at the country's entry points.

On 10 March, the government closed down all educational institutions; on 13 March, restaurants, cafes, bars, museums, shopping centres and sports facilities were closed. On 16 March, retail shops were shut down and all religious services were suspended. The government announced restrictions on all non-essential movement across the country, from 23 March. After 42 days of lockdown, from 4 May on, Greece lifted restrictions on movement and resumed business activities.

The Covid-19 crisis has impacted consumer behaviour from a health and economic perspective. There is a noticeable change in purchasing habits and attitudes. While some consumers, fuelled by anxiety and worry, are panic buying staples and hygiene products, others remain nonchalant, continuing their business as usual, paying no heed to the authorities' warnings. Consumer packaged goods (CPG) companies will need to reassess consumer behaviours and customise their marketing strategies [3].

3 Methodology

The data presented in this paper are part of a broader study, related to consumer behaviour during the pandemic in Greece. A questionnaire was developed to examine consumers' behaviour during the pandemic and lockdown period in Greece. Prior to its implementation, in-depth digital interviews were conducted with twelve consumers in order to identify errors and potentially misleading or difficult instructions and to assess its overall clarity. The procedure led to the adaptation, and in some cases the deletion, of the questionnaire. The respondents were not given any incentive and they contributed voluntarily. After the appropriate pre-testing, 1,882 questionnaires were digitally self-completed from all over Greece of which 1,603 were usable. E-mail and social media personal campaigns helped promote the project. The field research lasted one month, April 2020. The authors would like to thank and acknowledge the large number of undergraduate and postgraduate students who contributed significantly to the project in terms of collecting data from all around Greece, providing an almost representative context.

4 Results

Table 1 shows the demographics of the respondents, a crucial piece of information for any business, leading to effective segmentation. The vast majority of the respondents are female (60.1%). Considering the size of the household members, most of the respondents live in a household with four members (43.4%) following by the household with three members (20.6%). It is important to note that a remarkable proportion of the households in the study have five or more members, indicating probably an extended nature of the Greek family (parents, child and grandparents). Regarding their monthly income, a relatively large part (25.1%) reported an income of more than 2,000€, 19% ranging from 1,500 to 2,000€, 26.1% ranging from 1,000 to 1,500€, 22.5% ranging between 500 and 1,000€ and 7.2% less than 500€.

Looking at the data in relation to consumer behaviour in Greece, the top three food categories that consumers spent more and bought more were packaged food (34.1%), fresh groceries (33.6%) and frozen food (31.2%) (Fig. 1). The trend was to stock food in order to tackle the lockdown restrictions. Anxiety for the unknown has affected consumer reactions. It is obvious that changes in the buying pattern of specific food categories (such as snacks and chocolates) are related to the effects of the lockdown, i.e. staying home and watching TV/cable serials, movies or playing games on PCs, tablets.

Regarding the non-food categories, bleach cleaners saw the biggest spike (Fig. 2). Almost half of the respondents (48%) increased their purchase of bleach cleaners and general-purpose cleaners for home (45.6%). Also, there was an important increase in sales for the category of personal care products (41.4%). It is remarkable that consumers bought more non-food products than food ones (Figs. 1 and 2).

Table 1 Sample's profile

N = 1603		Freq.	%
Gender	Male	639	39.9
	Female	964	60.1
Household's size	1	68	4.2
	2	161	10.0
	3	331	20.6
	4	696	43.4
	>=5	347	21.6
Household's monthly income	<500.00€	116	7.2
	501.00€–1.000.00€	361	22.5
	1.001.00€–1.500.00€	418	26.1
	1.501.00€–2.000.00€	305	19.0
	>2.001.00€	403	25.1

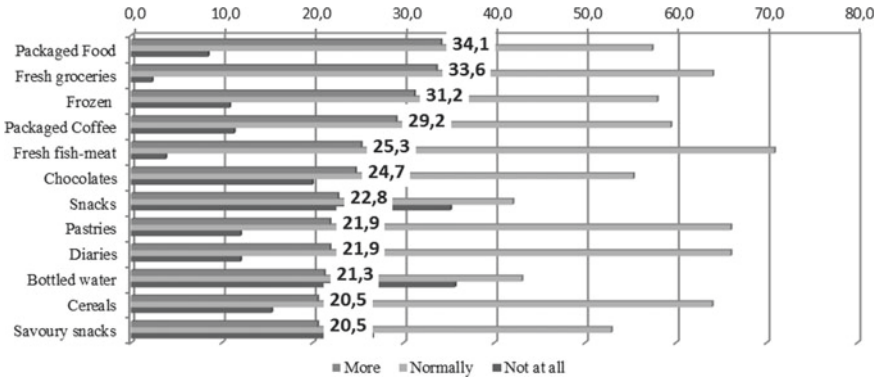

Fig. 1 The food-edible categories with increased purchases during the lockdown

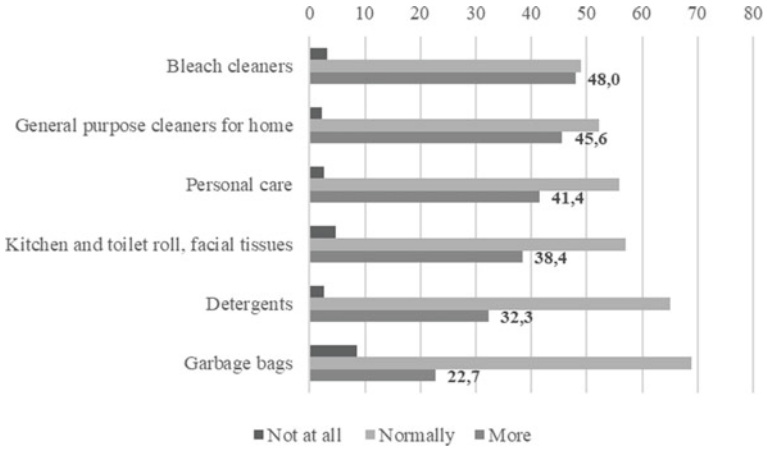

Fig. 2 Non-food product categories with increased purchases during the lockdown

It is more than clear that consumers in Greece have realized the effects of Covid-19 and the lockdown. Table 2 provides some fruitful insights. The great majority of respondents, almost 80%, stated that the pandemic has certainly changed their buying behaviour. More specifically, they increased the quantities of the products they bought (66.4%) during the lockdown period and focused more on sales promotions (73.9%) (Table 2). It is important to underline the fact that the lockdown provided consumers the opportunity to try new brands (25.5%). Of course, one of the most significant effects of the lockdown was the shift to online shopping. Indeed, more than half of the respondents stated that they did their shopping on the Internet. This probably will be one of the most major shifts in the consumer buying journey. A problem that many consumers face is that a lot of businesses and retailers were unprepared to manage the huge number of Internet

Table 2 Consumer behaviour during the lockdown period

	Abs. disagree	Disagree	Neutral	Agree	Abs. agree	$\bar{x}$	σ_X
Our buying behaviour has been affected by Covid-19	1.3	6.4	12.1	59.2	21	3.9	0.84
During lockdown we have increased the quantities of products we buy from supermarket	2.,3	13.3	18.2	45.9	20.4	3.7	1.01
During Covid-19 period and lockdown we shop more by internet	1.9	7.5	14.2	45.5	30.9	3.6	0.91
During the pandemic we purchased new products/ brands for us	4.6	32.9	37.1	22.4	3.1	2.9	0.92
We focus more on promotions this period of Covid-19 crisis	1.7	10.4	29.1	44.8	14	3.59	0.913

transactions. Though consumers wanted to be Internet orientated, the market was unable to provide appropriate e-shop services.

In conjunction with the aforementioned comment about the unpreparedness of e-shop platforms is the following result presented in Table 3: a great proportion of the consumers have not changed the frequency of visiting their local supermarkets to do their shopping (46%). At the same time, the lockdown restrictions saw an increase in their visits, both for shopping and for walking around, as it was one of the only things one was allowed to do during this period. On the other hand, an almost 40% of the respondents preferred to stay more at home and reduce their shopping trips (Table 3).

Table 3 Purchasing behaviour and store visits during the lockdown period

$N = 1603$		Freq.	%
Frequency of shopping visits to Super Market	2–3 times per week	579	36.1
	Once per week	790	49.3
	Every fortnight	208	13.0
	Once per month	26	1.6
Frequency of purchasing in comparison with the pre-coronavirus era	Less frequent	603	37.6
	Same	737	46.0
	More often	263	16.4

5 Discussion and Conclusions

The lockdown led to significant disruptions in consumer behaviour. Panic buying and hoarding led to shortages in certain goods. On the other hand, people refrained from buying automobiles, homes, and appliances, possibly pushing the demand for such goods to the future. Technology has transformed existing consumer behaviour by giving consumers more convenient and accessible shopping experience [8]. For certain products and brands, Covid-19 caused supply-chain disruptions. The unavailability of preferred brands during the crisis made many consumers try different brands. Old consumer habits may never return as people learn to live with a new reality.

The retail sector is of a great importance across the world. Pandemic has dramatically affected the sector, with the shock differing massively regardless the nature of the store (physical stores versus e-shops) and the size of the organizations (small versus large retailers). Retailers have to tackle difficulties to predict an increase or decrease on demand for specific products and low or unstable cashflows.

There are indications that retailers need to accelerate digital transformations in order to meet excessive needs of their consumers, conduct more often surveys to continuously monitoring potential consumer shifts on their behaviour, provide more information about health and safety measures have been undertaken and attempt to build long term relationships with their consumers through an honest interactive communication.

The findings from the current study are consistent with similar studies examining the effect of lockdown on consumer behavior [9–13].

This study has some conceptual and methodological limitations, which nevertheless provide avenues for future research. Foremost among these is the descriptive nature of the study, the source of the questions used, the need of a more robust theoretical construction reflecting consumer behaviour in a better way and probably the potential contribution of a longitudinal study i.e. exploring consumer behavior in different time slots in order to cover any changes and fluctuations. At the same time all these can be areas of further study.

References

1. Johns Hopkins Coronavirus Resource Center (CRC). https://coronavirus.jhu.edu/about
2. WHO (2020) Advice for public. https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public
3. McKinsey & Company (2020) COVID Response Center, Impact on economies. https://www.mckinsey.com/about-us/covid-response-center/covid-19-impact/impact-on-economies#Macroeconomic
4. Accenture.com (2020) https://www.accenture.com/us-en/insights/consumer-goods-services/coronavirus-consumer-behavior-research
5. Social distancing, quarantine, and isolation. In: Psychiatry of pandemics. Springer, Switzerland. https://doi.org/10.1007/978-3-030-15346-5

6. World Health Organization (2020) https://www.who.int/csr/don/05-january-2020-pneumonia-of-unkow n-cause-china/en/
7. Ren S-Y, Gao RD, Chen YL (2020) Fear can be more harmful than the severe acute respiratory syndrome coronavirus 2 in controlling the corona virus disease 2019 epidemic. World J Clin Cases 8:652–657. https://doi.org/10.12998/wjcc.v8.i4.652
8. Sheth J (2020) Impact of Covid-19 on consumer behavior: will the old habits return or die? J Bus Res 117:280–283. https://doi.org/10.1016/j.jbusres.2020.05.059
9. McKinsey & Company (2020) https://www.mckinsey.com/industries/retail/our-insights/how-covid-19-is-changing-consumer-behavior-now-and-forever
10. McKinsey & Company (2020) Consumer sentiment and behavior continue to reflect the uncertainty of the COVID-19 crisis. https://www.mckinsey.com/business-functions/marketing-and-sales/our-insights/a-global-view-of-how-consumer-behavior-is-changing-amid-covid-19
11. McKinsey & Company (2020) Global surveys of consumer sentiment during the coronavirus crisis. https://www.mckinsey.com/business-functions/marketing-and-sales/our-insights/global-surveys-of-consumer-sentiment-during-the-coronavirus-crisis
12. Accenture.com (2020) How COVID-19 will permanently change consumer behaviour. https://www.accenture.com/_acnmedia/PDF-123/AccentureCOVID19-Pulse-Survey-Research-PoV.pdf
13. Kantar (2020) Covid-19 barometer. https://www.kantar.com/Campaigns/Covid-19-Barometer

Intelligent Ticket and its Interaction with Transmedia Content in the COVID-19 Smart Tourism Era

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1 Introduction

The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), commonly known as *COVID-19* or *COVID-19 pandemic*, has been declared one of the biggest threats to global public health by the World Health Organization (WHO) [1], with the virus to has been spread in 114 countries [2]. Governments proposed social distancing measures, massive lockdowns, and travel prohibition [3, 4]. AI and Big Data are used to detect and control virus transmission, such as South Korea's COVID-19 multi-source data app [2]. As well as in culture, remote technological ways: online collections, Virtual Reality (VR), and 360-degree videos, were suggested to enhance the audience [5, 6].

As humanity has slightly passed in the COVID-19 era, many apps based on Bluetooth technology, RFID tags, or Quick Response codes (QR) scanning were proposed [7]. In addition, a pan-European approach, compliant with the EU's GDPR General Data Protection Regulation (GDPR), was supported to use mobile data to locate users' positions and record the user's positivity to the virus [8, 9]. In the same direction, Apple and Google proposed a joint Application Programming

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Interface (API) that lets devices communicate over Bluetooth [10], while some states launched apps based on a different model to the one proposed by the tech giants [11].

ICT promise better experiences [12] and the city's quality of life [13]. RFID, NFC, mobile technologies, IoT, the Internet of Everything (IoE), and fifth-generation technology (5G) can impact the travelers' experience, creating a future touristic framework for the electronic environment of Ambient Intelligence (AmI) [14, 15]. In this context, the prosumption (produce and consume) experience process a "participatory culture" with TM co-created content [16]. According to Paul Rae from the University of Melbourne, TM will be on the rise concerning the post-pandemic audience [17], while the South Indian State, Kerala, develops TM strategies with multiple prints and digital platforms to approach X and Z generations for social impact in order to combat the virus [18].

The research goal of this conceptual paper is to dissect how an intelligent ticket (paper made with the incorporation of NFC technology or solely a digital ticket through an app) could be blended with a user's adaptive personalized TM content into a framework that alerts tourists of social distancing which constitute the central unease in the COVID-19 tourism era, as shown in Fig. 1. Pondering the aforementioned, the objective is predominantly to include a smart ticket which will constitute the leading access point to the user's information safety with keeping social distancing between users. Moreover, to merge the TM experience through co-created content and engage users' experience in the real-world context.

2 Background

2.1 Intelligent Ticket

The ticket's idea is defined as a contract between the provider and the user, and is used mostly in public transportations as a paper ticket or solely digital, under the term "e-ticket" [19]. Paper tickets were the primary to seem and are still broadly

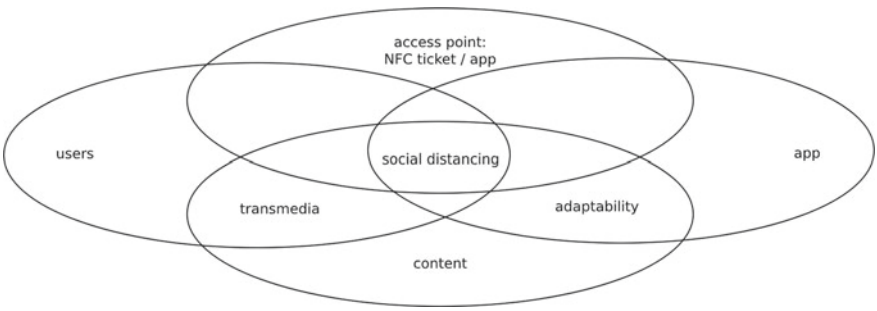

Fig. 1 Presentation of key axes to be considered

utilized worldwide due to the low cost and the combination's ease with other technologies [20]. Nevertheless, in public transport systems, the paper-based ticketing system is considered a financial loss due to the ticket's uselessness after arriving at the destination. For this reason, there is a vast number of choices concerning portable ticketing arrangements, using technologies, such as SMS, Wi-Fi, RFID, NFC, or QR Codes [21], and IoT technologies have been already proposed [22]. Indeed, RFID and NFC communication technologies' emergence enabled the development of contactless cards with many advantages, such as secure data transfer, large memory capacity, and high reliability [20]. The airline industries have also been skeptical about the paper ticketing systems and started to issue online flight tickets and ticket booking apps, which progress smartphones with ICTs to retrieve information about their services [23]. Consequently, the ticket is defined as a capable system to perform intelligent functions with the ability to store and process data [24], enhancing the smart application environment of a SC.

2.2 RFID and NFC Use

RFID's commercial use began more than 20 years ago, and as Nomikos et al. point out, RFID could be at the forefront of communication systems worldwide [25]. RFID also benefits tourism, focusing on data feasibility analysis [26], human interaction, and exposure, combined with smart developments in electronic communication and visitor-tourist management [27]. The RFID system includes a label, a reader, and an antenna, sending continuous waves to identify objects. Tags can be "active" using a transmitter and a battery, "passive" when they need the power source by the reader, and "semi-passive" when the tag needs a battery. RFID frequencies are classified into Low Frequency (LF: 125 kHz $\sim$ 134 kHz), the High Frequency (HF: typically 13.56 MHz), the Ultra-High Frequency (UHF: 860–960 MHz), and the Microwave Frequency (MW: >1 GHz) [28].

NFC is a subset of RFID supporting wireless communication between devices, tags, and smart labels. It is a short-range wireless data transfer technology, allowing data to be exchanged between devices at a distance of about 4 cm [29]. Short distance data exchange is the safest way to transfer data, avoiding data monitoring [30]. NFC technology, combined with technological developments and object interconnection (IoT), is gaining ground, justified by the applications launched in the smart tourism sector [31].

2.3 Smart Tourism

Tourism is a cultural, social, and economic event that depends on technological developments to meet global population growth's emerging needs [32, 33]. Gretzel et al. mention the "smart tourism" concept as a rapidly evolving progress of

traditional tourism [34, 35]. The term "smart," which was coined by Harrison et al. [36], is used to collect and operate real-time data management, adopt multifaceted analytical modeling, visualize and optimize functions. The phenomenon is based almost entirely on cloud computing technology, IoT [37], and sensor-based technology [34], supporting new efficient roles between the city, residents, businesses, and attractions [38]. Smart tourism refers to intelligent destinations [39], special cases of SC, providing real-time feedback data, and ensuring that the next determined decision regarding management or decision making will automatically be better than the previous one [27]. Through new technologies, tourism key concepts and approaches are being redefined [40], while the foundations were laid for the tourists' technological orientation [41]. In general, smart tourism is associated with SC, smartphone apps, smart hotels, smart cards, smart people-citizens, gamification, Augmented Reality (AR), and personalized experiences [42].

2.4 Transmedia in Tourism

The media environment is transformed rapidly by continuous peoples' participation in the content's production. This digital phenomenon is called "Media Convergence" examining the audiences' needs by the possibilities of the media content migration. First cross-media and then TM, emerged by the computing and Human-Computer Interaction (HCI), deliver a story across all media for users' richer entertainment by collecting story pieces [28]. Henry Jenkins, the "TM" term creator in 2003 [43], noted that most TS examples are based on a fictional scenario, while TS is considered mostly a marketing tool [28]. Pervasive and saturated cross-referencing describe the TMs' "DNA" that most of the times are perceived in terms of technological form and narrative content [44], with User Generated Content (UGC) productions through different media and platforms [45], becoming what Pierre Lévy calls "collective intelligence" or what Derrick De Kerckhove calls "connective intelligence" [46]. Considering our work, innovative TM projects have promoted tourist locations and cultural heritage sites, using interactive and immersive platforms through social media and sensors [47]. "Transmedia Tourism" is a term intertwined with the emergence of an economic progression model for sellable goods [48].

3 Conceptual Methodology

The research goal is to understand if NFC technology or a smart mobile app, both used as a touristic ticket, can keep social distancing between tourists in a city context, while TM content is created by their preferences and needs and expectations. That is to say, the complexity of each user is self-determined, constructed on multiple coefficients of individual necessities such as age, educational

background, and more. The framework proposes the digital content's adaptive capabilities, considering a conceptual process where user's needs converge with the city's intelligent functions. In contrast, TM experiences, process mostly interactive conditions through the main app, implementing at the same time social distancing guide tours under the COVID-19 era. The research questions are summarized as follows:

RQ1—What is the impact of an intelligence ticket (NFC technology or app) on the tourist experience in the COVID-19 era?
RQ2—Can TM content deliver a memorable tourist experience while raising awareness towards issues concerning the destination's context?
RQ3—Can tourists' safety, through social distancing, be achieved by the proposed method?

4 Procedure—Use Case

The process is carried out through a multi self-service system that meets all the necessary provision procedures for both parties. Figure 2 embodies the distinction between the two sides interacting and in the middle, the system's crossing point with both fronts. The process begins with the ticket acquisition, either in the

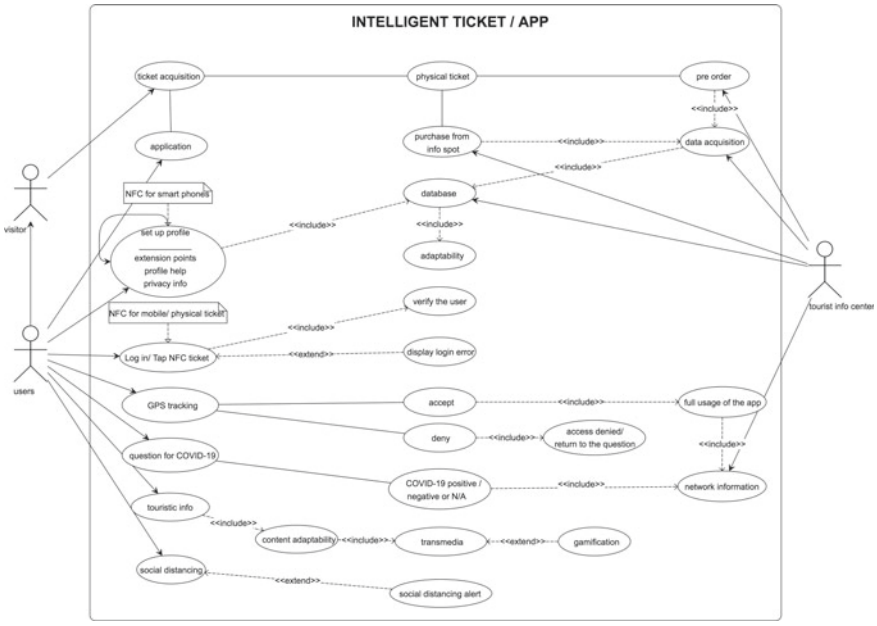

Fig. 2 Stages of use case

physical form through pre-order or as a purchase from an authorized info spot. In both cases, the user must enter his data either via a platform (if pre-ordered) or directly to the info spot. Additionally, the app could be run with no need for the ticket's physical form.

In the physical form, one tap on the mobile device is enough so that all the owner's data are registered and automatically run in the app. However, in the app's case, the user has to enter his details to register him in the database. At this stage, twofold additional possibilities will be offered: a series of additional instructions that will serve him in the possibility he faces some specific difficulties in the data entering or some oddity to be solved, and the details of privacy that the terms and conditions will appear in which the user agrees with the entry of his data in the app. The user will then be identified via email for the last time, which will automatically send the validation and random errors.

Then, the Global Positioning System (GPS) settings need to be accepted to receive information by his location. If the user does not accept this option, the app returns to the question's start point. The next questions concern whether the user had been COVID-19 positive or not. In that case, the user can reply flexibly (Yes, No, N/A). Alternatively, the user will be able to insert into the system whether he has been found positive for the virus after his visit. In any case, a system's automatic update informs other members of the network. In no case, the question is used to target the handler within the social network. His anonymity will be maintained, and there will be a brand update of the rest of the network only if this is deemed necessary or puts the remaining total at risk.

From now on, the app is ready for full navigation. TM aims to bring social change by creating social awareness and enhancing the users' ideas on critical social issues. These Transmedia for Change (T4C) social campaigns could be considered ideal for highlighting the social distancing importance, keeping users in a safe position. This could be practically happening by information on different media channels through the app, supporting location-based Transmedia Gaming (TMG) campaigns, providing UGC content [28]. The app can support applications based on AR, VR (a different headset could be provided by tourist info spot). Consequently, while the users are being informed by the system to keep social distancing, this multifaceted participation provides a more multisensory experience while they are digitally immersed.

In any case, when the user goes to a place that has already reached the maximum passage limit, he will receive a warning message to delay or avoid his visit to the specific place, and it will be suggested another time or an available alternative part. In any case, the user is free to choose what the activity will be and how he will manage each proposal-information that he will receive from the system. The system's primary purpose is to enhance and smoothly carry out operations within a social entire that will prevent any tribulations and improve every member of the network's service and the entire system's efficiency.

5 Discussion and Conclusions

On its face, three fields could be reinforced: the users, the city, and the management organizations. Specifically, public and private sectors such as museums, galleries, public services, and more. The idea of the ticket envisions the SC concept with the usage of the ICT's infrastructures of the SC to allow the whole system to support and be supported by an app that aims at the users' personalized service. Due to the fact that an increasing number of sightseers could easier select to stop over to touristic parts, which propose singular features (e.g., AR and more), through the proposed NFC technology and the app, the dissemination and promotion of the TM content are being attained.

Specific city's processes should be reshaped and highlight their potentials in the part of the cultural heritage. The interaction is the tourist immersion, while time awareness is created towards issues concerning the destination context. Many organizations embrace this methodology, rediscovering the significance of computerized, visual, shrewd, and cross-staged content. In the COVID-19 era, an important issue that needs to be preserved is the critical social distance that brings up the precondition of functionality and works beneficially for all the network's stakeholders safeguarding and the security of the system.

Despite the growing familiarity with AR, its application via NFC is not yet boundless. Before the database's attainment, the expected content needs to be entirely assessed and evaluated. A natural consequence of the above is the difficulty of their organic implementation and the pragmatic viability. The system has to be supported by organizations that will produce the necessary tools for the structures (ticket vending machines, readers provision, maintenance costs, software, and more).

This network performs an alternation from the representative to the virtual, from the formality to the experience. Not all sightseers have the same background, nor do they crave a similar force of data and information. Innovation permits adjusting to each user's style by fusing stories, games, thoroughness, and accounts, all dependent on request. In this way, innovation is comprehended and contributes to a device for structuring experience and intelligence. The practical plan of renewed touristic sights will not originate from supplanting one method of getting things done with another, yet from the concurrence and the blending of all methods of getting things done.

People may not be familiar with the ticket's dual acquisition option (either physical or digital). There is the possibility that many of the users could be reluctant to enter personal data in fear of a possible interception and leak their data to third parties. This process carries the risk of distancing the real immersion from the physical part of the exhibit, while it would be observed a social gap between the users by being exclusively digitally immersed. Finally, the TM scripting process runs the risk of unconventional content, which has to be continuously controlled by the system and the user.

References

1. Chakraborty I, Maity P (2020) COVID-19 outbreak: migration, effects on society, global environment and prevention. Sci Total Environ 728:138882. https://doi.org/10.1016/j.scitotenv.2020.138882
2. Zhou C, Yuan W, Wang J et al (2020) Detecting suspected epidemic cases using trajectory big data. CSIAM Trans Appl Math 1:186–206. https://doi.org/10.4208/csiam-am.2020-0006
3. Mansuri F (2020) Situation analysis and an insight into assessment of pandemic COVID-19. J Taibah Univ Medical Sci 15:85–86. https://doi.org/10.1016/j.jtumed.2020.04.001
4. Gupta M, Abdelsalam M, Mittal S (2020) Enabling and enforcing social distancing measures using smart city and ITS infrastructures: a COVID-19 use case: 1–5. https://arxiv.org/pdf/2004.09246.pdf
5. Staying connected with your audiences (2020) In: American Alliance of Museums. https://www.aam-us.org/programs/about-museums/using-digital-platforms-to-remain-connected-to-audiences-during-quarantines/. Accessed 26 June 2020
6. Museums and COVID-19: 8 steps to support community resilience—ICOM (2020) In: ICOM. https://icom.museum/en/news/museums-and-covid-19-8-steps-to-support-community-resilience/. Accessed 19 June 2020
7. Melluso N, Fareri S, Fantoni G et al. (2020) Lights and shadows of COVID-19, Technology and Industry 4.0: 1–12. https://arxiv.org/pdf/2004.13457.pdf
8. McCall B (2020) Shut down and reboot—preparing to minimise infection in a post-COVID-19 era. Lancet Digit Health 2:e293–e294. https://doi.org/10.1016/s2589-7500(20)30103-5
9. CORDIS | European Commission (2020) In: Cordis.europa.eu. https://cordis.europa.eu/article/id/415926-covid-19-crisis-a-stress-test-for-smart-cities. Accessed 18 June 2020
10. O'Neill P, Ryan-Mosley T, Johnson B (2020) A flood of coronavirus apps are tracking us: now it's time to keep track of them. In: MIT technology review. https://www.technologyreview.com/2020/05/07/1000961/launching-mittr-covid-tracing-tracker/. Accessed 25 June 2020
11. Kelion L (2020) NHS rejects Apple-Google coronavirus app plan. In: BBC News. https://www.bbc.com/news/technology-52441428. Accessed 28 June 2020
12. Buhalis D, Leung D, Law R (2011) eTourism: critical information and communication technologies for tourism destinations. In: Destination marketing and management: theories and applications, pp 205–224. https://doi.org/10.1079/9781845937621.0205
13. Avelar S (2020) From a smart city to a smart destination: a case study. In: Strategic innovative marketing and tourism, pp 7–14. https://doi.org/10.1007/978-3-030-36126-6_2
14. Boes K, Borde L, Egger R (2014) The acceptance of NFC smart posters in tourism. Inf Commun Technol Tourism 2015:435–447. https://doi.org/10.1007/978-3-319-14343-9_32
15. Buhalis D (2019) Technology in tourism-from information communication technologies to eTourism and smart tourism towards ambient intelligence tourism: a perspective article. Tour Rev 75:267–272. https://doi.org/10.1108/tr-06-2019-0258
16. Di Meo C (2017) A digital culture for a smart tourism, 1–5. Trento White Paper https://event.unitn.it/smartcities-trento/TrentoWP_ChiaraDiMeo_1.pdf
17. Rae P (2020) How will the arts recover from COVID-19? In: Pursuit. https://pursuit.unimelb.edu.au/articles/how-will-the-arts-recover-from-covid-19. Accessed 11 July 2020
18. Purayil M, Malakar S (2020) How a tiny South Indian State is using transmedia storytelling to fight COVID-19. In: Thediplomat.com. https://thediplomat.com/2020/04/how-a-tiny-south-indian-state-is-using-transmedia-storytelling-to-fight-covid-19/. Accessed 4 June 2020
19. Ivan C, Balag R (2015) An initial approach for a NFC M-ticketing urban transport system. J Comput Commun 03(06):42–64. https://doi.org/10.4236/jcc.2015.36006
20. Ferreira M, Nóvoa H, Dias T, Cunha J (2014) A proposal for a public transport ticketing solution based on customers' mobile devices. Procedia Soc Behav Sci 111:232–241. https://doi.org/10.1016/j.sbspro.2014.01.056

21. Campos Ferreira M, Dias T, Falcão e Cunha J (2020) Is bluetooth low energy feasible for mobile ticketing in urban passenger transport? Transport Res Interdisc Perspect 5:100120. https://doi.org/10.1016/j.trip.2020.100120
22. Parlika M, Bangar H, Nikhal A et al. (2019) RFID BUS ticketing system. Int J Res Appl Sci Eng Technol 7:818–819. http://doi.org/10.22214/ijraset.2019.12130
23. Mohd Suki N, Mohd Suki N (2017) Flight ticket booking app on mobile devices: examining the determinants of individual intention to use. J Air Trans Manag 62:146–154. https://doi.org/10.1016/j.jairtraman.2017.04.003
24. Panagiotakopoulos D, Dimitrantzou K (2020) Intelligent ticket with augmented reality applications for archaeological sites. In: Strategic Innovative Marketing and tourism, pp 41–49. https://doi.org/10.1007/978-3-030-36126-6_6
25. Nomikos S, Kordas A, Mountzouri A, Nomikou M G, Benia S (2014) Why RFID, will become one of the biggest communicational system in the world? In: 2015 13th flexible and printed electronics conference and exhibition (2014FLEX). Phoenix, Arizona, USA: Curran Associates, Inc. Vol 1, pp 460–472. ISBN: 978-1-63439-625-7
26. Li J, Xu L, Tang L et al (2018) Big data in tourism research: a literature review. Tour Manag 68:301–323. https://doi.org/10.1016/j.tourman.2018.03.009
27. Mountzouri A, Papapostolou A, Nomikos S (2020) Intelligent packaging as a dynamic marketing tool for tourism. In: Strategic innovative marketing and tourism, pp 31–40. https://doi.org/10.1007/978-3-030-36126-6_5
28. Panagiotakopoulos D (2020) Introducing intelligent ticket's dual role in degraded areas: electronic monitoring of crime and transmedia content presentation to users. In: Leoni G, Mirabile M, La Spina A, Cabras E (ed) Gentrification & crime: new configurations and challenges for the city, pp 52–78, BK BOOKS. ISBN 9789463663229. https://books.bk.tudelft.nl/index.php/press/catalog/book/771
29. Aristova U, Rolich A, Staruseva-Persheeva A, Zaitseva A (2018) The use of internet of things technologies within the frames of the cultural industry: opportunities, restrictions, prospects. In: Communications in computer and information science, pp 146–161. https://doi.org/10.1007/978-3-030-02846-6_12
30. Harrop P, Das R, Holland G (2020) Near field communication (NFC) 2014–2024. In: IDTechEx. http://www.idtechex.com/research/reports/near-field-communication-nfc-2014-2024-000363.asp. Accessed 8 April 2020
31. Pesonen J, Horster E (2012) Near field communication technology in tourism. Tour Manag Persp 4:11–18. https://doi.org/10.1016/j.tmp.2012.04.001
32. 2020) Glossary of tourism terms | UNWTO. In: Unwto.org. https://www.unwto.org/glossary-tourism-terms. Accessed 12 July 2020
33. Vasavada M, Padhiyar Y (2016) "Smart Tourism": growth for tomorrow. J Res 1:55–61
34. Gretzel U, Sigala M, Xiang Z, Koo C (2015) Smart tourism: foundations and developments. Electron Markets 25:179–188. https://doi.org/10.1007/s12525-015-0196-8
35. Garcia L, Aciar S, Mendoza R, Puello J (2018) Smart tourism platform based on microservice architecture and recommender services. In: Mobile web and intelligent information systems, pp 167–180. https://doi.org/10.1007/978-3-319-97163-6_14
36. Harrison C, Eckman B, Hamilton R, Hartswick P, Kalagnanam J, Paraszczak J, Williams P (2010) Foundations for smarter cities. IBM J Res Dev 54(4):1–16
37. Liu T, Wei B (2015) Digital publishing to create "Smart Tourism". LISS 2014:1733–1738. https://doi.org/10.1007/978-3-662-43871-8_249
38. Gretzel U, Zhong L, Koo C (2016) Application of smart tourism to cities. Int J Tourism Cities. https://doi.org/10.1108/ijtc-04-2016-0007
39. Buhalis D, Amaranggana A (2014) Smart tourism destinations enhancing tourism experience through personalisation of services. Inf Commun Technol Tourism 2015:377–389. https://doi.org/10.1007/978-3-319-14343-9_28
40. Kontogianni A, Alepis E (2020) Smart tourism: state of the art and literature review for the last six years. Array 6:100020. https://doi.org/10.1016/j.array.2020.100020

41. Buhalis D (2003) eTourism: Information technology for strategic tourism management. Pearson, Harlow, Essex
42. Wang X, Li X, Zhen F, Zhang J (2016) How smart is your tourist attraction? Measuring tourist preferences of smart tourism attractions via a FCEM-AHP and IPA approach. Tour Manag 54:309–320. https://doi.org/10.1016/j.tourman.2015.12.003
43. Davidson D (2010) Cross-media communications: an introduction to the art of creating integrated media experiences. Carnegie Mellon University, ETC Press, Pittsburgh, PA
44. Dholakia N, Reyes I, Kerrigan F (2018) Transmedia perspective on entrepreneurship. In: The Palgrave handbook of multidisciplinary perspectives on entrepreneurship, pp 337–354. https://doi.org/10.1007/978-3-319-91611-8_16
45. Rampazzo Gambarato R (2013) Transmedia project design: theoretical and analytical considerations. Baltic Screen Media Rev 1:80–100. https://doi.org/10.1515/bsmr-2015-0006
46. Paiano A, Passiante G, Valente L, Mancarella M (2017) A hashtag campaign: a critical tool to transmedia storytelling within a digital strategy and its legal informatics issues: a case study. In: Tourism, culture and heritage in a smart economy, pp 49–71. https://doi.org/10.1007/978-3-319-47732-9_4
47. Valentina N, Dionisio M, Silva C, Nunes N (2020) Leveraging transmedia storytelling to support awareness about natural and cultural heritage of a peripherical tourist destination island, pp 1–5. http://nht.ecs.soton.ac.uk/2018/papers/2-vnisi.pdf
48. Garner R (2019) Editorial: transmedia tourism. JOMEC J 14:1–10. http://doi.org/10.18573/jomec.194

Area of Residence Differences in COVID-19 Effect on Greek Citizens' Life

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1 Introduction

The COVID 19 disease was first detected in Wuhan, China in December 2019, liable to the SARS-CoV-2 virus [1, 2]. It spread quickly throughout, and in March 2020, it had progressed to a pandemic [3]. Transmission of the SARS-CoV-2 virus is exceptionally easy in various ways, and this is the reason for its worldwide spread. The main transmission paths are through droplet (fecal-oral transmission) and contact transmission, i.e., contact with contaminated surfaces [4, 5]. The most common symptoms of COVID-19 are fever, cough, dyspnea, myalgia, and fatigue [6, 7]. As of 27-9-2020, COVID-19 resulted in worldwide 32,844,938 confirmed cases and 994,216 deaths [8], while for Greece, the instances were 17,228 resulting in 376 deaths for the same period. Due to COVID-19, significant governmental impacts are reported, such as economic impacts [9], impacts on the social life [10], and the health care system [11].

Additionally, on the individual level, some of the effects are unemployment [12] as well as impact on emotional and mental health [13]. Examples consist of the impact of COVID-19 on anxiety [14], fear [15], and panic attacks [13]. Even more, COVID-19 increased domestic violence [16] and raised suicide rates [12].

While the above effects are profoundly severe and challenging to reduce, everyday effects from COVID-19 is also essential to explore, since these small every day affects are the ones that "pile-up," trigger anxiety, fear, panic, and violence. Under this frame, this paper has as its scope to explore if the COVID-19 outbreak has affected Greek peoples' everyday life—a topic scarcely researched [17]. It draws data from Greece and has two objectives. It explores what area of the

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citizens' everyday life the outbreak has affected and examines if citizens from different areas of residence (urban vs. rural) are equally affected in their daily lives by the COVID-19 outbreak.

2 Materials and Methods

A questionnaire was developed especially for this purpose, based on qualitative research and literature review [e.g., 9, 10]. The questionnaire addressed different issues regarding COVID-19 and citizens' behavior. Only the questions directly in line with the paper's aim and objectives will be presented. Two questions are offered and analyzed. The first (and control) question was presented as "How much did the Covid-19 outbreak affect your daily life?". The answer was presented on a seven-point Likert type scale (1 = not at all up to 7 = very much). The second question presented ten aspects of life that the COVID-19 could affect a citizen's life. The question was presented as: "Please rate your agreement with the following statements regarding the areas of your life affected by the COVID-19 outbreak". The answers were offered on a seven-point Likert scale (1 = Strongly disagree, 2 = Disagree, 3 = Somewhat disagree, 4 = Neither agree nor disagree (neutral), 5 = Somewhat agree, 6 = Agree, 7 = Strongly agree). The questionnaire was pilot tested and distributed through different channels, implementing the Kamenidou et al. [3] procedure. The field research took place from March 1 to May 13, 2020. A total of 3359 citizens completed the questionnaire and were included for analysis. Data Analysis included descriptive statistics and t-tests for hypothesis testing (a = 0.05).

3 Results—Discussion

3.1 Sample Profile

Gender was almost equally represented (males: 48.2% and females 51.8%), with the mean age of participants being 45.4 years old. In their majority, they were married (47.5%) or single (40.9%), with at least a university education (45.7%). They were employees (37.0%) or dependent on others (31.0%) in the majority, with a monthly personal net income of 350–1000.00€ per month (50.1%). Lastly, 59.6% of the sample reside in urban and 40.4% in rural areas.

3.2 Assessment of the Effect of COVID-19 in Everyday Life

Concerning the first research objective, which is the effect of the disease on Greek citizens' everyday life, results showed the following. Almost seventy percent of the total sample stated that COVID-19 had affected very much, or much, their daily life, 16.7% was neutral, and 13.4% indicated that they were not affected. Accordingly, a ten-item question was presented and requested citizens to express their degree of agreement regarding if COVID-19 affected each of the presented item-area of their daily lives (Table 1). In Table 1, the first row's numbers (1–7) represent each point of the Likert Scale, the mean score of the item (MS), while the numbers in the rows 1–7 are percentages.

Results of Table 1 reveal that COVID-19 affected citizens' everyday life regarding fun-relaxation, such as window shopping, walk at the marketplace, walk/strolling (in general), coffee with friends, and eating out (MS = 5.2). The second area affected by COVID-19 was participating in social events such as birthdays, weddings, funerals, and anniversaries (MS = 5.00), followed by the health sector (MS = 4.8). Specifically, citizens avoided going to the hospital due to several reasons. Firstly, doctors were not accepting cases, whereas surgeries were postponed where applicable. Secondly, hospitals were understaffed of the medical staff since healthcare providers were repositioned to units of COVID-19. Lastly, citizens decided not to take the risk of going to their doctor's appointment if the case is not crucial and can be delayed because they fear that they will be infected by the virus (MS = 4.8). This study's results, as mentioned above, are aligned with other researchers [17] who supported that citizens limited their visits to friends and relatives, their appointments with doctors, and grocery shopping due to the disease.

The areas of everyday life that were the least affected by COVID-19 is access to food (MS = 4.1), transportation (MS = 4.2), and shopping for non-food products (MS = 4.3). This result was expected since the only shops that were functioning were supermarkets and pharmacies, with both having home-delivery. Additionally, since restriction at home was requested, public transportation was used only for those whose company did not adopt work from home. Lastly, as regards shopping for non-food products, COVID-19 forced companies that did not utilize internet shopping platforms to do so, in order to retain their customers.

3.3 Area of Residence Effect on Everyday Life Due to COVID-19

Area of residence differences regarding the effect of COVID-19 on daily life—which constitutes the second research objective—was examined by implementing t-tests for independent samples (SPSS vs. 25) for the control question and the ten "areas" of daily life explored. The results of group statistics (urban vs. rural area of

Table 1 Aspects of daily life affected by COVID-19 in percentages and means

Statements	1	2	3	4	5	6	7	MS
Fun-relaxation (window shopping, walk at the marketplace, walk/strolling in general, coffee with friends, eating out, etc.)	5.2	5.4	6.8	10.6	13.9	24.1	34.0	5.3
Work (reduction of hours, job loss, closing a business, etc.)	17.1	8.1	7.0	13.9	12.0	17.1	24.7	4.5
Food (I do not have access to food)	13.2	12.7	11.6	18.2	16.0	16.2	12.1	4.1
Shopping (e.g., clothing—footwear: I cannot buy clothes and shoes from stores, due to the lockdown)	11.9	11.9	10.1	18.3	14.3	14.1	19.3	4.4
Transportation (e.g., I do not take a taxi, I do not use public transport, etc.)	16.8	9.9	9.0	14.4	14.7	17.1	18.2	4.2
House expenses (e.g., excessive purchase of detergents, medical alcohol, wipes, etc.)	10.5	10.2	10.8	20.0	18.0	17.1	13.3	4.3
Health (doctors do not accept cases, hospitals are understaffed, I do not do tests except when I start to fear that I have something, I do not do the annual check-ups, etc.)	9.3	8.0	7.1	14.5	14.6	21.2	25.2	4.8
Education and education services (the lessons are not done with the same depth and intensity as they are done in class and in person, schools are closed, I cannot send my children to schools, etc.)	13.2	7.8	6.9	15.3	13.0	18.8	24.9	4.6
Holidays (e.g., I cannot go on vacation, there are no hotels open)	10.5	6.3	8.1	15.0	13.3	17.3	29.4	4.7
Social life-events (e.g., birthdays, weddings, funerals, anniversaries, social events)	7.9	5.7	7.8	13.2	14.9	20.2	30.3	5.0

residence) revealed that in all cases, the citizens residing in urban areas had higher mean scores than the citizens living in rural areas (Table 2).

Table 3 presents the independent sample t-test for the effect of COVID-19 on people's everyday lives and the ten domains of life that COVID-19 has affected (equal variances assumed). The t-tests revealed that for eight out of eleven settings, area of residence differences does exist.

Specifically, no area of residence differences was detected regarding the COVID-19 outbreak and its impact on citizens' work, transportation, and shopping. These results are justified by the fact that as regards employment, in urban areas, telework was implemented, while in rural areas, farmers had a written pass to go to their farms or animal breeding units. Transportation was not affected because, in cities, public transportation was used by very few people who did not work from

Table 2 Group statistics regarding citizens' area of residence and COVID-19 effects

	Urban–rural	*N*	Mean	Std. deviation	Std. error mean
Has affected my daily life	Urban	2002	3.884	1.0205	0.0228
	Rural	1357	3.773	1.1151	0.0303
Fun-relaxation	Urban	2002	5.440	1.7613	0.0394
	Rural	1357	5.112	1.8178	0.0493
Work	Urban	2002	4.503	2.2095	0.0494
	Rural	1357	4.393	2.1355	0.0580
Food	Urban	2002	4.264	1.8715	0.0508
	Rural	1357	3.958	1.9512	0.0436
Shopping	Urban	2002	4.342	2.0271	0.0453
	Rural	1357	4.256	1.9633	0.0533
Transportation	Urban	2002	4.252	2.1329	0.0477
	Rural	1357	4.228	2.0465	0.0556
House expenses	Urban	2002	4.407	1.8061	0.0490
	Rural	1357	4.216	1.8851	0.0421
Health	Urban	2002	4.930	1.8921	0.0514
	Rural	1357	4.739	1.9983	0.0447
Education and education services	Urban	2002	4.740	2.0815	0.0465
	Rural	1357	4.475	2.0521	0.0557
Holidays	Urban	2002	5.022	1.9583	0.0438
	Rural	1357	4.567	2.0626	0.0560
Social life-events	Urban	2002	5.158	1.8680	0.0417
	Rural	1357	4.854	1.9418	0.0527

home and did not have another alternative way to commute (e.g., car, bicycle, or motorcycle). On the other hand, citizens of rural areas have their vehicles or tractors or even go by foot to their farms. Lastly, while all shops were closed, shopping via the internet was applicable by citizens with home delivery, so shopping for non-food products could be done.

In contrast, area of residence differences was detected regarding the COVID-19 outbreak and its impact on citizens' everyday life, on the fun-relaxation, food, house expenses, health, education and education services, holidays, and social life-events (Table 2), within all cases urban citizens being more affected than rural citizens. These results cannot be directly compared to previous academic studies since no study was found that refers to the area of residence differences and COVID-19 outbreak regarding issues of everyday life.

Though, Kamenidou et al. [3], in their study segmenting citizens based on proactive practices in the COVID-19 outbreak, found that the segments with high percentages of people residing in rural areas were less complying with proactive measures. This behavior was justified because people in rural places know whom everyone gets in contact with and are not so worried about their counterparts as

Table 3 Independent samples test

	Levene's test for equality of variances		t-test for equality of means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean difference	Std. error difference	95% confidence interval of the difference	
								Lower	Upper
Has affected my daily life	31.068	0.000	2.968	3357	0.003	0.1106	0.0373	0.0375	0.1836
Fun-relaxation	1.798	0.180	5.228	3357	0.000	0.3280	0.0627	0.2050	0.4511
Work	7.603	0.006	1.444	3357	0.149	0.1107	0.0767	−0.0396	0.2610
Food	2.578	0.108	−4.530	3357	0.000	−0.3058	0.0675	−0.4381	−0.1734
Shopping	3.358	0.067	1.218	3357	0.223	0.0857	0.0704	−0.0523	0.2237
Transportation	7.776	0.005	.316	3357	0.752	0.0233	0.0738	−0.1214	0.1680
House expenses	3.764	0.052	−2.930	3357	0.003	−0.1910	0.0652	−0.3188	−0.0632
Health	15.246	0.000	−2.780	3357	0.005	−0.1912	0.0688	−0.3261	−0.0564
Education and education services	1.813	0.178	3.634	3357	0.000	0.2644	0.0728	0.1218	0.4071
Holidays	15.895	0.000	6.467	3357	0.000	0.4550	0.0704	0.3171	0.5930
Social life-events	6.453	0.011	4.551	3357	0.000	0.3038	0.0667	0.1729	0.4346

those in urban areas. Additionally, they are mostly farmers or have nature-related work, whereas working in nature relieves stress, while they do not feel so isolated. In the Greek culture, in villages and towns, one resident gives some of their agricultural produce to friends and relatives. Therefore, they do not fear like citizens in urban places do, that packages or products are contaminated, and every product bought is washed thoroughly to avoid contamination from unknown handling.

4 Conclusions: Limitations-Directions for Future Research

The present research displayed insight into the impact of the COVID-19 outbreak on Greek citizens' daily life in regard to the area of residence. Direct comparisons of this study's results with previous ones cannot be done since the authors did not find a study that refers to the area of residence effects and COVID-19 and everyday life issues. In general, though, this research confirms the data of other studies that show that COVID-19 has an impact on social life and the health care system [10, 11] since results showed that fun-relaxation, participation in social events (weddings, birthdays) and meetings with friends were significantly affected by COVID-19. This research also showed that residence areas affect the "health" sector of everyday life due to COVID-19 since citizens did not visit the hospitals for scheduled appointments, and most of the surgeries were postponed. Moreover, this study tested the hypothesis that the impact of COVID-19 on everyday life is affected by citizens' area of residence. The findings support that in almost all cases, urban citizens are more affected in their daily life by COVID-19 as compared to rural citizens. This research's results can be utilized for communication strategies towards people in urban and rural areas to overcome the emotional pressure of isolation in times of the outbreak. Based on these areas of residence differences, specific communication routes should be implemented for moderating the psychological pressure of isolation. Therefore, communication messages should emphasize that the restriction measures are not only important for personal protection but also for the protection of others, aiming at a greater societal goal [3]. Trust in the measures should be established, as well as the fact that strict restrictions are essential for a limited period to return to normality and avoid long-term actions and consequences. The specialized support services that were initiated to address the situation should also be communicated. Individuals should be encouraged to use these services, share their concerns, and speak with professionals when they feel in need.

An indirect finding of the research is that citizens in rural areas believe they are safer than those living in urban places. For so, they are not so affected as their counterparts living in the cities (even though there have been lockdowns in small counties in Greece due to COVID-19). These results should be taken into consideration by public authorities. The feeling of "false security" can lead to higher

contamination levels in these places, with serious consequences, especially since rural areas lack the necessary health infrastructure, while mostly elderly citizens inhabit.

Communication messages and information provided as news content by media organizations should highlight the importance of proactive measures, such as social distancing, in larger cities and rural areas. Communication should aim to raise awareness of the inhabitants of these areas regarding the difficulty of having immediate access to specialized hospitals and medical care and informing them about the easiness of contamination even in smaller-scale social events. It should also communicate without inducing fear and anxiety. Small-scale social events, though, can be participated if the necessary proactive measures are applied. However, the use of social media platforms for personal communication could also be suggested to use, such as messenger and video calls instead of friendly gatherings. Everyday routines like walking can be done with safety measures. Finally, a combination of media with heavy use of traditional and digital paths and local media should be employed to inform without reproducing fear or panic but pointing out the logical and safe way of living in this crisis.

In conclusion, effective communication is essential in health crises [18, 19], such as COVID 19. Targeted communications should be employed to inform citizens better, encourage them to take proactive measures, protect them from misinformation, and, therefore, contribute to the community's protection.

This research has the following limitations, which future research can minimize: application of a non-probability sampling method, lack of the ability of generalization of findings, small sample compared to other studies, and few variables tested (originating from qualitative research and literature review).

Although this study has the limitations mentioned above, its contribution to academic research is significant since it offers valuable information about the COVID-19 disease and its impact on citizens' daily lives and differences depending upon the area of residence, i.e., of urban and rural Greek citizens. This aspect of COVID-19 has not been studied to our knowledge, while it also provides managerial suggestions of communication to moderate anxiety and pressure during the lockdown.

References

1. Wu JT, Leung K, Bushman M, Kishore N, Niehus R, de Salazar PM, Cowling BJ, Lipsitch M, Leung GM (2020) Estimating clinical severity of COVID-19 from the transmission dynamics in Wuhan, China. Nat Med 26(4):506–510. https://doi.org/10.1038/s41591-020-0822-7
2. Velavan TP, Meyer CG (2020) The COVID-19 epidemic. Tropical Med Int Health 25(3):278. https://doi.org/10.1111/tmi.13383
3. Kamenidou IE, Stavrianea A, Liava C (2020) Achieving a Covid-19 free country: citizens preventive measures and communication pathways. Int J Environ Res Public Health 17 (13):4633. https://doi.org/10.3390/ijerph17134633

4. Gu J, Han B, Wang J (2020) COVID-19: gastrointestinal manifestations and potential fecal–oral transmission. Gastroenterology 158(6):1518–1519. https://doi.org/10.1053/j.gastro.2020.02.054
5. Peng X, Xu X, Li Y, Cheng L, Zhou X, Ren B (2020) Transmission routes of 2019-nCoV and controls in dental practice. Int J Oral Sci 12(1):1–6. https://doi.org/10.1038/s41368-020-0075-9
6. Li LQ, Huang T, Wang YQ, Wang ZP, Liang Y, Huang TB, Zhang H-y, Sun W, Wang Y (2020) COVID-19 patients' clinical characteristics, discharge rate, and fatality rate of meta-analysis. J Med Virol 92(6):577–583. https://doi.org/10.1002/jmv.25757
7. Gautret P, Lagier JC, Parola P, Meddeb L, Mailhe M, Doudier B et al (2020) Hydroxychloroquine and azithromycin as a treatment of COVID-19: results of an open-label non-randomized clinical trial. Int J Antimicrob Agents, 105949. https://doi.org/10.1016/j.ijantimicag.2020.105949
8. JHU (2020) COVID-19 dashboard by the center for systems science and engineering (CSSE), John Hopkins University. Available online: http://coronavirus.jhu.edu/map.html. Accessed 27 July 2020
9. McKibbin W, Fernando R (2020) The economic impact of COVID-19. Econ Time COVID-19, 45
10. Cohen J, Kupferschmidt K (2020) Countries test tactics in 'war' against COVID-19. https://science.sciencemag.org/content/367/6484/1287.full
11. Bartsch SM, Ferguson MC, McKinnell JA, O'Shea KJ, Wedlock PT, Siegmund SS, Lee BY (2020) The potential health care costs and resource use associated with COVID-19 in the United States: a simulation estimate of the direct medical costs and health care resource use associated with COVID-19 infections in the United States. Health Affairs, 10-1377. https://doi.org/10.1377/hlthaff.2020.00426
12. Kawohl W, Nordt C (2020) COVID-19, unemployment, and suicide. Lancet Psychiatry 7(5):389–390. https://doi.org/10.1016/S2215-0366(20)30141-3
13. Ho CS, Chee CY, Ho RC (2020) Mental health strategies to combat the psychological impact of COVID-19 beyond paranoia and panic. Ann Acad Med Singapore 49(1):1–3
14. Huang Y, Zhao N (2020) Generalized anxiety disorder, depressive symptoms and sleep quality during COVID-19 outbreak in China: a web-based cross-sectional survey. Psychiatry Res, 112954. https://doi.org/10.1016/j.psychres.2020.112954
15. Ornell F, Schuch JB, Sordi AO, Kessler FHP (2020) "Pandemic fear" and COVID-19: mental health burden and strategies. Braz J Psychiatry 42(3):232–235. https://doi.org/10.1590/1516-4446-2020-0008
16. Mazza M, Marano G, Lai C, Janiri L, Sani G (2020) Danger in danger: interpersonal violence during COVID-19 quarantine. Psychiatry Res, 113046. https://doi.org/10.1016/j.psychres.2020.113046
17. Papathanassopoulos S, Armenakis A, Karadimitriou A (2020) The Greeks and Coronavirus: a country in unique conditions. Available online: https://medianalysis.net/2020/04/29/erevna-ellines-koronoios/?fbclid=IwAR0IIapBEUMNGYN-eYDvxGdMNXk7Ozs_lWWnYYsR-DtYrRk7RODEzyqnUoA. Accessed 14 August 2020
18. Garfin DR, Silver RC, Holman EA (2020) The novel coronavirus (COVID-2019) outbreak: amplification of public health consequences by media exposure. Health Psychol 39:355–357. https://doi.org/10.1037/hea0000875
19. Kavoura A, Stavrianea A (2015) The importance of social media on holiday visitors' choices-the Case of Athens, Greece. EuroMed J Bus 10(3):360–374

Consumers Under Lockdown: Self-Gifting and Mood Alleviation

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1 Introduction

In March 2020, the world as we knew it changed abruptly: with several governments globally imposing lockdown measures to mitigate rising Covid-19 infection threats, individuals worldwide increasingly found themselves dealing with the novel and unprecedented reality of being confined within their own homes and experiencing negative moods due to stress and life events related to the lockdown [1]. Although individuals are imbued with normal mood regulation mechanisms that lead them to engage in activities to improve their negative mood [2], Guy Goodwin, Professor Emeritus of Psychiatry, University of Oxford noted that "[…] in our current situation with COVID-19, lockdowns and social isolation our choice of activity is very limited" [3]. Indeed, isolated individuals seemed to intuitively resort to mood-regulating activities that they could engage in from the safety of home. A yet unpublished study by the Goldsmiths University of London showed that in most cases when people listened to music during the lockdown, they were looking to manage their mood [4]. When it comes to consumer behavior during the lockdown, though academic research on the topic is yet to be published, studies by research and consulting firms hint that individuals' consumption behavior during the lockdown might have been associated with their attempts to regulate their negative mood. It is illustrative that, in a survey on a large sample of adults in the UK, findings indicated that many locked-down individuals turned to purchasing non-essential items for purposes of entertainment or simply out of boredom [5]; furthermore, another study found that habitual consumption and non-consumption related activities which could create positive feelings were employed as a means to

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fight negative feelings from the pandemic and the lockdown [6]. Within academia, these unprecedented changes have spurred numerous calls for timely research on consumption during the pandemic; it is characteristic that many leading journals have issued calls for papers for relevant special issues [7–9]. The present paper aims at addressing this need for research through examining self-gifting behaviors during the lockdown and their relationship to mood alleviation activities. The section that follows reviews relevant literature on the self-gifting for mood regulation.

2 Literature Review

2.1 Mood Regulation and Consumption

Within consumer research, moods (i.e. generalized feeling states [10]) have long been acknowledged as a crucial force affecting consumer behavior, yet their examination from a motivational standpoint is relatively recent [11]. It is generally well-documented that mood affects behavior, though different theoretical accounts have been put forward to illuminate underlying mechanisms; two of the most prevalent accounts are: mood congruence, that purports that consumers make choices which are attuned with their mood, and mood regulation, that argues that individuals employ different means to regulate (deliberately affect) their mood states [12]. Mood-regulation derives from self-regulation (i.e. the act of controlling one's self to achieve an intended outcome or goal [13]) and it refers to the individual's mood-driven activities which are explicitly undertaken to maintain their felt positive mood or relieve their felt negative mood [14]. Among the ways through which individuals try to regulate their moods, consumption-related activities (e.g. listening to music, shopping) are prevalent, hence the notion of "feel-good" or "mood-lifting" products which have been empirically proven to be used for mood regulation purposes [15, 16].

2.2 Mood-Regulatory and Mood-Alleviative Self-Gifting

Self-gifts are defined as purchases (of products, services and experiences) that consumers *identify* as gifts to themselves [17]. Self-gifting has been a topic of interest in consumer research since the 1990s, with Mick and DeMoss (1990) identifying two important contexts for self-gifting: *reward* and *therapy* [18]. Subsequent research has uncovered various motives and consumption contexts: consumers have been reported to engage in self-gifting as a reward for personal achievements [19], as a way to maintain or reconstruct their identity [20], as a form of self-indulgence [21] or even expression of romantic love to their hidden selves [22], hedonically (because "it feels good") [23], or as a means to enhance their

positive mood or alleviate their negative mood [24]. For the purposes of the present paper, we focus on the latter *mood-regulatory* perspective which views self-gifting behavior as a deliberate and conscious process; according to this view, consumers engage in a variety of consumption activities in their attempts to regulate their moods and self-gifting is one of the most predominant behaviors [14].

Corresponding mood-regulating activities can be consumption-related, such as consumers buying something nice for themselves or their homes, going shopping or browsing in stores [25]. It has been argued that there are individual differences in mood-regulatory self-gifting (some consumers can be characterized as "intensively consumption-oriented mood-regulators" and others as "moderately consumption-oriented mood-regulators") and that mood-maintaining self-gift behaviors stem from different antecedents than mood-reparatory (or mood-alleviative) ones [25]. Given the topic of the present paper, as well as the attested paucity of empirical research in this direction [24], we are more interested in mood-alleviative (mood-reparatory) self-gifting behavior, i.e. consumption-related activities that are self-directed and aim at improving one's negative mood states. Mood-alleviative behavior can encompass diverse activities directly or indirectly related to consumption (buying clothes is a typical activity for the former while watching a movie and listening to music is representative of the latter) [26]. Three types of negative moods have been linked to mood-alleviative consumption: irritation, stress and dejection [27].

2.3 Consumer Behavior in Times of Hardship

Research on consumer behavior in times of hardship indicates that shopping patterns generally adapt, though there are individual differences in adaptation strategies. One study examining such patterns after the recent economic recession found that the reduction in impulse purchasing and the turn toward more planned purchases is one of the most prevalent adaptations [28]. Yet, consumption patterns are not similarly affected by different crises; the nature of the crisis, the extent to which the crisis is country specific and cultural factors diversely affect consumption patterns [29]. For instance, in a study investigating buying behaviors as a form of coping with a natural disaster, it was found that "to improve negative mood states, respondents […] appear to have actively made purchases that were perceived as gifts" (p. 55) [30]. Several consumption-related activities have been proposed to operate as coping strategies for consumers faced with stress induced by life events, among which: planning or remodeling one's home, listening to music, materialism and shopping [31]. The section that follows aims at capitalizing on these theoretical insights to formulate testable hypotheses.

3 Research Questions and Hypotheses

Following the above discussion, we set forth to examine two important dimensions of self-gifting consumer behavior during the lockdown (see Table 1): the first dimension relates to mapping consumer self-gifting propensity and activities they engage in for mood alleviation purposes (RQ1, RQ2) and the second dimension regards potential individual differences in self-gifting behavior during the lockdown (RQ3). We posit that consumers under lockdown will be more likely to engage in self-gifting activities in order to alleviate their negative moods (H1) and that this shift in consumption patterns during the lockdown leaves a lasting 'imprint' on self-gifting behavior in general (H2). Further, we expect that, due to the widespread effect of the lockdown on consumers' moods and their heightened need to engage in mood-alleviative behaviors, we will find no significant differences in consumers with diverse personality characteristics that have been proposed to otherwise affect mood-alleviative self-gifting [25]. These hypotheses were tested through a study, discussed in the following section.

4 Methodology

An online survey was administered to a convenience sample of Greek adults in May–June 2020. The questionnaire included items designed to assess the focal constructs: (1) item to assess propensity for self-gifting [32], (2) items to capture propensity for self-gifting for mood regulation and propensity for self-gifting for mood alleviation during the lockdown adapted from similar measures [33], as well as established psychometric scales to assess personal characteristics that have been linked to differences in self-gifting behavior for mood regulation (ability to regulate mood states [33], self-control: impulse control and self-discipline [34]). All multi-item scales were subjected to Principal Components Analysis and had good reliability (Cronbach's a values ranging from 0.756 to 0.853). At the time of submission, data collection is still ongoing; for the purposes of the present paper, we pooled and analyzed the data from 118 completed questionnaires (60.2% female, 78% aged 30–49) to extract some preliminary findings. Due to space constraints, these findings are summarily presented in the final section.

5 Findings and Discussion

Preliminary findings confirm our central hypothesis (H1), with the mean propensity for self-gifting for mood alleviation during the lockdown ($M = 1.95$, $SD = 1.124$) being higher than participants' general propensity for self-gifting for mood alleviation ($M = 1.69$, $SD = 1.002$), $t(117) = -2.513$, $p < 0.05$. As for activities

Table 1 Research questions and hypotheses

Research questions	Hypotheses
RQ1: How does consumers' propensity for self-gifting for mood alleviation during the lockdown period relate to general propensity for self-gifting for mood regulation?	H1: Propensity for self-gifting for mood alleviation during the lockdown period will be higher than general propensity for self-gifting for mood regulation
	H2: Consumers' Mood Alleviation frequency during the lockdown will positively affect their general Propensity for self-gifting for mood regulation through Propensity for self-gifting for mood alleviation during the lockdown period
RQ2: Which are the key activities consumers engaged in during the lockdown as self-gifts for mood alleviation?	
RQ3: Are there differences in self-gifting consumer behavior during the lockdown due to personality characteristics (ability to regulate mood, impulse control, self-discipline)?	H3a: The frequency of engaging in mood alleviative activities during the lockdown of consumers with a high ability to regulate mood will not differ significantly from that of consumers with low ability to regulate mood
	H3b: Propensity for self-gifting for mood alleviation during the lockdown of consumers with a high ability to regulate mood will not differ significantly from that of consumers with low ability to regulate mood
	H4a: The frequency of engaging in mood alleviative activities during the lockdown of consumers with high impulse control will not differ significantly from that of consumers with low impulse control
	H4b: Propensity for self-gifting for mood alleviation during the lockdown of consumers with high impulse control will not differ significantly from that of consumers with low impulse control
	H5a: The frequency of engaging in mood alleviative activities during the lockdown of consumers with high self-discipline will not differ significantly from that of consumers with low self-discipline
	H5b: Propensity for self-gifting for mood alleviation during the lockdown of consumers with high self-discipline will not differ significantly from that of consumers with low self-discipline

undertaken as self-gifts for mood alleviation during the lockdown (RQ2), although watching movies (83.1%) and listening to music (78.0%) are the most popular activities, browsing in online shops (61.9%) and buying something nice for themselves (42.4%) or their homes (49.2%) were also engaged in by a substantial percentage of the sample. Next, the PROCESS SPSS macro file was used to test mediation (see results in Tables 2 and 3) [35]. There is a significant indirect effect of mood alleviation during lockdown on propensity for self-gifting for mood regulation through propensity for self-gifting for mood alleviation during lockdown ($ab = 0.08$), yet the direct effect is also significant ($c' = 0.28$). Hence, H2 gains partial support as propensity for self-gifting for mood alleviation during lockdown is a partial mediator of the effect of mood alleviation frequency on overall propensity for self-gifting. This is a case of complementary mediation, since $a \times b$ and c' are significant and $a \times b \times c'$ is positive. To test H3a through H5b, we performed a series of independent samples t-tests, with two different test variables: propensity for self-gifting for mood alleviation during the lockdown and mood alleviation frequency during the lockdown. The results obtained are summarized in

Table 2 Results of mediation analysis: regression coefficients

	Coefficient	SE	t	Significance (2-tailed)
Mood alleviation during lockdown to propensity for self-gifting for mood alleviation during lockdown (*a* path)	0.3261	0.0675	4.8301	0.0000
Direct effect of propensity for self-gifting for mood alleviation during lockdown on propensity for self-gifting for mood regulation (*b* path)	0.2423	0.0752	3.2215	0.0000
Total effect of mood alleviation during lockdown on propensity for self-gifting for mood regulation (*c* path)	0.3604	0.0569	6.3374	0.0000
Direct effect of mood alleviation during lockdown on propensity for self-gifting for mood regulation (*c'* path)	0.2813	0.0599	4.6935	0.0000

Table 3 Results of mediation analysis: bootstrapping results

	Effect	SE	Lower limit of 95% confidence interval	Upper limit of 95% confidence interval
Indirect effect of mood alleviation during lockdown on propensity for self-gifting for mood regulation through propensity for self-gifting for mood alleviation during lockdown (*ab* path)	0.0790	0.0357	0.0183	0.1604

Table 4 Results of independent samples t-tests

Test Variable	Grouping variable	*t*	Significance (2-tailed)	Means
Mood alleviation during lockdown	Ability to regulate mood states (High $\geq$ 3.97, Low < 3.97)	−0.174	0.862	*Mhigh* = 2.78 *Mlow* = 2.83
	Impulse control (High $\geq$ 4.58, Low < 4.58)	−2.000*	0.048	*Mhigh* = 2.56 *Mlow* = 3.07
	Self-discipline (High $\geq$ 4.22, Low < 4.22)	−0.129	0.898	*Mhigh* = 2.79 *Mlow* = 2.83
Propensity for self-gifting for mood alleviation during lockdown	Ability to regulate Mood States (High > = 3.97, Low < 3.97)	0.708	0.481	*Mhigh* = 2.02 *Mlow* = 1.87
	Impulse control (High $\geq$ 4.58, Low < 4.58)	−2.854**	0.005	*Mhigh* = 1.67 *Mlow* = 2.25
	Self-discipline (High $\geq$ 4.22, Low < 4.22)	−1.927	0.056	*Mhigh* = 1.79 *Mlow* = 2.20

Significant correlations flagged: *$p < 0.05$, **$p < 0.01$

Table 4 and indicate support for H3a, H3b, H5a and H5b. H4a and H4a fail to be supported, as significant differences are found between individuals with high (vs. low) impulse control. This finding warrants further investigation, as it might indicate that low impulse control individuals engaged more frequently in mood-alleviative self-gifting during the lockdown.

6 Conclusions

Notwithstanding the limitations of the restricted sample size and convenience sampling, the findings support the idea that self-gifting for mood alleviation purposes was heightened during the lockdown period and this increased propensity to self-gift in order to improve mood was largely immune to personality differences. As data collection is progressing, subsequent analyses will be performed to shed further light on this and to uncover more detailed self-gifting consumption patterns during the lockdown.

References

1. The Guardian. https://www.theguardian.com/society/2020/may/16/uk-lockdown-causing-serious-mental-illness-in-first-time-patients
2. Taquet M, Quoidbach J, Gross JJ, Saunders KE, Goodwin GM (2020) Mood homeostasis, low mood, and history of depression in 2 large population samples. JAMA psychiatry. https://doi.org/10.1001/jamapsychiatry.2020.0588
3. Science Daily. https://www.sciencedaily.com/releases/2020/04/200422112247.htm
4. Goldsmiths University of London. https://www.gold.ac.uk/news/music-and-mood-in-lockdown/
5. Bauer Media. https://www.bauermedia.co.uk/covid19-insight
6. CSpace. https://cspace.com/
7. Journal of the Association for Consumer Research. https://www.journals.uchicago.edu/journals/jacr/forthcoming-6.1s
8. Journal of Marketing Management. https://www.jmmnews.com/social-distancing/
9. Basic and Applied Social Psychology. https://think.taylorandfrancis.com/special_issues/consumer-psychology-pandemics/
10. Holbrook M, Gardner M (2000) Illustrating a dynamic model of the mood-updating process in consumer behavior. Psychol Mark 17(3):165–194
11. Luomala HT, Laaksonen M (2000) Contributions from mood research. Psychol Mark 17 (3):195–233
12. Gould SJ (1997) An interpretive study of purposeful, mood self-regulating consumption: The consumption and mood framework. Psychol Mark 14(4):395–426
13. Hong J, Lee AY (2008) Be fit and be strong: Mastering self-regulation through regulatory fit. J Consum Res 34(5):682–695
14. Luomala HT, Laaksonen M (1997) Mood-regulatory self-gifts: Development of a conceptual framework. J Econ Psychol 18(4):407–434
15. Maier E, Wilken R, Schneider H, Schneider GK (2012) In the mood to buy? Understanding the interplay of mood regulation and congruence in an international context. Mark Lett 23 (4):1005–1018
16. Hadjimarcou J, Marks LJ (1994) An examination of the effects of context induced mood states on the evaluation of a "Feel Good" Product: The moderating role of product type and the consistency effects model. Adv in Cons Res 21(1):509–513
17. Heath TP, Tynan C, Ennew C (2015) Accounts of self-gift giving: nature, context and emotions. Eur J Mark 49(7/8):1067–1086
18. Mick DG, DeMoss M (1990) Self-gifts: Phenomenological insights from four contexts. J Consum Res 17(3):322–332
19. Heath TP, Tynan C, Ennew C (2011) Self-gift giving: Understanding consumers and exploring brand messages. J Mark Comm 17(2):127–144
20. Sayre S, Horne D (1996) I shop, therefore I am: the role of possessions for self definition. Adv in Cons Res 23(1):323–328
21. McKeage K, Richins ML, Debevec K (1993) Self-gifts and the manifestation of material values. Adv in Cons Res 20:359–364
22. Kanno S, Suzuki S (2018) Self-gifting and multiple selves. In: Minowa Y, Belk RW (eds) Gifts, romance, and consumer culture. Routledge
23. Clarke PD, Mortimer G (2013) Self-gifting guilt: an examination of self-gifting motivations and post-purchase regret. J Cons Mark 30(6):472–483
24. Luomala HT (1998) A mood-alleviative perspective on self-gift behaviours: Stimulating consumer behaviour theory development. J Mark Man 14(1/3):109–132
25. Luomala HT, Laaksonen M (1999) A qualitative exploration of mood-regulatory self-gift behaviors. J Econ Psychol 20(2):147–182
26. Luomala HT (2002) An empirical analysis of the practices and therapeutic power of mood-alleviative consumption in Finland. Psychol Mark 19(10):813–836

27. Luomala HT (1999) Irritation-stress-, and dejection-alleviative Consumption: Initial Tests of Working Hypotheses. Eur Adv in Cons Res 4:174–181
28. Hampson DP, McGoldrick PJ (2013) A typology of adaptive shopping patterns in recession. J Bus Res 66(7):831–838
29. Ang SH (2001) Crisis marketing: a comparison across economic scenarios. Int Bus Rev 10 (3):263–284
30. Sneath JZ, Lacey R, Kennett-Hensel PA (2009) Coping with a natural disaster: Losses, emotions, and impulsive and compulsive buying. Mark Lett 20(1):45–60
31. Moschis GP (2007) Stress and consumer behavior. J Acad Mark Sci 35(3):430–444
32. Ward CB, Tran T (2008) Consumer gifting behaviors: one for you, one for me? Serv Mark Quart 29(2):1–17
33. Luomala HT, Kumar R, Worm V, Singh JD (2004) Cross-cultural differences in mood-regulation: An empirical comparison of individualistic and collectivistic cultures. J Int Cons Mark 16(4):39–62
34. Morean ME, DeMartini KS, Leeman RF, Pearlson GD, Anticevic A, Krishnan-Sarin S, O'Malley SS (2014) Psychometrically improved, abbreviated versions of three classic measures of impulsivity and self-control. Psychol Assess 26(3):1003–1025
35. Hayes AF (2017) Introduction to mediation, moderation, and conditional process analysis: A regression-based approach. Guilford Publications

Comparative Analysis of Coronavirus Influence on the Content Generated by Romanian Travel Blogs

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1 Introduction

It's not the first time a Coronavirus has taken the public health community by surprise, as humans had to face Severe Acute Respiratory Syndrome (SARS) in the early 2000s [1]. Coronavirus 2019 (COVID-19) is an infectious disease caused by severe acute respiratory syndrome Coronavirus 2 (SARS-CoV-2) [2]. The new outbreak of Coronavirus (COVID-19) was first reported in Wuhan, China and spread rapidly worldwide through human-to-human transmission [3].

The global outbreak of COVID-19 put the entire world on hold and affected all major economic sectors at national and international level. Tourism is among the first and most severely affected industries by the COVID-19 virus. The recovery in tourism is to be expected, starting with domestic tourism and continuing with the destinations that were usually as first choice [4]. Regardless of the scenarios of an uncertain future, tourism will decline sharply in the long run, as this pandemic will have unpredictable economic effects. Purchasing power will decrease significantly, so online systems begin to take control in all areas [5], and stakeholders in the tourism industry should be ready for the post-Coronavirus environment and prepare or create different action plans for each scenario to be put into action after full recovery [6]. The Coronavirus crisis has also brought innovation and a positive impact through various unexploited opportunities so far [7]. Tourism has shown us how fast changes can happen in a few months, all tourist destinations being closed

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or partially closed, both for organized and independent tourists. The industry has collapsed all over the world [8], and tourists have played a significant role in bringing new cases of COVID-19 to other countries, with the continuous transmission confirmed from person to person and also the transmission from asymptomatic people to others; as a consequence, the measure has been taken to close the borders and the industry tourism has been severely affected [3].

In this context, the information is vital to quickly be disseminated and the evolution of technology has allowed the expansion of complex online services that provide video streaming. Weblogs offer today a wide range of materials related to health, news, tourist experiences etc.

2 Literature Review

New communication means are today called new media, through the well-known social networks, websites, blogs, etc. New media makes it possible for more and more people to produce and communicate different information. In other words, new media does not refer to recently emerging technologies, but to some that already exist and that, through certain changes, have attracted the public's attention [9].

Blogs are a means of communication on the World Wide Web that make it easier for people to communicate freely [10], defined as "a website that contains an online per-sonal journal with reflections, comments, and often hyperlinks provided by the writer" [11, p. 396]. Blogs have a relatively short history, even compared to the history of the Internet itself, and moreover, in the last five to ten years, blogs have become an integral part of online culture. The appearance of the word dates back to 1997, when John Berger called his own site "weblog" [12]. Later, the word "blog" appeared in 1999, when Peter Merholz jokingly split the word "we blog" into the sidebar of his blog, Peterme.com [13]. Shortly thereafter, the word "blog" is used by Evan Williams of Pyra Labs both as a noun and as a verb ("to blog," meaning "to edit someone's blog or post on someone's blog"), and coined the term "blogger" in connection with Pyra Labs [14]. Bloggers can upload videos, photos and information from their area of interest, as each blog has a specific approach and theme; there are general blogs, but also thematic blogs according to users' preferences (travel blog, cooking blog, fashion, professional development, etc.). Travel blogs are the equivalent of online personal journals and consist of one or more individual entries, grouped together by a common theme. "They are commonly written by tourists to report back to friends and families about activities and experiences during trips" [15, p. 179].

Travel blogs are online journals and stories designed to provide information and engage the reader in the travel experience. As a result of the rise of mass tourism, the traveler no longer exists, some contemporary theorists argue, but has been replaced by mass tourists, so the tensions between travel and tourism are discursively expressed and negotiated in a relatively new form of travel-related communication—the travel blog [16]. As it is argued, "publishing a blog is a way of

self-presentation that has to meet certain expectations about personal authenticity while maintaining a balance between staying private and being public" [17, p. 1413].

The present study focuses on travel blogs as a means of communication between bloggers and consumers during the pandemic caused by the COVID-19 virus, because blogs have the advantage of transmitting transparent information to the public, in order to achieve certain objectives, including promoting tourism and disseminating travel experiences.

3 Research

Content analysis was a method often used by researchers in connection with tourism studies [18–20]. Emphasis was placed on destinations, general impressions, activities, content, strengths, weaknesses, events, transportation, but broadly, content analysis focused on impressions, perceptions, attitudes, and behaviors.

According to a study regarding Austria, 114 travel blogs were analyzed to understand the similarities and differences between blog posts and tourism markets in Austria and to identify positive and negative perceptions of Austria as a tourist destination [21]. Another feature encountered in research is the image of tourist destinations projected in the online environment [22]. Other research has considered Western reactions to interaction with Indian culture to identify blog-related features and blogger identities [23].

The purpose of this paper is to identify the impact of the COVID-19 virus on the main travel blogs in Romania, more precisely how the content generated by the posted articles has changed, how travel bloggers have adapted during this period, making a comparison between March, April and May of 2019, respectively the same months of 2020. The research objectives are to identify and analyze the impact of COVID-19 on travel blogs in Romania, analyze the main topics of blogs in the selected period and present the differences in the articles posted in the two time sequences.

Thus, a descriptive research was proposed, as the research objectives consider the impact of the COVID-19 virus on the content generated on travel blogs; the method used is content analysis, and as a research technique—the analysis of frequencies [24]. In establishing the sample or the *corpus* of analysis, different selection criteria were used, starting from a broader selection of cases, represented by the best travel and tourism blogs in 2019 according to the ranking published by Biz Magazine in collaboration with Zelist, which annually deliver "Digital Report" [25], a synthesis of the online environment in Romania.

The last published ranking of travel blogs includes entries with at least five posts within a year and with at least three articles published in the last three months of the analyzed period: January 1–December 31, 2018. Thus, out of the total of 22 travel blogs from the Digital Report 2019 ranking [25, p. 94], a selection criterion was used regarding the approach of the COVID-19 topic during March–May 2020 within the

content of the blogs, thus the volume of the sample being set to 14 blogs (Extravita.ro, Călătoruldigital.ro, Impertortravel.ro, Lipa-lipa.ro, Lumeamare.ro, Mihaijurca.ro, Povestidecalatorie.ro, Prinlume.com, Ralucacalatoreste.ro, Răzvanpascu.ro, Haihuiin2.com, Travelwihasmile.net, Travelzoom.ro, Turismmar-ket.ro). The research instrument is represented by two analysis grids. These include categories on topics covered in blog posts from 2019 and 2020, in order to compare and identify the influence or the impact of the COVID-19 virus on the content generated: the visual content, the written content and the tags most commonly found on travel blogs, which will be detailed by presenting the main results in the next section.

4 Results

For the analysis and interpretation of the data, the visual content, the written one and the most frequently used tags between March–May 2019 and 2020 were compared following the selected Romanian travel blogs. Thus, a comparative research was conducted, in order to observe in more detail the impact of the COVID-19 virus on the content generated on travel blogs.

4.1 Visual Content

The first category analyzed was that of visual content in travel blogs. These photos (40 in total) brought more relevance to the articles on COVID-19 issue. Another aspect is related to the photos that dealt with the subject of gastronomy, because in 2020 there was no photo recorded or posted that presented this subject, but in 2019, we were able to count 8 such photos from the bloggers' holidays.

The photos in the category of sponsorships were more frequent in 2019 than in 2020, because the COVID-19 virus also influenced this sector, as bloggers could test and provide feedback on products or services last year. Also, photos related to holidays and travel were more common in 2019, but what we could determine is that in 2020 bloggers posted more photos from previous holidays or different destinations from previous year, in order to maintain the connection with blog readers.

The photos from the category of airlines played an important role during this year, because the most common and important topics for tourists were the ones related to planes, the companies that resumed their flights, the measures taken by them, the conditions imposed to tourists, and all these subjects were illustrated through photographs. The COVID-19 virus has left its mark on the visual content generated on travel blogs with a difference of 33 photos more compared to last year, when the topics were related to low-cost companies or which are the best/worst airlines.

The advertising posters from the events represent the third category identified for 2019 (with 30 representative images), because last year the subject of the pandemic

was not discussed, and the events were organized according to the planning. Tourism related events have a special role in the content of travel blogs, because most bloggers are special guests or speakers for various topics. The 11 photos from 2020 are represented by the events that took place online.

Within the category other photos we identified different images retrieved from the internet, with different messages or topics of interest, thus, in this category no other major changes were observed between the analyzed years.

4.2 Written Content

The written content is represented by articles published in travel blogs. The articles contain information, written text, links and tags, which facilitate the categorization of topics covered on blogs. Following the frequency of posts, it can be seen that in 2020 (within the three months analysed), more articles were posted compared to 2019. Within the written content were identified the main categories from 2020 (COVID-19, tourism, other topics) and 2019 (sponsorships, other topics, travel, tips, events).

In the COVID-19 category, most articles address the subject of airlines, and the fewest are represented by health insurance (2 articles). In the tourism category, the most approached topic is about the guides for visiting some destinations or attractions (58 posts), following the topic about the COVID-19 virus and tourism, which will be its consequences, how global tourism will recover (a total of 39 articles). The most common subject in other topics category is online events, such as museums and galleries that offer virtual tours (15 articles), followed by articles about sponsored products or services (12 articles in total).

The category of sponsored products or services includes five main topics: care/beauty products and online networks (both with 6 articles), technical or travel equipment (4 items), different stores (3 items) and promoted destinations (2 articles). In the category of other topics we identified five main subjects: the fire at Notre-Dames Cathedral (3 articles), the crash of the Boeing 737 plane (7 articles), the decision of the United Kingdom to leave the European Union (6 articles), the European Parliament elections (5 articles), stories of events that bloggers wanted to make public (14 articles). Then, in the category of tips/advices, four types of main subjects emerged: articles about holidays, airlines, content dedicated to gastronomy, the topic of travel with children. The last category identified for the written content is represented by the events of 2019. Tourism events are the most common, 24 in number, followed by specialization courses in the field of hospitality (9 articles), national and international conferences (7), and articles about camps (3 items).

4.3 Use of Tags

In this category we have selected and analyzed the most common and suggestive tags on travel blogs. These best illustrate the topics covered; analyzing comparatively, we could observe the tags that are distinctive for each year and those that are common for 2019 and 2020. Thus, most tags are on the subject of COVID-19 (126), and destinations from 2019 (108).

Also, the news category in 2019 includes 45 tags, and in 2020 the topic is all about COVID-19. The tags for recommendations can be found in both periods, in 2019 with 55 items, and in 2020 with 34. The events are also found in both periods, respectively with 48 tags, and in 2020, 17. The tags within the sponsorships are 17 (for 2019) and 15 (for 2020). The labels regarding the destinations in Romania for 2019 are 30 in number, and for 2020 they are 38 in number, and for airlines in 2019 we found 9 tags, and in 2020, 45 tagss.

5 Discussion

After the application of the research instrument and the analysis and interpretation of the data, we were able to observe which the main and most important elements were, belonging to both visual and written content, as main dimensions. Then, were analyzed these elements in a quantitative approach, by presenting the frequencies of occurrence.

The objectives initially set were achieved following the interpretation of the results, so that the influence of Coronavirus was identified by the content of the articles posted on the Romanian travel blogs. Thus, in the case of visual content, the most frequent photos were from 2019, in the category of holidays. As a synthesis, we can say that, in general, the most articles were found in 2020, and in April and May 2020 the number of articles was higher than in 2019. In 2020, the main topics in the category of Coronavirus are those about airlines. From the tourism category, the most important topics are those about the travel guides of travel bloggers, and from the last category, the one about other topics, the most frequently encountered are the events that took place online. In 2019, there were five categories of topics. For the first of them, the category of sponsorships, the most frequent articles were those about care products and online tourism networks. In the category of other topics, the most frequent were the articles about personal information. From the travel category, the main topic was related to destinations. In the category of tips/advices, the most common articles were those about holidays. And in the last category—events, the most common articles are those dedicated to tourism in general. The last dimension analyzed is represented by the tags used in online communication, and the most frequent in 2020 is the one about the Coronavirus subject.

Thus, the global impact of Coronavirus has generated useful information for consumers and another important thing is that travel bloggers have been able to provide quality content for their followers and have turned this inconvenience into an advantage.

6 Conclusion

Weblogs have shifted from a niche format to a well-known form of mediated communication in less than a decade. This makes blogs a versatile tool for expression and communication, which are increasingly being explored by researchers in various disciplines.

This research suggests that travel blogs have become part of tourism innovative practices [26] and the travel experience, and therefore demonstrates the potential of travel blogs for online communication, because in addition to vacation experiences, travel bloggers address topics of interest in tourism and target consumers. Using content analysis to examine the content of travel blogs has helped us understand how bloggers share their experiences and how they link written and visual content to ultimately outline a true consumer story, even in pandemic times.

The implications of this study are mainly intended to support an academic audience (as the Romanian literature about this topic is scarce). In addition, the findings of this paper will be of benefit to professionals related to this sector, but also to the travel bloggers. The content analysis on the 14 selected travel blogs gave us an image of how Romanian bloggers communicate on their own blogs. Because one of the objectives was with reference to the impact of the COVID-19 virus, we were able to determine the visual and written content with reference to this topic. Another aspect that we analyzed is represented by the differences between the articles posted in 2019 and the ones from 2020. However, bloggers posted and generated content regardless of whether the virus may have altered their plans, so they could no longer share travel experiences, but rather from home and by using personal recommendations and tips. At the same time, an element of novelty is represented by the sponsored posts, because the pandemic did not stop this sector. Thus, blogs have the power to influence certain services or products and can lead consumers to develop a positive perception of some brands.

In conclusion, travel bloggers generated content on blogs, regardless of the existence of the COVID-19 virus, and they continued to post and adapt the content of articles from the perspective of the impact of the virus. Thus, they generated relevant information to consumers, attracting them and managing their loyalty through articles posted on travel blogs.

References

1. Jamal T, Budke C (2020) Tourism in a world with pandemics: local-global responsibility and action. J Tour Futures 6:181–188. https://doi.org/10.1108/JTF-02-2020-0014
2. Bakar NA, Rosbi S (2020) Effect of Coronavirus disease (COVID-19) to tourism industry. Int J Adv Eng Res Sci 7: 189–193. https://doi.org/10.22161/ijaers.74.23
3. Wen J, Wang W, Kozak M, Liu X, Hou H (2020) Many brains are better than one: the importance of interdisciplinary studies on COVID-19 in and beyond tourism. Tour Recreat Res. https://doi.org/10.1080/02508281.2020.1761120
4. Cetin G (2020) Impact of COVID-19 on Tourism Industry. J Tourismology, https://cdn.istanbul.edu.tr/file/1CD58DF90A/4919B7B66EB0463E82BB724FB0BAF15C?doi
5. Kirant Yozcu O, Cetin G (2019) A Strategic Approach to Managing Risk and Crisis at Tourist Destinations. In: Kozak N, Kozak M (eds) Tourist Destination Management. Tourism, Hospitality & Event Management. Springer, Cham, pp 273–287. https://doi.org/10.1007/978-3-030-16981-7_16
6. Folinas S, Metaxas T (2020) Tourism: the great patient of Coronavirus COVID-2019. Int J Adv Res 8: 365–375. http://doi.org/10.21474/IJAR01/10788
7. Kumar Choudhary C (2020) Corona (COVID-19) and tourism: more opportunities In The Aftermath of The Lockdown, Academia.edu, Articles/Research note. https://doi.org/10.13140/rg.2.2.35876.83844
8. Sheresheva YM (2020) Coronavirus and tourism. Popul Econ 4:72–76. https://doi.org/10.3897/popecon.4.e53574
9. Chiorean L (2015) Despre New Media. O abordare teoretică [On New Media. A Theoretical Approach]. Stud U Petru Maior. Philol 19: 51–62. https://search.proquest.com/docview/1761489431?accountid=7257
10. Gala B (2004) Blogs, bloggers and scholarly publications. In: Library and Information Science: Philosophy and Technology. Shanti Prakashan, pp 204–226. https://www.researchgate.net/publication/340270576
11. Kelleher T, Miller BM (2006) Organizational blogs and the human voice: relational strategies and relational outcomes. J Comput-Mediat Commun 11:395–414. https://doi.org/10.1111/j.1083-6101.2006.00019.x
12. Wortham J (2007) After 10 years of blogs, the future's brighter than ever. https://www.wired.com/2007/12/after-10-years-of-blogs-the-futures-brighter-than-ever/
13. Kottke J (2003) It's "weblog" not "web log". http://www.kottke.org/03/08/its-weblog-not-web-log
14. Baker J (2008) Origins of "blog" and "blogger". American dialect society mailing list, http://listserv.linguistlist.org/pipermail/ads-l/2008-April/081177.html
15. Pühringer S, Taylor A (2008) A practitioner's report on blogs as potential sources for destination marketing intelligence. J Vacat Mark 14:177–187. https://doi.org/10.1177/1356766707087524
16. Azariah DR (2017) Tourism, travel, and blogging: a discursive analysis of online travel narratives. Routledge, London. https://doi.org/10.4324/9781315550688
17. Schmidt J (2007) Blogging practices: an analytical framework. J Comput-Mediat Commun 12:1409–1427. https://doi.org/10.1111/j.1083-6101.2007.00379.x
18. Briciu A, Briciu VA (2020) Participatory culture and tourist experience: promoting destinations through YouTube. In: Kavoura A, Kefallonitis E, Theodoridis P (eds) Strategic innovative marketing and tourism. Springer Proceedings in Business and Economics. Springer, Cham, pp 425–433, https://doi.org/10.1007/978-3-030-36126-6_47
19. Briciu VA, Briciu A, Nechita F (2018) Content analysis made simple for students: an interactive online application solution. Cogn Sci—New Media—Educ 5: 77–91. http://dx.doi.org/10.12775/CSNME.2018.013

20. Briciu VA, Demeter R, Nechita F, Kavoura A, Briciu A (2019) A proposed online platform for ranking place brands identity characteristics of official tourism websites. In: Kavoura A, Kefallonitis E, Giovanis A (eds) Strategic innovative marketing and tourism. Springer Proceedings in Business and Economics. Springer, Cham, pp 755–762. https://doi.org/10.1007/978-3-030-12453-3_87
21. Wenger A (2008) Analysis of travel bloggers' characteristics and their communication about Austria as a tourism destination. J Vacat Mark 14:169–176. https://doi.org/10.1177/1356766707087525
22. Choi S, Lehto XY, Morrison AM (2007) Destination image representation on the web: content analysis of Macau travel related websites. Tour Manag 28:118–129. https://doi.org/10.1016/j.tourman.2006.03.002
23. Banyai M, Glover TD (2012) Evaluating research methods on travel blogs. J Travel Res 51:267–277. https://doi.org/10.1177/0047287511410323
24. Briciu VA, Briciu A, Găitan ȘM (2020) Impression management through websites: an analysis of the Romanian banking industry. In: Kavoura A, Kefallonitis E, Theodoridis P (eds) Strategic innovative marketing and tourism. Springer Proceedings in Business and Economics. Springer, Cham, pp 417–424. https://doi.org/10.1007/978-3-030-36126-6_46
25. Săndulescu L (2019) Digital report 2019. GT, Bucharest
26. Varelas S, Georgitseas P, Nechita F, Sahinidis A (2019) Strategic innovations in tourism enterprises through blockchain technology. In: Strategic innovative marketing and tourism. Springer, Cham, pp 885–891. https://doi.org/10.1007/978-3-030-12453-3_102

COVID-19 and the Canadian Airline Experience

Stephen J. Havlovic

1 Introduction

This paper provides an initial qualitative assessment of the impact of the COVID-19 pandemic on Canadian Airlines to August 2020. The available literature available on this topic was primarily newspaper articles. The author also used data collected by Statistics Canada to perform trend analyses of air travel from January to May, 2020 to assess: (1) the change in overseas travellers to Canada; and (2) the frequency of air travellers to and from Canada.

2 Overview

Since January 2020, the Coronavirus (COVID-19) has dramatically impacted air travel. On January 30, Air Canada joined British Airways and other international airlines in stopping all passenger flights to China because of COVID-19. This decision was made after the Canadian government issued an advisory for Canadian citizens and residents to avoid non-essential travel to China. However, China Southern and China Eastern airlines did not stop their flights to Canada even though 17 cities and over 50 million Chinese were under quarantine [1].

By February, because of COVID-19, international conferences and sporting events started to be cancelled or were considered for cancellation (e.g., 2020 Olympics). The Global Business Travel Association estimated that the coronavirus pandemic could cost the global travel sector US$46.6 billion per month [2].

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On March 10, the World Health Organization declared COVID-19 a pandemic, and Air Canada's last flight departed for Italy as a result of their coronavirus national lockdown [3, 4]. By mid-March, according to the International Air Travel Association (IATA), "Demand for the business of many airlines has fallen to zero. Airlines are running out of cash and are not able to sustain operations" [5]. As governments closed borders because of COVID-19, global airline revenues fell by US$250 billion [6].

In May, Michael Rousseau, Air Canada's Chief Financial Officer, stated "International travel will be the last segment to recover, …because it depends on other countries' border restrictions and their handling of the deadly virus" [7].

By July, the financial situation had gotten worse for the airline sector. "The pandemic and resulting collapse in air travel demand has thrown into question the survival of many of the world's airlines, and it is not clear if all Canadian carriers have the cash to survive until demand returns to normal" [8].

In August, the Canadian Football League (CFL) announced that their season was cancelled, because of COVID-19 [9]. This cancellation impacts domestic air travel for CFL players, staff, team equipment, and fans.

2.1 Global Impact

According to the IATA, "The novel coronavirus crisis will lead the airline industry into record annual losses of US$84-billion as 2020 goes down as the 'worst year in the history of aviation'…" [10]. Global air passenger travel fell by 94.3% in April compared to the same period in 2019 [11].

International tourism declined rapidly in the first half of 2020. Best and worse scenarios for 2020 by the World Tourism Organization (UNWTO) predict international tourist arrivals to be well below levels experienced over the past 20 years including the SARS virus in 2003 and the "Great Recession" of 2009 [12].

3 Canadian Airlines

Canadian airlines employed 40,000 workers before the COVID-19 pandemic [6]. Air Canada was recognized by Global Traveler as the "2019 Airline of the Year" with service to over 200 airports on six continents [13]. In 2019, Air Canada operated 1,500 flights daily with 258 aircraft. In 2020, because of the pandemic, 225 of these airplanes have been parked and Air Canada is removing 25 Boeing 767 aircraft form its fleet [14].

By March 18, 2020, Air Canada and WestJet had each reduced their seat capacity by approximately 50%, and only travellers who were Canadian citizens or permanent residents were allowed to enter Canada with exceptions made for U.S. citizens, diplomats, and flight crews. The Canadian government restricted inbound

international flights to Calgary, Montreal, Toronto, and Vancouver airports [15]. "Leisure carrier Sunwing Airlines Inc. has suspended all flights to holiday destinations in order to focus on bringing Canadians home from Honduras, Aruba and Panama, which announced plans to close their borders" [5]. By the 3rd week of March the Canadian tour and airline operator Transat had reduced its workforce by about 70% [16]. Most scheduled international flights were cancelled and the focus for Air Canada, WestJet, Sunwing, and Transat was to bring citizens and permanent residents home to Canada [16].

3.1 Sudden Impact

As can be seen in Table 1, by May 2020 overseas travellers to Canada had declined by 94.2%. The big drop in international travellers occurred in March and April.

As shown in Table 2, airline passengers to and from Canada also declined significantly. Dropping from more than 6 million domestic and international air passengers in January 2020 to a mere 199,000 in April of this year. There was a slight increase in airline passengers in May due mostly to a small increase in domestic air travel.

3.2 Financial Impact

As a result of COVID-19, in the 2nd quarter of 2020, Air Canada reduced capacity by 85–90% compared to 2019 [19]. The loss of airline passengers has had a huge impact on the Canadian economy. "Airlines drive travel and tourism in Canada and support more than C$90-billion in direct and related economic activity per year…" [20]. In 2018, 67 million passengers were on international flights that landed or

Table 1 Annual change in overseas travellers to Canada in 2020 [17]

12 Month-percentage change	January 2020	February 2020	March 2020	April 2020	May 2020
Overseas travellers to Canada (%)	+4.3	−3.6	−53.6	−92.2	−94.2

Table 2 Travellers to/from Canada (January–May, 2020) [18]

Activity indicators	January 2020	February 2020	March 2020	April 2020	May 2020
Domestic and international passengers, air (× 1000)	6,030	5,750	3,059	199	215

departed from Canadian airports. International flights accounted for 62% of Air Canada's passenger revenue in 2019 [21].

In 2019, Air Canada transported 51 million passengers with revenue of C$19.1 billion [14]. In 2020, "Air Canada lost C$1-billion in the first quarter and is burning through C$22-million of cash a day amid a halt to most air travel during the COVID-19 pandemic [7]. In order to reduce financial losses, by April 2020 Air Canada had laid off 16,500 employees [19].

By mid-April, WestJet announced layoffs of 1,700 pilots to reduce costs [22]. In June, WestJet said that "…3,333 employees will permanently lose their jobs as the airline contracts out all domestic airport operations outside of Vancouver, Calgary, Edmonton and Toronto…" [23]. By the end of June, Air Canada layoffs had increased to 20,000 reducing costs by US$970 million [23, 24].

Providing Canadian federal financial aid "…might be necessary to help WestJet and smaller airlines such as Porter, Bearskin and Sunwing to survive the downturn." Since Air Canada had a profit of C$1.5 billion in 2019, it is unlikely that they will receive any federal financial assistance [4]. By March 30, regional carrier Porter Airlines, and speciality airlines Sunwing and Air Transat suspended operations as a strategy to financially survive the pandemic [25]. Porter Airlines recently extended its shutdown and is now not planning on resuming flights until October 7th [26].

In order to survive the pandemic, "Air Canada also raised C$5.5 billion in debt and new equity…" [24]. Air Canada experienced a net loss of US$1.26 billion in the 2nd quarter of 2020 with operating revenue falling 89% [27]. "Air Canada … increased its cost-cutting target by C$500 million to C$1.3-billion, retiring 79 planes, closing regional airport operations and reducing its workforce… through layoffs, retirement and leaves. The company has tapped the federal government's 75-percent wage subsidy for idled workers, and will use it through December, 2020" [28].

3.3 Short Term Adjustments

As a cost cutting and efficiency strategy for international flights, Air Canada is now relying more on Star Alliance partners United and Lufthansa airlines via their airport hubs to serve international markets [27]. This allows Air Canada to serve multiple international cities with fewer direct flights during the pandemic.

Health & Safety. As reported in March, "Hundreds of Canadian airline employees are in quarantine after possible exposure to COVID-19 … prompting calls for better protection and training from the unions representing flight attendants and pilots." Air Canada, WestJet, and Air Transat have had crew members infected by COVID-19 [29].

"On May 4, 2020, Air Canada … announced that it will be re-vamping its safety and sanitation procedures to protect passengers and prevent the spread of the coronavirus" [30]. In addition to mandatory face masks, their new program called CleanCare + includes pre-flight passenger temperature checks, personal hygiene

kits, and enhanced cabin cleaning. The intent is to reduce exposure to COVID-19 and to provide greater peace of mind for passengers and crew [30]. Air Canada's Chief Commercial Officer, Lucie Guillemette, stated "The most important factor to travel demand returning, once restrictions are eased, will be instilling confidence in our customers that air travel is safe" [7].

According to Mr. Rousseau, Air Canada's CEO, leaving middle seats open for distancing between customers is not feasible. "…selling just 60 per cent of a plane's seats is not a sustainable way to run an airline" [14]. According to the IATA, the financial break-even point is flying at 77% of aircraft passenger capacity. Not selling adjacent seats would require passenger airfares to increase by up to 54% for airlines to break even-even [31].

However, this poses a problem for the airlines as "Seventy-two per cent of Canadians surveyed by Leger and the Association for Canadian Studies say they're not comfortable flying since a decision by some airlines to relax their own inflight physical distancing requirements." On July 1st, both Air Canada and WestJet ended their safe seat distancing policies and began selling adjacent seats [32].

As posted on July 31, "Canada doesn't allow foreign tourists, even from places with few virus cases. Most business travel is banned and everyone coming in must stay isolated for two weeks, including returning Canadian residents with no symptoms, under threat of potential jail time if they break quarantine. An official advisory recommends against non-essential travel" [24]. "Canada's border with the U.S. remains closed to non-essential travel, and most international visitors are barred entry…" [8].

Freight. In order to increase revenue, Air Canada has increased cargo only flights during the COVID-19 pandemic [33]. In April, "…the passenger airline removed seats from four Boeing 777 300ERs, more than doubling the space available for goods on the planes. The aircraft are primarily moving masks, gowns and other personal protective equipment necessary to combat COVID-19 from Shanghai to Canada. The airline also plans to convert four Airbus A330s to serve routes to Europe and South America" [34]. These conversions are viewed as a temporary measure during the pandemic to compensate for lost cargo space in suspended passenger flights [34].

3.4 Recovery Attempts

Air Transat resumed operations on July 23rd with limited flights after a 112 day shutdown. [35]. During the summer of 2020, Air Canada operated a flight schedule to 97 destinations compared to 220 destinations in 2019 [23]. Air Canada is unlikely to fly to all prior international destinations for several years [27].

Restoring Canadian air travel has not been without some setbacks. "According to the federal government, COVID-19 cases have been reported among passengers on 10 domestic flights and 16 international flights since June 29" [36]. Canadian airlines have been disappointed in the federal government restrictions and their not

providing financial relief to the airlines. Air Canada's "Chief Executive Officer Calin Rovinescu lambasted the government during the airline's second-quarter earnings call Friday, saying that current restrictions – especially a mandatory 14-day quarantine for all travelers coming into Canada, regardless of origin – are preventing a recovery" [24]. Citing COVID-19 health concerns and the risk of a second wave lockdown, Canadian Prime Minister Justin Trudeau has stood firm on dismissing airline and tourism industry requests to reduce restrictions on international travel [37].

Air Canada, WestJet, and Air Transat resumed a small number of flight routes over the summer in 2020 as there was some increase in demand. "However, interprovincial travel bans and 14-day travel quarantines in most countries remain a barrier to travel" [38]. Over the summer, France and the United Kingdom (UK) began allowing Canadians to travel across their borders, but the UK requires self-isolation for 14 days. When Canadian residents return home from international locations, they too are still expected to self-quarantine for 14 days [8].

4 Future of the Canadian Airline Industry

The recovery of the Canadian airline sector is going to take time. "Air Canada is confident business travel will resume as large companies get back to normal office hours… Leisure travellers, however will drive the first wave of the recovery in air travel…" [38]. The recovery is not linear as "Demand for fares is 'way lower' than usual, but some flights to France and Portugal are almost full…" [8].

4.1 Projections

In late July, IATA adjusted their prediction and said that international air travel would not fully recover until 2024 largely because developing countries and the United States have not controlled the spread of COVID-19 [39]. Earlier in May, "Air Canada said it will be three years before travel demand recovers" [14]. Moody's Investors Service concurs that global airline passenger demand won't return to 2019 levels until the end of 2023 [40].

"Air Canada Chairman Vagn Sorensen said the full impact of the 'unprecedented' crisis cannot be predicted but the company is well prepared, having quickly reduced costs and raised cash through debt and equity offerings" [37]. Even so, some perennial international travellers are not going to return for some time. For example, 'Canadian Snow Birds' who spend their winters in warm climates are less likely to do so in 2020–2021. "People aged 60 and older – a key market for an airline's winter sun destinations – are especially reluctant to travel because of the vulnerability to the virus and are planning to stay home…" [26].

5 Conclusion

The development of an effective vaccine against COVID-19 is seen as essential for a complete recovery of the airline industry. The introduction of an effective vaccine is not predicted until 2021, and it will take longer to be widely distributed and to be effective against COVID-19 mutations [40].

In late July, the IATA stated "People will be slower than expected to resume flying as important markets remain closed, corporate travel budgets are tight and consumer confidence stays low owing to economic hardship or fears of the deadly illness…" [39]. Only time will tell, but the next several years will remain financially difficult for the Canadian airline sector as a result of COVID-19.

References

1. Schreck A, Kurtenbach E, Koenig D (2020) Air Canada, other airlines suspend China flights due to spread of coronavirus. The Associated Press, January 29. https://www.theglobeandmail.com/business/international-business/article-british-airways-asian-budget-carriers-suspend-china-flights-on-virus/
2. Lundy M (2020) Coronavirus fears are hitting the travel industry hard. Canada will get dinged, too. The Globe and Mail, February 27. https://www.theglobeandmail.com/business/article-coronavirus-fears-are-hitting-the-travel-industry-hard-canada-will/
3. Reynolds C (2020) Air Canada halts all flights to Italy amid coronavirus lockdown. The Canadian Press, March 10. https://www.theglobeandmail.com/business/article-air-canada-halts-all-flights-to-italy-amid-coronavirus-lockdown/#comments
4. Atkins E (2020) WestJet cuts seat capacity, freezes hiring and spending as virus outbreak reduces travel demand, March 11. https://www.theglobeandmail.com/business/article-westjet-cuts-seat-capacity-freezes-hiring-and-spending-as-virus/
5. Atkins E (2020) Many airlines at risk of bankruptcy as industry faces cash crisis: IATA The Globe and Mail, March 17. https://www.theglobeandmail.com
6. Atkins E (2020) Almost half world's airlines will fail in coming weeks without aid, air carrier group says. The Globe and Mail, March 24. https://www.theglobeandmail.com
7. Atkins E (2020) Air Canada posts $1-billion loss as carrier faces 'darkest period' in commercial aviation history. The Globe and Mail, May 4. https://www.theglobeandmail.com/business/article-air-canada-posts-1-billion-loss-as-covid-19-pandemic-brings-air/
8. Atkins E (2020) Air Transat resumes commercial flights after halt due to pandemic. The Globe and Mail, July 23. https://www.theglobeandmail.com/business/article-air-transat-resumes-commercial-flights-after-halt-due-to-pandemic/
9. The Canadian Press (2020) CFL cancels 2020 season due to COVID-19, ending 100-plus year run for Grey Cup, August 17. https://www.theglobeandmail.com/sports/football/article-cfl-cancels-2020-season-due-to-covid-19-ending-100-plus-year-run-for/
10. Reuters (2020) Airline industry headed for $84-billion loss this year, IATA says, June 9. https://www.theglobeandmail.com/business/international-business/article-airline-industry-headed-for-84-billion-loss-this-year-iata-says/
11. PTI News (2020) Global air passenger travel plunges 94.3% in April due to COVID-19: IATA, June 3. https://www.bloombergquint.com/business/global-air-passenger-traffic-plunges-94-3-in-april-iata

12. UNWTO World Tourism Barometer (2020) Special focus on the Impact of COVID-19, Executive Summary, May. https://webunwto.s3.eu-west-1.amazonaws.com/s3fs-public/2020-05/Barometer%20-%20May%202020%20-%20Short.pdf
13. CNW Telbec (2019) Air Canada has been recognized as the 2019 Airline of the Year by Global Traveler, December 2. News Releases https://aircanada.mediaroom.com/2019-12-02-Air-Canada-Named-2019-Airline-of-The-Year-by-Global-Traveler
14. Atkins E (2020) Air Canada says layoffs during pandemic necessary to weather slow recovery. The Globe and Mail, May 19. https://www.theglobeandmail.com/business/article-air-canada-says-layoffs-during-pandemic-necessary-to-weather-slow/
15. Atkins E, Waldie P (2020) Air Canada cuts seat capacity in half, eliminates routes to Ottawa warns against international travel. The Globe and Mail, March 16. https://www.theglobeandmail.com
16. Atkins E (2020) Air Transat parent company lays off 70 per cent of workforce, about 3,600 staff. The Globe and Mail, March 23. https://www.theglobeandmail.com
17. Statistics Canada (2020) Canadian Economic Dashboard and COVID-19, August 7. https://www150.statcan.gc.ca/n1/pub/71-607-x/71-607-x2020009-eng.htm
18. Statistics Canada (2020) Transportation activity indicators, August 9. https://www150.statcan.gc.ca/n1/pub/71-607-x/71-607-x2020009-eng.htm
19. Casey D (2020) Air Canada plans up to 90% capacity cut, March 31. https://www.routesonline.com/news/29/breaking-news/290573/air-canada-plans-up-to-90-capacity-cut/
20. Van Praet N, Atkins E (2020) Airlines seek subsidies, loans and tax relief from Ottawa. The Globe and Mail, March 29. https://www.theglobeandmail.com/business/article-canadas-airlines-seek-subsidies-loans-and-tax-relief-from-ottawa/
21. Van Praet N, Silcoff S (2020) Ottawa's decision to discourage non-essential travel puts new pressures on airlines. The Globe and Mail, March 13. https://www.theglobeandmail.com/business/article-ottawas-decision-to-discourage-non-essential-travel-puts-new/
22. Atkins E (2020) WestJet to lay off 1,700 pilots as COVID-19 pandemic halts most air travel. The Globe and Mail, April 16. https://www.theglobeandmail.com/business/article-westjet-to-layoff-1700-pilots-as-covid-19-pandemic-halts-most-air/
23. Atkins E (2020) WestJet cuts 3,333 jobs with goal of survival. The Globe and Mail, June 24. https://www.theglobeandmail.com/business/article-westjet-to-cut-more-than-3300-jobs-restructure-management-to-help/
24. Rastello S (2020) Air Canada rips Trudeau over rules, may cancel plane orders. Bloomberg, July 31. https://www.bloomberg.com/news/articles/2020-07-31/air-canada-rips-trudeau-over-rules-threatens-to-cancel-planes?sref=LKVNc8To
25. Atkins E (2020) Air Canada temporarily lays off more than 16,000 as pandemic takes toll on air travel. The Globe and Mail, March 30. https://www.theglobeandmail.com/business/article-air-canada-temporarily-lays-off-over-16000-as-pandemic-takes-toll-on/
26. Atkins E (2020) Porter again delays restart date, aims to resume flights in October. The Globe and Mail, August 4. https://www.theglobeandmail.com/business/article-porter-again-delays-restart-date-aims-to-resume-flights-in-october/
27. Casey D (2020) Partnerships key to Air Canada's recovery, August 3. https://www.routesonline.com/news/29/breaking-news/292852/partnerships-key-to-air-canadas-recovery/
28. Atkins E (2020) Air Canada posts $1.7-billion quarterly loss as revenues plunge 89 per cent, July 31. https://www.theglobeandmail.com/business/article-air-canada-posts-17-billion-quarterly-loss-as-covid-19-travel-bans/
29. Atkins E (2020) Hundreds of airline employees in quarantine after possible exposure to COVID-19. The Globe and Mail, March 30. https://www.theglobeandmail.com/business/article-hundreds-of-airline-employees-in-quarantine-after-possible-exposure-to/
30. MacGregor S (2020) Air Canada: First airline in North America requiring passengers to get temperature checks. Forbes, May 6. https://www.forbes.com/sites/sandramacgregor/2020/05/06/air-canada-first-airline-in-north-america-requiring-passengers-to-get-temperature-checks/#7c4cf95f2ee9

31. Atkins E (2020) WestJet and Air Canada to start selling middle seat on flights as of July 1. The Globe and Mail, June 26. https://www.theglobeandmail.com/business/article-westjet-and-air-canada-to-start-selling-middle-seat-on-flights-as-of/
32. Levitz S (2020) 72% of Canadians not comfortable flying after some airlines relax physical distancing measures. The Canadian Press, July 7. https://www.theglobeandmail.com/canada/article-majority-of-canadians-not-comfortable-flying-after-some-airlines-relax/
33. Air Canada (2020) Air Canada expands its cargo-only flight schedule, May 27. https://www.newswire.ca/news-releases/air-canada-expands-its-cargo-only-flight-schedule-806054955.html
34. McClearn M (2020) From passengers to cargo: How airlines are overhauling their business—and their planes, May 11. https://www.theglobeandmail.com/canada/article-from-passengers-to-cargo-how-airlines-are-overhauling-their-business/
35. Casey D (2020) Air Transat outlines winter schedule, August 5. https://www.routesonline.com/news/29/breaking-news/292910/air-transat-outlines-winter-schedule/
36. MacLeod M (2020) At least 26 flights have arrived in Canada with COVID-19 cases in the last two weeks. CTV News, July 14. https://www.ctvnews.ca/health/coronavirus/at-least-26-flights-have-arrived-in-canada-with-covid-19-cases-in-last-two-weeks-1.5024278
37. Atkins E (2020) Air Canada CEO told shareholders the government needs to ease travel restrictions to get airlines moving again, June 25. https://www.theglobeandmail.com/business/article-air-canada-ceo-told-shareholders-the-government-needs-to-ease-travel/
38. Atkins E (2020) Air Canada confident business travel will come back in the fall. The Globe and Mail, June 16. https://www.theglobeandmail.com/business/article-air-canada-says-its-confident-business-travel-will-come-back-in-the/
39. Atkins E (2020) Global passenger air traffic will not recover until 2024, a year later than expected, IATA says, July 28. https://www.theglobeandmail.com/business/article-global-passenger-traffic-will-not-recover-until-2024-a-year-later/
40. Suhartono H (2020) Global air passenger slump to last until 2023, Moody's says. Bloomberg, July 17.s https://www.bloomberg.com/news/articles/2020-07-17/global-air-passenger-slump-to-last-until-2023-moody-s-says?sref=hKYjzQQs

Increasing Employability Through Development of Generic Skills: Considerations for Remote Course Delivery During COVID-19 Pandemic

Natalya Totskaya

1 Introduction

Institutions of post-secondary education worldwide are actively engaged in updating their approaches to teaching and learning to meet the evolving demands of contemporary work environment. Employability of the graduates is one of the most important indicators of success when it comes to assessment of the quality of teaching and learning. Experiential learning is closely related to improved employability of undergraduate and graduate students after their graduation. As indicated by on-going National Graduates Survey conducted by Statistics Canada [1], students' participation in work-integrated learning (WIL) increased their employability and resulted in better job quality. In other words, students who were enrolled in WIL activities such as coop or internship programs were more likely to find a job related to their field of study, and had a higher salary than students with no WIL experience. These findings indicate that participation in WIL increases the quality of employment through early introduction of students to real-life workplaces and related job requirements. Yet the proportion of students exposed to WIL through coop and internship programs in Canada is about 50% of all bachelor program graduates. Therefore, there is a need to provide similar experiential learning opportunities to all students through their traditional coursework.

Increasing experiential component of any academic course becomes especially important in the time of massive and unexpected changes triggered by events such as COVID-19 pandemic. The global wave of COVID-19 with its indefinite and unperceived requirements of social distancing, limits to travel and face-to-face interactions, and higher disinfection requirements have affected all facets of society and economy. Non-essential activities were either suspended, or significantly modified. Institutions of post-secondary education and various WIL programs have

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suffered as well. For instance, among the negative impacts of COVID-19 was the cancellation of many WIL programs in Canada. A recent crowdsourcing data suggested that over 1/3 of in-person WIL activities were cancelled or postponed due to COVID-19 [2], affecting students' and graduates' opportunities for workforce integration.

Therefore, WIL in its current form has demonstrated the lack of adaptability to sudden changes in social and work environment. There is a clear need to revise existing approaches to employability skills development, adjust them to current extraordinary circumstances, and increase their overall flexibility to accommodate for other unperceived events.

This paper will continue with brief introduction to research methodology followed by review of existing terminology related to practical skills development, as well as the types of experiential learning in baccalaureate programs. Based on the need to expand WIL and experiential learning components as part of traditional coursework, we will introduce the framework for development of generic skills in remote course delivery mode. The challenges of online and blended teaching and learning in the time of COVID-19 pandemic will be discussed together with the benefits of expanding WIL programs into virtual classroom.

2 Generic Skills as Contributors to Workplace Success

2.1 Research Methodology

A targeted literature review was conducted within peer-reviewed publications and government resources. Reputable databases such as Google Scholar and Research Gate were searched using the combination of two keyword components: "work integrated learning" or "experiential learning" as the first component, and "generic skills", "employability skills", and "soft skills" as the second component. The first search component was chosen in association with various types of WIL, and the second component was tied to existing definitions of practical, non-field-specific employability skills. To capture more recent developments in the field of WIL, the search period was limited to the last twenty years (2000–2020), and the articles were further screened for particular focus on post-secondary (university-level) education.

Additional search was conducted among statistical and analytical reports published by Statistics Canada. The same combination of keyword components was expanded by adding additional search for "COVID-19" keyword. The snowball approach allowed to add more professional publications to initial Statistics Canada reports. The aim of this secondary search was twofold. First, it was intended to add the country-wide statistical data on WIL and employability of Canadian graduates. Second, focusing on COVID-19 section of Statistics Canada updates allowed to review the most up-to-date information on COVID-19 pandemic in relation to

post-secondary education, including WIL activities. Comparison of academic and professional publications served as the basis for developing the COVID-19 adjusted framework for experiential learning.

2.2 Transition of Post-Secondary Education to Meet the Needs of Life-Long Learning

One of the "buzz words" related to success in the workplace, as well as in society refers to the concept of generic skills, sometimes referred to as soft skills, core competencies or key competences [3]. The broad set of competencies required for successful lifelong learning has been defined and discussed around the world [4, 5]. In terms of teaching and learning the literature recognizes that various generic skills play an essential role in enhancing educational experiences, helping students in finding full-time employment and building a professional career [6, 7]. Nowadays, generic skills become of increased importance as they help new graduates to be flexible, adaptable, and carry out various job tasks. While definitions of generic skills may vary, researchers agree that these skills have wide application in any work environment and include communication, teamwork, critical thinking, problem solving, decision-making, creativity, use of technology, leadership skills and ethical behavior [6, 8]. Taken together, these skills allow employees to deal with non-routine assignments and situations, therefore increasing their work effectiveness and productivity. Generic skills can be developed in variety of situations, including academic and WIL programs, on-going professional activities [9–11]. Teaching these multiple skills requires specific learning environment adapted to the needs of particular academic programs, levels of education, and to other circumstances. Therefore, pedagogical approaches need to be updated for teaching particular sets of generic skills.

Canada, as a country with well-developed and knowledge-based economy, recognizes the importance of continuous improvement of its education system. Government of Canada is actively involved in several country-wide initiatives aimed at improving the approach to education, and tailoring academic programs to the needs of modern workplace. One of the recent projects is Canada's Future Skills Centre has addressed the need for building a pan-Canadian framework of generic skills [12]. Flexibility, ability to learn, and adaptability were named as the basic skills needed to respond to evolving demands of contemporary jobs. Thus, important employability skills referred to as "soft skills" correspond to personal and collaborative components of generic skills.

2.3 Current Approaches to Experiential Learning

Higher education literature has reviewed various models of experiential learning, and assessed the outcomes for developing specific generic skills. The outcomes of WIL have been studied in both on the job placement and traditional classroom settings. Work placements had positive impact on broad variety of generic skills, including thinking, collaboration and communication skills, and the use of technology [13]. Traditional teaching methods and academic course work were more restrictive in terms of fostering the development of generic skills related to thinking [6]. Results of this latter study emphasized the importance of practical application of knowledge, and collaboration among students. Specifically, problem solving, adaptability to new situations, and ability to interact with others required experiential component to supplement traditional delivery [6]. Therefore, experiential learning activities resulted in development of various generic skills through both job placements and traditional coursework. Specific forms of experiential learning all have their limitations: significant commitment of time is required for coop and internship programs, while classroom delivery limits the type of WIL in academic courses. It seems that mixed approach to developing employability skills can benefit students, educators, and employers. Combining both on-campus learning and work placement seems promising in terms of enhancing variety of generic skills, yet it requires significant resource allocations and commitment of multiple stakeholders to develop strong industry ties while redesigning traditional academic programs [14, 15].

Another concept to developing soft skills recommends customized learning through "learning contract" that includes course work, co-curricular activities, and students' involvement in various activities on campus [16]. This concept allows for flexibility in choosing specific components of experiential learning, and at the same time it requires student's commitment to the principles and categories of learning included in university-wide learning contract.

To sum-up, on-campus and off-campus components of WIL are widely applied across the world, and they yield positive outcomes in developing generic skills. The range of skills, and the level of their development vary depending on the goals set by post-secondary educational institutions, methods of experiential learning, and assessment of outcomes. Components of experiential learning can be tailored to specific disciplines, learning goals, and types of delivery. Common elements of all WIL approaches include the importance of matching theoretical knowledge to practical tasks, students' active involvement in the process of experiential learning, and collaborative assignments.

Four main points need to be to considered while adding WIL components to traditional coursework. First, experiential learning can be part of both academic programs and extra-curricular activities. Second, as the main focus of WIL, generic skills should be linked to specific subjects to allow for knowledge application in practice or in simulated environment. Third, collaboration with other students is essential for learning soft skills via traditional methods of delivery. Finally,

commitment of both students and educators is essential for successful experiential teaching and learning in any academic program.

The types and forms of WIL need to be adjusted to meet specific conditions put in place by COVID-19 outbreak. To compensate for limited job placement options in the time of pandemic, the overall development of generic skills needs to be maintained across wider variety of academic courses. More emphasis should be put on adaptability to changing external environment (including remote learning). Self-management and motivation, collaborative and peer learning, and technology awareness gain additional importance as they reflect one's ability to deal with increased levels of stress and uncertainty related to changes and restrictions imposed by COVID-19.

3 Adapting WIL Framework to Remote Delivery

Once again, existing models and approaches to WIL and generic skills development need to reflect the recent changes in socioeconomic environment that occurred due to COVID-19 pandemic. Educational institutions around the world have moved to remote course delivery for an indefinite period of time; and many industry-based placements have been postponed or cancelled. Both students and faculty members have faced challenges of fast transition to either online course delivery, or to remote coursework that include technology-based interactions among students and their course instructors. Teaching and learning has moved to a virtual setting for an indefinite period of time.

There is an on-going discussion in academic environment on the best approaches to provide flexibility within the limited scope of remote teaching and learning, accommodate individual requests of students, and fulfill the learning goals set by academic programs. Part of this challenging task includes an integration of experiential learning into traditional academic courses, while remote delivery limits in-person interactions to the minimum, or eliminates them completely. In other words, faculty members and students need to build the skills of effective communication when the options for communications, in-person and peer-to-peer learning are limited. At the same time, remote teaching and learning in the time of pandemic opens more opportunities to work on creativity, motivation, adaptability, self-direction, etc.

The challenge of remote experiential learning represents an opportunity to take another look at the set of skills that may improve employability for alternative workplaces (either virtual or digital). It also helps to handle unperceived crisis situations such as long-term pandemic with its increased levels of personal isolation, stress and uncertainty.

Figure 1 presents a framework for development of generic skills through COVID-related remote course delivery mode. The main focus of WIL in remote teaching and learning is on development of personal and collaborative components of generic skills. Instead of extended periods of real-life workplace experiences,

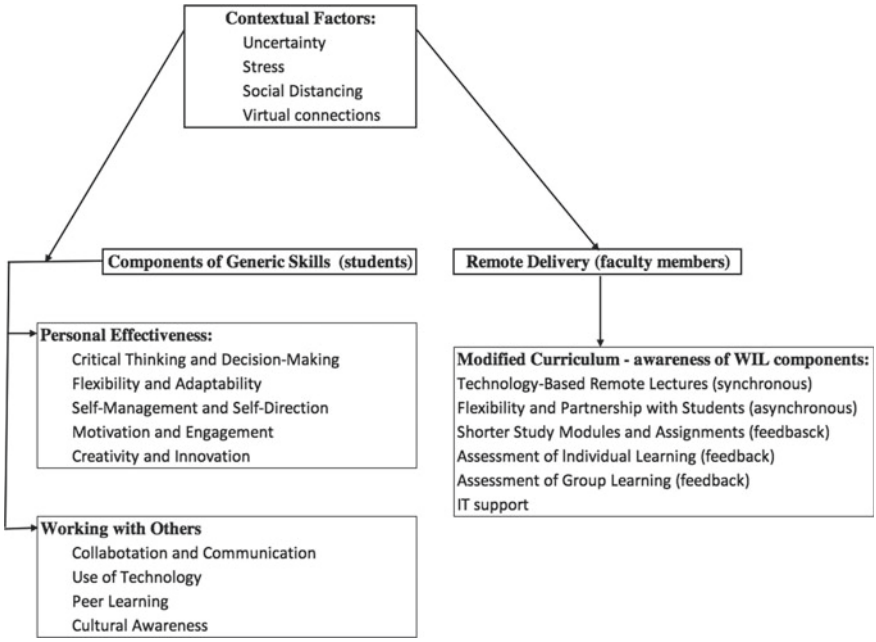

Fig. 1 Framework for development of generic skills through remote course delivery during COVID-19 pandemic

students will be exposed to short and small-scale individual and group projects done through virtual course platforms or simulations.

In this situation, generic skills related to personal effectiveness and to working with others become of high importance to students. Personal effectiveness skills allow students to deal with new and changing learning environment. At the same time, these skills prepare students to changing workplace demands, help them to develop high workplace adaptability, and contribute to lifelong learning. Skills for working with others help to learn from the peers while mastering teamworking, common goal setting, as well as adjusting to the many ways of using modern technology. While the new reality of remote course delivery accommodates some changes in study times and types of course activities, it also requires increased communication and coordination among many parties. Effective communication among students and between students and their course instructors improves the course delivery and improves learning outcomes. To some extent, this multi-level coursework coordination and communication imitates workplace relationships with supervisors and upper-level managers. COVID-19 context with its inconsistent and changing information flow, high uncertainty and related stress adds another layer of complexity in the multi-directional relationships in remote and virtual classrooms. Well-designed learning platforms and specific tools and assignments for remote experiential learning will have a great impact of the learning outcomes in terms of

specific generic skills and their input to student employability. Therefore, consistent IT support provided by educational institutions to both students and educators will be crucial for remote delivery of course components related to WIL and experiential learning.

Course instructors need to focus on the same categories of generic skills when design their remote courses. They will benefit from personal effectiveness skills related to flexibility and adaptability of remote delivery. Skills of working with others will be demonstrated through various types of feedback, collaboration with institutional IT support, and the use of other peer-support resources to enhance remote learning environment.

4 Conclusion

To conclude, the framework proposed above builds upon the recent WIL literature, while considering significant changes in operations of post-secondary educational institutions caused by COVID-19 pandemic. This paper emphasizes the need to broaden the applicability of WIL as a valuable tool to building much needed employability skills. The role of pedagogical approaches to WIL and the learning of generic skills is very important. On one hand, experiential learning through work placements may be beneficial for developing multiple generic skills. However, this approach leaves many students outside of WIL programs as it requires a lot of commitment from students. In addition, traditional placements suffer from the workplace restrictions imposed by COVID-19 as businesses adjust to new work requirements, and many establishments struggle to survive. On the other hand, WIL activities integrated in traditional course work may enhance generic skills, but in-course WIL require careful planning by faculty members and active participation of students. Certain skills can be learnt oi any (virtual) classroom as a bonus practical outcome of theoretical knowledge. It seems that in current situation there is no choice but try and introduce some elements of WIL into remote delivery to support students in bettering their generic skills and improving their employment potential.

This unique opportunity may lead to rethinking of WIL, as well as to redesign of courses and academic programs, and the overall upgrading of post-secondary education. More information exchange among faculty members, universities, and national WIL programs is needed to study the new methods of adapting WIL to COVID-19 pandemic, learn from best practices, and expand experiential education to variety of settings.

References

1. Statistics Canada (2020) Work-integrated learning during postsecondary studies, 2015. https://www150.statcan.gc.ca/n1/pub/75-006-x/2020001/article/00003-eng.htm
2. Statistics Canada (2020) COVID-19 pandemic: impacts on the work placements of postsecondary students in Canada. https://www150.statcan.gc.ca/n1/daily-quotidien/200512/dq200512a-eng.htm
3. Rychen DS, Salganik LH (2003) Key competencies for successful life and well-functioning society. Hogrefe & Huber, Cambridge, MA
4. The Council of the European Union (2018) Council Recommendation of 22 May 2018 on key competences for lifelong learning (Text with EEA relevance). https://ec.europa.eu/education/education-in-the-eu/council-recommendation-on-key-competences-for-lifelong-learning_en
5. Fadel C, Bialik M, Trilling B (2015) Four-dimensional education: the competencies learners need to succeed. Center for Curriculum Redesign, Boston
6. Virtanen A, Tynjälä P (2019) Factors explaining the learning of generic skills: a study of university students' experiences. Teaching in High Educ 24(7):880–894. https://doi.org/10.1080/13562517.2018.1515195
7. Wibrow B (2011) Employability skills at a glance. National Centre for Vocational Education Research, Sydney, Australia. https://www.ncver.edu.au/__data/assets/file/0013/2407/2404.pdf
8. Freudenberg B, Brimble M, Cameron C (2011) WIL and generic skill development: the development of business students' generic skills through work-integrated learning. Asia-Pac J Coop Educ 12:79–93. https://www.ijwil.org/files/APJCE_12_2_79_93.pdf
9. Crebert G, Bates M, Bell B, Patrick C-J, Cragnolini V (2004) Developing generic skills at university, during work placement and in employment: graduates' perceptions. High Educ Res & Dev 23(2):147–165. https://doi.org/10.1080/0729436042000206636
10. Kember D (2009) Nurturing generic capabilities through a teaching and learning environments which provides practice in their use. High Educ 57(1):37–55. https://doi.org/10.1007/s10734-008-9131-7
11. Kember D, Leung DYP, Ma RSF (2007) Characterizing learning environments capable of nurturing generic capabilities in higher education. Research in High Educ 48(5):609–632. https://doi.org/10.1007/s11162-006-9037-0
12. Futureworx (2018) Building a Pan-Canadian soft skills framework. https://futureworx.ca/wp-content/uploads/2019/01/Soft-Skills-Framework-Report.pdf
13. Jackson D (2015) Employability skill development in work-integrated learning: barriers and best practice. Studies in High Educ 40(2):350–367. https://doi.org/10.1080/03075079.2013.842221
14. Chowdhury F (2020) Work integrated learning at tertiary level to enhance graduate employability in Bangladesh. Int J of High Educ 9(4):61–68. https://doi.org/10.5430/ijhe.v9n4p61
15. Rowe A, Zegwaard K (2017) Developing graduate employability skills and attributes: Curriculum enhancement through work-integrated learning. Asia-Pac J Coop Educ 18(2):87–99. https://hdl.handle.net/10289/11267
16. Selamat J, Ismail K, Ahmad A, Hussin M, Seliman S (2013) Framework of soft skills infusion based on learning contract concept in Malaysia higher education. Asian Soc Sci 9(7):22–28. https://doi.org/10.5539/ass.v9n7p22

COVID-19 Goes on Twitter. Greek Conversations and Discussions

Dimitrios Kydros, Maria Argyropoulou, and Vasiliki Vrana

1 Introduction

The COVID-19 pandemic has become a global health crisis. The virus emerged in China last year but has spread globally with dramatic social and economic consequences. Countries across the globe responded with different measures to the outbreak but most of them enforced strict policies such as closing external borders, social distancing measures and national or area wide lockdown [1, 2]. The first case of coronavirus in Greece was reported on February 26 and the first death on March 12. The authorities responded immediately by shutting down all educational institutions, shops, and all recreation facilities. As of May 4, the government lifted restrictions in several stages trying to bring the country back to normality. Policy measures were also taken to limit the impact including expenditure measures, labor, tax measures and other fiscal measures [3].

The lockdown and the limited activity out of home, increased the use of social media which allowed people to stay connected sharing their emotion, stress as well as fear. The aim of this paper is to analyze network data from Twitter discussion regarding COVID-19 in Greece. We chose Twitter because it played a significant role during the global health crisis [4] sharing rapidly views, feelings and information. Moreover, it should be noted that this specific platform has been used by medical practitioners to convert and exchange ideas as well as commentary. Adding to this, Twitter is actively taking action to fight misinformation, removing tweets that do not respect/promote the global health authority recommendations [5].

Word adjacency networks were created and studied using Social Network Analysis Techniques. The paper is structured as follows: in the next section processes of data collection and limitations of the collection are discussed. Network formation of word pairs and visualization of the networks follow along with the

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microscopic analysis of the networks. A form of content analysis is performed, generating insights about the structures and meanings of the texts. Words that serve as gatekeepers of information and words that are close to many other words in the networks were located. Finally, the last section provides the conclusions and recommendations for future research. Methodology

The research aims at mining Twitter for information about what people thought and felt during the COVID-19 lockdown in Greece. NodeXL [6] was used to import data, create networks, calculate metrics and investigate word adjacencies. We used NodeXL to import tweets containing particular keywords. The search keywords used are "Κορονοιος", "κορονοιός", "κορωνοιος", "Κορωνοϊός", "Κορωνοιος". As NodeXL doesn't enable the extraction using keywords in Greek, the search keywords were transcribed to percent notation.

The date of tweets retrieved, ranges between 7 and 10 days from the search-day and the maximum number ranges from 18,000 to 20,000 tweets. The procedure stopped when one of the two limitations had been reached. Four important dates of the pandemic were used to start searches. The 17th of March to capture the first reaction to the closure of shops, the 20th of April (Orthodox Easter), the 24th of May (lift of restrictions, partial opening of educational structures) and the 15th of June (announcement of the 'restart tourism' plan). Thus, four datasets were created.

Tweets, Retweets, Replies-to, Mentions and MentionsinRetweet were retrieved. Table 1 presents tweets collected by type.

At the next step Retweets and MentionsinRetweets were excluded from the analysis as they do not offer new information [7].

Twitter users usually compress their thoughts by omitting words that do not convey messages, as tweets are small texts of 280 characters in length. However, tweets were preprocessed and stop words, common words that actually hide out content, were removed.

Words are regarded as nodes [8] and word adjacency networks were created and studied using Social Network Analysis Techniques. In the network words are the nodes and when two words appear sequentially a link is drawn between them. Semantic Network Analysis was used as it illustrates the relationships among words in the text, thus generating insights about meanings of the entire text and the structures [9]. NodeXL identifies word pairs and subsequently creates semantic networks. A file for each time frame was created containing each word pair occurring and the frequency within the time frame.

Table 1 Total tweets collected by type

Tweets type	17 March 2020	20 April 2020	24 May 2020	15 June 2020
Mentions	747	805	875	671
MentionsInRetweet	711	493	453	502
Replies to	363	334	478	321
Retweet	8475	6967	7275	9925
Tweet	9056	10814	10207	7809
Total	19352	19413	19288	19228

2 Findings

In this section word adjacencies or word pairs, were used to uncover content in texts. The semantic network produced is a weighed one. An edge of the semantic network is assigned a weight according to the times it is identified in the text. A word pair that appears 100 times is more important than a pair that appears 10 times. Semantic networks are large and complex, thus word adjacencies occurring more than 10 times were kept for the network construction.

As it is evident from Table 2, the word pair "new cases" (νέα κρούσματα) appears to be the most important in all searches which indicates that users were filled with unease and were following the developments commenting on the outbreak, sharing information on their twitter accounts, along with their fear for the COVID 19 spread. Looking at the first network, the word pair "super market" (σούπερ μάρκετ) comes next. Shoppers rushed to stock up food and other essentials. "Supermarkets are very efficient at providing a lot of food for a lot of people" during the pandemic [10]. In March 2020 sales in Greece jumped to 615 million euros as people were stocking everything "from anti-bacterial wipes to toilet paper that was selling out fast but being restocked almost as fast after panic buying" [11].

COVID-19 is a trending topic in social media and posts usually get lost in newsfeeds [12]. Thus, twitter users included hashtags to their posts to take part in a conversation happening on Twitter and most importantly, to make their posts visible in that conversation. In the first time-frame, trending hashtags regarding the pandemic in word pairs are: #covid 19 #covid2019, #covid2019 #κορονοιος, #καραντινα (quarantine) #κορονοιος. The first positive hashtags in the fight to save lives appear. #menoume_spiti #κορονοιος, #menoume_spiti #stayhome are the most used pairs of words. By using them people expressed their concerns or even panic about the spread of the coronavirus and encouraged others to stay home following the government's regulations. At the second time frame (20 April), twitter users discussed the heavy topic "new cases" (νέα κρούσματα) as well as the number of deaths. Three word-pairs are the more frequent "new deaths" (νέοι θάνατοι) dead Greece (νεκροί Ελλάδα) 108 dead (108 νεκροί). Users tried to discuss the mortality and to give information about confirmed deaths. The word pair last twenty-four-hours (τελευταίο εικοσιτετράωρο) demonstrates change over time of mortality rates and number of cases that had been affected At the third time frame on May 24, users tweeted with positive hashtags #μενουμεσπιτι #menoumespiti (stayhome), #covid_19 #μενουμεσπιτι, #menoumespiti #menoume_spiti, #menoume_spiti #μένουμε_ασφαλείς (staysafe) encouraging each other to stay home for a common effort to flatten the curve on coronavirus encouraging each other to adhere to the lock-down measures. Finally, at the fourth time period (15 June), discussions focused on new cases as 5 out of 10 more frequent word pairs were about new cases, (νέα κρούσματα, κορωνοϊός νέα, κρούσματα ελλαδα, κορονοϊός νέα, κρούσματα νέος). This period had been characterized by messages expressing worries about the lift of restrictions, the

Table 2 Word-pairs with frequency more than 10 times

17 March 2020			20 April 2020		
Νέα	κρούσματα	267	Νέα	κρούσματα	663
σούπερ	μάρκετ	182	Νέοι	θάνατοι	312
μέσω	χρήστη	177	Νεκροί	ελλάδα	272
#covid_19	#covid2019	130	108	νεκροί	169
κορωνοϊός	νέα	128	Τελευταίο	24ωρο	167
#covid2019	#κορονοιος	121	Κορωνοϊός	νέα	159
#καραντινα	#κορονοιος	117	#ysterografa	#υστερογραφα	135
ελλαδα	κοσμοσ	107	Ελλαδα	κοσμοσ	130
#menoume_spiti	#κορονοιος	98	Μέσω	χρήστη	124
#menoume_spiti	#stayhome	95	#κορονοϊός	#μενουμε_σπιτι	119
24 May 2020			**15 June 2020**		
νέα	κρούσματα	1137	Νέα	κρούσματα	1062
κορωνοϊός	νέα	284	Κορωνοϊός	νέα	342
τελευταίο	24ωρο	275	Τελευταίο	24ωρο	315
#κορονοιος	#covid19gr	267	Νέος	θάνατος	259
#covid19	#covid_19	265	Κρούσματα	ελλάδα	182
#coronavirus	#κορονοιος	261	κορονοϊός	νέα	178
#μενουμεσπιτι	#menoumespiti	261	κρούσματα	νέος	144
#covid_19	#μενουμεσπιτι	259	κρούσματα	θάνατος	144
#menoumespiti	#menoume_spiti	259	θάνατος	τελευταίο	140
#menoume_spiti	#μένουμε_ασφαλείς	259	#ysterografa	#υστερογραφα	124

partial opening of educational structures, and the announcement of the 'restart tourism plan' on 15th of June. The debate over the deaths of COVID 19 was back again.

Table 3 presents word pairs frequencies in all networks. Figures 1, 2, 3 and 4 present the semantic networks. Nodes are drawn with sizes proportional to their betweenness centrality coloring them according to the community they belong to. All words calculated, are not displayed in order to avoid unnecessary "noise" [13]. The networks display word adjacencies occurring more than 30 times.

The Figures confirm previous discussion regarding the actual discussion in this networks.

Table 4 presents some Macroscopic characteristics of the four networks. The networks are quite similar in volume taking into consideration Nodes and Links. All of them are small networks with 99–144 Nodes ($10 < N < 1000$ N represents the number of unique words) [14]. They are containing a small number of different connected components, indicating that users discuss only a few subjects.

The average shortest path ranges from 2.9 to 3.37 meaning that at most 2.9 to 3.37 associative steps separate any two words in the networks. Diameter determines the maximal extent of the network and ranges from 9 to 11. Density of all networks is normal for real-life networks [15] whereas modularity measure calculation

Table 3 Word-pairs frequencies

17 March 2020	20 April 2020	24 May 2020	15 June 2020	Classes
4775	6096	6112	4145	0–2
4372	6230	5173	3737	3–10
464	609	531	346	11–30
83	82	79	52	31–50
51	66	58	36	51–100
10	15	36	15	101–1500

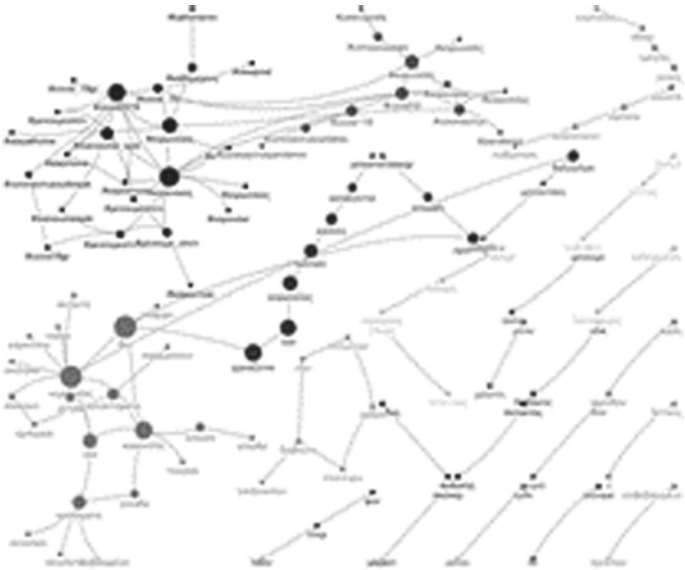

Fig. 1 Network 17 March 2020

yielded results of 0.59–0.73, suggesting that all the networks are highly modular and contain many different cliques [16].

Centrality measures are able to find nodes representing semantic resources in the networks under investigation, with the most advantageous positions compared to other nodes [17]. Closeness and betweenness centrality were chosen for the study. In a semantic network betweenness centrality of a word within is a direct indicator of its influence [18]. Table 5 presents words with the highest total betweenness centrality. The words κορωνοϊός or κορονοϊός (coronavirus), νεκροί (dead), νέα (new), κρούσματα (cases), κατέληξε (died), ελλάδα (Greece) serve as gatekeepers of information in all networks and have higher likelihood to become activated or activate connections across topic communities [19] as it is evident from Figs. 1, 2, 3 and 4.

Fig. 2 Network 17 April 2020

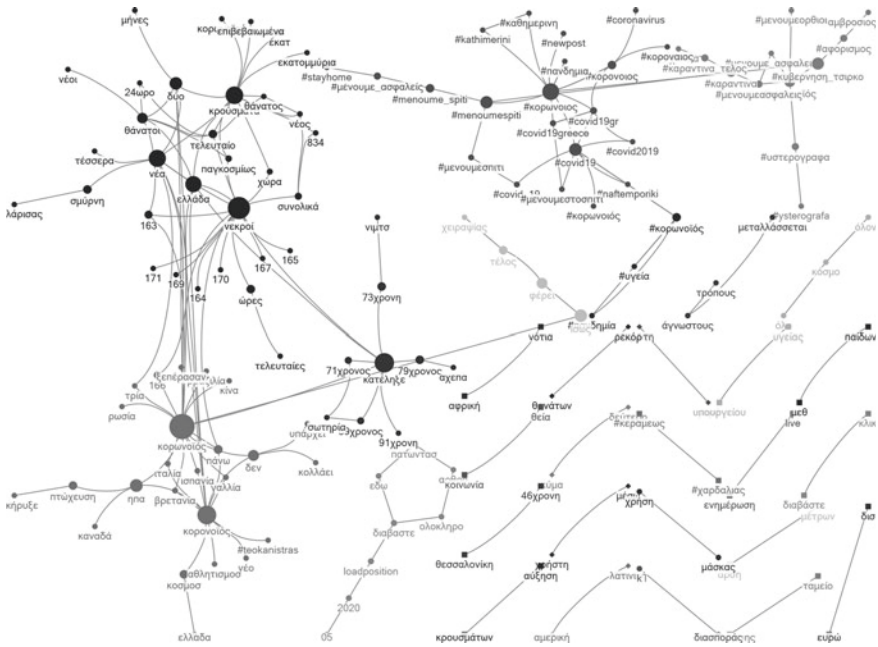

Fig. 3 Network 24 May 2020

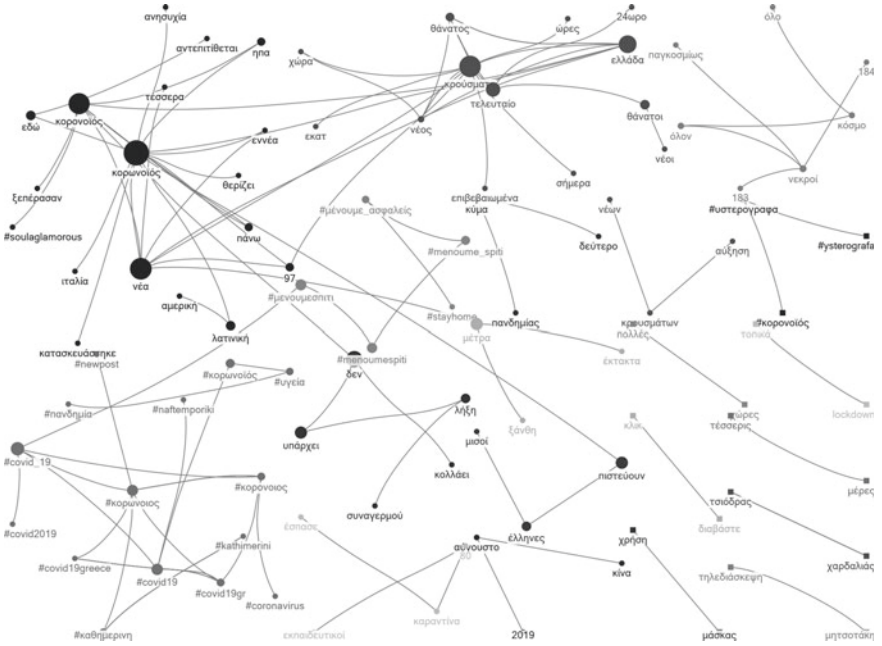

Fig. 4 Network 15 June 2020

Table 4 Macroscopic characteristics of the networks

17 March 2020		20 April 2020		24 May 2020		15 June 2020	
Nodes	121	Nodes	144	Nodes	158	Nodes	99
Links	145	Links	172	Links	185	Links	106
Components	21	Components	23	Components	24	Components	15
Diameter	11	Diameter	7	Diameter	8	Diameter	9
Aver. Shortest path	3.33	Aver. Shortest path	2.9	Aver. Shortest path	3.33	Aver. Shortest path	3.37
Density	0.009	Density	0,016	Density	0.014	Density	0.02
Modularity	0.69	Modularity	0,7	Modularity	0.71	Modularity	0.73

Closeness centrality shows how close a node is to the other nodes in the network [17]. Words with high values of closeness centrality are presented in Table 6. The words σούπερ (super) μάρκετ (market) have high closeness centrality in the networks of 17 March 2020 and 20 April 2020. This means that they are close to many other words in the networks and one can acquire new information with simple movements through the network of words. In the network of 24 May 2020 the words δεύτερο (second) κύμα (wave) are relatively few links away from all other words in this network and the same happens with the words τοπικά (local) and lockdown in the network of 15 June 2020. The words Κλικ (click) and διαβάστε

Table 5 Betweenness centrality

17 March 2020	20 April 2020	24 May 2020	15 June 2020
δεν	κορωνοϊός	κορωνοϊός	κορωνοϊός
κορωνοϊός	νεκροί	νεκροί	νέα
#κορονοιος	ελλάδα	κατέληξε	κρούσματα
κορονοϊός	νέα	κορονοϊός	κορονοϊός
χρειάζεται	κορονοϊός	κρούσματα	ελλάδα
#covid2019	Κρούσματα	νέα	δεν
ναό	#κορονοιος	#κορωνοιος	τελευταίο
#κορωνοιος	#κορωνοιος	ελλάδα	#covid_19
κορωνοΐος	κατέληξε	ηπα	μέτρα
νέα	δεν	#covid19	υπάρχει

Table 6 Closeness centrality

17 March 2020	20 April 2020	24 May 2020	15 June 2020
σούπερ	κλικ	μέσω	κλικ
μάρκετ	διαβάστε	χρήστη	διαβάστε
μέσω	σούπερ	δεύτερο	τοπικά
χρήστη	μάρκετ	κύμα	lockdown
κλικ	πρώτη	πρώτη	πολλές
διαβάστε	φορά	φορά	χώρες
ιερά	απαγόρευση	λατινική	χρήση
σύνοδος	κυκλοφορίας	αμερική	μάσκας
μένουμε	περιοριστικά	ρεκόρ	τηλεδιάσκεψη
σπίτι	μέτρα	θανάτων	μητσοτάκη

(read) are relatively few links away from all other words in all networks. As twitter message are limited to 280 characters, it is a common practice for users post links in tweets, usually to websites, to urge other to read more.

3 Conclusions

The study investigated discussions around COVID-19 on Twitter in Greece by conducting semantic network analysis to interpret what people were tweeting about during four important dates of the pandemic. NodeXL was used for the collection and analysis of tweets. We chose specific keywords in Greek for the collection of data during these dates ("Κορονοιος", "κορονοιός", "κορωνοιος", "Κορωνοϊός", "Κορωνοιος"). Twitter users shared basic mainstream information about the disease like 'New cases" and "new deaths". Words that serve as gatekeepers of

information and words that are close to many other words in the networks were located and significant discussions were visualized.

According to our key findings, people reacted with concerns about stocking up foods and other essentials before the lockdown. Following the spread of the outbreak and the strict preventive measures, Twitter users used positive hashtags encouraging others to stay home to battle the Covid-19. The important message conveyed was that social distancing was necessary to save lives. Our findings support previous research [5] on the critical role of Twitter in the dissemination of medical information during the COVID-19 pandemic. Twitters in Greece shared rapidly information and opinions on our responsibility to protect the health of the community. This study emphasizes the role that Twitter can play during the pandemic. The findings may help policy makers promote its use for well-intended information. Finally, it should be noted that track of the whole discussions as well as sentiment analysis of the tweets have been left for future publication.

References

1. Alqurashi S, Alhindi A, Alanazi E (2020) Large Arabic Twitter Dataset on COVID-19. arXiv preprint arXiv:2004.04315, 2020
2. Chen E, Lerman C, Ferrara E (2020) Tracking social media discourse about the COVID-19 pandemic: development of a public coronavirus Twitter data set. JMIR Public Health Surveill 6(2):e19273
3. European Commision (2020) Policy measures taken against the spread and impact of the coronavirus—14 May 2020. https://ec.europa.eu/info/sites/info/files/coronavirus_policy_measures_14_may_1.pdf
4. Liang H, Fung IC, Tse ZTH, Yin J, Chan C, Pechta LE et al (2019) How did Ebola information spread on Twitter: broadcasting or viral spreading? BMC Public Health 19:438 doi:https://doi.org/10.1186/s12889-019-6747-8
5. Rosenberg H, Syed S, Rezaie S (2020) The Twitter pandemic: the critical role of Twitter in the dissemination of medical information and misinformation during the COVID-19 pandemic. CJEM 06:1–4. https://doi.org/10.1017/cem.2020.361
6. Smith M, Ceni A, Milic-Frayling N, Shneiderman B, Mendes Rodrigues E, Leskovec J, Dunne C (2010) NodeXL: a free and open network overview, discovery and exploration add-in for excel 2007/2010/2013/2016. Soc Media Res Found. https://www.smrfoundation.org
7. Kantriwitz A (2019) The man who built the retweet: we handed a loaded weapon to 4-year-olds. https://www.buzzfeednews.com/article/alexkantrowitz/how-the-retweet-ruined-the-internet
8. Danowski JA, Park HW (2014) Arab spring effects on meanings for Islamist web terms and on web hyperlink networks among Muslim-majority nations: a naturalistic field experiment. J Contemp East Asia 13(2):15–39. https://doi.org/10.17477/jcea.2014.13.2.015
9. Danowski J, Yan B, Riopelle K (2020) A semantic network approach to measuring sentiment. Qual Quant. https://doi.org/10.1007/s11135-020-01000-x
10. Shveda K (2020) How coronavirus is changing grocery shopping. https://www.bbc.com/future/bespoke/follow-the-food/how-covid-19-is-changing-food-shopping.html
11. TornosNews.gr (2020) Greek supermarket sales rise during coronavirus outbreak. https://www.tornosnews.gr/en/greek-news/economy/39605-greek-supermarket-sales-rise-during-coronavirus-outbreak.html

12. Media Update (2020) Seven trending hashtags about COVID-19 on social media, https://www.mediaupdate.co.za/social/148423/seven-trending-hashtags-about-covid-19-on-social-media
13. Kydros D, Vrana V, Kehris E (2019) Social networks, politics and public views: an analysis of the term "Macedonia" in Twitter. Soc Netw 8:1–15. https://doi.org/10.4236/sn.2019.81001
14. Kulig A, Drozdz S, Kwapień J, Oświęcimka P (2015) Modeling the average shortest-path length in growth of word-adjacency networks. Phys Rev E Stat Nonlin Soft Matter Phys 91: 032810. https://doi.org/10.1103/physreve.91.032810
15. Melançon G (2006) Just how dense are dense graphs in the real world? A methodological note. BELIV 2006: beyond time and errors: novel evaluation methods for information visualization (AVI Workshop), Venice, Italy, pp 75–81, fflirmm-00091354
16. Kenett Y, Kenett D, Ben-Jacob E, Faust M (2011) Global and local features of semantic networks: evidence from the hebrew mental lexicon. PLOS ONE 6(8): e23912. https://doi.org/10.1371/journal.pone.0023912
17. Čerba O, Jedlička K, Čada V, Charvát K (2017) Centrality as a method for the evaluation of semantic resources for disaster risk reduction. Int J Geo-Inf 6:237. https://doi.org/10.3390/ijgi6080237
18. Hooper CJ, Marie N, Kalampokis E (2012) Dissecting the butterfly: representation of disciplines publishing at the web science conference series. In: WebSci, pp 197–200. ACM, New York, NY. https://doi.org/10.1145/2380718.2380737
19. Nerghes A, Lee J, Groenewegen P, Hellsten L (2015) Mapping discursive dynamics of the financial crisis: a structural perspective of concept roles in semantic networks. Comput Soc Netw 2:16. https://doi.org/10.1186/s40649-015-0021-8

Exploring the Relationship of the Big Five Personality Traits with Student Satisfaction with Synchronous Online Academic Learning: The Case of Covid-19-Induced Changes

Alexandros G. Sahinidis and Panagiotis A. Tsaknis

1 Introduction

Online synchronous educational experience via videoconferencing has become ubiquitous with the spread of Covid-19 Virus. Online educational experiences through computer-mediated communication have become widespread during the pandemic [1]. Synchronous online learning with the use of advanced technology, can increase students' feeling of connection to instructors and other students according to some studies. Due to instant feedback and interaction with peers and instructors, even if limited, students' engagement is increased when compared to that of asynchronous online learning. Participants in asynchronous online learning are not required to be online at the same time [2] and lack opportunities to peer with colleagues and professors real time [3, 4].

Online learning, synchronous or asynchronous, may not be suitable for every student. Students are different depending on their personality and their prior knowledge among other variables, thus affecting the outcome of the results obtained from the online academic learning [5]. The purpose of this paper is to contribute to the literature on exploring the relationship between personality factors and student satisfaction with synchronous online academic learning. The literature on the subject of this study is rather scant and that leads us to the conclusion that there is a need a great amount of research before we can have an appreciation of the nature of the relationship between the big five personality traits and satisfaction with synchronous online academic learning (SOAL) [5–7]. What complicates even further the relationships of the variables involved in the present study, is the adoption of SOAL not in a planned manner but through the disruption caused by the pandemic of the Covid-19. Most of the universities in the developed countries have discontinued their conventional programs many of them adopting SOAL ones. The new

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reality created conditions hindering the learning process posing questions of what the appropriate course of action will be for University administrators, teachers, and students alike [5, 7, 8]. A very small number of studies have tried to investigate whether there is a relationship between personality traits and satisfaction with synchronous online academic learning, they nevertheless refer to contexts of well—thought of endeavors by Universities, and strategically offering their services to students who chose SOAL [5, 9].

Measuring online student satisfaction has been a 'hot topic' for the academia [5], but there is no literature addressing the nature or the existence of the relationship between personality and satisfaction with online learning environments, especially post—disruption [9]. Following is the analysis of the big five personality traits. The recognition of the personality traits that affect SOAL may help to increase success in online course design and lead to greater student satisfaction levels [5].

2 Big Five Personality Traits

The Big five personality traits (openness, conscientiousness, extraversion, agreeableness, neuroticism) also known as the Big Five Personality model comprise the fundamental structure of human personality. A brief analysis of these traits is set out below.

- Openness to experience is a personality trait that describes a creative individual, intellectually curious, with an active imagination, adventurous, with unconventional ideas. Individuals that have this personality trait are unpredictable, risk takers, they lack concentration and appreciate the importance of spiritual and artistic quests [10–13]. This personality trait is directly related to a successful academic performance in students as well as a successful workplace performance [10, 14]
- Conscientiousness describes the level of self-competence, work discipline, organization and scheduling, self-control, the acceptance of conventional rules and the responsibility towards others. Individuals characterized by this personality trait are organized, reliable, self-disciplined, act with dignity, are attentive and persistent [10, 15]
- Extraversion refers to interpersonal skills. Individuals characterized by this personality trait are friendly, warm, social, extroverted, energetic, ambitious, confident and seek enthusiasm and stimulation through communication and conversation with others [10, 11]
- Agreeableness is a dimension that involves someone's behavior towards others. Individuals with this personality trait are trustful, altruistic, cooperative, and modest. They demonstrate sympathy and concern for the needs of others. They also show understanding when necessary to avoid conflict. Individuals that are not agreeable may be described as selfish, suspicious, and unscrupulous [10, 11]

– Neuroticism describes an individual's tendency to be under psychological stress [13]. Individuals with this personality trait are sensitive and usually face negative feelings such as anger, stress and depression [11]. Neuroticism is related to the degree of emotional stability. Emotionally stable individuals are described as calm, stable, mature, and resilient. Individuals with low emotional stability are irritable. Low emotional stability can be observed in insecure individuals as well as dynamic individuals, since in many cases it incurs from their dynamism [10, 16].

The extensive search on the existing literature revealed questions that remain unanswered and unfilled. At this time, the few relevant studies [5, 9] leaving a gap in our understanding the relationship of the five personality traits with SOAL. Based on these gaps, the purpose of this paper is to contribute to the literature on exploring the relationship between personality factors and student satisfaction with SOAL.

3 Methods

The purpose of this paper is to contribute to the literature on exploring the relationship between personality factors and satisfaction with synchronous online academic learning. We used a 30-item questionnaire to measure the Big Five personality factors, an instrument previously tested and validated in other studies [10, 17–19]. There were 555 questionnaires answered by students, who study in a Public Greek University located in Athens during the lockdown period from March to April 2020. The sample was a convenience one given that the resources available were limited, but the size of it allows us to proceed with a reasonably and reliably statistical analyses and produce valid conclusions. We examined the relationships between the Five personality factors and the dependent variable which is student satisfaction with SOAL. Factor analysis is used to reduce the number of variables into fewer numbers of factors, with five factors retained (openness, conscientiousness, extraversion, agreeableness, neuroticism). Cronbach's alpha reliability test was used to measure the reliability of the items of each factor. Furthermore, a multiple regression analysis was used, with satisfaction with online academic learning as a dependent variable and the personality factors as independent variables. The data were analyzed using the multiple regression routine of SPSS software version 24.

4 Results and Findings

The total sample of the study consisted of N = 555 respondents, 326 (59%) were females and 229 (41%) males. The structure of the observed correlations was determined by the factor analysis method Table 1, identifying the groups of variables that have a high correlation. As shown in the table below the first factor is openness, the second is conscientiousness, the third is extraversion, the fourth factor is agreeableness, and the last factor is neuroticism. Table 2 with the KMO and Bartlett's Test shows that the sample data were suitable for Factor analysis (KMO = 0.803 > 0.60, Bartlett's Test significance <0.001) [20, 21].

Subsequently we ran a reliability test Cronbach's alpha interpreted for the questions of each factor. The results have shown that alpha coefficient for the first factor (openness) is 0.791, for the second factor (conscientiousness) is 0.753, for the third factor (extraversion) is 0.749 and for the fifth factor is 0.695 (neuroticism). In most cases in social science research a reliability coefficient of 0.7 or higher is acceptable. The alpha coefficient for the fourth factor (agreeableness) is 0.573 < 0.7 that means that the items have not high internal consistency [21, 22]. Figure 1 shows the average of the responses that compose the five above factors and satisfaction with online academic learning.

The overall regression model was significant, the value of R^2 is significantly greater than zero. Table 3 demonstrates the predictive power of the independent

Table 1 Factor analysis identifying the big five personality traits

Item	I see myself as someone Who…	f1	f2	f3	f4	f5
O1	Is authentic, with new ideas	0.630				
O2	Has a vivid imagination	0.780				
O3	Is inventive	0.749				
O4	Likes to think and play with ideas	0.811				
C1	Does my job carefully		0.695			
C2	Is reliable		0.820			
C3	Works efficiently		0.805			
E1	Talks a lot			0.659		
E2	Is sociable			0.677		
E3	Starts conversations			0.801		
E4	Feels comfortable around people			0.710		
A1	Sympathize with others' feelings				0.786	
A2	Has a soft heart				0.505	
A3	Treats with kindness				0.801	
N1	Worry about things					0.629
N2	Is not calm					0.807
N3	Is stressed out easily					0.573
N4	Gets upset easily					0.795

Table 2 KMO and bartlett's Test

Kaiser-Meyer-Olkin measure of sampling adequacy		0.803
Bartlett's test of sphericity	Approx. Chi-Square	3151.732
	df	153.000
	Sig.	0.000

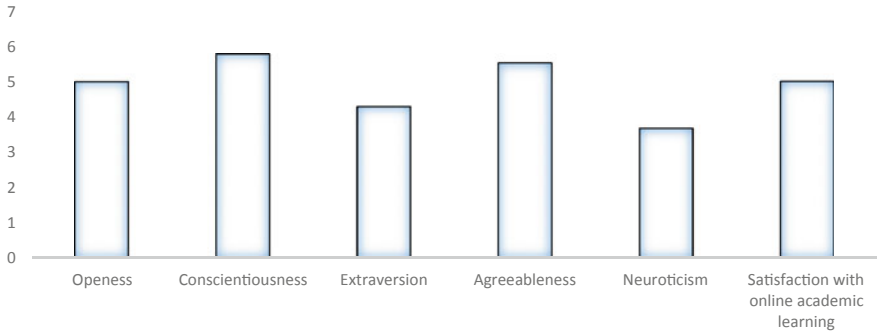

Fig. 1 Average of the responses

Table 3 Model summary

Model	R	R Square	Adjusted R square	Std. Error of the estimate
1	0.712[a]	0.507	0.502	0.634

[a]Predictors: (Constant), Neuroticism, Agreeableness, Openness, Extraversion, Conscientiousness

variables, in terms of student satisfaction with SOAL. The results have shown that 50.2% of the variance the dependent variable is explained by the independent variables (openness, conscientiousness, extraversion, agreeableness, neuroticism) (Table 4). Table 5 shows the predictive ability of the five factors, concerning satisfaction with online academic learning. Openness to experience and conscientiousness have a positive relationship with student satisfaction while neuroticism has a negative one. The variable that affects satisfaction most is openness. Openness, conscientiousness, and neuroticism have a statistically significant impact on the outcome variable (p values <0.05) but extroversion and agreeableness were proven non-significant predictors (p value = 0.583, p value = 0.452 respectively) [20].

The results presented above lend partial support to the findings reported in two earlier studies [5, 9]. Conscientiousness has a significant relationship with self-regulated learning which is quintessential in SOAL and in online programs in general, since students with this trait tend to be more responsible, intrinsically motivated and need little external guidance. Openness also has a significant positive relationship to student satisfaction with SOAL, more than any of the other big five traits. This runs counter to the findings reported by the studies mentioned earlier,

Table 4 ANOVA

Model		Sum of squares	df	Mean square	F	Sig.
1	Regression	226.773	5	45.355	112.846	0.000[b]
	Residual	220.652	549	0.402		
	Total	447.425	554			

[a]Dependent variable: satisfaction with online academic learning
[b]Predictors: (Constant), Neuroticism, Agreeableness, Openness, Extraversion, Conscientiousness

Table 5 Coefficients[a]

Model		Unstandardized coefficients		Standardized coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.178	0.270		4.365	0.000
	Openess	0.406	0.030	0.469	13.584	0.000
	Conscientiousness	0.362	0.036	0.338	9.949	0.000
	Extraversion	0.014	0.025	0.018	0.549	0.583
	Agreeableness	−0.020	0.026	−0.024	−0.752	0.452
	Neuroticism	−0.066	0.025	−0.082	−2.610	0.009

[a]Dependent variable: student satisfaction with online academic learning

perhaps because the SOAL in the present study was implemented in a disruptive way, due to the coronavirus pandemic, rather than the well-organized SOAL conditions characterizing the samples involved in the aforesaid studies [5, 9]. Neuroticism has a relatively weak but nevertheless significant relationship with the student satisfaction with SOAL, corroborating earlier findings in another study [9], which reported however a much stronger relationship. Extraversion and Agreeableness appear to have no effect on student satisfaction in this study. This finding agrees with the findings in the other two studies mentioned here [5, 9]. The findings reported in this study should be interpreted with caution. The respondents are university students who changed their normal course taking to a SOAL one, within the space of two weeks. In spite of the sudden change though, we can derive some conclusions even tentative ones. As expected not all personality types responded in the same way to the change. This implies that some of the students do not feel they benefit as much as others from SOAL, which is a challenge to all parties involved in the learning process, i.e., Administrators, Students and Teachers. Students not satisfied with SOAL should be approached and inquired to provide the feedback needed, on which the university policies will be based to remedy the problem. Structural changes in the course may also be helpful in overcoming the obstacles caused by the covid-19 pandemic. Further implications may involve the acquisition of technologies and technology savvy personnel, including Teacher training to facilitate the handling of the disruption.

5 Conclusions

This study, contributes to the literature on personality factors influencing student satisfaction with synchronous online academic learning, providing empirical evidence, to help formulate more effective policies that increase online student satisfaction. The implications of the study are important for both educators and policy makers. The newness of the pandemic phenomenon disrupting the global economy and all other social aspects of modern life, presents an enormous challenge for scientists from all disciplines, including those involved in the education process. This study has attempted to illuminate the issues raised by the sudden change of conventional classroom teaching to SOAL and specifically the degree of satisfaction felt by the students following the change in the teaching method to online teaching. The findings reveal the existing differences in satisfaction from SOAL among students with different personality traits. Although the study does not include actual learning outcomes implications, student satisfaction can be assumed to be linked to those. There are limitations to this study's findings that could be addressed in future research. The findings presented here need corroboration from more studies involving a wider spectrum of subjects and to that effect they are considered preliminary [9]. Further studies could include addressing the gender issue not discussed here, the differences that may exist between students of diverse fields and the use of samples from more than one culture, to draw more generalizable conclusions [23]. This study can have a significant impact on the development of synchronous online academic learning programs. Both program designers and teachers alike need to consider the personality difference effects on the learning process and outcomes and make the necessary changes to help the adaptation of all involved to the new circumstances however lasting they may be.

References

1. Xie G (2020) An instructional model of online synchronous instruction. Educ Res Front, 10 (3). ISSN Online:2168-247X
2. Francescucci A, Rohani L (2019) Exclusively synchronous online (VIRI) learning: the impact on student performance and engagement outcomes. J Mark Educ 41(1):60–69. https://doi.org/10.1177/0273475318818864
3. Kiriakidis S, Kefallonitis E, Kavoura A (2019) The effect of innovative communication technologies in higher education: current trends and future outlook, encyclopedia of information science and technology. In: Khosrow-Pour M (ed) Hershey: IGI Global, 4th ed, pp 3827–3838. https://doi.org/10.4018/978-1-5225-2255-3.ch332
4. Hrastinski S (2008) Asynchronous and synchronous e-learning. Educause Q 31(4):51–55
5. Cohen A, Baruth O (2017) Personality, learning, and satisfaction in fully online academic courses. Comput Hum Behav 72:1–12. https://doi.org/10.1016/j.chb.2017.02.030
6. Bolliger D, Erichsen E (2013) Student satisfaction with blended and online courses based on personality type. Can J Learn Technol/La revue canadienne de l'apprentissage et de la technologie, 39(1). https://doi.org/10.21432/t2b88w

7. Keller H, Karau SJ (2013) The importance of personality in students' perceptions of the online learning experience. Comput Hum Behav 29(6):2494–2500. https://doi.org/10.1016/j.chb.2013.06.007
8. Tlili A, Essalmi F, Jemni M, Chen NS (2016) Role of personality in computer based learning. Comput Hum Behav 64:805–813. https://doi.org/10.1016/j.chb.2016.07.043
9. Downs GH (2019) An exploration of the relationship between personality type and satisfaction with online learning environments. In: 2019 Portland international conference on management of engineering and technology (PICMET), IEEE, pp 1–4
10. Sahinidis AG, Tsaknis PA, Gkika E, Stavroulakis D (2020) The influence of the big five personality traits and risk aversion on entrepreneurial intention. In: Strategic innovative marketing and tourism. Springer, Cham, pp 215–224. https://doi.org/10.1007/978-3-030-36126-6_24
11. Sahinidis A, Frangos C, Fragkos K (2013) Does the five factor model help predict academic performance? Evidence from a school of business. In: Conference: 22nd international business information management association conference, IBIMA 2013, 13 November 2013 through 14 November 2013
12. Ambridge B (2014) Psy-Q: you know your IQ—now test your psychological intelligence. Profile, p 11. ISBN:9781782830238
13. Friedman H, Schustack M (2016) Personality: classic theories and modern research. 6th edn, Pearson Education Inc. ISBN 978-0-205-99793-0
14. Barrick MR, Mount MK (1991) The big five personality dimensions and job performance: a meta-analysis. Pers Psychol 44:1–26. https://doi.org/10.1111/j.1744-6570.1991.tb00688.x
15. Sahinidis GA, Stavroulakis D, Kossieri E, Sdrolias L (2018) Using the theory of planned behavior and the big five personality trait model in predicting entrepreneurial intention. In: A comparison study of the two models. International conference on strategic innovative marketing and tourism (ICSIMAT), Athens, Greece
16. Zhao H, Seibert S (2006) The big five personality dimensions and entrepreneurial status: a meta-analytical review. J Appl Psychol 91:259–271. https://doi.org/10.1037/0021-9010.91.2.259
17. Tsaknis PA, Sahinidis AG (2020) An investigation of entrepreneurial intention among university students using the theory of planned behavior and parents' occupation. In: Entrepreneurial development and innovation in family businesses and SMEs, pp 149–166. IGI Global. https://doi.org/10.4018/978-1-7998-3648-3.ch009
18. Kavoura A, Koziol L (2017) Polish firms' innovation capability for competitiveness via information technologies and social media implementation. In: Vlachvei A, Notta O, Karantininis K, Tsountas N (eds) Factors affecting firm competitiveness and performance in the modern business world. Hershey: IGI Global, pp 185–214. https://doi.org/10.4018/978-1-5225-0843-4.ch007
19. Constantin F, Kavoura A (2019) Entrepreneur without intention with websites as a communication tool: current trends in Romania. In: Kavoura A, Kefallonitis E, Giovanis A (eds) Strategic innovative marketing and tourism. Springer proceedings in business and economics. Springer, Cham. https://doi.org/10.1007/978-3-030-12453-3_126
20. Yong AG, Pearce S (2013) A beginner's guide to factor analysis: focusing on exploratory factor analysis. Tutorials Quant Methods Psychol 9(2):79–94. https://doi.org/10.20982/tqmp.09.2.p079
21. Kinnear PR, Gray CD (2011) IBM SPSS statistics 18 made simple. Psychology Press. ISBN-13: 978-1848720473
22. Baglin J (2014) Improving your exploratory factor analysis for ordinal data: a demonstration using FACTOR. Pract Assess Res Eval 19(1):5. https://doi.org/10.7275/dsep-4220
23. Sahinidis A, Gkika E, Tsaknis PA, Stavroulakis D (2020) Personality type and career preferences among young adults in post-recession Greece. In: Strategic innovative marketing and tourism. Springer, Cham, pp 1089–1095. https://doi.org/10.1007/978-3-030-36126-6_121

Social Distancing: Technology to the Rescue

Maria Polychronaki and Charalampos Patrikakis

1 Introduction

Technological progress has changed human life over the course of history through the inventions many scientists have achieved. Digital Health Technology refers to the use of technological tools to design and provide solutions for health professionals and help improve quality of lives promoting wellbeing. An incident like a decease outbreak of any scale, whether it is local or global, may occur at any time and even prediction is beyond humanity's control or Digital Health Technology advancements. The latest incident which has currently "taken the spotlight" and has already left its mark to the course of history is named "Coronavirus SARS-CoV-2", aka "CoViD-19". This paper aims to increase public awareness on cutting edge technological solutions which can assist with the CoViD-19 social distancing measures compliance both individually and collectively.

2 Past Outbreak Aftermaths

Many countries of the world are still burdened by the aftermath of an outbreak. The consequences of such an event may provoke necessary long-lasting shifts to the governance politics of a country in economy, in education, in health care system as well as to the everyday life of citizens and affect a society's model.

In 2013 in Africa, education was interrupted for many children for a long period of time, while the life quality between the members of families was severely impacted by the Ebola outbreak in order to prevent transmission of the virus to loved ones [1]. Economically, more than $3 Billion (USD) [2] were donated from

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USA, UK and Germany to support the operations center fighting against Ebola in West Africa. Earlier in 2002, due to the rapidly transmitted SARS to over 30 countries around the world, certain regions had their airports close down in order to de-escalate the rapid transmission, resulting in a significant economy blow. Going further back in time, the AIDS/HIV outbreak had an equal, if not greater, impact on everyday life and personal relationships in the early 80's due to the lack of cure and the high fatality rate which characterizes it.

Nowadays, the CoViD-19 outbreak tends to be compared with one of the most fatal influenza pandemics of the early twentieth century, the Spanish Flu, due to the aggressiveness of the virus spread [3, 4]. Biologically, they are two very different microorganisms, each one with its own characteristics and conditions under which they were presented. The war during 1918 prevented governments and societies to take drastic measures against the Spanish flu and help to the creation of a cure, allowing the transmission and mortality rates to set the record in the modern world. The only action people and health professionals could take was applying social distancing and isolation, to prevent the spreading of the flu in the first place.

This handful of examples show that controlling the transmission of the virus is a key variable for the de-escalation of infectious and transmittable diseases outbreaks, regardless the type of the pathogen causing it or the environmental and social conditions in which they are occurring.

Pandemics such as the Spanish flu brought the need for new politics and technological advancements in health care and nowadays diseases can be diagnosed rapidly, pharmaceutical industries continue to produce medicines globally for any known treatable disease and the World Health Organization (WHO) has been created for addressing global health crises and matters. However, regardless of all humanity's advances against such threatening outbreaks, a new strain of coronavirus was evolved in CoViD-19 causing global distress at the time of writing this paper. In fact, today's technology and more specifically modern transportation has possibly contributed in the spreading of the disease, due to the high passenger traffic in the airports and ports all around the globe.

3 The Importance of Social Distancing

Starting from the terrible and painful loss of dear people, all the way to the global economic consequences and changes in the everyday social behavior, a decease outbreak cannot be taken lightly. It must be dealt with consistency and thoughtfulness towards oneself and others as well. Health professionals and scientists all around the world are actively searching and experimenting with ways to defeat this new threat. Since the first cases of CoViD-19, it was indicated that it is highly contagious through the air, with extremely aggressive transmission behavior. Unfortunately, the health services of many countries are not well enough equipped to be able to support the treatment of incoming patients in such scale caused by the CoViD-19.

Consequently, the mortality rate has been abruptly increased and there is great concern for possible upcoming waves of it. The fear for "breaking" the health system of a country will not cease to exist until people become less vulnerable against this new strain of coronavirus, which means until a cure or vaccine is found and made available to the general population. The process of evolving a cure or vaccine takes a respective amount of time, mostly due to the fact that in order for them to be effective, the virus' behavior must become stable and predictable to health scientists.

During the crucial time of a pandemic incident, despite the high vulnerability of humanity, it is imperative for everyone to make even the smallest contribution towards the relieve of the healthcare system by showing individual responsibility. Social distancing has proven [5] to be one of the most effective and drastic measures which can be taken and if applied properly it can de-escalate the aggressiveness of CoViD-19, "buying" some time for the cure or vaccine creation. Social distancing rules are simple and not difficult to be maintained, however people always need the reminder to follow them due to the need of human nature to express emotional connectivity and interaction with closeness and proximity. To that end, technology can provide solutions and devices helping people preserving necessary physical distance and avoiding gatherings.

4 Technology and Spread Containment

Technology has already evolved based on the need of humans to make everything in life easier. To that end, there are devices and software applications which are used to assist in physical wellbeing and environmental conditions evaluation in order to promote improvement in two basic areas in modern living: health and productivity. The CoViD-19 spread measures which have to be taken during the pandemic are mostly social distance related and have significantly changed social and business interactions destabilizing the work and social flow. However, some of the preexisting technological tools as well as new advancements made come to the rescue increasing productivity and public health back to normal if not to a better stage than before.

4.1 Hardware Assisting Social Distancing

Sensor technologies have been utilized to measure people density in a given area or space. The plainest and simplest way for presence detection is based on using proximity sensors. Proximity based solutions are ideal for relatively small and closed spaces, such as the workplace of an office, alerting individuals when they have exceeded the social distancing policies. However, as these sensors depend mostly on human movement which cause the electromagnetic field distortion, they

cannot accurately measure people's density in the case where some people stay still. The True Presence [6] detector developed by Novelda has the ability to accurately detecting presence using people's respiration measurement. In contrast with other solutions using infrared technology, the True Presence does not rely on movement in space to detect presence, providing a more robust solution for preserving the limitations on the number of people being in an area.

Additionally, studies curried out in a short time period after the CoViD-19 outbreak indicate a strong correlation between the high air pollution (measured in PM2.5) percentages and hospital admissions and deaths due to the virus. In [7] it is concluded that PM2.5 increased by a single unit corresponds in the increase of CoViD-19 cases by 10, hospital admissions by 3 and deaths by 2. A Harvard study [8] associates the CoViD-19 spatial patterns with both high population density and high PM2.5 exposure areas while according to the researchers' findings an increase of 1 unit of PM2.5 in long term exposure is associated with the increase of mortality rate by 15%. Their results are in align with the already known fact of the increased exposure to air pollution raising the risk of experiencing the most severe of CoViD-19 symptoms aggravating hospitalization case number.

Through these studies it is made clear that higher danger for CoViD-19 cases is directly related and depended on the air pollution level, turning social distancing even more important in those areas. The Smart Environment PRO [9], developed by Libelium is able to measure the PM2.5 levels using particle matter sensor of high accuracy. Libelium's sensors data processing with the help of technologies such as AI or machine learning can be used to help preventing increased crowding to places with high air pollution levels or warn people to be extra precautious if visiting these places, thus decreasing the danger of CoViD-19 symptoms development.

One of the most important appeals doctors and nurses have made during this crisis is to not burden the health care systems only out of fear of CoViD-19 symptoms appearance. People should ask for medical assistance from hospitals only after certain symptoms show up at a specific level. That being said, Vayar's 4D intelligent RF technology sensor [10] is being used in the Meditemi's healthcare robot development for monitoring and screening for early CoViD-19 symptoms [11]. Approaching at a distance of one meter, the robot uses the Vayar sensor to remotely analyze a set of biometric variables as heart rate, respiratory rate, waveforms and temperature to display real time vital signs and a CoViD-19 infection risk level. This robot is to be used in public spaces such as building entrances, public transport or airports, where the staff required for screening can be eliminated also reducing the risk of infection. Lastly, this device can be installed in elderly's and CoViD-19 high risk groups residences and alert an appointed caregiver in the case of symptom development.

4.2 Software Assisting Social Distancing

Another huge sector of the technology world which was immediately mobilized by the social distancing measures is software development. Technologies such as Artificial Intelligence (AI) combined with IoT architecture are able to provide a wide variety of functionalities in order to recognize situations where social distancing is not applied properly and the risk of infection is increased.

Carto's GIS indoor mapping software [12] utilizes data from indoor spatial analysis to provide information regarding how employs use space in a workplace area. This information accompanied with a simple dashboard offered by GIS allow office managers to organize more efficiently task schedules and track room and collaborative areas occupancy. Maps and diagrams can be produced showing concentrations of people during the day, helping office managers to understand how they will be able to apply the new regulations without reducing productivity. GIS also allows for apps integration to allow employs to share whether they present any symptoms of infection enabling contact tracing if necessary.

Cumulocity's Smart social distancing [13] IoT application utilizes wearables for worker safety ensuring that proper distances are maintained between coworkers by alerting them if someone is too close to a colleague for too long. This application uses preconfigured BLE smart tags which are tracked by the IoT system, while privacy of personal data is preserved. The tags are associated with a protected ID which is separated from the BLE data and will be viewed only if necessary, in order to provide contact tracing for infected individuals. The use of smart tags is offering solution upon matters of privacy and monitoring against a smartphone-based solution.

Amazon has developed Distance Assistant [14] and it has already been deployed in Amazon's warehouses. Distance Assistance provides real time monitoring for social distance measures with the help of AI and camera set ups all around the corporate's buildings. Analyzing the live video feed, the AI is able to recognize when individuals are standing closer than six feet apart, while monitors with on screen indicators encourage employs to maintain appropriate distance from one another at all time. Moreover, Amazon has decided to open source the AI and software behind this to encourage the community to build their own Distance Assistant, promoting for the preservation of CoViD-19 measures.

4.3 Contact Tracing

There are cases where social distancing is either broken or not able to contain effectively the spread of a virus thus creating the need for containing the consequences in such an event. Efforts must be made in order to break the chain of transmission by isolating and treating if necessary infected individuals. Those efforts, even though not new, have been revived and gained popularity, due to the

devastating effects of the Covid-19 pandemic, under the term contact tracing [15]. This term is used to describe the mechanism of tracing all the people that have been in contact (i.e., in a distance smaller than 2 m for more than 10 min) with an infected individual and inform them to check for their health. Considering that this is a mechanism that works efficiently when a small number of people are infected, the complexity of its mechanics rise quickly as the number of infected individuals escalates.

To this end, once technology is coming to help, especially since contact tracing is supported by the most reputable companies for smartphone OS development (i.e., Google and Apple) that have shared a common press release [15] informing on their intention to provide technical tools so that anyone that wants can use them to be informed whether (s)he has been in proximity with a registered infected individual. To achieve this, BLE scanning is proposed with respect to the privacy of the individuals. Using this tool, a smartphone will be able to record the MAC addresses of other BLE devices in vicinity and use it to be informed if a recorded MAC address belongs to an infected person. To respect privacy, no IDs will be recorded only the fact that a certain MAC address belongs to an infected person.

5 Conclusion

Solutions such as those described present IoT functionality targeted towards the restoration of everyday personal, social, business and cultural activity. Productivity can be increased as shop owners and office workplace managers will be able to adjust and regulate employ density and if necessary and possible encourage distance working. As difficult as it may seem, during a pandemic, cultural activities can and should be carried out but without threatening the public health.

Using sensors and IoT systems, events such as theater shows, sport games or festivals can be organized and maintained safe for the people participating or simply being entertained with the proper application of social distancing at all times and be notified if otherwise. Furthermore, even if modern technology offers an extremely wide variety of social networks and media for adding distance to socializing, being able to socialize up close is very important for maintaining mental and physical health, especially for seniors, young adults and children. Sensor based systems can help cafeterias, restaurants and other public gathering businesses to organize the available space for applying social distancing and allow safe socializing for preventing mental and psychological effects.

Summarizing, it is crucially important for public health to apply all the proper measures against CoViD-19 and show individual responsibility as asked by health professionals. However, the fight against the coronavirus pandemic is going to be rather lasting in time than a quick blow using pharmaceutical help, causing changes in everyday life. These changes are not allowed to bring fear and put a stop at living as we know it, but bring quality adaptations and evolution towards modern societies able to show integrity and responsibility against pandemic incidents. The world of

technology is more than able and prepared to offer tools and applications for the adaptation of humanity during one of the most threatening times in history.

References

1. Qiu W, Rutherford S, Mao A, Chu C (2017) The pandemic and its impacts. Health Cult Soc 9:1–11. https://doi.org/10.5195/hcs.2017.221. Accessed 15 Aug 2020
2. Cdc.gov (2016) Cost of the Ebola epidemic. [online] Available at: https://www.cdc.gov/vhf/ebola/history/2014-2016-outbreak/cost-of-ebola.html. Accessed 15 Aug 2020
3. The Hub (2020) How pandemics shape society. [online] Available at: https://hub.jhu.edu/2020/04/09/alexandre-white-how-pandemics-shape-society/. Accessed 15 Aug 2020
4. Roser M (2020) The Spanish Flu (1918–20): the global impact of the largest influenza pandemic in history. [online] Our world in data. Available at: https://ourworldindata.org/spanish-flu-largest-influenza-pandemic-in-history. Accessed 15 Aug 2020
5. Thu TPB, Ngoc PNH, Hai NM, Tuan LA (2020) Effect of the social distancing measures on the spread of COVID-19 in 10 highly infected countries. Sci Total Environ 742:140430. https://doi.org/10.1016/j.scitotenv.2020.140430. Accessed 15 Aug 2020
6. https://novelda.com/
7. Cole MA, Ozgen C, Strobl E (2020) Air pollution exposure and COVID-19. IZA discussion papers 13367, Institute of Labor Economics (IZA)
8. Wu X, Nethery RC, Sabath BM, Braun D, Dominici F (2020) Exposure to air pollution and COVID-19 mortality in the United States: a nationwide cross-sectional study. Epidemiol Prepr. doi:10.1101/2020.04.05.20054502
9. Libelium, Smart environment PRO technical guide. Available at: http://www.libelium.com/downloads/documentation/gases_sensor_board_pro.pdf. Accessed 30 Aug 2020
10. Vayar, Technology-Vayar imaging. Available at: https://vayyar.com/technology. Accessed 30 Aug 2020
11. Meditemi, Meditemi home care robot. Available at: https://www.meditemi.com/en/. Accessed 30 Aug 2020
12. Carto, Indoor mapping and analytics. Available at: https://carto.com/solutions/indoor-mapping/. Accessed 30 Aug 2020
13. Software AG, Return to work with confidence. Available at https://softwareag.cloud/site/smart-social-distancing.html. Accessed 30 Aug 2020
14. Porter B (2020) Amazon introduces 'Distance Assistant'. Available at https://blog.aboutamazon.com/operations/amazon-introduces-distance-assistant. The Amazon blog, Accessed 30 Aug 2020
15. De la Garza A (2020) What is contact tracing? Here's how it could be used to help fight coronavirus. TIME magazine, April 2020. https://time.com/5825140/what-is-contact-tracing-coronavirus/. Accessed 30 Aug 2020

Effective COVID-19 Management Prerequisites: National Culture, Governance, Human Development, and Income Inequality

Barry A. Friedman and Marissa Wheeler

1 Introduction

This research employed five independent macro databases to explore the impact of national culture, government effectiveness, human development investment and income inequality on COVID-19 outcomes. COVID-19's profound impact on global health, well-being, social, economic, and political discourse is unparalleled in recent history, perhaps comparable to the 1918 flu pandemic. Despite the worldwide havoc the current pandemic has caused, there are significant differences among nations with respect to testing, tracing, infection, hospitalization, and ultimately, death rates. To effectively manage COVID-19 and future pandemics, it is paramount that macro national factors associated with favorable health outcomes be identified and addressed. Implications for the effective management COVID-19 are discussed.

1.1 Literature Review

There exist multiple open source databases that track COVID-19 cases, testing, tracing, deaths and other relevant variables daily [1, 2]. Aside from the issue of public health, the alarming case and death counts have profound short and long term societal, economic, education and mental health issues. As COVID-19 isn't the first pandemic/shock and most likely won't be the last, it is important to differentiate nations that effectively manage this pandemic from nations that have ignored or mismanaged the crisis.

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Make no mistake about it—nations' demonstrated track record in containing the virus varies significantly. For example, as of September 13, 2020, New Zealand experienced 1,446 COVID cases and 24 deaths, which is only 300 cases and 5 deaths per million, respectively. In contrast, the United States experienced 6,486,108 cases and 193,701 deaths, or 19,595 and 585 deaths per million. The contrast is disturbing and begs the question—what factors differentiate New Zealand and other countries that effectively manage COVID-19 from those countries that have failed to contain the virus. Perquisites for effective management, if identified and addressed *prior* to the next pandemic may translate into fewer cases and saved lives. We hypothesized that four macro national variables are related to effective COVID-19 management: national culture, effective governance, human development and income equality. These macro variables are described below.

1.2 National Culture

National culture is the "acquired knowledge that people use to interpret experience and generate social behavior. This knowledge forms values, creates attitudes and influences behavior" [3]. Hofstede [4] and the GLOBE Project [5] are the two most commonly used measures and are often compared [6]. The cultural dimensions across the two measures are: power distance, uncertainty avoidance, individualism/collectiveness, masculinity/femininity, time orientation, and indulgence/restraint. National culture is related to socio-economic factors and antibiotics use [7], demand for institutional quality [8], and health sector reforms [9].

1.3 Effective Governance

Governance effectiveness describes how well the government exercises power to create and enforce policies that benefit its citizens [10]. The World Governance Indictors, collected since 1996 by the World Bank Development Research Group and others, consists of six dimensions: voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, rule of law, and control of corruption [11–13]. Effective governance has been shown to be associated with positive health outcomes [11, 14–16] and healthcare expenditures [17].

1.4 Human Development

The United Nations Development Program maintains the Human Development Index database (HDI), which is "a summary measure of average achievement in key

dimensions of human development: a long and healthy life, being knowledgeable and have a decent standard of living" [18, 19]. HDI is composed of life expectancy at birth, education (years of schooling) and gross national income per capita. High HDI is associated with positive child health outcomes, [20], low infection rates [21], favorable perinatal outcomes [22], and lower maternal and infant mortality rates [23].

1.5 Income Inequality

The World Bank tracks income inequality across countries using the Gini coefficient (index/ratio): the statistical dispersion that represents the income/wealth inequality of family income within a nation [24, 25]. The lower the index, the more income is distributed equally within a nation. Alder and Neuman argue that "inequality in education, income, and occupation exacerbates the gaps between the health "haves" and "have-nots" [26]. In fact, early reports suggest that COVID-19 adversely impacts segments of the population most vulnerable (e.g., poor and minorities). Income inequality is associated with a host of negative outcomes, including health [27], life satisfaction [27], breast cancer [28], healthcare expenditure [29], child mortality [30] and health literacy [31].

2 Hypotheses

We hypothesized that certain dimensions of national culture and WGI, and HDI to be positively related to effective COVID outcomes. With respect to national culture, high power distance nations have citizens that respect authority. In these nations, citizens would comply with social distancing, tracing, testing and mask wearing directives out of deference for authority Low power distance, on the other hand, may result in non-compliance due to perceived infringements to citizens' personal liberty. Individualistic nations (high end of the scale) are more concerned with themselves and their immediate families as opposed to collectivist nations that stress community and may be more concerned for fellow citizens and the collective health of others. We would then except a negative correlation with this dimension with COVID-19 outcomes.

Nations high in uncertainty avoidance would create rules to manage COVID-19 that would reduce uncertainty. We hypothesize that feminine oriented nations would take a more nurturing approach to COVID-19 management that includes needed actions to protect citizens' well-being (i.e., a positive relationship as femininity is the low end of this scale). In seeking immediate gratification and pleasure, citizens in high indulgent nations may engage in behaviors that spread the virus more than nations characterized as restrained. (e.g., social gatherings without social distancing and masks). Nations with higher gender equality should more effectively

manage healthcare issues than nations that undervalue large segments of its population, provide fewer opportunities and have less women in positions of power.

We also hypothesize that effective governance as represented by the WGI are negatively associated with COVID-19 outcomes. Nations where citizens have a say in how they are governed, have rule of law, political stability, control of corruption and generally effective governance will more effectively management in a crisis.

HDI is hypothesized to have a positive relationship as life expectancy is an outcome of proper healthcare and increased education should lead to more informed intelligent behavior to curb spread of the virus.

Finally, we hypothesize that income inequality to be inversely related to COVID-19 effective management, as lower socioeconomic individuals may have less access to healthcare, testing and tracing, and treatment.

3 Methodology

Macro databases were obtained from the Hofstede and GLOBE Projects websites (national culture) [4, 5], the World Bank (WGI, GINI) [13], and the United Nations (HDI) [18, 19]. Data on 218 countries were merged into and analyzed using the Statistical Package for the Social Sciences (SPSS version 26) [32]. Descriptive statistics, correlations and regression analyses were used to explore the relationships among COVID-19 cases per million, deaths per million and national culture, WGI, HDI and GINI across 207 countries (differential sample sizes due to missing data in respective data sets).

4 Results

Table 1 contains descriptive statistics and correlations among variables that were significantly related to cases and deaths per million (complete data is available from the first author). In partial support of the hypotheses, HDI, selected WGI dimensions and only one national culture dimension, Gender Inequality, was significantly related to COVID-19 outcomes. Income inequality did not reach statistical significance.

5 Discussion and Conclusions

The HDI finding was surprising in that we expected nations with higher life expectancy, years of schooling and Gross National Income per capita nations would better manage the pandemic, but the results suggested the opposite. Nations with higher rule of law, regulatory quality and general governance effectiveness have

Table 1 Means, standard deviations and correlations of cases and deaths per million with HDI, WGI and National Culture

			Correlations		
	Mean	Standard Deviation	N	Cases per MM	Deaths per MM
Cases per million[a]	4649.08	6490.13	198		
Deaths per million[a]	114.25	190.11	198		
Human development index[b]	0.71	0.16	171	0.36**	0.37**
WGI voice and accountability[c]	−0.03	1.01	184	0.03	0.26**
WGI government effectiveness	0.02	1.00	188	0.16*	0.21**
WGI regulatory quality	0.01	1.02	188	0.17*	0.21**
WGI rule of law	−0.01	1.02	188	0.16*	0.17*
WGI control of corruption	0.01	1.01	179	0.12	0.18*
GLOBE Gender egalitarianism[d]	4.49	0.50	55	−0.14	0.36**

[a]All data most recent available. Cases and deaths collected September 13, 2020; [b]HDI data collected; [c]WGI data collected in 2018; and [d]Gender egalitarianism societal values globe data collected in 2004

*$p \leq 0.05$, **$p \leq 0.001$

less success with the pandemic, again contrary to our hypothesizes. Income inequality was not related to the COVID-19 outcome measures, nor were most of the national culture dimensions (for both Hofstede and GLOBE dimensions). The study limitations listed below may in part help understand these counterintuitive findings and provide directions for future research.

5.1 Study Limitations and Future Research

This study has four limitations: the sample was one of convenience, less than current data, unequal sample sizes and possible data reporting issues. The data was obtained from open and well-respected institutions (e.g., United Nations, World Bank and Yale University). The Hofstede and GLOBE national culture data are dated; however, updated GLOBE data is due by the end of 2020. WGI data compasses over 200 countries, but the national culture dataset is smaller (GLOBE data encompasses 61 countries), therefore resulting in considerable missing data should regression analyses be deployed. Finally, the study reports relationships at one point in time. A longitudinal analysis should be done moving forward. Of course, the hope is that the pandemic is managed so that longitudinal data doesn't exist.

5.2 Conclusions and Implications

The underlying conditions for effective COVID-19 management are important to identify, assess and build to adequately prepare for future shocks to our physical and mental health, society, and economy. We hope this study is a start. It appears that the relationship among the variables in this study and COVID-19 management is more complex than anticipated. For example, The relationship between power distance and effective COVID-19 outcomes may be moderated by leadership effectiveness. Nations with high poser distance but ineffective or incompetent leaderships may actually exacerbate poor healthcare and crisis management. The hypothesized negative relationship between effective government and COVID-19 outcomes may be moderated by low trust in government and high polarization that diminishes decision-making speed and quality [33]. Therefore, additional explanatory variables should be investigated, including effective leadership, trust in government and investment in education and healthcare.

References

1. COVID-19 Dashboard by the center for systems science and engineering (CSSE) at Johns Hopkins University (JHU). https://coronavirus.jhu.edu/map.html. Accessed 17 Sept 2020
2. World Health Organization. https://www.who.int/emergencies/diseases/novel-coronavirus-2019. Accessed 17 Sept 2020
3. Luthans F, Doh JP (2018) International management: culture, strategy and behavior. McGraw Hill, 10th edn. ISBN: 978-1-259-70507-6
4. Hofstede Insights. https://www.hofstede-insights.com/product/compare-countries/. Accessed 17 Sept 2020
5. The GLOBE Project 2020. https://globeproject.com/. Accessed 13 Sept 2020
6. Flynn, BB, Huo B, Zhao X (2010) The impact of supply chain integration on performance: a contingency and configuration approach. J Oper Manage 28(1):58–71. https://doi.org/10.1016/j.jom.2009.06.001. Flynn BB, Saladin B (2006)
7. Gaygısız Ü, Lajunen T, Gaygısız E (2017) Socio-economic factors, cultural values, national personality and antibiotics use: a cross-cultural study among european countries. J Infect Public Health 10(6):755–760. https://doi.org/10.1016/j.jiph.2016.11.011
8. Buitrago EM, Caraballo MÁ, Roldán JL (2019) Do tolerant societies demand better institutions? Soc Ind Res 143(3):1161–1184. doi:http://dx.doi.org.ezp.lib.rochester.edu/10.1007/s11205-018-2002-4
9. Mbau R, Gilson L (2018) Influence of organizational culture on the implementation of health sector reforms in low- and middle-income countries: a qualitative interpretive review. Global Health Action 11(1):1462579. https://doi.org/10.1080/16549716.2018.1462579
10. Kaufmann D, Kraay A (2002) Growth without governance. Discussion paper, World Bank Pol Res Working Paper No 2928
11. Banerjee T, Bobroski P, Friedman BA (2017) Effective governance, female educational attainment, leadership and healthcare outcomes. Theor Econ Lett 7:1223–1232
12. Kaufmann D, Kraay A, Mastruzzi M (2011) The worldwide governance indicators: methodology and analytical issues. J Rule Law 3:220–246. https://doi.org/10.1017/S1876404511200046
13. World governance indicators http://info.worldbank.org/governance/wgi/index.aspx#home

14. Friedman BA, Cox PL, Tribunella T (2010) Relationships among world governance indictors and national per capital income weighted by environmental sustainability. J Adv Bus 1(2):37–54
15. Andrus A, Cohen R, Carvajal-Aguirre L, El Arifeen S, Weiss W (2020) Strong community-based health systems and national governance predict improvement in coverage of oral rehydration solution (ORS): a multilevel longitudinal model. J Global Health 10 (1):010503. https://doi.org/10.7189/jogh.10.010503
16. Biadgilign S, Ayenew HY, Shumetie A, Chitekwe S, Tolla A, Haile D, Gebreyesus SH, Deribew A, Gebre B (2019) Good governance, public health expenditures, urbanization and child undernutrition nexus in Ethiopia: an ecological analysis. BMC Health Services Research, 19 doi:http://dx.doi.org.ezp.lib.rochester.edu/10.1186/s12913-018-3822-2
17. Ding K, Gunda T, Hornberger GM (2019) Prominent influence of socioeconomic and governance factors on the food-energy-water nexus in sub-Saharan Africa. Earth's Future 7:1071–1087. https://doi.org/10.1029/2019EF001184
18. United Nations. Human development index. http://hdr.undp.org/en/content/human-development-index-hdi. Accessed 17 Sept 2020
19. Human Development Index (2018) Human development indices and indicators 2018 statistical update (2018) Un Nat Dev Prog: 11. http://hdr.undp.org/en/content/human-development-index-hdi
20. Dumuid D, Maher C, Lewis LK, Stanford TE, Martín Fernández JA, Ratcliffe J, Olds T (2018) Human development index, children's health-related quality of life and movement behaviors: a compositional data analysis. Qual Life Res 27(6):1473–1482. https://doi.org/10.1007/s11136-018-1791-x
21. Forrester JD, Cai LZ, Mbanje C, Rinderknecht TN, Wren SM (2017) Clostridium difficile infection in low- and middle-human development index countries: a systematic review. Tropical Med Int Health 22(10):1223–1232. https://doi.org/10.1111/tmi.12937
22. Larroca SGT, Arevalo-Serrano J, Vila AD, Recarte MP, Hernandez IC, Pierna AS, Bonelli SL, De Leon-Luis J (2017) Human development index (HDI) of the maternal country of origin as a predictor of perinatal outcomes—a longitudinal study conducted in Spain. BMC Pregnancy and Childbirth, 17 doi:http://dx.doi.org.ezp.lib.rochester.edu/10.1186/s12884-017-1515-1
23. Alimohamadi Y, Khodamoradi F, Khoramdad M, Shahbaz M, Esmaeilzadeh F (2019) Human development index, maternal mortality rate and under 5 years mortality rate in West and South Asian countries, 1980–2010: an ecological study. Eastern Mediterr Health J 25(3):189–196. doi:http://dx.doi.org.ezp.lib.rochester.edu/10.26719/emhj.18.029
24. GINI Coefficient, The World Bank. https://data.worldbank.org/indicator/SI.POV.GINI. Accessed 13 Sept 2020
25. The World Factbook. https://www.cia.gov/library/publications/the-world-factbook/rankorder/2172rank.htmlAssessed 17 Sept 2020
26. Chung GK, Dong D, Wong SY, Wong H, Chung RY (2020) Perceived poverty and health, and their roles in the poverty-health vicious cycle: a qualitative study of major stakeholders in the healthcare setting in Hong Kong. Int J Equity Health 19(1):1–13. https://doi.org/10.1186/s12939-020-1127-7
27. García-Muñoz TM, Milgram-Baleix J, Odeh-Odeh O (2019) Inequality and life satisfaction in low- and middle-income countries: the role of opportunity. Societies 9(2) doi:http://dx.doi.org.ezp.lib.rochester.edu/10.3390/soc9020037
28. dos Santos Figueiredo FW and Adami F (2019) Effects of the high inequality of income on the breast cancer mortality in Brazil. Scientific Reports 9(1):4173–4176. doi:10.1038/s41598-019-41012-8
29. Madni GR, Madni GR (2019) Probing institutional quality through ethnic diversity, income inequality and public spending. Soc Indic Res 142(2):581–595. https://doi.org/10.1007/s11205-018-1924-1

30. Ortega B, Sanjuán J, Casquero A (2017) Determinants of efficiency in reducing child mortality in developing countries. The role of inequality and government effectiveness. Health Care Manage Sci 20(4):500–516. doi:http://dx.doi.org.ezp.lib.rochester.edu/10.1007/s10729-016-9367-1
31. Tang C, Wu X, Chen X, Pan B, Yang X (2019) Examining income-related inequality in health literacy and health-information seeking among urban population in China. BMC Public Health, 19 doi:http://dx.doi.org.ezp.lib.rochester.edu/10.1186/s12889-019-6538-2
32. IBM SPSS Statistics (2020) https://www.ibm.com/analytics/spss-statistics-software
33. Fukuyama F (2020) The pandemic and political order: it takes a state. Foreign Aff 99(4):26–32

The Role of Wi-Fi Positioning Systems in Safety Against COVID-19

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1 Introduction and Background

Wi-Fi fingerprinting offers a respectable proximity of users' position when it comes to indoor environment, although this depends on the distance between the user and the access points (APs) [1]. For outdoor usage of Wi-Fi, the Line of Sight is the dominant method to find someone's positioning although the Wi-Fi Positioning System (WPS) scales better for indoor environment becoming an Indoor Positioning System (IPS). For indoor environment the system utilizes both trilateration and triangulation according to the data gathered each time. The signal fluctuation of the APs affects the signal in terms of accuracy to the final estimated position [2]. Received Strength Signal Identificator (RSSI) in WPS includes negative values from (−50) which indicates an excellent signal identification up to (−100) which indicates no signal at all on most cases.

Another crucial aspect of WPS is the angle of arrival of the receiving signal, in the assistance of which a moving end-user can be distinguished amongst other from the angle that the signal is moving and being received through the system [3]. The angle of arrival is additional information to the RSSI so that the system knows the direction of the Received Signal.

The assistance of nearby smartphone with the use of Bluetooth or other technologies for the shake of better positioning estimation was called collaborative localization until 2010 [4]. It was not long before the fact that this term was replaced by the term peer to peer as a define of collaboration between nearby smartphones [5].

Before the advent of Beacon technology, the Wi-Fi systems were existing in hybrid schemes with non-Bluetooth Low Energy (BLE) signals. A proper example of such case was the coexistence of Cellular network data, GPS data, and Wi-Fi on

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the same research projects [6]. With prior digitization of the inside of a building, digital indoor maps can be available for smartphone based usage and can be exploited from developers for triggering the end-user to interfere with indoor mapping navigation [7]. For indoor Navigation and all the other functionalities that are described on the current paper a download of a mobile application is necessary for the end-user.

With the advent of COVID-19 the landscape of location services has changed. Service Providers are building software that takes into consideration facts of public health. For instance, Google and Apple have taken extra steps to ensure that their provided Services include COVID-19 related functionalities, making them compatible with National Exposure Notifications that assist the fight against COVID-19 spread [8]. Furthermore, due to the Pandemic other stakeholders such as governmental organizations decided to develop relative Location Based Mobile Apps for the fight against COVID-19. One relevant broad category of such applications is for Safe Distancing, which includes alerts when the end-users are in a closer than 2 m distance. Examples of mobile applications of this category are "Corona-Warn-App" from Germany, "eRouška" from Russia, "Immuni" from Italy. Other apps also include the function of Contact Tracing where users that have been in a shorter distance are marked on the system and when an individual is found positive for COVID-19 all of the marked contacts are automatically noticed that as possible COVID-19 carriers [8]. Contact Tracing mobile apps examples are "Stopp Corona" from Austria, "Covid Watch" from United States, "ito" from Germany and others.

This has revealed a new opportunity for Wireless Positioning tracking for elder care facilities. The monitor of patients' health and the communication between the doctors and the personnel is a high priority for everyone since the arrival of COVID-19 [9]. Current utilization IPS includes several examples. Hospitals and medical facilities that have invested in Wi-Fi for Indoor Location Services can track the personnel business hours, and the equipment availability in real time when needed [10]. The personalization of some services is also a viable option with IPS since they can monitor the traffic inside those facilities and update in real-time their medical record and health situation through a smartphone mobile application [11]. One noticeable utilization of indoor localization technology is for the benefit of people in special need. People that are visually impaired have a great chance to be in public environments independent and being directed by special modified smartphones or equipment in order to receive voice messages with indoor map navigation [12].

The commercialization of IPS based technology includes large malls or shopping centers with similar structures that can utilize IPS based equipment that can trigger indoor map navigation to the potential end-users with the relevant benefits and rewards [13]. With such monitoring tools the traffic of potential customers brings virtues similar to the ones on online sites-shops. For example, the bounce rate and the conversion rate is monitored through a mobile application that offers a point system with rewards to the potential customer [14]. Also, not only businesses with large physical stores but also small-scale businesses can benefit from IPS. Hence those with a small front face can unveil their exclusive offers by utilizing proximity marketing propositions that can trigger the user effectively in order to pay a visit [15].

In a similar way of implementation IPS technology exists in train stations that are servicing numerous customers in a daily basis. Tourists can also have the opportunity to translate the content inside the mobile application and get the proper directions they need [16]. On large airports with spacey buildings users might need sometimes assistance so that they can be guided to the right corridor before the department. This necessity with the additional value that businesses inside airports are getting with Proximity Marketing choices can have a positive effect for everybody [17]. Inside a sophisticated indoor environment such as a shopping mall a smartphone application with location information can be really useful in a time of need. People with health issues can benefit when they need help in a time of an emergency [18]. Security Personnel inside a shopping center or a public place can help businesses that are facing an issue such as theft in real time and save time in an urgent situation like this [19]. All these cases are already utilized in the field. However, the need for further optimization in order to increase the reliability of the results and the accuracy of the WPS in order to keep safe distancing related to reduce the spread of COVID-19 or other similar contagious diseases.

On the field of LBS, especially when numeric datasets are gathered, they can be utilized with machine learning algorithms since the field is recent and new information can be unveiled through this process [20]. Furthermore, most of classification and clustering algorithms seem to fit and bring additional value to RSSI measurements that can be translated into distance metrics and coordinates by the end of this process [21]. In this paper we present our methodology and results on modeling WPS dataset and provide conclusions that can help us different involved entities such as Governments, Businesses and World Health Organization increase the safety of population on indoor environments.

2 Methodology

In our research we are introducing a position estimation model based on classification algorithm that utilizes a dataset with RSSI measurements. This dataset was utilized from Waldo Library of Western Michigan University. The measurements were taken to ease the development, comparison and evaluation of fingerprinting-based hybrid indoor positioning methods [22]. They were recorded by the same type of Android devices in order to reduce the negative effect of the variety of hardware. The recording has taken place in three floors of the same building. We have isolated the ground floor measurements and furthermore we have utilized the Wi-Fi measurements in order to analyze them. Hence, we are going to investigate if a classification-based prediction model that can improve the IPS accuracy such as the WPS we previously described. Prior research has successfully implemented classification algorithms into IPS datasets and proved that our concept can be true but under different circumstances, environment and number of measurements [23].

3 Results

We have implemented Linear Regression Analysis for the creation of the Prediction Model, and we utilized the SPSS software for this purpose. The R value gives a good overall of 0.905 along with the R Square 0.818 which numbers reveal a strong Linear Correlation (Figs. 1 and 2).

According to our analysis, this prediction model for the longitude of the predicted measurements the model improves the accuracy of the exported measurements by 81.5% which puts the model into a successful mean of positioning estimation.

In Fig. 3 we present our new estimation model for the coordinate x of the exported dataset. In order to secure validate results we have used 10 folds' cross validation and the mean square value seems to increase trust into the exported results. The Variables V on the following table represent all the APs on the area of the received measurements.

The variable that has the highest input on the estimation model is the V5 and the V27 AP and those that have the lowest impact are the V3 and V26. We can see also the variable V14 being dropped to 0 since it does not give value to the general model. The fact that the majority of the values have participated into the estimation model of the x coordinate shows that all of the AP inside an IPS such as the WPS have their own input regardless of the relative position of them.

On the following paragraphs we are going to investigate the potential of prediction of latitude with the use of Linear Regression. The R value is on 0.790 and the R Square 0.625 which also reveals strong Linear Correlation on our model (Figs. 4, 5 and 6).

Apparently, there are more APs than the previous prediction that have values close to 0 which means that more of them are having less significant role to the final prediction of the exported coordinate. On the contrary this dataset results involves no AP that has 0 value as multiplier on the prediction model which means that there

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.905[a]	.818	.815	6.232

Fig. 1 Model summary 1

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	40206.380	29	1386.427	86.619	.000[b]
	Residual	24153.212	1509	16.006		
	Total	64359.592	1538			

Fig. 2 Model summary 2

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	12.109	.751		16.130	.000
	V3	-.009	.005	-.025	-1.912	.056
	V4	.017	.005	.048	3.627	.000
	V5	-.100	.006	-.265	-17.794	.000
	V6	-.002	.007	-.003	-.235	.814
	V7	.026	.069	.004	.383	.702
	V8	.012	.005	.032	2.283	.023
	V9	-.010	.006	-.027	-1.729	.084
	V10	-.072	.006	-.186	-12.140	.000
	V11	-.049	.006	-.119	-8.624	.000
	V12	.012	.006	.031	2.237	.025
	V13	.016	.006	.040	2.503	.012
	V14	.000	.006	.001	.082	.935
	V15	.018	.005	.049	3.659	.000
	V16	.060	.051	.014	1.171	.242
	V17	.006	.006	.017	1.105	.269
	V18	-.017	.006	-.043	-3.011	.003
	V19	.031	.011	.071	2.774	.006
	V20	.021	.011	.049	1.878	.061
	V21	-.052	.010	-.120	-5.219	.000
	V22	-.058	.010	-.136	-5.829	.000
	V23	-.003	.008	-.008	-.415	.678
	V24	.019	.008	.044	2.353	.019
	V25	-.044	.008	-.065	-5.365	.000
	V26	-.006	.007	-.011	-.850	.396
	V27	-.099	.034	-.037	-2.897	.004
	V28	-.011	.080	-.002	-.136	.892
	V29	.025	.008	.057	3.171	.002
	V30	-.071	.006	-.196	-12.855	.000
	V31	.049	.008	.087	6.566	.000

Fig. 3 Coefficients 1

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.790[a]	.625	.618	4.001

Fig. 4 Model summary 3

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	40206.380	29	1386.427	86.619	.000[b]
	Residual	24153.212	1509	16.006		
	Total	64359.592	1538			

Fig. 5 Model summary 4

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	18.432	.482		38.247	.000
	V3	.012	.003	.071	3.736	.000
	V4	.028	.003	.179	9.351	.000
	V5	.025	.004	.148	6.888	.000
	V6	.025	.004	.107	5.862	.000
	V7	.090	.044	.032	2.029	.043
	V8	.006	.003	.034	1.667	.096
	V9	.022	.004	.127	5.719	.000
	V10	-.001	.004	-.004	-.196	.845
	V11	.010	.004	.055	2.748	.006
	V12	-.010	.004	-.053	-2.714	.007
	V13	.035	.004	.193	8.430	.000
	V14	.015	.004	.088	4.007	.000
	V15	-.021	.003	-.127	-6.555	.000
	V16	-.033	.033	-.017	-1.001	.317
	V17	-.007	.004	-.042	-1.851	.064
	V18	.042	.004	.240	11.751	.000
	V19	.004	.007	.023	.612	.540
	V20	.002	.007	.012	.326	.745
	V21	-.008	.006	-.040	-1.215	.225
	V22	-.011	.006	-.055	-1.652	.099
	V23	-.011	.005	-.056	-2.074	.038
	V24	-.018	.005	-.095	-3.542	.000
	V25	-.011	.005	-.038	-2.191	.029
	V26	-.056	.005	-.225	-12.192	.000
	V27	-.020	.022	-.016	-.897	.370
	V28	.010	.052	.003	.193	.847
	V29	.001	.005	.005	.191	.849
	V30	.009	.004	.058	2.649	.008
	V31	.054	.005	.215	11.213	.000

Fig. 6 Coefficients 2

is no completely insignificant measurement from the dataset for the latitude of the end-user. Furthermore, the APs V10, V20, V29 have the lowest impact on the final prediction of the latitude, and the Aps of V7, V31 are those that are playing the most crucial role for the estimation of the final coordinate with the highest multiplier on the prediction model. These predictions can improve the positioning estimation of the end-user and rearrange the individual positions of the pinpoints in order to significantly improve the overall accuracy of the estimated coordinates.

4 Discussion

From the coefficients of the prediction model a business can have indicators on the scale of the accuracy data loss that a potential non-working AP will bring to the system. The same applies on the case where a working AP fails to connect to the smartphone devices, the accuracy loss will be subject to the scale of the relevant coefficient. With our prediction model we can monitor the APs that have the highest and the lowest input on the position estimation. Such results can confirm the need for rearrange on the Wi-Fi system and remove the APs with the lowest effect (coefficient) on a different and more useful position that will assure a higher coefficient-input in the final prediction model.

The statistical significance of these results bring Business and Managerial impact on COVID-19 relative apps that take advantage of RSSI measurements. The fact that this type of positioning estimation can be improved with statistical analysis means not only improvement of WPS accuracy but also more accurate Safe Distance capabilities for COVID-19 mobile apps. These results bring potential for WPS to assist mobile applications with indoor positioning capabilities, and update their services to the COVID-19 requirements, so users that have been in close contact with other potential COVID-19 infected to be informed for potential spread

5 Conclusion

The WPS is a viable solution for indoor environment when an advanced Wi-Fi network has been implemented through an enterprise, although the implementation of multiple APs needs additional time, knowledge software and hardware requirements. But those businesses that have managed to do so have rewarding results since IoT will continue to raise as a utilized technology [24].

From WPS we can have a better estimation of the user position when it comes to utilization of classification algorithms such as linear regression. Linear regression as well as the other classification algorithms can improve location indicators such as the RSSI values with improved positioning results to 90% comparing to the one that came from the raw gathered data [25].

Businesses that have already started investing in IPS equipment will have multiple benefits in the future when those technologies will be established through the social media mobile application. And this will occur since GNSS receivers on the phone will not have the opportunity to surpass the IPS in terms of accuracy. Hence big service companies such as Google and Facebook will utilize and automate their check ins and feedback through IPS technologies that end-users will utilize. They will be able to personalize also their content, newsfeed and ads according to the position of end-users related to the commercialized environment [26].

Places with significant traffic such as malls, trains stations, airports and other can be benefited and establish monitoring systems that will prevent individuals from

spreading COVID-19 which still consists a serious public health hazard. It can also consist a base for future relevant systems that can prevent from spreading other health pandemics. With continuous data capturing, monitoring and real time positioning of end-users, an efficient and safer environment can be created through IPS [27].

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References

1. Liu Y, Yang Z, Wang X, Jian L (2010) Location, localization, and localizability. J Comput Sci Technol 25(2):274–297. https://doi.org/10.1007/s11390-010-9324-2
2. Liu H et al (2012) Push the limit of WiFi based localization for smartphones, pp 305–316
3. Bi W et al (2018) Signal tracking using commodity WiFi, In 4th international conference on big data computing and communications. BIGCOM, pp 1–8. https://doi.org/10.1109/bigcom.2018.00007
4. Peng C, Shen G, Zhang Y (2007) BeepBeep: a high accuracy acoustic ranging system using cots mobile devices. ACM Trans Embed Comput Syst 11(1):1–29 (2012). https://doi.org/10.1145/2146417.2146421
5. Yin Z, Wu C, Yang Z, Liu Y (2017) Peer-to-peer indoor navigation using smartphones. IEEE J Sel Areas Commun 35(5):1141–1153. https://doi.org/10.1109/JSAC.2017.2680844
6. Zandbergen PA (2009) Accuracy of iPhone locations: a comparison of assisted GPS, WiFi and cellular positioning. Trans GIS 13(suppl 1):5–25. https://doi.org/10.1111/j.1467-9671.2009.01152.x
7. Lim C, Kim J (2018) Efficient radiomap management for WLAN based positioning system. In 9th international conference on information and communication technology convergence, ICTC, pp 1324–1326. https://doi.org/10.1109/ictc.2018.8539370
8. Mobile applications in support of contact tracing for COVID-19—a guidance for EU EEA Member States. https://www.ecdc.europa.eu/en/publications-data/covid-19-mobile-applications-support-contact-tracing
9. Xie X, Xu H, Yang G, Mao Z-H, Jia W, Sun M (2016) Reuse of WiFi information for indoor monitoring of the elderly. In 17th IEEE international conference on information reuse and integration. IRI, pp 261–264. https://doi.org/10.1109/iri.2016.41
10. Li Z, Yang Y, Pahlavan K (2016) Using iBeacon for newborns localization in hospitals. In 10th international symposium on medical information and communication technology (ISMICT), pp 1–5. https://doi.org/10.1109/ismict.2016.7498906
11. Zheng X, Jiang T (2016) A novel cloud based hospital health care service network framework with delay sensitive handoff guarantee. In 13th international conference on service systems and service management, ICSSSM. https://doi.org/10.1109/icsssm.2016.7538580
12. Kim J-E, Bessho M, Kobayashi S, Koshizuka N, Sakamura K (2016) Navigating visually impaired travelers in a large train station using smartphone and bluetooth low energy, pp 604–611. https://doi.org/10.1145/2851613.2851716
13. Zhang M, Wang J, Deng X (2017) Cost-efficient cooperative sharing of a complete Wi-Fi signature scheme for indoor localization in shopping malls. In 13th IEEE international conference on E-business engineering, pp 196–201. https://doi.org/10.1109/icebe.2016.041

14. Wåhslén J, Lindh T (2017) Real-time performance management of assisted living services for bluetooth low energy sensor communication. In 15th IFIP/IEEE international symposium on integrated network and service management, pp 1143–1148. https://doi.org/10.23919/inm.2017.7987452
15. Singh R, Sharma TP (2015) A location-based method for restricting the flooding DoS effect in WLANs. J Locat Based Serv 9(4):273–295. https://doi.org/10.1080/17489725.2015.1119318
16. W. Bronzi, S. Faye, R. Frank, and T. Engel (2017) Characterizing driving environments through Bluetooth discovery. In 8th international conference on information and communication technology convergence, Dec 2017, pp 501–506. https://doi.org/10.1109/ictc.2017.8191028
17. Carboni D, Manchinu A, Marotto V, Piras A, Serra A (2015) Infrastructure-free indoor navigation: a case study. J Locat Based Serv 9(1):33–54. https://doi.org/10.1080/17489725.2015.1027751
18. Ge F, Shen Y (2018) Realtime indoor localization on smartphones by multi-grained grid-based filters. https://doi.org/10.1109/GLOCOM.2018.8647773
19. Bradley C, El-Tawab S, Heydari MH (2018) Security analysis of an IoT system used for indoor localization in healthcare facilities. In Systems and information engineering design symposium, pp 147–152. https://doi.org/10.1109/sieds.2018.8374726
20. Campana F, Pinargote A, Dominguez F, Pelaez E (2018) Towards an indoor navigation system using Bluetooth Low Energy Beacons. In 2nd IEEE ecuador technical chapters meeting, Jan 2017, pp 1–6. https://doi.org/10.1109/etcm.2017.8247464
21. Yang G (2017) Research on fusion method for indoor positioning system based on sensors and WLAN technology. In 2nd IEEE advanced information technology, electronic and automation control conference, pp 2689–2692. https://doi.org/10.1109/iaeac.2017.8054514
22. Tóth Z, Tamás J (2016) Miskolc IIS hybrid IPS: dataset for hybrid indoor positioning. In 26th international conference radioelektronika, pp 408–412. https://doi.org/10.1109/radioelek.2016.7477348
23. Al Qathrady M, Helmy A (2017) Improving BLE distance estimation and classification using TX power and machine learning, pp 79–83. https://doi.org/10.1145/3127540.3127577
24. Ford M, Palmer W (2019) Alexa, are you listening to me? An analysis of Alexa voice service network traffic. Personal and ubiquitous computing 23(1):67–79. https://doi.org/10.1007/s00779-018-1174-x
25. Tamas J, Toth Z (2018) Classification-based symbolic indoor positioning over the Miskolc IIS Data-set. J Locat Based Serv 12(1):2–18. https://doi.org/10.1080/17489725.2018.1455992
26. Zeinalipour-Yazti D, Laoudias C, Georgiou K, Chatzimilioudis G (2017) Internet-based indoor navigation services. IEEE Internet Comput 21(4):54–63. https://doi.org/10.1109/MIC.2017.2911420
27. Stergiou C, Psannis KE, Kim BG, Gupta B (2018) Secure integration of IoT and cloud computing. Future Gener Comput Syst 78:964–975

Covid-19 Pandemic's Influence on Popular/Folk Culture and Tourism in Greece: Shaping the Future and Beyond

Charis Tsalpara, Irodion Soulopoulos, Ioannis Sklias, and Nikos Grammalidis

1 Introduction

How much has the life of the people of post-covid culture changed? What social impact does this have, as it directly affects regions, which are also tourist destinations? Can anyone party in an online tavern? What is Ikaria or Nisyros without their folk festivals that gather a huge number of people every year? The same holds for every tourist destination, because, in essence, the gathering of locals and those associated with the area is what gives an identity to each place. Can we transfer such living environments in the digital world? What are the pros and cons?

Pop/folk culture constitutes an important part of Intangible Cultural Heritage and is an important factor for social cohesion, tourism, and economic development. Festive practices and traditions entertain, act as a tourist attraction and reflect important information about the cultural, societal and historical background of local regions and communities. In our times, this important ICH genre is endangered by many different factors, including economic crisis, globalization, immigration, urbanization, etc., and thus needs to be protected. Recently, inline with UNESCO's efforts for safeguarding and transmission of ICH [1], EU projects such as i-Treasures [2], Terpsichore [3] and WhoLoDancE [4] tried to exploit modern ICT technologies to digitize, analyse, visualize and re-use Intangible Cultural Heritage (ICH), including musical and dance performances. Pandemics, like the recent Covid-19 pandemic in March 2020, pose an additional unexpected threat that has seen to have dramatic consequences to the work, income and life of music and dance performers. In particular, this impact is even stronger for the popular/folk

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culture genre, which typically involves socializing and more communication and interaction between the performers and their audience.

This paper aims to (a) examine this impact, using the Greek popular/folk music scene in Athens, Greece as a use case, and (b) investigate if and how modern ICT technologies can offer new approaches for mitigating these negative impacts.

2 Popular and Folk Culture and Pandemics

2.1 Life Before the Pandemic: Folk Culture in Balkans and Greece in History

The Balkans, including mainland Greece and the islands of the northeastern Mediterranean, were relatively recently separated from the borders established by the nation-states, in contrast to the vast majority of central/northwest European countries, where borders were drawn since the 18th–19th century or even earlier. This has affected the local communities in many ways. Such elements include the living cultural elements, some of which are lost in the depths of the centuries that define the local identities, making each one stand out strongly from the other. Even now, at the beginning of the second decade of the 21st century, many of these elements such as local customs, food, music, dance, mentality, and even local idioms appear vibrant in the eyes of the big city traveler, reproduced using the same process, by which the anonymous tradition is reproduced for centuries.

For instance, in the case of music, we find repetitive and ancient patterns everywhere, to which each performer adds his own way of playing, his own aesthetics, and even his own notes, then delivering the pattern freely for the next one who will choose to use it. These motifs, inextricably linked to voice (songs) and to rhythmically coordinated group movement (dance), forge strong local cultural consciousness. This process is repeated many times each year in large or smaller parties and feasts, planned by religion (festivals) or spontaneously (Fig. 1).

Fig. 1 Party, festivals and feasts in Greece

Etymologically, the Greek word "glenti" (party) comes from the Turkish word "eğlenti". It is a dynamic process, consisting of gathering family and/or friends, accompanied by food, alcohol and often live music. The last three are the elements that will help the gathered group to reach the energy and emotional climax of the "glenti", called "kefi" (a word derived from the Turkish word "keyfi", meaning "mood"). These processes, functionally necessary in the local communities as safety valves to release the energy of their members, are repeated at every opportunity many times following the cycle of the seasons, with which were combined the agricultural or livestock work of community members. Even after the wave of urbanization of the 20th century, such feasting activities continued to exist both in the Greek countryside and in the urban centers. In the latter case, feasting was moved to mostly closed, small and large venues, while the local music idioms were largely replaced by a new kind of music, an alloy of anonymous and branded creation, created in such a way as to form a new code of entertainment and communication of people coming from different places. This genre formed the so-called "Rebetiko" and "Greek pop" music and culture. However, at each venue, depending on the origins of the musicians and the audience, the local traditional musical idioms occupy a prominent place.

The situation described above continues—or rather—continued to affect the various socio-political-economic changes, largely undisturbed to this day. In this way, the feasting in Greece contributed to the creation of a daily life very different from that of the inhabitants of the developed western society. After all, since the middle of the 20th century, when the development of both foreign and domestic tourism began, we observe the significant success of destinations that are very active in organizing such feasting activities. The festivals and all kinds of festivities "steal the show" and the heart of the tourists, who recognize in them the catalytic power of a consolidated cultural identity, which gives a special character to each place. Whether by treating it as a special "exotic fruit" or by adopting its mentality, through repeated visits that give a sense of "becoming a local", travelers who witness such feasts, are undoubtedly fascinated. Therefore, such festivities actually function in a very direct way as ambassadors of the culture of each place/region. Their reputation is attracting more and more tourists, thus contributing to a very significant degree to the local economies.

At this point, we are going to introduce the activities of APTALIKO [5], which acts as a network of musicians and music venues. APTALIKO started in 2011 as a website. Since then, this website presents both artists and music venues based in Athens and dealing with folk and traditional music of Greece, the Balkans and the eastern Mediterranean in general. One of its main services is the updating of the calendar of such events along with the venues hosting them and artists employed. Aptaliko NPCP was established in 2017 as a Non-Profit Civil Partnership.

In the summer of 2020, after the Covid-19 global quarantine, APTALIKO NPCP conducted a statistical survey named "Mapping the Artists of Folk/Popular Music Culture". A questionnaire of 49 questions was prepared by a team of six members, including musicians, musicologists, statistician and attorney, so that all necessary expertise to fulfill the needs of the survey is included. The content of the

questionnaire was divided into different sections, about musical expertise, years of work, music styles, musical education, work conditions, health insurance, etc. There were also questions about the musicians' monthly income before and after the coronavirus quarantine involved.

The questionnaire was posted on social media (Facebook) and musical sites (e.g. Musicpaper.gr, rembetiko.gr). It was also sent by private messages and emails to a number of approx. 1000 participants (musicians and artists) in August/September 2020. In total, the questionnaire was filled by 2469 participants, out of which 1112 completed the whole survey, while 1357 responded partially. Indicative statistics are presented below.

First, based on APTALICO events calendar, we created a map of the music venues in Athens that employed music groups or musicians of this genre (Fig. 2). Out of these, 130 can be classified as "Hangouts" (small places with food, taverns, taverns, cafes, etc.), while 12 can be classified as "Music Scenes" (larger dedicated venues).

According to the answers to the questionnaire, 77.9% of musicians are employed in small places with food (hangouts), but also 74% in Music Stages (Fig. 3). From the above, we can conclude that most of these professionals work both in hangouts as well as in Music stages. Furthermore, almost half of the sample (41.75%) works also in folklore festivals i.e. in the context of local/religious events. It is worth mentioning that the available data can give us only a part of the whole picture, since the community that we are referring to has been largely an unknown, uncharted area until now.

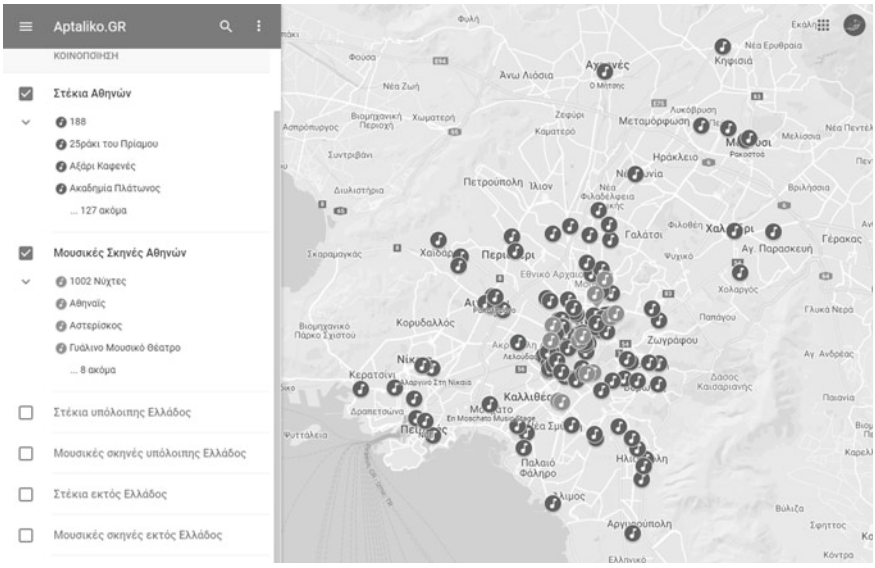

Fig. 2 Live music venues in Athens (Aptaliko Calendar 2019–2020)

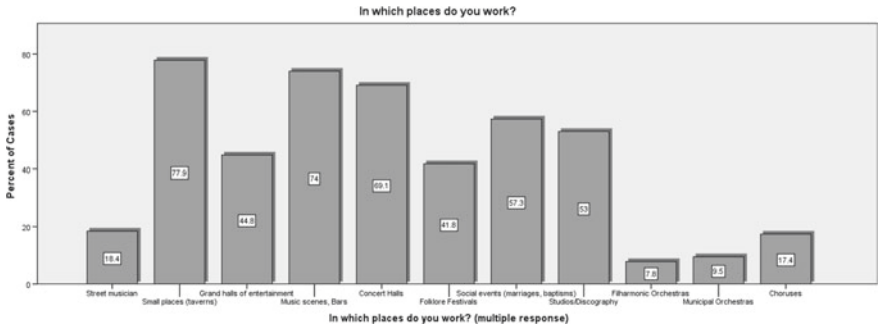

Fig. 3 Classification of music venues

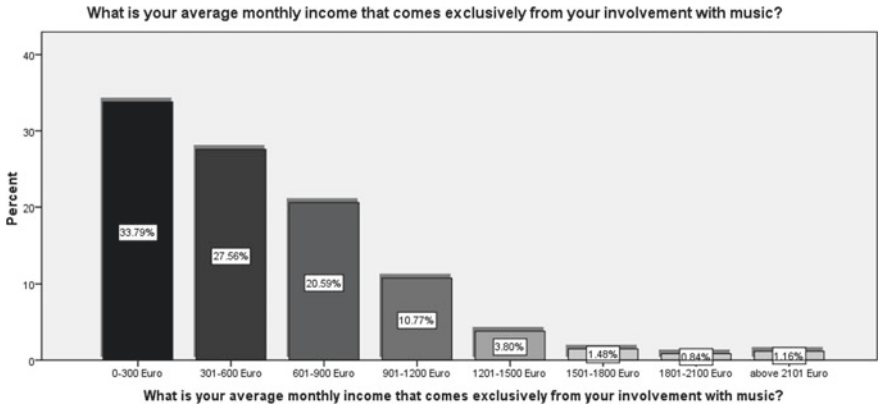

Fig. 4 Musicians income statistics

Regarding the financial earnings of the pre-coronavirus period of the employees in the places mentioned above (Fig. 4), we observe that 61.35% of the sample of respondents has an average monthly income lower than 600 €, 31.36% between 600–1200 € and only 7.28% above 1201€.

2.2 Life During the Covid-19 Pandemic

In March 2020, the entire country and the world was ordered to "stay at home" due to the first wave of the Covid-19 pandemic. This event, as well as its consequence, which was actually the postponement or cancellation of all living cultural events, resulted in a long three-month pause. The artists, the owners of venues that hosted live music, but also many related professions (e.g. technicians, tourism professionals) who made a living from these events, found themselves face-to-face with

unemployment and poverty overnight. If we consider that, before the pandemic, about half of this population had a monthly income of less than 600 euros and therefore could barely meet their basic needs, we can understand what this means. If we also consider the element of seasonality of these professions, and thus the strong effect that this situation caused to long-term plans in the depth of months or even years, we inevitably realize the deep economic crisis to which this situation leads. The impact of the decrease in incomes of these social groups is not limited to the lockdown quarter, but throughout the summer of 2020 and the following winter period 2020–21. Figure 5 presents data regarding the income decrease of these artists: 65.02% observed a decrease in income of more than 50%, while 14.75% witnessed a decrease between 26–50%.

Inevitably, the economic changes and difficulties, affect seriously the archaic traditions of festivals and local feasts, and in fact in a very short period. The consequences of the measures of social distancing imposed to fight the outbreak of the pandemic, are evident to both the performers in these traditions as well as to the public that previously participated in them. Crowding, human contact, group dancing and therefore the creation of shared memories and through them the verification of cultural identities that continued uninterrupted until now through these processes becomes temporarily impossible. After the end of the quarantine quarter, the only form of live music event allowed is only after taking all the necessary precautions, which imply "concert" conditions that are quite different from what mentioned above. This particular case of performance exists in Greece as a different cultural event, where there is minimal interaction between the transmitter (artist) and the receiver (audience). Consequently, the activities of party and feast are threatened with extinction, human communication is greatly reduced, and the

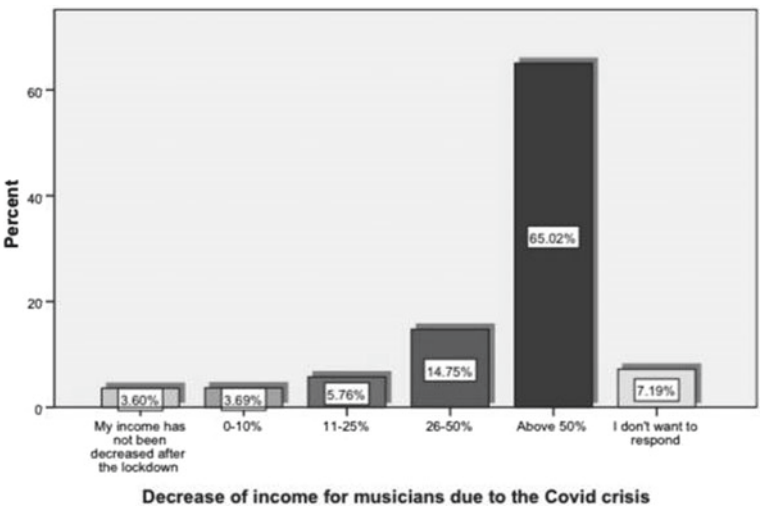

Fig. 5 Decrease of income for musicians due to Covid crisis

ultimate goal, i.e. the relief of emotional, psychological and cultural human needs, is not achieved. Ultimately, that very element that we described above as the "ambassador" of our culture is lost, leading to a common path with any other social or ethnic group, stripped from its very special identity. We all believe that this pause will be temporary and we certainly look forward to positive developments with respect to the fight against the pandemic. However, we cannot help but notice how quickly small and larger social groups are forced to adapt to the new reality, bending mainly under the burden of individual responsibility to the health of those around us, and particularly of vulnerable groups.

Finally, it should be noted that this responsibility falls even heavily on professionals, artists, technicians and working space owners, who are forced to find themselves internally in an unprecedented identity conflict. Their very existence, in which they had invested for a long time in the past, must now be changed into something new, otherwise, the survival of them and their families is threatened.

2.3 Shaping the Future

Already, during the three-month quarantine, the first signs that pave the way to the post—COVID future began to appear. The main alternative is "online concerts", as well as the effective use of the "Live Broadcast" function of social networks such as Facebook, Instagram or Twich. Such functions are becoming very popular, with many users using them to watch videos. Moreover, they quickly adapt to them and learn to use the available interaction options (e.g. write comments, sending messages directly to the artist- or even chatting with him/her). This online surrogate for live music venues is now available on the internet, providing an even greater possibility: Now, the artist-audience relationship could exist for a much larger audience than using physical presence. Furthermore, this relationship is not affected by space (e.g. national borders or time (e.g. different schedules or time zones) constraints.

APTALIKO was keen to closely monitor this changing environment and explore new ways of adapting to it for the benefit of the popular/folk music community and its audience. Even before the pandemic, it explored alternative ways of communication through its website, which could make the aforementioned musical genres accessible to social groups that are otherwise unable to physically access a live concert (e.g. elderly, disabled, sick, remotely located, etc.). To this aim, the creation of an electronic database of Greek copyright-free songs from the 1900s–1930s, had already begun, and an internet radio station was established, based on content from this database.

Within the quarantine period, a new streaming server (rtmp://stream.aptaliko.gr) was created. This streaming server, created based on free and open software [6], is capable of broadcasting (or re-broadcasting) a live broadcast on Facebook or Twitch, with simultaneous connection to multiple facebook pages and live streaming YouTube channels. This offers the opportunity to stream live concerts on

the APTALIKO web page [5] as well as on social media and other similar streaming services. Through new service, APTALIKO NPCP was already able to make nine (9) live broadcasts (by bands and individual artists). We believe that such applications can be further enhanced and extended in the future, as watching concerts on the internet gradually gains more popularity. Of course, the user experience in such applications cannot yet compare with the live experience of watching a concert, or being part of a feast. Nevertheless, it turns out that, in the near or distant future, this may be the only possible way for artists to present their work and interact with their audiences, when the rules of social distancing need to be imposed, causing in terruption or severe restrictions, to the operation of live venues.

2.4 Conclusions and Future Work

Pandemics, like the recent Covid-19 outbreak of March 2020, pose a huge risk for many types of Intangible Cultural Heritage and popular/folk music in particular, affecting not only the artists practicing it, but the entire associated culture and tourism industry. In this paper, we study how the recent covid-19 pandemic has affected the Greek popular/folk music scene and give insights on new ways and solutions, mainly based on modern information technologies, to mitigate these negative impacts. In particular, the work of APTALIKO Non-Profit Civil Partnership towards creating an internet radio based on free-of-copyright content songs as well as re-broadcasting live performances was presented.

Online concerts offer significant advantages: they allow artists to reach, and even interact with, larger audiences all over the world, including groups that cannot otherwise attend a physical concert. However, they also have various shortcomings that need to be properly addressed by future research. First, replicating the “full experience” in a real live venue it is not yet possible but can be enhanced. For instance, the possible interaction of a spectator with the artist or with other spectators is currently limited to text messages and emoticons. In addition, simulating a specific venue environment (e.g. Greek tavern) in 3D could offer a more realistic experience. In addition, new high-speed internet networks (e.g. 5G) will be required, due the increased bandwidth requirements in such cases.

We need to keep in mind that the real experience of human socializing and coming together through cultural experiences will never be able to be replaced by the digital one, mostly because the former has the human element in the center of the action, something that cannot be transferred through a cable. In other words, we come down to the basic question, “human or machine”, in which we all know the answer clearly. Nevertheless, digital experiences as those described above, can be used in times of social distancing as a surrogate for real intangible heritage, so that the latter can be properly safeguarded and transmitted, gaining even more momentum in the future.

References

1. Baghli SA (2004) The convention for the safeguarding of the intangible cultural heritage and new perspectives for the museum. ICOM News (No 4)
2. Dimitropoulos K et al (2018) A multimodal approach for the safeguarding and transmission of intangible cultural heritage: the case of i-Treasures. IEEE Intell Syst 33(6):3–16
3. Doulamis A et al (2017) Transforming intangible folkloric performing arts into tangible choreographic digital objects: the terpsichore approach. In VISIGRAPP (5: VISAPP), pp 451–460
4. Rizzo A, El-Raheb K, Whatley S, Cisneros RM, Zanoni M, Camurri A et al (2018) WhoLoDancE: Whole-body interaction learning for dance education. In CIRA@ Euromed, pp 41–50
5. APTALIKO NPCP (Non-Profit Civil Partnership) web page, http://aptaliko.gr
6. Open Broadcaster Software® Studio, https://obsproject.com/

The Weakness of Mass Tourism in the Covid-19 Period and the Contribution of Architecture

Dionysia Fragkou

1 Introduction

The COVID-19 pandemic has devastated global tourism, and many will say 'good riddance' to overcrowded cities and rubbish-strewn natural wonders. Is there any way to reinvent an industry that does so much damage? [1].

The countries of southern Europe and especially Greece are more vulnerable to the effects of the shock that tourism has suffered due to the pandemic, emphasizes the DBRS rating agency in its analysis [2]. More than six months have passed since the quarantine begun in March, but normality has not returned. Hopes of reducing the incidence and weakening of the covid-19 virus during the summer and high temperatures proved futile. The large tourist units with a capacity of hundreds of beds, the swimming pools and the mass gathering and catering areas of the tenants, were inappropriate under the current conditions. The reluctance to choose them from the few daring ones who decided to travel but also the high operating costs led to the suspension of many of them, with a great impact on the economy.

But life goes on and architecture must give shape to new data. Now more than ever, the future is very vague. The main issue that arises due to the pandemic is the need to create distance. The need for space increases and the density of people decreases, but also the efforts for automation and avoidance of contact with common objects intensify. Of great importance is now natural ventilation or concepts such as contact with nature (biophilia), either directly or through spatial choices of architectural design [3]. In fact, in the lockdown period we became, without perhaps realizing it, participants in a major change. We believed that we should defend and promote, concepts such as communication, participation, which acquired another importance. The use of technology and virtual reality has become an ally of our daily lives. But man was and is a social being. In our "analog—physical" communication,

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senses are activated that offer us other dimensions in the image and in space. We could say that these multidimensional sensory messages that we receive and contribute to what we understand as a "natural" sensation, are not (yet) offered to us by online sociality. This is the reason why as soon as transportation and traveling were allowed, a large number of people (according to the pandemic) decided to travel. But by what criteria did they choose the place of destination, what kind of accommodation did they decide to stay in and why is what we will examine. This paper aims to investigate and assess the current situation and the reasons that led tourists to prefer small accommodation, apartments and houses to the standards of alternative tourism. Databases such as Emerald, EBSCO, google scholar were searched but also official news websites in order to highlight the way global crisis issues such as COVID-19 may restart tourism and the contribution of architecture.

2 Architecture and Tourism

2.1 Mass Tourism

With the aim of increasing the number of tourists and maximizing the short-term economic benefit, remarkable places with particularly local features and important attractions, are rapidly transformed into impersonal reception centers for accommodation and catering services, orienting and supporting their economy and local working in tourism (Fig. 1). It is a fact that the effects and dysfunction of mass tourism have been highlighted for many years and a long dialogue has begun. But most hotel units, tour operators and national tourism authorities—despite their stated commitment to sustainable tourism—continue to prioritize economies of scale that inevitably lead to more tourists paying less money and accumulating more stress. Prior to the pandemic, tourism industry experts predicted that international arrivals would increase by 3 and 4% in 2020. Chinese travelers, the largest and fastest growing group in global tourism, were expected to make 160 million trips abroad (an increase of 27% compared to 2015) [1].

Organized mass tourism in the post-war period was the dominant model of tour-ism development, which for many years did not allow the structured development of other tourism models. This model of tourism is directly linked to the development of most popular tourist destinations to date [4]. The concept of mass tourism is mainly related to tourism activities associated with offering western-style amenities as well as digestible activities that are characterized as, sunny tourism. In the context of the tourism development of an area, the area begins to be recognizable as a tourist destination and the population is focused now warmer in the involvement with tourism and especially young people and women. This of course leads to increased investment in the tourism sector (accommodation, restaurants, means of transport). The contact of the locals with them pushes tourists to adopt consumer and social standards of urban centers, while gradually the relations

Fig. 1 Mass tourism in Central Europe. *Source* Personal file

between tourists and locals turn into trade relations. The main contributors to these changes are: large companies that want to invest in the tourism industry, international tourist offices (tour—operators), the locals, who want tourism to be their main occupation, as well as the state through the implementation of tourism development and promotion of tourism product programs [5]. This creates complex tourist infrastructure such as restaurants, large hotels and nightlife bars. Significant changes are being made in the spatial and functional organization of the area, in order to provide the best possible service to tourists. The area acquires an advertising image to the general public and the first groups of organized mass tourism travel using the services of tourist offices and not autonomously [5].

As a result, the region suffers from key consequences such as the urbanization of the social characteristics of the region, the construction of extensive facilities and infrastructure to serve the growing needs of tourists. The local community is unable to influence and control the tourism industry that has developed in the area and the pace of life is changing. The existing facilities are not able to meet the ever-increasing needs for the service of the visitors of the mass tourism. For this reason, holiday centers and larger hotel complexes were created on the coasts and a new architecture, the tourism architecture, was born. The universality of the tourist phenomenon gave the architecture that followed during the construction of the tourist facilities a common character, emphasizing the concept of "modern hotel" and ignoring almost universal elements of local traditional architecture and culture, adapted to the landscape and local materials. In this way the large tourist units were promoted. Residential units, hotel complexes and tourist villages with all-inclusive activities are created (Fig. 2). Through urban planning, uncontrolled and often illegal construction, coastal areas are often confronted with the degradation of the natural and urban environment [3].

Fig. 2 Tourism architecture. *Source* Personal file

The Special Framework for Spatial Planning and Sustainable Development (SFPSD) for Tourism in Greece (2009), which, citing the need for sustainable tourism development in the country, does not incorporate the concept of environmental capacity as a criterion [6], produces "spaces" for tourism that are governed by the philosophy of intensification in the use of resources and areas, large and complex developments, alteration of identities of places-destinations and the imposition of a new "image". In this way, a specific type of tourist products is promoted—vacation packages—and tourist areas are created that are adapted to specific standards of international demand [7]. The creation of a vacation package standardizes the services offered, providing security and organization to the tourist but also predetermined experiences. The visitor-tourist has no essential contact with the place of visit, its culture, the inhabitants of the host country, their manners and customs. This new architecture, which was formed mainly based on the functionality and the morphology of the time, does not consider the local characteristics and the identity of the place.

2.2 Alternative Tourism

Touring and excursion as human habits preceded mass tourism organized by world-class travel agencies and continued to develop as activities by units of people (Fig. 3). International studies [8] predict that the future visitor should be able to personalize every aspect of their accommodation experience and the services that will be offered to them. New trends and development prospects want tourism to shift from mass to quality or alternative tourism and from the tourism product to the tourism experience.

Fig. 3 Alternative tourism. *Source* Personal file

New trends and development prospects want tourism to shift from mass to quality or alternative tourism and from the tourism product to the tourism experience. The traditional way of separating tourists will disappear and be replaced by a series of personalized services in the context of creating a model of integrated service. This means that future guests will be able to tailor their requirements to every aspect of their travel experience, which includes technology, hotel services, rooms, travel, prices and communication. It is also worth noting that the goal will not be to reduce costs and prices in order to compete, but to increase the value and quality of the product offered and hotel services to consumers, because the goal will be to meet a wide range of needs; beyond the basics. Education and culture are activities that introduce the visitor to local and cultural events, playing an important role in choosing the final destination. Thus, more and more destinations are focused on the active development of various leisure activities, seeking to offer a different way of life, the experience of accommodation [9, 10].

The alternative tourist is more energetic and participates in activities that are more environmentally friendly. Looking for the bio element rather than the comforts and amenities, the classic sights and the entertainment, all that commonplace or less commonplace displayed in the tourist guides. Based on the principles of sustainability, diversity, the development of small and medium enterprises but also the personalized services desired by the visitor of the future, the modernization and renovation of existing tourist infrastructure will promote alternative tourism models, integrated into the housing complexes of each region, giving personal character in each small unit so that the visitors find what they want each time.

2.3 Current Situation

The first form of tourism to be affected by the present pandemic was cruise tourism; typical example of mass tourism. High level economic tourism that transports passengers-travelers to many different places during a trip. Thousands of passengers were stranded on some of these trips. We isolate from The Guardian in the article entitled the end of tourism: Of all the disasters faced by the tourist market from the corona virus, those related to cruise ships stood out. The floating leisure palaces were turned into prison canopies as rumors of on-board contamination spread among cabin occupants via WhatsApp. Trapped in the immediate vicinity of their fellow holidaymakers, passengers experience the agony of coexisting with contaminants as a number of ports have denied them entry. The nightmare at sea is not over. Even after the disembarkation of passengers from more than 30 cruise ships, hospitals or quarantine hotels were flooded and about 100,000 crews and staff remained trapped at sea, some quarantined, others stranded until disembarkation by employers without being able to move. Cruises have become a symbol of the disasters in tourism caused by the corona virus [1].

What happens on cruises applies to most of the travel industry. The fear of the pandemic has affected the lives of all the people of the planet. The ban on travel and gatherings has created a new situation in the field of tourism. After many months of stress, people are looking for a "normality" and of course many of them are thinking of getaways and vacations. However, there is also the issue of security. It is a given that those who have their own cottages, will prefer them especially this year, to be sure about the sanitary conditions. For the rest the dilemma hotel or Airbnb is big. The World Health Organization may have set the standards [11] for the health and safety of the occupants of large hotels, the measures and standards may be met but there is also interaction with other people, staff and other tourists staying there. Hotels are betting on the reliability and prestige given to them by health protocols, but staying in rental type apartments is particularly betting on the fact that it ensures minimal contact with other people. For this reason, there has been an increase in bookings in short-term rental homes, through Airbnb-type platforms, recently in both mainland and island Greece [10].

According to "TheNewspaper.gr", [12] today's tourists choose to spend their holidays, by the sea, in holiday homes, rather than in hotel complexes, as the stress of the transmission of the coronavirus has created new data in Tourism. "Most visitors want to drive home and be alone, not in contact with anyone but their family. They take food from the supermarket, cook here, take a bath and return home," Katerina, owner of a short-term rental accommodation in South Pelion, mentioned. The same argument is supported by the governor of Epirus in relation to tourism and its development in this region. Elsa Exarchou, vice president of the Association of Tourism Enterprises of Zagori, says "Due to the modern road network, access is easy and thanks to the architectural landscape, congestion is avoided. We are in nature and many may feel more secure," she added

"The opportunity for outdoor activities is a good way out not only for nature lovers but also for those who want more freedom and comfort this year" [10].

3 Architectural Footprint

Architecture is a participatory process. It is influenced and influences through the two-way relationship of space and design the human society. It is inseparable from the health of citizens and the protection of natural and cultural ecosystems. This way, architecture could not remain indifferent to the crisis caused by today's pandemic. Concerns about the future of tourism, mass or alternative, and quality criteria for the design of accommodation are more relevant than ever. Large tourist units and hotel chains around the world have modified the way they operate, in order to protect the health and the needs of social alienation. The first signs of possible trends that have come to stay are already being recorded [13]. Changes that affect the operation and design of a hotel are:

-Packed breakfast/The buffet disappears. According to The Mirror, in the new health data, guests cannot crowd to get their food at the buffet and return to it to supplement food.

- Minimum staff/The UK-based architectural office Manser Practice, which plans for Hilton, highlights how hotels will change after the pandemic. Interaction between staff and visitors will be kept to a minimum, and one-way corridors will be introduced to ensure that visitors stay within distance of each other.
- Receptionist/will be replaced by computers and keys from mobile applications
- Rooms more secluded and larger with unopened doors, and wall-mounted slots for room service, with exercise bike in view, as well as gyms and conference facilities will not be built in the new hotels in the future.
- Elevators that will allow travelers not to press buttons or share their space with strangers as they will not stop on each floor, but those inside them will come out while moving.

With this data we need to think about what is really worth changing and how it will improve our daily lives with or without the reality of a pandemic.

4 Conclusions

The virus has given us a picture, at once frightening and beautiful, of a world without tourism. We see now what happens to our public goods when tourists aren't clustering to exploit them. Shorelines enjoy a respite from the erosion caused by cruise ships the size of canyons. Walkers stuck at home cannot litter mountainsides. Intricate culinary cultures are no longer menaced by triangles of defrosted pizza. It

is hard to imagine a better illustration of tourism's effects than our current holiday away from it [1]. As the impact of tourism on the world has deepened, so does the global economy. Now, after the pause on travel abroad—which could not have been imagined six months ago we have a rare opportunity to get out of this catastrophic cycle and do things differently.

In this context, the concept of 'hospitality' should therefore be reconsidered in order the design and typology of tourist accommodation to undergo a major overhaul. The distances, the natural ventilation with patios, courtyards, "squares" integrated in the common areas, the opening of the buildings to the open spaces and the contact with nature, the small size of the buildings with private spaces in the models of the house, the personification of services offered, communication with the hotelier-owner, participation in community events are of particular importance.

Based on the principles of sustainability, diversity, the development of small and medium enterprises but also the personalized services desired by the visitor of the future, the modernization and renovation of existing tourist infrastructure will promote alternative tourism models, integrated into the housing complexes of each region, giving personal character in each small unit so that the visitor finds what he wants each time, tailored to his particular requirements. This tourism model, which is based on the personalization of the services offered, utilizes the existing infrastructure because it is based on personal relationships, promotes different types of tourism and enables flexibility and adaptation of existing structures in times of crisis.

References

1. De Bellaigue C (2020) The end of tourism? https://www.theguardian.com/travel/2020/jun/18/end-of-tourism-coronavirus-pandemic-travel-industryThu. Last modified on Fri 10 Jul 2020, recovered 16/8/2020
2. Kathimerini newspaper, https://www.kathimerini.com.cy/gr/oikonomiki/oikonomia/zimies-diarkeias-gia-ton-toyrismo-sti-n-eyrwpi, recovered 16/8/2020
3. Potiropoulos D (2017) Greek tourism before the upcoming big-bang. Source: Andro.gr, https://www.andro.gr/apopsi/greek-tourism/, recovered 8/8/2020
4. Tsartas P (2000) Tourism development, multi-scientific approaches. Exantas, Athens
5. Kokkosis C, Chartas P (2001) Sustainable tourism development and environment. Kritiki, Athens
6. Avgerinou Kolonia S (2011) Economic situation and spatial planning of tourism. Propobos, Athens
7. Tsartas P (1998) Sociality and tourism. The Greek Review of social research. National Center for Social Research, Athens. https://ejournals.epublishing.ekt.gr/index.php/ekke/article/view/7315/7035
8. Hotels 2020: beyond segmentation, fast future research. https://www.google.com/search?client=firefox-b-d&q=Hotels+2020%3A+Beyond+Segmentation%2C+Fast+Future+Research
9. Petratos K (2011) Mass tourism landscapes. Migration flows to find a job. NTU. http://www.arch.ntua.gr/sites/default/files/resource/3702_/dpms_topia_mazikou_tourismou_petrakos_k_2011-1.pdf

10. Kavoura A, Bitsani E (2013) E-branding of rural tourism in Carinthia, Austria. Tour Int Interdiscip J 61:289–312. https://hrcak.srce.hr/110912
11. World Health Organization, Coronavirus disease (COVID-19) pandemic. https://www.who.int/emergencies/diseases/novel-coronavirus-2019?gclid=CjwKCAjw2Jb7BRBHEiwAXTR4jf3NyLtsAGwYcedYN0GzYJzKr8m3DKcSdtyBS6PDPl9IjqRcVkEvrRoC7vIQAvD_BwE
12. The Newspaper https://www.thenewspaper.gr/2020/07/15/ta-airbnb-spitia-protimoyn-oi-ellines-gia-ti/, recovered 16/8/2020
13. The hotels experience in the coronavirus era. TornosNews.gr 07.07.2020 | 13:24. https://www.tornosnews.gr/epixeiriseis/hotels/45160-h-empeiria-sta-xenodocheia-sthn-epochh-toy-korono%CF%8Aoy-%E2%80%93-proino-se-paketo-telos-to-minimpar-gymnastikh-sto-domatio.html, recovered 10/8/2020

COVID-19 Effects in People's Daily Life, Social Media's Role and the Power of Emotions and Mind

Maria Poli

1 Introduction

Coronavirus disease 2019 (COVID-19) was first reported in Wuhan, China, in late December 2019 [1, 2]. Since then, COVID-19 has spread rapidly worldwide and has become a global pandemic affecting >200 countries and territories, with an unprecedented effect not only on public health, but also social and economic activities. Based on the Web GIS platform COVID-19, until the 20th of September 2020 in 210 countries there are 957,790 deaths with 30,835,922 confirmed cases of COVID-19, in Greece cases 13,730 deaths 313 [1]. The exponential increase in the number of patients with COVID-19 in the past 6 months has overwhelmed health-care systems in numerous countries across the world. At present, preventive vaccines and prophylactic therapies for COVID-19 are not available [3].

In addition to the fact that there are such serious wounds in the social sector, a patchwork of emotions has been created that has flooded people, who have been called to face an unprecedented situation, both in their personal, social and professional life, but without great and final results. This was supported by social media's announcements where much information has been added.

Fake news publicity on COVID-19 has increased in last months. Many fake news phenomenon was extended by an 'altruism' motivation, the most serious factor for predicted fake news related to COVID-19 [4].

According to recent research, many famous and false news stories are circulating about the COVID-19. It is becoming increasingly difficult to distinguish fake news from reports whose veracity should not be questioned [5].

Consequently, misinformation in social media has dispersed panic to the public regarding the COVID-19 pandemic, promising governments and authorities force citizens to confirm the authenticity of news stories before make them known.

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Research has found that as the prevalent to find a treatment for COVID-19 continues in globe, spreading of fake news has increased and spread on social media, which many experts believe is constituting to the threats of the pandemic [6].

With the coronavirus epidemic, as in any other case, proper information is a critical need to ensure that lives are protected and saved. The battle of the health system with the pandemic has both victories and many defeats. Unfortunately, defeats have a serious impact on how people see and deal with reality creating fear and panic.

The fake in most forms becomes viral more easily, creates trends and customer relationships that you must follow if you want to have the greatest acceptance. It is expressed in hashtags that capture the popularity in a number of posts and is enhanced to such an extent that in the end it forms a culture of the fake, a culture where the only thing that really matters is acceptance. So it does not matter the truth, but how acceptable what you are promoting and how satisfied you will be with your false fans. Why they admire you does not matter anymore. The goals have changed, so fatal because the coronavirus epidemic is evolving in a world where information is spread like a virus, becoming a victim and easy prey for criticism and creating fake news. It creates confusion, deception and distortion of the true facts, in order to make it viral. Lying is the most effective virus. It spreads faster, creates more likes, maximizes profitability [7–9].

This paper aims to state the issue of fear created via these health issues that led to a global crisis. This paper refers to the effects of COVID-19 at man's personal and professional life, to his relationship with COVID-19 and especially with his emotions, his reactions to the unknown, his fears. It is an effort to force human existence to think and at the end discover that for our physical health, it is absolutely necessary to ensure our mental and spiritual health first.

It is important that people should not take into account misinformation and to develop critical thinking on social media.

Databases were searched such as Emerald, EBSCO, google scholar to find up to date papers associated with COVID and human feelings.

2 The Creation of Fear in the Period of the Coronavirus

An emotion that is born and dies with man is fear. Man has made countless efforts to either control, tame or overcome his fears.

It is true that we live with the illusion that we will overcome our fears. Fear is the proof of our mortal existence! What can we do about our fears? We can resist them, accept them once we realize them. Fear exists even if we do not feel it.

Our evolution does not signal our liberation from fear. We evolve when we admit, accept and face our fears. Each stage of development/maturation also involves fear. Fear has our personal stamp. It depends on individual living conditions, our temperament, our environment, our experiences.

Fear always occurs when we find ourselves in a situation that we cannot stand [10]. Fear is one of the main emotions starring at this time. The pandemic reminded to us our mortality, something we had forgotten with our daily and intense life. One fact was enough to remind us the meaning of mortality that all the time there was and is always there and now coexists with us and easily we can see it at any time [10].

Man has developed defense mechanisms, which protect and shield him in conditions that are difficult to control. We often hear pompous expressions in which some of our fellow human beings declare that they are not afraid, that they are insignificant facts and that they are not even serious topics for discussion. But this has the effect of avoiding the negative emotions that are constantly consolidating and becoming a way of life that as a consequence, man will not be trained in the real and deeper management of such negatively charged conditions, such as job loss, which recently has affected thousands of households.

The fear that has been created during this period is both frequent and intense. Other emotions have intensified with him, such as:

- The sadness
- Despair
- Anger
- The shame

If we really want to deal with fear, we must first and foremost understand it.

- What exactly are you afraid of?
- Why do you show such intense fear? Why are you scared;
- Are you sure that what you are afraid of can cause you problems? What else can it cause you?

In order to solve the above puzzles, all that stimulus that causes fear must be understood as clearly as possible. These questions would be useful to answer [10]. The first stage is to understand what scares us. When we find it and understand it, then we accept it and move on trying to manage it.

Man must learn in a varied emotional environment that can prove useful for his survival. Every emotion, no matter how happy or painful, helps him to maneuver, manage it and seek its solution. Don't forget that even negative emotions lead a person to take initiative and action.

The pandemic, of course, creates insecurity and uncertainty. Insecurity and uncertainty in areas such as our health, survival, which don't help in the treatment of our livelihood needs in our social life.

Uncertainty for evolution of the human species that spreads like another "virus" that in turn raises emotions such as fear.

Emotions work like dominoes! We must emphasize here that emotions are transmitted relatively easily from person to person and very easily influence public opinion, with priority to hit personal and assessing situations. With this theorem, fear can be transmitted just as easily and cause panic and tension with unpredictable

consequences. Because the Logical Mind and the Emotional Mind coexist in man, what we understand is that in cases of pandemic, it is wiser and more beneficial to activate the Logical Mind. Of course, this assessment concerns all the situations that a person faces every day, which must be decided mainly with the Logical Mind.

Our actions should be motivated by thoughts and feelings that will be implemented in a complementary and appropriate way.

But how can we put a brake on the Emotional Mind and the fear that comes from activating it?

We can reverse negative emotions if we truly love and trust ourselves. But to achieve this, it is good to create safe conditions which will stop and tackle the fear that so easily caused and developed within us.

- We try to communicate and share our thoughts and feelings, addressing a supportive environment, in the appropriate way occasionally, preventing the feeling of fear from overcoming our speech and our soul.
- We are informed about the pandemic through guaranteed news, avoiding the excessive exposure to useless and "terrifying" information that some experts are deliberately trying to spread in the community.
- With all the information we have gathered, we try to manage the new condition, without panic and hysteria that harm our mental state and that can affect negatively many others.
- We should not feel suspended if at some point we feel that there is a need to receive help from specialized and specialized staff.

The fear in the human mind can become excessive with the numbers that are heard and read daily by the social media. It is interesting to mention the large variation in mortality among countries, with Italy (10.6%) leading the way, followed by Spain (7.6%), France (6.1%), and the United Kingdom (5.2%), the USA and Switzerland (1.6%), while Germany is very low at 0.7%.

Among the countries that successfully initially dealt with COVID-19 is Greece, where the mortality is approaching 3.4%, enough below the global average [11, 3].

The new coronavirus pandemic has caused at least 680,014 deaths worldwide since the World Health Organization's office in China announced the outbreak in late December, according to an official AFP report based on official figures [12].

The cases that have been officially diagnosed in 196 countries, are more than 17,638,510 since the beginning of the epidemic, 10,156,500 of which are currently considered cured [12].

But the number of diagnosed cases is only a small part of the real number. Some countries only perform tests in severe cases. Still others use priority tests for tracking, and many of the poor countries have limited diagnostic capabilities.

New deaths and new cases are constantly being recorded worldwide. The countries that have recorded the highest number of new deaths in their latest reports are the USA with 1,442 dead, Brazil (1,212) and India (764) [13].

In the United States, the number of deaths and the number of cases (153,314 deaths and 4,562,170 officially recorded cases, according to the Johns Hopkins

University census) rank the country as the most affected. At least 1,438,160 people have been diagnosed with the disease [13].

In China (excluding Hong Kong and Macao) 84,337 cases have been officially reported, including 4,634 deaths and 78,989 deaths [14].

In Europe, the total number of deaths is 210,200 out of 3,177,936 cases, in Latin America and the Caribbean there are 197,544 dead (4,828,413 cases), in the US and Canada 162,278 deaths (4,678,286 cases), in Asia 62,779 dead (2,848,811 cases), in the Middle East 27,321 dead (1,156,750 cases), in Africa 19,660 dead (929,326 cases) and in Oceania 232 dead (18,995 cases) [11, 14].

No one can argue that a pandemic is not an unprecedented situation and that it is unnatural to raise painful emotions that lead to dysfunctional and unsettling thoughts. The human being is weak in not able to control everything. But we have the ability to perceive and control our way of thinking and actions, and therefore to tame fear. Social media's role and fake news may influence and alter this control.

3 Social Media, Fake News and the Pandemic

According the National Center for Biotechnology Information advances science and health (NCBI) social media users' motivations for information sharing, socialization, information seeking and pass time predicted the sharing of false information about COVID-19. In contrast, no significant association was found for entertainment motivation [4].

Fake news and COVID-19: modelling the predictors of fake news sharing among social media users.

Researchers must be united to conduct research on fake news and systematically detect news. Fake news sharing has become uncontrolled in today's digital world. This suggests that even some government officials and individuals engage in the proliferation of misinformation to a large audience to suit their agenda [15].

Unfortunately, fake news has touched every aspect of our life virtually and the most dangerous fact in recent months is the circulation of false topic in this period of the coronavirus disease 2019 (COVID-19) outbreak.

Information about the number of deaths because of the pandemic are distributed all over the world via social media [16].

The alteration of reality is very dangerous and does not happen by chance. "Fake" is something deeper which is directly related to the effective operation of social media in order to accept the posts, which is expressed through 'likes'. Likes are essentially a measure of acceptance and of course has an economic impact. It captures the interest of the public, and this is an element of a tactic that aims to sell and make a profit. This is how social media works.

Many years ago, people received their information from a newspaper or radio or television. They knew the media and supported them. Even when buying a controversial pamphlet, they were aware of the lack of seriousness and validity of those who read it and did not take it very seriously. But now the boundaries, with the

advent of social media, have blurred. And this is very dangerous and worrying because the vast majority of people are informed through social media [7].

For example, Facebook deliberately pushes the interest of its members from the media in the posts of the remaining 1.5 billion users of the medium and in the material they produce, creating conditions for the production and reproduction of larger volumes of data, which is of great value for the application platform. while at the same time blocking the ability of traditional media to reach their readership.

This is how the new reality for information is formed.

Social media uses an algorithm that gives rise to the creation of "opinion leaders" and "influencers" of people who, on the one hand, do not have the necessary knowledge required in a field, and on the other hand have more and more influence over what they consider important and what insignificant people [7, 8].

Their policy has one and only goal, to increase the time their users spend reading other users' posts and how much they interact with each other. This is what they want. And what needs to be taken care of is the quality of the information and the information that we will have, the method by which the information is circulated worldwide, if it is received, not by a democratically elected authority by the citizens, based on the interest of society, but by a company and those few people who control it with the criterion and goal of profitability.

Another social media tactic is to reduce the number of media posts that appear in their readers' news feeds. There is even the phenomenon of a drop in the percentage of traffic to news media that circulate information through facebook.

If the media want to continue to play a role in the new world of social media, they must fatally adapt to the new conditions and the new style of journalism and information as they aim to attract the interest of influencers and opinion leaders who share their material, ensuring that this will be read by citizens by constantly paying to keep in touch with a readership that is increasingly informed through social media.

By this logic, unfortunately, many media outlets are forced to resort to striking approaches to a news story that could be smaller in scale but defined by the ability to create virality.

The "law of power" of social media is a tactic according to which information—hence bad or false or excessive information—is reproduced faster and targets a relatively small number of people but affects many followers. The quality of information is lost and the question arises as to what we consider to be true and what is not.

Other people we trust and follow also contribute to the dissemination of the news. They are people of our family, our friends, people we read to because we think they have something important to say or post. Since they share a story, and since it shares a lot, why not share it with those who follow us?

And here is another question, not only whether what we share is true but how much it expresses us, how much it identifies or approaches what we believe. We share not only the truth or the lie or the exaggeration but what we believe and what we think will be more acceptable. Therefore, our post is subjective and with it we influence to a certain extent and spread news and information that cover us [7, 8].

This is exactly how fake news is spread, but it is not the only reason for their increase.

As reflected in an article in the Journal of Science, it is true that lies are spread faster than the truth. And in an economy where what matters most is likes and shares, then lying is not just a choice, it becomes the way things work [17].

"Lies spread 6 times faster than the truth" revealed the largest research ever done on the phenomenon, by the Media Lab of MIT University and published in the journal "Science" and this statistic that captures reality and purpose. And fake news is not spread by fake accounts (programs that perform automated tasks via the internet), estimated at 48 million on titter and 60 million on facebook but by real ones, by ordinary, real people, who have many followers and influence [18].

Finally, we conclude that "fake" is the general mode of operation of social media. The method is one and only. There is a presentation of the one who will increase the number of likes, shares, comments. "Experts" inform about the best time to post your post to receive the most likes. And obviously special programs have been created for more effective management of social media accounts to maximize the efficiency of the material you upload [9].

Social media users, in order to get their attention from the pool of users, usually create profiles that are products that have been made to please, not to reflect reality. And everything that follows is perhaps fake. Fake selfies, filtered photos, fake self-portraits, non-existent people in our lives who, however, have popularity and popularity, etc.

We seek the false because it increases our self-esteem. This is a reality and it is more acceptable. It performs better. Our best selves are the false, not the true. The real does not sell enough. Fake achieves numbers and measurements unimaginable [19].

According the Economic Times News:

- Brussels: Facebook, Google and Twitter should provide monthly reports on their fight against disinformation, two senior EU officials said on Wednesday as they called out Russia and China for their roles in the spread of fake news.
- The comments by EU foreign policy head Josep Borrell and the European Commission's Vice President for values and transparency Vera Jourova underscore the bloc's concerns about the prevalence of misleading news on COVID-19 and the attempts by foreign actors to influence Europe.
- "It really showed that disinformation does not only harm the health of our democracies, it also harms the health of our citizens. It can negatively impact the economy and undermine the response of the public authorities and therefore weaken the health measures," Jourova told a news conference.

3 people have now been arrested in Ahmednagar for spreading fake information on social media with regards to COVID-19 [20].

Therefore, people should be cautious of what they consider to be real on social media especially on health-related issues.

4 Discussion: Dealing with Risk Perceptions of COVID-19 Around the World

From limited cross-cultural research that has taken place, coronavirus does not scare people in all countries to the same degree. This is shown by a new international sample survey conducted by researchers at the University of Cambridge, led by Assistant Professor of Social Psychology Sander van der Linden, from March to mid-April in about 7,000 people in ten countries. to measure the levels of public concern in the midst of a pandemic. In fact, it seems that the British are the most frightened of all, while the South Koreans are the least frightened [21].

Even within countries, dealing with coronavirus, may differ in both psychological and emotional ways as research in Greece in regard to Greek citizens' life in rural and urban centres highlighted [22].

Although the new virus is far deadlier to men around the world, they still have lower levels of anxiety than women [21]. In relation to demographics and the pandemic, research conducted by Hellenic-American Chamber of Commerce in collaboration with the Women in Business Committee (WIB) [23] found that women are more likely to be faced with unemployment. This is an issue that may create anxiety and fear.

The result of this new tactic was the immediate adaptation of millions of people around the world to new habits of daily life and work [24, 25].

The fear of losing jobs, working from home, being pedantic with cleaning processes increases levels of anxiety that humans need to deal with. Companies, schools have entered the process of testing their employees and students to ensure a safe educational process. An example is the University of Cambridge which provides the test to its students [26].

Opportunities are offered in regard to the online way of working and the implementation of information and communication technologies at all levels [27]. Employability may in fact increase with remote course delivery if we take into account the educational system [28]. The health care system of each country also plays a significant role [29]. We should consider though, that personality characteristics play a significant role to dealing with the current situation [30].

5 Conclusion

During the Corona period, humanity adopted good and habits and changes that entered our daily lives.

Changes in the daily, simple movements where everybody must constantly keep his body and his personal belongings clean, our social distancing is the most important because man is by nature a social being who wants to synchronize and progress.

These changes discussed, hit all sectors of the economy, production, design, created the need for even more recyclable materials, easy to use, created the need for a second thought in 'healthier' product design, construction of buildings, adjustment of dimensions, change of distances, use of space and objects in a different way. These changes may positively redefine the scale of use for small spaces and redefine individual distance in human isolation and introversion.

Social media users, in order to get others' attention, create fake profiles, fake news, products, because the real does not sell enough. Therefore, people should be cautious of what they consider to be real on social media especially on health-related issues and being updated only from serious sites. It is true that there is freedom of speech and people need this freedom. Pandemic has caused restrictions in freedom as far as user generated content and media pluralism are concerned [31] and in different sectors [32]. Nonetheless, a balance is required.

We must be very careful, both in stopping the spread of the virus that seems to have a huge impact at every level and in the measures that need to be taken to strengthen and help groups which facing or will face in the near future the effects of COVID-19. The world community has already been hit and is living in unprecedented conditions that will lead us to a new way of life. With the help of the experts and the power of self-knowledge we have to be strong enough and deal the pandemic situation with the most reasonable and positive way.

References

1. Coronavirus COVID-19 Dashboard. http://webgisCOVID19.beyond-eocenter.eu/
2. Gao J, Zheng P, Jia Y et al (2020) Mental health problems and social media exposure during COVID-19 outbreak. PLoS ONE 15:e0231924. https://doi.org/10.1371/journal.pone.0231924
3. Nishiga M, Wang DW, Han Y et al (2020) COVID-19 and cardiovascular disease: from basic mechanisms to clinical perspectives. Nat Rev Cardiol 17:543–558. https://doi.org/10.1038/s41569-020-0413-9
4. Apuke OD, Omar B (2020) Fake news and COVID-19: modelling the predictors of fake news sharing among social media users. Telemat Inform 101475. https://doi.org/10.1016/j.tele.2020.101475
5. Huynh TLD (2020) The COVID-19 risk perception: a survey on socioeconomics and media attention. Econ Bull 40:758–764
6. Lampos V, Majumder MS, Yom-Tov E, et al (2020) Tracking COVID-19 using online search. arXiv:200308086 [cs.SI]
7. Easton M (2020) Coronavirus: social media'spreading virus conspiracy theories. https://www.bbc.com/news/uk-53085640
8. Feehan B (2020) The impact of coronavirus on social media engagement for brands. https://www.rivaliq.com/blog/coronavirus-on-social-media-engagement-for-brands/
9. Uscinski JE, Enders AM (2020) The coronavirus conspiracy boom. https://www.theatlantic.com/health/archive/2020/04/what-can-coronavirus-tell-us-about-conspiracy-theories/610894/
10. Papadopoulou N (2020) The fear in the years of the coronavirus. https://www.psychologynow.gr/arthra-psyxologias/koinonia/koronoios/8906-o-fovos-sta-xronia-tou-koronoioy.html

11. Web GIS platform Covid-19 Statistics (2020). In: The BEYOND Earth Observation and Satellite Remote Sensing Science Center. http://beyond-eocenter.eu/index.php/news-events/270-web-gis-platform-COVID19-statistics
12. Coronavirus disease (COVID-19) pandemic (2020). https://www.who.int/emergencies/diseases/novel-coronavirus-2019
13. COVID-19 Dashboard by the Center for Systems Science and Engineering (CSSE) at Johns Hopkins University (JHU) (2020). https://coronavirus.jhu.edu/map.html
14. COVID-19 pandemic by country and territory (2020). https://en.wikipedia.org/wiki/COVID-19_pandemic_by_country_and_territory
15. McPherson M, Smith-Lovin L, Cook JM (2001) Birds of a Feather: Homophily in Social Networks. Ann Rev Sociol 27:415–444. https://doi.org/10.1146/annurev.soc.27.1.415
16. Briciu V-A, Briciu A, Csiki A-E (2021) Comparative Analysis of coronavirus influence on the content generated by Romanian travel blogs. In Kavoura A, Totskaya N, Havlovic S (eds) Strategic innovative marketing and tourism in COVID-19 era. Challenges and prospects. Springer, Cham (in press)
17. Pournis S (2020) Overview of the false allegations in a video that "reveals" the "big scandal" of the coronavirus. https://www.ellinikahoaxes.gr/2020/09/17/COVID-19-conpiracy-video-collection/
18. Vosoughi S, Roy D, Aral S (2018) The spread of true and false news online. Science 359:1146–1151. https://doi.org/10.1126/science.aap9559
19. de la Garza A (2020) How social media is shaping our fears of—and response to—the coronavirus. https://time.com/5802802/social-media-coronavirus/
20. Facebook, Twitter, Google to report monthly on fake news fight, EU says (2020). https://economictimes.indiatimes.com/news/international/business/google-twitter-fb-to-report-monthly-on-fake-news-fight-eu/articleshow/76308632.cms
21. Dryhurst S, Schneider CR, Kerr J, et al (2020) Risk perceptions of COVID-19 around the world. J Risk Res 1–13. https://doi.org/10.1080/13669877.2020.1758193
22. Kamenidou I, Stavrianea K, Mamalis S, Mylona I (2021) Area of residence differences in COVID-19 effect on Greek citizens' life. In Kavoura A, Totskaya N, Havlovic S (eds) Strategic innovative marketing and tourism in COVID-19 era. Challenges and prospects. Springer, Cham (in press)
23. Commission Women in Business (WIB)
24. Worldometer. https://www.worldometers.info/gr/
25. New coronavirus COVID-19—Instructions (2020). https://eody.gov.gr/neos-koronaios-COVID-19/
26. 2020) Message for students on the weekly COVID-19 testing programme for students living in college accommodation (2020). https://www.cam.ac.uk/coronavirus/news/message-for-students-on-the-weekly-COVID-19-testing-programme-for-students-living-in-college
27. Kiriakidis S, Kefallonitis E, Kavoura A (2018) The effect of innovative communication technologies in higher education. In Khosrow-Pour DBAM(ed) Encyclopedia of Information science and technology, 4th edn. IGI Global, pp 3827–3838
28. Pierrakos G (2021) Organization of local community health network during infections such as COVID-19. In Kavoura A, Havlovic S, Totskaya N (eds) Strategic innovative marketing and tourism in COVID-19 era. Challenges and prospects. Springer, Cham (in press)
29. Totskaya N (2021) Increasing employability through development of generic skills: Considerations for remote course delivery during COVID-19 pandemic. In Kavoura A, Totskaya N, Havlovic S (eds) Strategic innovative marketing and tourism in COVID-19 era. Challenges and prospects. Springer, Cham (in press)
30. Sahinidis AG, Tsaknis PA (2021) Exploring the relationship of the big five personality traits with student satisfaction with synchronous online academic learning: The case of COVID-19 induced changes. In Kavoura A, Totskaya N, Havlovic S (eds) Strategic innovative marketing and tourism in COVID-19 era. Challenges and prospects. Springer, Cham (in press)

31. Kavoura A (2019) Socio economic processes, user generated content and media pluralism. In Khosrow-Pour M (eds) Encyclopedia of information science and technology, 4th edn. IGI Global, Hershey, pp 7270–7280
32. Goel, A, Kamble Z, Tyagi S, GanesH V, Mamuwala H and Nyein San N (2020) Rethinking management and promotion of tourist destinations amidst COVID-19: good practices and challenges. In Kavoura A, Havlovic S, Totskaya N, (eds) Strategic innovative marketing and tourism in COVID-19 era. Challenges and prospects. Springer, Cham (in press)

Restaurants Industry in the Covid-19 Era: Challenge or Opportunity?

Magda Peistikou

1 Introduction: Covid-19 and the Restaurant Industry

Covid-19 transformed the business, economic and social environment with people and organizations required to handle unprecedented challenges. Restaurant establishments are considered to be one of the sectors that experienced severe losses due to the pandemic and until recently they are trying to adapt to the new unknown era. Food as a whole due to its delicate nature appears to require "surgical" handlings. Hygiene and safety is at the forefront of the restaurants' operators' agenda in an attempt to ease their diners' insecurity. However operational costs increase for restaurant while their seat capacities decrease because of the social distancing measures. The new Normal, as many named the period that followed worldwide quarantines is characterized by uncertainty for employers, employees, communities and governments. Adaptation is probably the synonym for the new Normal with pandemic still in progress and economies looking for solutions, mainly deriving from the medical community. The purpose of this paper is to examine the impact Covid-19 had on the restaurant industry in Greece and identify the impacts and the challenges that the establishments face until now.

In December 2019 the Wuhan Municipal Health Commission announces in its website cases of viral pneumonia in the community. During the same period the World Health Organisation's (WHO) Epidemic Intelligence records from ProMED (a programme of the International Society for Infectious Diseases) a notification about the same cluster of cases of "pneumonia of unknown cause" in the community of Wuhan [1]. On January 30th, more than 9000 incidents were reported worldwide with WHO declaring from Geneva the outbreak as a global public health emergency [2]. Almost two months later the Director General of the WHO declared

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COVID-19 a 'global pandemic' [3]. Since then the virus has spread to more than 200 countries and territories.

At a local level, on February 26th the first Covid-19 case is diagnosed in Greece [4] and only a month after, on March 22nd the Greek government imposes a total lockdown. One day later, United Kingdom announces also lockdown [5]. Early June lockdown ends and the government makes attempts and takes supporting measures in order the tourism industry to be supported.

Undoubtedly the hospitality and tourism industry is of great importance for the Greek economy. The estimations for the summer season of 2020 were more than positive with hospitality organizations expecting to achieve a new record in terms of tourist arrivals. However, after the Covid-19 outbreak the climate changed rapidly with more than five million cancellations occurring only in February [6]. The first indications on this tourist season's performance in Greece are ambivalent. For some, July and August noted a satisfying increase in tourist arrivals with Greece being one of the most popular destinations in Europe [7]. The destination's popularity is mainly attributed to the low percentage of Covid-19 incidents and deaths. For others the impact on the hospitality industry is enormous with the Greek National Statistics announcing 94% decrease in the sector's annual turnover for the second trimester of 2020 [8].

The purpose of this paper is to examine the impact Covid-19 had on the restaurant industry in Greece and identify the impacts and the challenges that the establishments face until now.

2 Pandemic's Impact on Restaurants

Initially a literature review on the restaurants' industry impacts and challenges observed because of Covid-19 at an international level. Not surprisingly, few scientific journals included in their issues relevant articles, as the condition is still new and constantly evolving. However, several articles on food safety issues with a reference to Covid-19 were published [9]. In addition, some scientific articles discussed the economic aspect of Covid-19 in relation to food consumption [10] and the increase of popularity of online food delivery platforms [11]. By contrast, the restaurant industry status appeared to be key topic for research and discussion in the professional world. Consulting agencies, professional organizations and bodies, financial institutions and analysts published numerous researches and studies on the industry's performance during the pandemic worldwide. Similarly, in Greece various articles were hosted in journals and magazines of the local press but none in scientific journals. The Greek restaurant industry was found in the spotlight of public interest as quarantine begun in a period that traditionally is considered to be the precursor of the tourist season for the local hospitality industry. It is widely known that tourism is a key pillar for Greek economy's growth [12]. At the same time this reliance on the tourism sector received severe criticism during this turbulent year [13].

The restaurant industry worldwide experienced a severe impact due to the pandemia. Based on surveys, the sit-in facilities noted a 100% decline in bookings at restaurants, pubs and inns [14]. Consequently, employees of the restaurant sector were seriously affected by the Covid-19 with restaurant operators mentioning that they were forced to cut on average almost 83% of their restaurant's total staff [15]. In UK only, 22,000 restaurant workers were reported to have lost their jobs [16]. With regards to the Greek restaurant industry, losses 2.5 billion Euros from the annual turnover and 100,000 restaurant workers already registered in pause of their contracts [17]. By the end of 2020 another 150,000 restaurant jobs are expected to be lost from the Greek restaurant industry [18]. It is also worth mentioning that almost 20% of the Greek restaurants did not restart operations after the end of the lockdown [19].

An interesting aspect is that of small and medium sized restaurants which seem to face serious danger of closure that reaches only in USA 100,000 [20]. A hidden but equally of great importance sub-sector of the restaurant industry that was greatly influenced is that of the suppliers.

Nevertheless, not all types of restaurant businesses were equally influenced. This disparity is mostly attributed to various factors such as the type of the restaurant, its location and online presence. Restaurant that offered prior to Covid-19 the off premise dining option to the customers proved to perform better during the pandemia [21]. The location of the restaurant is also an important factor that contributed to its establishment's survival. Markets with highly variable population such as city centers appear to be more vulnerable for restaurant closure due to the social distancing measures [22]. In addition, restaurants located in city centers were serving many customers who belonged to the business sectors during work days or catered business events. With Covid-19, remote work was initiated in the business environment with many professionals working from home and skipping lunch breaks.

Lastly restaurants with established presence online proved to perform well during lockdown and after it as customers proved "loyal" to them. Even though customers can't or don't want to visit a restaurant experts identify their need to search for the "sense of community that restaurants can provide" [23]. It should be noted that restaurants that quickly shifted their business model to include delivery and takeout are performing better compared to those that did not adjust [24].

3 Challenges for the Restaurant Industry

One of the biggest challenges the restaurant industry is required to address is that Covid-19 is constantly evolving and the food establishments are struggling to adjust [25]. The restaurant world is asked to modify and update operations, without being in the position to predict the future [26]. As research suggests, consumer demand is not expected to return to pre-covid percentages even after the termination of the restrictions [21]. This observation may be well-explained by the fact that diners do

not feel safe to visit a restaurant due to other peoples' presence. What is more, the level of safety that the restaurant business offers cannot be controlled by diners. For instance, if the chef in the back of the kitchen does not wear gloves during the cooking process is not a fact that the diner can examine.

Another key challenge for the restaurant industry is that of social distancing. When quarantine was terminated and governments attempted to reopen economies, one of the first measures they initiated was social distancing. These increased pressure in restaurants' operations due to the lower capacities. In Greece, for example social distancing rules resulted in 50% less restaurant capacity with owners questioning their decision to reopen after the lockdown [27]. Similarly, in the United Kingdom the capacities in restaurants fall to 70%. The low percentages combined with the customers' unwillingness to revisit the restaurants are the key challenges for the sector's financial viability.

Hygiene and safety measures for preventing Covid-19 transmission are great challenges for the restaurants worldwide. Training restaurant staff on following new hygiene procedures is both costly and time consuming. Nevertheless, restaurants make attempts to address those challenges with various actions taken from their end such as menu pricing, rewarding loyalty and enhancing customer experience [28].

In this context new types of dining seem to increase in popularity worldwide. Currently one of the most popular types of restaurants in the food business is delivery with customers enjoying their lunch or dinner from the comfort of their favorite places while following social distancing rules. However, buying food online is a form of commerce that developed greatly during the last 5 years not only for restaurants but also for super markets and grocery stores [29]. Another interesting restaurant business model that arose in the pandemic is that of "ghost" kitchens. These restaurants, also known as dark or cloud kitchens are "commercial facilities purpose-built to run restaurant kitchens on a delivery-only basis" which contributes to running their operations at a low cost [30].

4 Research Methodology

In an attempt to further explore the side effects that pandemic caused in the local restaurants' industry primary research was conducted. The research plan utilized semi structured interviews with chefs and restaurant operators in Greece aiming at identifying the impacts of Covid-19 on restaurant business, the challenges that are being presented for the industry and the trends that may appear in the future. Interviewees belonged in three groups (ten people in each) based on their profession: chefs, F&B managers or restaurant owners, both women and men aged from 35 to 50 years old. All interviews were conducted from the middle of August when the first tourism statistics were published and ended on the middle of September.

Interviews were carried via Skype or telephone and their duration varied from thirty minutes to one hour. The qualitative method enabled the researchers to ask additional questions to the participants and explain further key concepts when

required. All participants had limited time as their work obligations combined with staff reduction did not permit them to elaborate on the discussion.

The questionnaire was divided in three key areas based on the literature review findings as following:

- Impacts on the restaurant's operations due to Covid-19
- Challenges that restaurants experience when re-opening after lockdown
- Trends on products and services in the New Normal.

In terms of sample the method of purposive sampling was selected because it supports non probability [31]. With the main focus of the research on collecting information of great quality, purposive sampling seemed appropriate. According to Cresswell and Clark [32] purposive sampling requires knowledgeable or experienced individuals for participants. In this research sample was selected based on their professional status in order accurate and updated insight to be offered.

Research presents certain limitations. The period, during which interviews were being held, the impacts on restaurants due to the pandemic were visible but still evolving. Consequently, the extent or the nature of effects that restaurants faced because of Covid-19 was not easily definable by the participants in the research. Also the participants' availability for the interviews was a constraint for the research. In Greece, tourist arrivals reach peak during August resulting in employees in the hospitality industry working overtime with no days off. In 2020 although the arrivals of tourists noted a decrease, the condition for the employees was similar because of the staff reductions. Moreover, this research's results may not be generalizable because the sample was restricted to thirty people of various professions within restaurants (F&B, chefs and owners).

5 Findings

Based on the participants' responses, Covid-19's impacts on Greek restaurants could be classified as following:

- *Increased operational costs*: All participants expressed their concern on the sudden increase that Covid-19 caused to their operational costs such as cleaning utensils and equipment, training staff on hygiene and safety practices, certifying their operations as compatible for preventing transmission for Covid-19, etc.
- *Fine dining is being transformed into delivery*: Various fine dining establishments incorporate into their services the delivery option for their customers. Also the high operational costs that characterize fine dining restaurants forced owners and managers to adjust their menus and renegotiate prices with their suppliers. The transformation that the restaurant industry is experiencing was obvious in the responses of our participants. 3 out of 10 mention that they need to move fast in order to adjust their business models and lower their menu prices or open the restaurant for less days.

- *Fixed costs*: When lockdown occurred, Greek restaurants were found with full repositories which should be consumed before expiring. In most cases, the restaurants had already paid for these supplies but they did not manage to use them for food preparation due to the lockdown. In an effort to avoid food waste several restaurants joined forces and during the lockdown they cooked for the support of various vulnerable groups. Literature is also pointing this perspective as of great importance for the restaurant sector. Community activism as named by many is expected to grow for restaurants and under specific circumstances it could enhance customer loyalty [33].
- *Losses*: Both in islands and in city centers restaurants experiences serious income losses. In city restaurants where many conferences are being held a great decrease in income was observed. Also the revenue stream from each type of events is near zero as the new measures do not allow any kind of meeting, business or social. Based on our research 86% of the participants mention that this condition will result in losing their job and 14% of them expect to see their salaries reduce or lose members of their teams.
- *Contactless services*: When discussed about trends 4 out 10 interviewees responded that they are trying to find out contactless solutions for the safety of their diners and staff. Apart from contactless payment that was already popular before Covid-19, many restaurateurs are starting to use contactless menus which can be viewed to the customers' mobile phones.

Surprisingly 20% of the participants mentioned they strongly believe that there is opportunity in the new era as long as they are prepared to identify and interpret the signs appropriately. In two city centers (Athens and Thessaloniki) respondents mention that they plan to open new restaurants during fall. They justified their decisions for new openings as business adjustments to the consumers' needs that seem to ask for comfort food and local products in fair prices. At a domestic level these are considered to be the next food trends in addition to synergies creation among chefs and restaurants. In general Greek restaurant industry was not characterized as homogenous for many decades with chefs being divided in old school and new school professionals, in modern and traditional, in cooks and chefs, in TV chefs and industry chefs. After Covid-19, they seem to have taken a step back and explore opportunities of cooperation not only among them but along with the community.

6 Discussion

The literature review indicated that restaurants during Covid-19 outbreak experienced the same type of impacts both in Greece and worldwide. The timing and the severity of the impacts may differ but the type is identical.

Initially a literature review on the restaurants' industry impacts and challenges observed because of Covid-19 at an international level. Not surprisingly, few

scientific journals included in their issues relevant articles, as the condition is still new and constantly evolving. However, several articles on food safety issues with a reference to Covid-19 were published [27]. In addition, some scientific articles discussed the economic aspect of Covid-19 in relation to food consumption [28] and the increase of popularity of online food delivery platforms [27]. By contrast, the restaurant industry status appeared to be key topic for research and discussion in the professional world. Consulting agencies, professional organizations and bodies, financial institutions and analysts published numerous researches and studies on the industry's performance during the pandemic worldwide. Similarly, in Greece various articles were hosted in journals and magazines of the local press but none in scientific journals.

The Greek restaurant industry was found in the spotlight of public interest as quarantine begun in a period that traditionally is considered to be the precursor of the tourist season for the local hospitality industry. It is widely known that tourism is a key pillar for Greek economy's growth [30]. At the same time this reliance on the tourism sector received severe criticism during this turbulent year [16].

7 Conclusion

Research identified that restaurants in Greece experienced the same issues and challenges with those worldwide. Increased operational costs and financial losses were the main impacts that all respondents identified whereas the changing nature of fine dining and the contactless services were noted as the key trends for the near future. All respondents mentioned the word "adaptation" as the appropriate mindset for the future in an attempt to survive. This could be translated to new business models, synergies development with other stakeholders of the supply chain and adjustments to the existing restaurant establishments in terms of products or services.

The preliminary findings of this research, suggest future studies to be carried out. An interesting aspect for research would be to explore the performance of establishments in winter destinations throughout Greece. Moreover, if the percentages among the respondents' professions change, there is a possibility of different findings. For instance, if more employees and less owners were being interviewed, the effects or trends on the establishments could be interpreted differently. In this context, this perspective offers an interesting opportunity for future research. Lastly, future research could include other types of establishments that food industry involves such as cafes or fast food restaurants.

The findings of this research serve as a basis for governmental and non- governmental bodies to realize the impacts that the restaurant industry is currently experiencing and attempt to offer solutions. The fact that pandemic is an ongoing and constantly evolving condition, points towards the necessity to create supporting mechanisms. These could include financial support for the restaurants such as rent reductions or educational programs in the field of hygiene and safety. Also research

includes implications for managers and owners who could support their employees emotionally and financially. Last but not least, research demonstrated that synergies among people and restaurants are being established which is a new modus of thinking especially in a local context.

References

1. World Health Organisation (2020) Timeline: WHO's COVID-19 response. Available from https://www.who.int/emergencies/diseases/novel-coronavirus-2019/interactive-timeline#!. Accessed 5 July 2020
2. World Health Organisation (2020) Statement on the second meeting of the international health regulations: emergency committee regarding the outbreak of novel coronavirus (2019-nCoV). Available from https://www.who.int/news-room/detail/30-01-2020-statement-on-the-second-meeting-of-the-international-health-regulations-(2005)-emergency-committee-regarding-the-outbreak-of-novel-coronavirus-(2019-ncov). Accessed 5 July 2020
3. ECDC (2020) Timeline of ECDC's response to COVID-19. Available from https://www.ecdc.europa.eu/en/covid-19/timeline-ecdc-response. Accessed 5 July 2020
4. EODY (2020) Current state of Covid-19 outbreak in Greece and timeline of key containment events. Available from https://eody.gov.gr/en/current-state-of-covid-19-outbreak-in-greece-and-timeline-of-key-containment-events/. Accessed 10 July 2020
5. Antholis W, Letsas F (2020) How Greece can reopen without ruining its coronavirus containment success. Available from https://fortune.com/2020/05/26/greece-coronavirus-lockdown-reopening-tourism/. Accessed 20 July 2020
6. Bouras S (2020) Greece banks on its low coronavirus rate and a long list of new safety rules to lure visitors back to its tourism hotspots. Available from https://www.bbc.com/worklife/article/20200609-how-greece-plans-to-welcome-back-tourists. Accessed 20 July 2020
7. Big Business (2020) TUI: Η Ελλάδα ο πιο δημοφιλής προορισμός το 2020 - Ταξίδια διακοπών έως και Νοέμβριο - Αισιοδοξία για το 2021. Available from http://bigbusiness.gr/index.php/oikonomia/tourismos/50984-tui-i-ellada-o-pio-dimofilis-proorismos-to-2020-taksidia-diakopon-eos-kai-noemvrio-aisiodoksia-gia-to-2021. Accessed 25 Sept 2020
8. Statistics (2020) Εξέλιξη κύκλου εργασιών. Available from https://www.statistics.gr/documents/20181/66518c6b-c296-39ff-d05d-e7507a4efe62. Accessed 25 Sept 2020
9. Mayasari NR et al (2020) Impacts of the Covid-19 pandemic on food security and diet-related lifestyle behaviors: an analytical study of google trends-based query volumes. Nutrients 12 (3103). https://doi.org/10.3390/nu12103103
10. Goetz S et al (2020) Americans' food spending patterns explain devastating impact of Covid-19 lockdowns on agriculture. J Agri Food Syst Community Dev 9. https://doi.org/10.5304/jafscd.2020.093.033
11. Li C, Mirosa M, Bremer P (2020) Review of online food delivery platforms and their impacts on sustainability. Sustainability 12(5528). https://doi.org/10.3390/su12145528
12. OECD (2020) Tourism in the economy. Available from https://www.oecd-ilibrary.org/sites/f3180e03-en/index.html?itemId=/content/component/f3180e03-en. Accessed 16 Sept 2020
13. Tugwell P, Nikas S (2020) Greece's reliance on tourism is a weakness in the corona age. Available from https://www.bloomberg.com/news/articles/2020-03-17/greece-s-reliance-on-tourism-is-a-weakness-in-the-age-of-corona. Accessed 16 Sept 2020
14. Nhamp G, Dube K, Chikodzi D (2020) Counting the cost of COVID-19 on the global tourism industry. Springer, Switzerland
15. National Restaurant Association (2020) Restaurant sales and job losses are widespread across segments. Available from https://www.restaurant.org/articles/news/restaurant-sales-and-job-losses-are-widespread. Accessed 10 Sept 2020

16. Hansen J (2020) Over 22,000 restaurant workers have lost their jobs in the U.K. this year. Available from https://london.eater.com/2020/8/11/21363121/coronavirus-job-losses-restaurants-uk-2020. Accessed 10 Sept 2020
17. Economistas (2020) Εφιαλτικό το τοπίο στην εστίαση. Available from https://www.economistas.gr/oikonomia/28745_efialtiko-topio-stin-estiasi-pano-apo-25-dis-i-apoleia-tziroy. Accessed 10 Sept 2020
18. IME-GSEVEE (2020) Έκτακτη έρευνα ΙΜΕ ΓΣΕΒΕΕ για τις επιπτώσεις της υγειονομικής κρίσης στις μικρές και πολύ μικρές επιχειρήσεις. Available from https://imegsevee.gr/%CE%B4%CE%B7%CE%BC%CE%BF%CF%83%CE%B9%CE%B5%CF%8D%CF%83%CE%B5%CE%B9%CF%82/%CE%AD%CE%BA%CF%84%CE%B1%CE%BA%CF%84%CE%B7-%CE%AD%CF%81%CE%B5%CF%85%CE%BD%CE%B1-%CE%B9%CE%BC%CE%B5-%CE%B3%CF%83%CE%B5%CE%B2%CE%B5%CE%B5-%CE%B3%CE%B9%CE%B1-%CF%84%CE%B9%CF%82-%CE%B5%CF%80%CE%B9%CF%80%CF%84%CF%8E%CF%83%CE%B5%CE%B9%CF%82-%CF%84%CE%B7%CF%82-%CF%85%CE%B3%CE%B5%CE%B9%CE%BF%CE%BD%CE%BF%CE%BC%CE%B9%CE%BA%CE%AE%CF%82-%CE%BA%CF%81%CE%AF%CF%83%CE%B7%CF%82/. Accessed 10 Sept 2020
19. To Vima (2020) Πρόεδρος ΓΣΕΒΕΕ: Δεν άνοιξε το 20% των επιχειρήσεων εστίασης. Available from https://www.tovima.gr/2020/05/26/finance/proedros-gsevee-den-anoikse-to-20-ton-epixeiriseon-estiasis/. Accessed 30 August 2020
20. Long H (2020) Small business used to define America's economy. The pandemic could change that forever. Available from https://www.washingtonpost.com/business/2020/05/12/small-business-used-define-americas-economy-pandemic-could-end-that-forever/. Accessed 10 Sept 2020
21. Haas S, Kuehl E, Moran J, Venkataraman K (2020) How restaurants can thrive in the next normal. Available from https://www.mckinsey.com/industries/retail/our-insights/how-restaurants-can-thrive-in-the-next-normal#. Accessed 30 August 2020
22. Beckett E (2020) City restaurants see greater impact from COVID-19 closures. Available from https://www.restaurantdive.com/news/city-restaurants-see-greater-impact-from-covid-19-closures/579280/. Accessed 30 August 2020
23. Jones P (2020) 3 ways restaurants create customer engagement during COVID-19. Available from https://www.qsrmagazine.com/outside-insights/3-ways-restaurants-create-customer-engagement-during-covid-19. Accessed 30 August 2020
24. York T (2020) Restaurants' COVID-19 challenges continue. Available from https://www.thepacker.com/article/restaurants-covid-19-challenges-continue. Accessed 30 August 2020
25. Szatkowski M (2020) Impact of COVID-19 pandemic on restaurant industry. Available from https://www.abccolumbia.com/2020/09/01/impact-of-covid-19-pandemic-on-restaurant-industry/. Accessed 22 Sept 2020
26. PYMNTS (2020) Restaurant operators on life before, during and after COVID-19. Available from https://www.pymnts.com/coronavirus/2020/restaurant-operators-on-life-before-during-and-after-covid-19/. Accessed 30 August 2020
27. Rafenberg M (2020) Unease in Greece as restaurants, cafes reopen. Available from news.yahoo.com/unease-greece-restaurants-cafes-reopen-103441979.html. Accessed 10 Sept 2020
28. Khan S (2020) Seven ways social distancing will change restaurants. Available from https://theconversation.com/seven-ways-social-distancing-will-change-restaurants-141671. Accessed 10 Sept 2020
29. Lattanzi A (2020) Food delivery platforms revolutionizing the market during COVID-19: why is regulation lagging behind?. Available from https://www.ifis.org/blog/food-delivery-platforms-covid-19. Accessed 10 Sept 2020
30. Jacobs J (2020) Giving up the (traditional) restaurant ghost. Finweek magazine 46–48
31. Lavrakas PJ (2008) Encyclopedia of survey research methods, vols 1–0. Sage Publications, Inc., Thousand Oaks, CA. https://doi.org/10.4135/9781412963947

32. Cresswell JW, Clark VLP (2011) Designing and conducting mixed method research. 2nd Sage, Thousand Oaks, CA
33. Hand T, Reinstein (2020) COVID-19 for restaurants: what's working and what will become part of the new normal. Available from https://www.fsrmagazine.com/expert-takes/covid-19-restaurants-whats-working-and-what-will-become-part-new-normal. Accessed 16 Sept 2020

Virtual Communities in COVID-19 Era: A Citizenship Perspective

Josélia Fonseca, Teresa Borges-Tiago, Flávio Tiago, and Sandra Silva

1 Introduction

One of the most used words during 2020 is COVID-19, reflecting the impact of COVID pandemic in people's lives around the world [1]. As shelter-in-place measures were taken, organizations were closed and homeschooling and telework became daily routines for millions of people, the internet use increased, as well as the use of social media. As posit by Beaunoyer et al. [2] the COVID-19 pandemic challenges, in a certain way, were minimized by the ease of access to technologies. Though limited precedent exists for the current crisis, the figures point to social media platforms as virtual spaces where individuals were able to reduce the social distance and maintain some of their connections [3]. Within social media, several public groups were created as virtual communities (VC), with different aims and types of contents been published, which led to the establishment of distinctive typology classification [4, 5]. Like any other community, social media can be more or less engaging, or have more positive or negative consequences on individuals, depending upon the way users behave on it [6].

Some VC had a vertiginous rise and six months later remain active, while others are almost inactive, leading to question the perpetuation of these communities in time [7]. From an academic perspective, three major questions arise from this context; what is the (i) life cycle patterns of VC, (ii) engagement drivers, and (iii) users' behavior that can be found. The current study aims to answer these questions by adopting the product life cycle to virtual communities. According to the Sproud report [1], during this time only a few industries increased their activity online, especially in social media. These industries were related to health care and

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media and entertainment, linked with two of the most common activity-drivers online: search for reliable news updates on the pandemic and look fir distraction during social distancing periods. Thus, this study explores three different virtual communities, during the initial months COVID-19, where healthcare issues were a daily topic.

2 Online Communities: Past, Present, and Future

While no clear precedent for the current crisis exists in academic literature, it's important to reflect on the importance of VC from different perspectives, since their number and intensity of use raised during shelter-in-place measures [3]. This is not a new phenomenon since long-term studies into digital environments and social media pointed to the increasing interest of users in VC, but its roots go far behind digital environments since, by nature, people tend to live in communities.

The importance of communities is well reported in different study fields. However, as the initial work of Hillery [8] pointed there are many definitions of community. Nonetheless, a common point emerged in most works, considering as community a group of people, that despite their unique characteristics are linked. These linkages can be achieved through social ties, geographical locations, demographic profiles, or by sharing common interests or perspectives. These communities have their own dynamics over time. When these communities take place online, they create denominated virtual communities [9].

Back in 1999, Hagel [10] analyzed the VC that were formed in the initial years of the internet and found different dimensions of interests among their users, that allow him to classify the VC based on personal interests, business-to-business activity, and demographic and geographic context. One of the first definitions of VC was presented in 1993 by Rheingold as a "social aggregations that emerge from the Net when enough people carry on public discussions long enough, with sufficient human feeling" [11] (p. 5).

Over the last two decades, the technology-use and internet massification alongside social media and community's evolution was examined in numerous studies, from different perspectives, resulting in a lack of consensus regarding the definition of the basic concepts of "virtual communities". To the purpose of this work the definition presented by Lee et al. [9] was adopted, considering from "a practical point of view, a virtual community provides access for engaging in common activities, sharing feelings, or discussing ideas with others" (p. 48).

Among other factors, VC can originate social stress situations [12]. From this perspective, VC are understood as a way to find answers to the emotional stress experienced in society; either contributing to obtain a higher level of knowledge about the situation or by comforting and transmitting security, since a common understanding is shared by the members who face the same problems and together found possible solutions to address it. In fact, in addition to feelings of pity and sympathy [12], VC also favors attitudes and values, such as autonomy and

responsibility. These are collective ways of autonomously seeking answers to problems/situations experienced, expressing a commitment to solving it. Indeed, in crisis or stressful situations, VC function as micro spaces of citizenship, in which members proactively seek responses to their problems. Regardless if problems are by nature gnoseological, requiring greater knowledge to face it, or are common feelings shared, that seek in knowledge sharing appease to anxieties.

VC are developed based on two supporting theories: common identity and common bond [13]. "(…) common identity in the online context implies that members feel a commitment to the online community's purpose or topic.", while "(…) Common bond in the online context (…) implies that members feel socially or emotionally attached to particular members." [13] (p. 381).

According to Burnett [14], the digital individual behaviors within these communities can be split into two major categories: non-interactive behaviors (NIB) and interactive behavior (IB) (see Fig. 1). The author posits that NIB is linked to the idea that the member-only reads or watches the content that has been posted by others. More recently, it has been added to NIB a new dimension related to those users that besides reading use emoticons to express their emotions related to the content posted [15, 16]. The second dimension considers IB those conducted by someone that creates and shares content within the virtual community sphere.

However, whenever the content posted is not friendly it can be considered as a form of anti-social behavior and classified according to the tone and purpose as flaming, trolling, spamming, or cyberbullying [17]. In these cases, individuals can see either their behavior reject or reinforce by other members within the community. This phenomenon occurs because, although VC presents an altruistic,

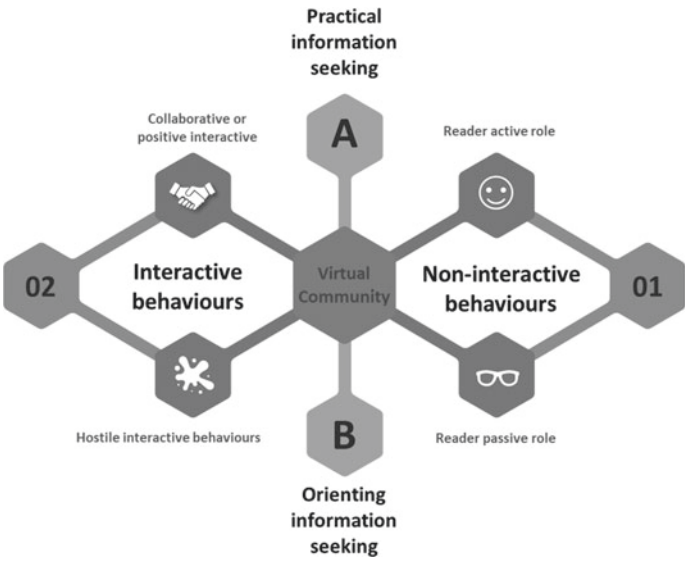

Fig. 1 Individual behavior in virtual communities

autonomous and responsible dimension to solve problems that result in a critical resilience strategy, it's also structured on the feelings of identity and belonging to the group, which sometimes annihilates the uniqueness of each self, subjugating the individual to the group's hegemony and submitting its uncritical presence. In this context, group thinking is formed, creating sometimes impervious barriers towards criticism and change. This occurs in VC because they are essentially voluntary and depend on the voluntary nature of their members to survive.

The vast majority of the studies analyses VC from a content perspective: language use; types of multimedia content; message styles; the level of engagement or type of information shared [18]. However, the motives underlying users' participation patterns [19] can be substantially different from seeking information. As noted by Burnett [14], within these VC people can show a neutral, a humorous or an empathic behavior, depending on the type of VC (communities of interest, virtual learning communities, and communities of practice) and their sense of belonging [14, 19, 20]. These, motivations alongside the sense of belonging and interest of the community are pointed as success factors and longevity-drivers for the communities [7, 20]. The product lifecycle theory (PLC), from the marketing literature, considers that products present a course of sales and profits during a lifetime composed of several phases: introduction, growth, maturity, and decline. However, not all products behave in this traditional lifecycle, depending on their course on the product characteristics. A non-regular product can be introduced and die quickly afterward, being considered a fad or be a fashion product, with a lifecycle that lasts a shorter time than basic PLC. In fact, the lifecycle of the fashion category end when it is no longer adopted by many, due to lack of interest.

Too many times the assumption is made that simply by creating a VC people will use over time. As the review presented above point, not only the typology and frequency of content can create a common identity and bond among users, but also other group dynamics and individual behavior. Thus, to fully comprehend the evolution pattern of VC, its necessary to understand users' behavior. In light of these challenges, this research addresses the following questions: (1) Does VC follow regular lifecycle patterns? (2) To what extent the main thematic of the group influences members' engagement and, consequently the longevity of the group? (3) Can different patterns of users' behavior be found inside a unique VC?

3 Case in Point: Health Care Online Virtual Communities

Literature supports the conceptualization that social media provide a digital space to individuals to freely express themselves [21] and bound with others, creating a sense of VC [22], supported by information exchanges [14] and presenting different levels of activity and engagement over time [18]. In COVID-period these communities gained importance and adhesion, especially those related to health care or entertainment. To the purpose of this research three virtual communities from Facebook were chosen as case studies and their dynamics analyzed from February

to July 2020, using a hybrid approach that combines quantitative and qualitative analysis of all interactions (number of fans, type of fans interaction, level of activity, type of contents posted, shared and comments made, and emoticons used, among others). These groups, even though with different aims, present some common contents: daily reports of COVID infections in a specific geographical region (see Table 1).

The G1 is the oldest of the groups analyzed and presents a high percentage of non-interactive users, that only use the group as passive readers. Most active users —less than 1% of total users—spend a portion of their time engaging in positive "small talk", leading to the classify their behavior as neutral. Nonetheless, in certain cases, the group thinking phenomenon arises, as it happened with the video shared by a COVID-infected user. This post generated a tone and intensity of comments change. The same happened with a post related to the COVID testing procedure, that in less than 48 h generated 703 comments, 67 shares, 178 likes, and 168 non-positive emoticons were used. These two posts could also be seen in the other two virtual communities. In G3 the reactions were less expressive and supported by scientific-driven information. Applying the concept of the product life cycle to the VC behavioral pattern, it can be noticed the G1 evolution overtime passed through the common phases of the life cycle curve, been in a mature path with a small rate of new members' acquisition, and a stable rate of activity.

The G2 presented an exponential growth, reaching over 50 k in less than a month. This group was created as an emotional support community during confinement, and members were challenged to post humor's content. The rate of interactive participants in this group reaches 10% and this figure increases when considering those readers that have active sharing of emotions through the use of emoticons (26%).

Table 1 Virtual communities in numbers

Virtual community	AcoresGlobal (G1)	Fas.Tiaguim (G2)	COVID19.Empower (G3)
Creation date	28th February 2012	5th April 2020	14th March 2020
Number of members	49,053	52,204	3887
Members overlay	80% strong	72% strong	Full overlay with G1 and G2
Type of group	Public	Public	Public
Main content type	News	Humor	Scientific information
Publications (day/average)	86	25	8
Comments (day/average)	276	3845	260
Change group properties	Never	13th of July	Never
Post about COVID-19	Daily	Daily	Daily

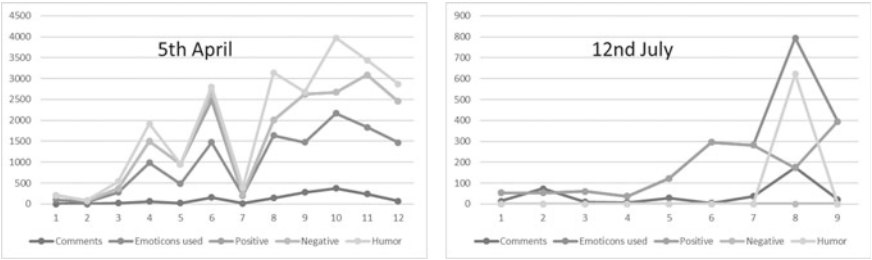

Fig. 2 First and last day of the G2—VC activity

Focusing only on the images posted in the first 12 h of activity of the group an exponential growth could be found (left-hand graph) (see Fig. 2). The main content posted were pleasantries phrases or "memes" related to a public figure. In the initial weeks, the number of posts reached 50 per day, but two months later was stable at 19 per day. After two months, the number of images posted decreased significantly, as well as, the group interactions. Most of the content posted in this community transmitted that user's engagement derivate from pure-play and that its absence or decrease led to the transformation of the community. The patterns found led to classify the life cycle of this virtual community as a Fad-driven community.

The G3 was also created during COVID confinement as a support group that empowers people through knowledge sharing regarding COVID. The content shared in this community was quite different from the previous one. Most content shared are reports, scientific articles, and COVID-news related. The growth rate of the virtual community was a lot smaller, which reflects also in the number of contents created and shared. As in G2 the first week of the VC had a high level of new members' entrance. The active participation rate is around 7%, but the dimension of the contributions in length is twice bigger than in G2. And the level of expression of non-interactive members is more consistent over time (11% use emoticons to express their concordance) with peers. The group members' interactions denote social and professional recognition in terms of healthcare information. This might explain why the emotional tone of a wide number of members changes drastically when less accurate information in vehiculate. As in G2 this VC presents a rapid initial growth, that could lead to the classification of the VC as a fad. Nonetheless, COVID-19 seems to be the congenial information neighborhood linking all members, which may lead to the inactivity of the community when the pandemic context ends. This pattern is also found in fashion life cycle products, leading to classify it as a Fashion-driven community.

4 Discussion and Final Considerations

One of the challenges posed to designers and managers of virtual communities has been how to improve user interactions and engagement, in order to make the community more attractive to users and enhance its longevity. The life cycle of a VC starts with its creation process, conquer of members, and promotion of their interactions, ending with total redesign or elimination. Due to its common points to the product life cycle, this theory was used to classify the VC evolution course. However, in the case of VC instead of considering sales growth, the VC lifetime considers users' interaction evolution.

The results from the case study have shown that the exponential growth of the community cannot be considered as a sign of longevity, especially if the VC is highly dependent on a certain type of content or tone. The findings also suggested that the members can change their behavior pattern in the VC towards a specific content or thematic, questioning the VC manager authority over the group [12], and limiting the control over the initial idea. All the groups had daily posts concerning COVID-19 that trigger an intensive users' participation. The more humorous-driven VC presents however a relevant decrease of activity overtime, leading to its classifications as a fad-community.

In all VC proactive and non-proactive behaviors were found, varying in valence and activity rate. The autonomous and proactive behavior found in the three VC reinforces the principles of citizenship, namely the participation role and empowerment. Nonetheless, the fact that users sometimes adopt a group thinking behavior leads to question the citizenship principles itself within the VC, since the critical thinking and growing process gives space to a ghetto condition.

This case study approach allows us also to find individuals that belong to the three communities and behave differently. Thus, some individuals were passive readers in G1, active readers in G2, and present an interactive behavior in G3, leading to question what motives individuals to adopt a more interactive posture. Future research work should be conduct, not only to answer this question, but also to analyze community's lifecycle considering not only the level of interactions, but also the tone of the messages and establishing the characteristics of the content that triggers more sense of belonging and engagement.

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References

1. Arens E (2020) How COVID-19 has changed social media engagement. Available from https://sproutsocial.com/insights/covid19-social-media-changes/#volume-updates. Accessed 17 July 2020

2. Beaunoyer E, Dupéré S, Guitton MJ (2020) COVID-19 and digital inequalities: reciprocal impacts and mitigation strategies. Comput Hum Behav 111:106424. https://doi.org/10.1016/j.chb.2020.106424
3. Pan SL, Cui M, Qian J (2020) Information resource orchestration during the COVID-19 pandemic: a study of community lockdowns in China. Int J Inf Manage:102143
4. Porter CE (2004) A typology of virtual communities: a multi-disciplinary foundation for future research. J Computer-mediated Commun 10(1):JCMC1011
5. Sambhanthan A, Good A (2016) Virtual communities: towards an extended typology. In: Encyclopedia of e-commerce development, implementation, and management. IGI Global, pp 100–113
6. Bateman PJ, Gray PH, Butler BS (2011) Research note—the impact of community commitment on participation in online communities. Inf Syst Res 22(4):841–854
7. Jin X-L, Lee MK, Cheung CM (2010) Predicting continuance in online communities: model development and empirical test. Behav Inf Technol 29(4):383–394
8. Hillery GA (1955) Definitions of community: areas of agreement. Rural Sociol 20(2):111–123
9. Lee FS, Vogel D, Limayem M (2003) Virtual community informatics: a review and research agenda. J Inf Technol Theor Appl (JITTA) 5(1):5
10. Hagel J (1999) Net gain: expanding markets through virtual communities. J Interact Mark 13 (1):55–65. https://doi.org/10.1002/(SICI)1520-6653(199924)13:1%3c55:AID-DIR5%3e3.0.CO;2-C
11. Rheingold H (2000) The virtual community: homesteading on the electronic frontier. MIT Press
12. Kim J, Lee S (2020) An emerging online social network and disaster-induced collective stress. Media Psychol 23(4):521–551
13. Ren Y, Kraut R, Kiesler S (2007) Applying common identity and bond theory to design of online communities. Org Stud 28(3):377–408
14. Burnett G (2000) Information exchange in virtual communities: a typology. Inf Res 5(4). http://informationr.net/ir/5-4/paper82.html
15. Smith KA, Masthoff J, Tintarev N (2016) Expressing emotions as emoticons for online intelligent agents. In: Proceedings of the 30th international BCS human computer interaction conference, vol 30
16. Filik R, Ţurcan A, Thompson D, Harvey N, Davies H, Turner A (2016) Sarcasm and emoticons: comprehension and emotional impact. The Quart J Exp Psychol 69(11):2130–2146. https://doi.org/10.1080/17470218.2015.1106566
17. Nadali S, Murad MAA, Sharef NM, Mustapha A, Shojaee S (2013) A review of cyberbullying detection: An overview. In: 2013 13th international conference on intelligent systems design and applications. IEEE
18. Kavoura A, Borges MTT (2016) Understanding online communities on social networks via the notion of imagined communities: the case of TripAdvisor. Int J Web Based Communities 12(3):238–261. https://doi.org/10.1504/IJWBC.2016.077759
19. Lin H-F (2006) Understanding behavioral intention to participate in virtual communities. CyberPsychol Behav 9(5):540–547. https://doi.org/10.1089/cpb.2006.9.540
20. González-Anta B, Orengo V, Zornoza A, Peñarroja V, Martínez-Tur V (2019) Understanding the sense of community and continuance intention in virtual communities: the role of commitment and type of community. Soc Sci Comput Rev:0894439319859590
21. Chiu C-M, Hsu M-H, Wang ET (2006) Understanding knowledge sharing in virtual communities: an integration of social capital and social cognitive theories. Decis Support Syst 42(3):1872–1888. https://doi.org/10.1016/j.dss.2006.04.001
22. Bagozzi RP, Dholakia UM (2002) Intentional social action in virtual communities. J Interact Mark 16(2):2–21. https://doi.org/10.1002/dir.10006

Underwater Cultural Heritage Tourism and Diving Tourism Alternatives in the COVID-19 Era

Maria Vrasida

1 Introduction

Tourism has become a dynamic sector worldwide and in that respect, provides significant opportunities for development but also pressures on natural and cultural resources and following the recent pandemic of COVID-19, challenges on public health. Especially in Greece it is of vital importance to view tourism in a context of sustainable development, striving to balance economic development and regeneration with social equity and protection (environmental and heritage) goals [1]. COVID-19 has placed a temporary yet indefinite restriction in tourism with detrimental effects in the economic survival of the sector and the economies of tourism dependant countries have taken a significant blow. As tourist destinations (whether sites or local communities) seek to address the positive and negative impacts of tourism growth, there are major challenges involved in their efforts to organize their priorities and actions. Such challenges revolve around two central axes, the first one is protecting, and maintaining the already existing level of development and the second is to invent new and innovative ways of exploring and mobilizing additional assets for further development [2]. This double axis process depends, on the capacity to assess impacts but also develop and implement complex multi-goal strategies involving a diversity of interests and key stakeholders. Hence, the aim of this paper is to explore the strong economic potential for sustainable tourism development through mobilizing dormant assets such as underwater cultural heritage and the impact on society at a local, national and European level [3]. As economies are striving to survive and restart after the pandemic, it is now more relevant than ever to explore the role of underwater represents for society cultural heritage, in generating sustainable development introducing new economic benefits, social opportunities and addressing governance challenges.

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2 Underwater Cultural Heritage as an Actor for Sustainable Development

Tourism Development in Cultural and Natural Heritage sites has always been controversial and some countries often hesitate to expose endangered sites to tourism. Still the economic regression due to the COVID-19 pandemic and the need to reignite tourism worldwide is pushing toward the development of new and emerging tourism markets that will offer a viable alternative and boost local and regional economic development. The relationship between culture, nature and tourism has always been that of interdependency [3]. Culture and eco-tourism are considered as niche tourism markets with enormous potential for growth. There is an increasing request and a growing market for targeted tourism with strong interactions in the triangle nature, culture and people. Cultural tourism is currently 35–40% of all international trips and is growing by 15% each year. Eco-tourism is also increasing from 20% by 10–12% of arrivals each year [4]. Therefore, sustainable tourism development in underwater cultural heritage sites is going a step beyond, interlinking the focus on nature and culture in a holistic approach for development [5].

Cultural heritage of every county is a valuable part of the cultural heritage of the world as a whole [6]. Growing recognition of the importance of underwater cultural heritage in particular has resulted in the formation of legislative actions from several countries to allow access to that still widely dormant asset.

Sustainable tourism development of underwater cultural heritage is a new and innovative proposal for rejuvenating and reigniting local economies that have undergone a severe regression due to the COVID-19 pandemic. The influence of tourists on the societies they visit is generally more pronounced in the fiscal dimension but it is important to allow underwater culture to act as a catalyst for creating place identity and civic pride. Cultural tourism is focused on history and culture of mankind and therefore concerns the common interest of the world population; it also has to comply with the requests for environmentally compatible services and infrastructures and respect limits where carrying capacities are reached [7]. A form of tourism that focuses on the culture, and the cultural environments (underwater), it should not only be regarded as a definable economic niche within the broad range of tourism activities, but rather as encompassing all experiences absorbed by the visitors to a place that is beyond their own living environment [8]. Local people need tourism: tourism takes part in the life and the development of the local community, especially in small municipalities, and can help keep cultural and social interests alive.

3 Current Accessibility to Underwater Cultural Heritage

As underwater cultural heritage tourism presents a potential opportunity for sustainable tourism development, accessibility becomes crucial. One of the most adopted methods for experiencing underwater cultural heritage is the conservation and exhibition of recovered artifacts (and in some cases entire shipwrecks) in museums "on-land" (mainly maritime and naval museums) [9]. All over the world different structures are organized for this purpose, with the most interesting case being the Vasa Museum in Stockholm and Bodrum, Turkey. The remarkable integrity of the exposed shipwreck with 95% of the structure still composed from the original timber attracts visitors from around the globe to Vasa. The museum is the most attended maritime museum in the world with a little over 1 million visitors per year and it is considered a success scenario in terms of archaeological protection, tourism attraction and economic investment. Land museums have no accessibility restrictions and cultural heritage can be visited any time of year by locals and tourists of any age. The risk of looting and/or accidental destruction of the findings is minimized [10]. Yet the process of recovery of artifacts entails high cost and risk factor. The context and the setting of the findings is lost or neglected and the experience has low authenticity as in most of the wrecks or findings the context is reproduced. From a visitor's perspective, the experience in a museum is one of many and it can also be characterized as an inward type of visit where the focus is inside the exhibition.

In an attempt to create a more exquisite experience, underwater museums were evaluated by many countries as a potential alternative for the management of immovable or semi-movable sites located close to their coast. An underwater museum is a construction which, creating a structural connection between the land and the submerged site, offers to the general public the opportunity to directly enjoy the underwater cultural heritage in situ. To date, only two underwater museums are accessible in the world the Baiheliang Underwater Museum (China) and the museum in Alexandria (Egypt) [9]. Accessibility again is granted to the maximum. Observation of the underwater cultural heritage is in situ and there is no costly and risky process of recovering the findings [10]. The context and the waterscape are greatly influenced though by the construction of a submerged museum and it can only be a solution for small sites near the coastline. The construction phase of the building is a high risk for the protection of the heritage with construction chemicals greatly influencing the fragile balance of the marine environment and the mere presence of it greatly alters the context of the heritage site. The operational and maintenance cost of such a construction are very high and despite the excitement factor of the experience it can be considered neither authentic nor economically viable.

Underwater archaeological parks in situ, best meets the goals set by the 2001 UNESCO Convention entailing the organizations and interpretation of sites suitable for divers' access. In this management scenario, underwater cultural sites are defined and documented and access is allowed under certain conditions. There have

been many different names to describe this type of management and in some case the selected name is an indication of the accessibility of the site. Archaeological preserves, for example, are characterized by strict control over public access and can only be visited if accompanied by a licensed guide. As a method of management, an underwater cultural heritage park, is identified and characterized by the least possible intrusion to the cultural heritage site allowing for in situ preservation of the findings and the context. The recognition and organization from the local authorities as a cultural site provides a certain level of protection yet accessibility is limited only to professional and sport divers and there is no access for the general public. Several underwater archaeological parks have been organized in different parts of the world targeting only the very sustainable yet small niche market of divers, thus economic viability issues are rising and the organization and support for the divers is either left to the individuals or organized by the private sector. They have been used for the management of diverse typologies of sites (like sunken cities, underwater port facilities and shipwrecks) located in various environments (seas, lakes and rivers) [11]. Some of the Mediterranean examples are the Underwater Archaeological Park of Baia (Italy), the Underwater Archaeological Park of Caesarea (Israel), the Croatian Underwater Museums (Croatia) and recently the archeological park in Alonnisos Greece [12]. Overall he positive attributes and the limitation of each management approach are summarized in Table 1 below.

Table 1 Summary of comparative analysis of the current underwater heritage management systems

	Land museum	Submerged museum	Archaeological parks
Strengths	• Unlimited access for tourists and locals. • Protection of findings from threats • Reduced looting risk • High number of visitors • High socio-economic impact locally and at a Mediterranean level	• Easy access for tourists and locals • Monitoring in situ of the condition of the site • Total protection from looting • In situ preservation of findings • In situ observation • High socio-economic impact locally and at a Mediterranean level	• Access for divers • Monitoring in situ of the condition of the site • Minimum interference with the site • In situ preservation of findings and context • In situ observation • Niche market of visitors • Medium socio-economic impact locally and at a Mediterranean level

(continued)

Table 1 (continued)

	Land museum	Submerged museum	Archaeological parks
Limitations	• Recovery can be risky and is irreversible • The alteration of the environmental conditions can pose risks • The context is completely lost • Low authenticity of the experience • Requires a building and high maintenance cost	• Highly intrusive to the natural environment. • The alteration of the environmental conditions due to the construction can pose risks. • The context is completely altered • Can only be applied to dense cultural sites near the coast • Technical difficulties • Extremely high construction and maintenance cost.	• It is only available for divers and excludes the general population • Difficulties in in situ conservation. • Uncontrolled divers behaviour • Low protection from looting • Low visitation and small socio-economic impact • Small participation and control from Local authorities

4 Proposal for Blended Way of Managing Underwater Cultural Heritage and Conclusions

The European Grouping of Territorial Cooperation E.G.T.C. AMPHICTYONY, (www.amphictyony.gr/en/), established in 2008, is one of the first EGTC established in Europe.

It aims at intangible and material development with democracy, the promotion of cross-border, interregional and transnational cooperation among the people of the Mediterranean and Europe, for the consolidation of an environment of peace and lasting intercultural dialogue, with an emphasis on the economically efficient, socially just and environmentally viable, sustainable development.

E.G.T.C. AMPHICTYONY pursues to be in regular contact with the executives of Local Government and civil society organizations, in an effort to map their needs and build the bases for solid and constructive territorial partnerships, in a critical circumstance, in which territorial cooperation and social cohesion constitute developmental and political stakes of crucial importance. It is a strong belief of EGTC Amphictyony that common, shared underwater cultural heritage gives prominence to the common past shared by the countries and allows for a new future to emerge based on cooperation local and participatory democracy [13].

In such an attempt the proposed action can only be inclusive and accessible for every citizen local or tourist regardless of their physical ability, age or preference. Furthermore, the need for creating new and innovative ways of generating fiscal activities with respect to the local community, is now more pressing than ever with small communities striving to reignite their economies after the COVID-19 era. Solidarity between the Mediterranean countries for a shared future can only be stemmed by the common sea and the shared heritage submerged within it.

On land dry foot observatories will be created in site where underwater cultural sites exist. Archaeological parks for divers will be defined and also encouraged but the municipalities will be able to reuse old and abandoned building along the coastline to host the underwater observatories. Real time projections of the observations of experienced divers will allow for an experience both authentic but also inclusive to all. With the use of technology, the experience can be characterized as authentic and can offer visitors a safe and controlled observation environment (following COVID-19 or any other future restrictions) [14]. The benefits of archaeological sites and museums are combined in new hybrid form of observation that combines the strengths of diving experience and of museums in one integrated blended experience. The viability of such a project and the visitation rates are expected to be very high. Accordingly, the operational and organizational cost is significantly lower than any other form of museum since it is base on the idea of cyclic economy and the reuse of old buildings that already belongs to the municipalities.

The impact of such and attempt is the rejuvenation of the local economy in a way that enforces local pride and allows the community to participate and create a micro-economy related to the new development. The reuse of old abandoned buildings reduces the construction cost and the profit generated reduces the environmental and economic impact of allowing derelict buildings along the coastline. The visitation density can be controlled and monitored to comply with the new COVID-19 restrictions allowing for a safe observation. Finally, the vision of a Mediterranean basin which unites its countries through a common trail of heritage and acts both as an institutional border between them but also as a unifying factor between the people can finally be realized.

References

1. EC (2003) Basic orientations for the sustainability of European tourism. Consultation Document, Brussels
2. Krasznai Z (2018) Innovation in cultural heritage—for an integrated European research policy. European Commission Directorate-General for Research and Innovation RTD-PUBLICATIONS@ec.europa.eu, Luxembourg
3. UNESCO (2017) Safeguarding underwater cultural heritage in the Pacific, report on the good practice in the protection and management of world war II-related underwater cultural heritage. UNESCO, Paris
4. Somipam S (2019) Ways to create awareness on cultural heritage: an overview, library philosophy and practice
5. Lazaretou S (2014) The smart economy: cultural and creative industries in Greece: can they be a way out of the crisis? Econ Bull 39:73–103
6. UNESCO (2001) The UNESCO convention on the protection of the underwater cultural heritage (CPUCH). UNESCO, Paris
7. Coccossis H (2017) Cultural heritage and sustainable tourism: the challenges. In: Mergos G, Patsavos N (eds) Cultural heritage as economic value: economic benefits, social opportunities and challenges of cultural heritage for sustainable development. Inherit, Athens
8. Garrod B, Fyall A (2000) Managing heritage tourism. Ann Tourism Res 27:682–706

9. Smith H, Couper A (2003) The management of the underwater cultural heritage. J Cult Heritage 4(1). https://doi.org/10.1016/s1296-2074(03)00005-0
10. Gregory D, Manders M (2015) Best practices for locating, surveying, assessing, monitoring and preserving underwater archaeological sites. SASMAP Guidel Manual 2
11. Argyropoulos V, Stratigea A (2019) Sustainable management of underwater cultural heritage: the route from discovery to engagement. Open Issues in the Mediterr Heritage 2:1588–1613. https://doi.org/10.3390/heritage2020098. www.mdpi.com/journal/heritage
12. Hadjidaki E (1996) Underwater excavations of a late fifth century merchant ship at Alonnesos, Greece: the 1991–1993 seasons. In: Bulletin de correspondance hellénique. Volume 120, livraison 2:561–593, Ecole Francaise d' Athènes
13. Mendoni GL (2017) Cultural heritage: investing in the future. In: Mergos G, Patsavos N (eds) Cultural heritage as economic value: economic benefits, social opportunities and challenges of cultural heritage for sustainable development. Inherit, Athens
14. Economou M (2016) Heritage in the digital age. In: William L, Máiréad N, Kockel U (eds) A companion to heritage studies. John Wiley & Sons, Inc, New York

Organization of Local Community Health Network During Infections Such as COVID-19

George Pierrakos

1 Introduction and Background

Primary Health Care (PHC) treats health holistically in a context of active participation of the citizen in the local community so that the needs of the community are immediately covered [1, 2], the implemented policies are not a set of impersonal regulations, and a sense of citizen trust is created by providing sustainable health services with documented performance data [3].

Due to the growing social needs and demand for personalized health care services, the client center design [4] of health services is important to increase the efficiency of the health system (cost-effectiveness) as well as to significantly increase accessibility [5]. PHC services multiply the capabilities of the health system for the patient's timely access to different levels of care when required or judged critical for a patient's health [6]. In additionally to the above principles, continuity in the provision of services, achieves the optimal distribution according to the needs of local communities, technological and the dissemination of practices based on documented clinical and management data are necessary [7].

During this period, there is a need for citizens to be supported by PHC networks at the local level in order to face, physically and mentally, the critical situation of infections such as Covid-19. The increasing virus transmission, exerts pressure on the health systems globally [8]. According to European Centre of Disease Prevention and Control there is an increased number of confirmed cases Covid-19 among EU/EEA countries [9]. It has been studied that in times of epidemic crises, such as with Covid-19, health professionals develop psychological crises such as everyday stresses, feelings of vulnerability, social isolation, and loss of control. Additionally, they express fears about Covid-19 transmissibility, high morbidity,

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and mortality risk [10]. As for the people, a negative panic situation through the social media is escalating and it is characterized as "info-demic" according to WHO. For this reason, immediate health education actions are necessary for citizens and discharge groups for employees [11].

In Greece, the index Rt (i.e., the number of new infections per case) was rated over 0.6 since July 2020 and over 1 since November of the same year (Fig. 1) [12]. Therefore, the issue of connecting public health with PHC is important. In particular, the improvement of local health teams working on the prevention and immediate treatment organized a virtual integrated network. This is the future of the health system, and the leadership should provide resources and pay attention to it.

This article seeks to present the operation of a PHC network with the aim of protecting public health, supporting patients, and enhancing the citizen of the family and the local community from the risks of epidemic crises such as Covid-19. These suggestions and proposals based on bibliography review regarding PHC organization, previous cases of pandemic situations and the principles that the World Health Organization (WHO) recommend to implement across all health care systems.

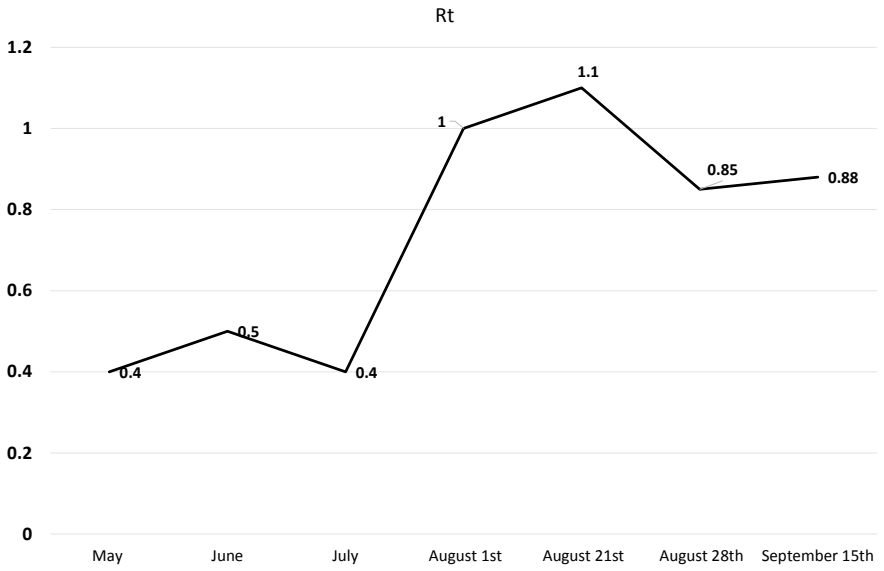

Fig. 1 Index Rt (level for the number of new infections per case) during the last 5 months in Greece observatory COVID-19. *Source* Observatory COVID-19 Greek Ministry of Health (2020) (author's formation) [12]

2 The Changing Role of the Hospital

The Hospital is designed to pool resources in order to reduce the cost of waste services and increase the reliability of health care providers [13]. However, due to the continuous development of technology in the last years, the number of Hospital Units and Emergency Departments have increased, leading to many specialist doctors. This situation results in an increase of the operating costs of health services, and the system is escalating unable to meet the required health needs. For this reason, the trend is now the reorganization of health systems with a reduction of the Hospital Sector and a parallel development of health services in the Local community at a lower cost, more personalized, and with as little disruption as possible in the daily life of the citizen [14].

The new role of the hospital is to deal with emergencies or serious cases, e.g., major heart or orthopedic surgeries or drastic cancer treatments that cannot be treated in the local community.

Hospitals have become the main providers of immediate health care, whose services focus on providing high-tech care to the seriously ill, injured, or those who have undergone serious surgery. Even these patients, however, do not stay in the Hospital for long [15]; they are transferred to less intensive care units (ICUs) as soon as possible and then referred to outpatient care services.

In recent decades, the trend of health systems is to reduce hospitalization days and adapt to provide health services at home [16]. For this reason, patients are transported home earlier and it is very important to provide services at home using new technology in a set of cross-sectoral of high-quality services and requirements [17]. The operation of home care and nursing aims to meet the main objectives of the health system in terms of: (a) enhancing the quality of services provided, (b) expanding accessibility, and (c) increasing the efficiency and effectiveness of the system.

In particular, the coverage of the health needs of the family and the local community is required, especially in patients with co-morbidity in order to enhance patient, support of family and relatives' environment, reduce of readmission in hospitals, prevent complications of the disease and improve functionality in daily life [18].

Health professionals work in the form of a "health alliance" aiming to prevent disease and promote health. The concept of this approach concerns the improvement of individual health equally with the health of the family and the local community [19].

The connection between Public Health and PHC is important for strengthening and improving the health of the population, controlling epidemics in local community, and preventing the transmission of diseases. One of the functions of Public Health is health surveillance, for the effectiveness of which the clinical data collected in PHC are necessary [20]. Additionally, there is a support in local community to promote and prevent health at work, the school and at home [21].

In order to succeed, health care systems to prevent population from COVID-19 epidemics the organization of PHC networks is important to treatment timely of the phenomenon in the local community and the gradual implementation of protection measures [22, 23].

3 Conditions that Are Necessary for the Organization of Primary Health Care Network

According to WHO (Astana Declaration), PHC networks ought to enhance people's physical and mental health offering services that are accessible from all citizens. These networks are based on several principles such as the ability to strengthen knowledge in order to offer high quality services, implementation of technology to improve information continuity using safe personal data and health services to have epidemiology data for disease surveillance, support of health professionals to address health needs and face health problems empowering individuals and communities. [24] Based on the Astana Declaration principles there is a need of the following conditions in order to organized a PHC network (Fig. 2.):

(a) Recording of the epidemiological profile of the population in the local community. In this way, the sensitive population groups and the state of development of the population's health and identification of threats are recorded, research of outbreaks in the Local community in real time, according to specific protocols and indicators.
(b) As technology has contributed in other sectors, it has a lot to prove on health care management [25, 26]. Interconnection of services and completion of the

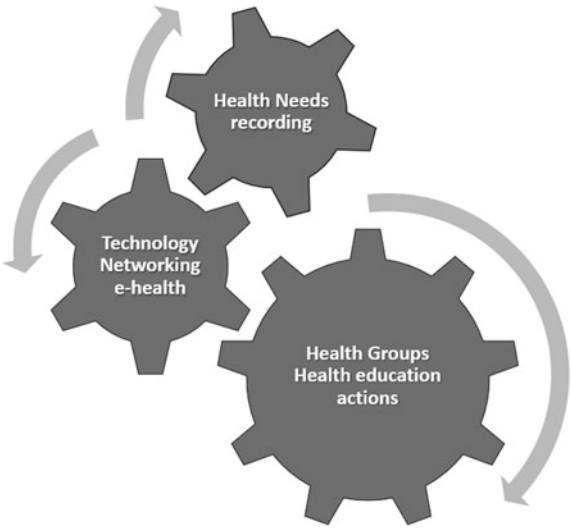

Fig. 2 Conditions that are necessary for organization of primary health care network based on WHO principles Astana declaration 2018

Individual Electronic Health Records. The use of the Medical care file creates a unified communication environment for all health professionals. The collected epidemiological data is used as a policy tool to monitor demand. There is cross-sectoral communication and cooperation of all health professionals on a horizontal level with social and other services and vertically with the Hospital units.

The collected epidemiological data is used as a policy tool to monitor demand. There is cross-sectoral communication and cooperation of all health professionals on a horizontal level with social and other services and vertically with Hospital units. This interface is necessary to immediately activate the mechanism for recording these data in order to take targeted response measures at local community. At the same time, resources of the Local Government and the informal voluntary networks are utilized.

(c) Health group reference points for citizens. In case of need for support, local health teams are available to provide counseling, health education actions, and immediate health services. Citizens communicate and are supported by local health groups. In case they need support, the local health teams are available to provide consulting services, mitigation and control actions, and immediate health services. By utilizing the potential of e-health, primary health education actions are developed. These are carried out on three levels: (a) general information, (b) problem solving and answers to specific questions, and (c) dissemination and misinformation management, thus covering not only the biological state but also the social and the psycho-emotional ones [27].

4 Discussion: A Proposed Prevention and Support Monitoring Network in PHC

A health worker as Care Coordinator observes the health progress of a specific group of 10–15 patients from the Local population in a local PHC network (Fig. 3). One or more coordinators can work together, communicate, solve problems, and facilitate the care of a group of patients. With the help of technology, there is an ongoing evaluation of patient's health on a daily basis, and therefore the care interventions (medical and nursing) are judged accordingly. These data provide the information needed to measure the effectiveness of personal patient management. Recording of new data and transferring them to the community and the treating physician: the duration of treatment, the information about possible complications and the total cost of care.

As for the psychological support for the health workers, it has to be organized in virtual support and communication groups through the health center utilizing teleworking platforms.

Concerning psychological support for citizens and protection of the "info-demic" in social media, it is important that a support group is organized

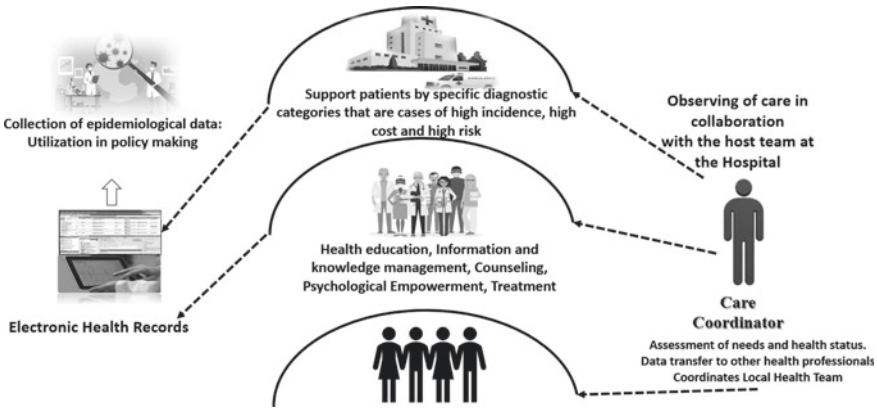

Fig. 3 A proposed prevention and support monitoring network in PHC

through the health center that can provide formal and well evidenced based information to the Local Community.

At the same time, at the Hospital, a special team (host team) has to be established to provide services to specific diagnostic categories of patients that are cases of high incidence, high cost and high risk, such as patients who need respiratory support and therefore usually remain in the ICU for more than 2 days.

In collaboration with the Hospital there is an immediate admission of patients without the intermediate stop at the Emergency Department. The host team in collaboration with the Care Coordinator draws data from the patient's medical record. The Care Coordinator monitors the patients' progress from admission to discharge. Usually the Care Coordinator does not offer immediate care to the patient but supervises the care of the patient. Upon the patient's discharge from the Hospital, the relevant data are transferred to the Local Health Team under the supervision of the Care Coordinator.

The implications of the network are to improve patient management as detailed patient information is available for health professionals who can subsequently plan health evidence-based interventions. Also, the Care Coordinator address the citizens' health needs and the local health team meet the health needs of local community effectively. Thus, citizens develop trust is in the capability of the system. Additionally, through the network there is an organized patients' flow between the levels of the system more regularly. So, it is succeeding in safely reducing mistakes as there is an integrated health protocol and avoided delays, ensuring the continuity of health care. In terms of strategy and policy, the systematic collection of epidemiological data gives the overall view of the health needs of local communities, thus improving the health planning of the system with the better allocation of resources.

5 Conclusion

The organization of a Primary Health Care network to deal with emergencies such as Covid-19 is carried out through the Local Health Team as a reference point for citizens coordinated by health professionals from a Care Coordinator who observes target groups of the population. The main organizing body of integrated open care is the Health Center. The support of public health through PHC is necessary to record health needs, threats, prevention, education, and awareness actions.

An essential tool for the operation of the network is technology for the collection and processing of information (Electronic Health Record), and the virtual support networks through e-health devices. Thus, a horizontal link with social care services and a vertical one with hospital services which are prepared for the immediate admission and support of patients that they are under critical situation. Supportively, informal networks are utilized and strengthened with the training and awareness of volunteers and informal caregivers.

The basic aim of the integrated network in PHC is to provide health services covering the social, biological, physical, and medical needs of the individual. The Care Coordinator ensures the immediate treatment by utilizing the technology, and reduces of the risks of mismanagement and delays.

The system is successful in identifying cases of people who need services and have not realized it, utilizing health education actions, prevention, management new technology in order to support Local Community in all dimensions of health, aiming at providing care personalized low cost and high quality.

References

1. Williamson L (2014) Patient and citizen participation in health: the need for improved ethical support. Am J Bioeth 14:4–16. https://doi.org/10.1080/15265161.2014.900139
2. Beard TC, Redmond S (1979) Declaration of alma-ata. Lancet 313:217–218. https://doi.org/10.1016/S0140-6736(79)90622-6
3. Substance Abuse and Mental Health Services Administration (US); Office of the Surgeon General (US) (2016) Facing addiction in America: the surgeon general's report on alcohol, drugs, and health [Internet]. US Department of Health and Human Services, Washington (DC)
4. Fix GM, Van Deusen Lukas C, Bolton RE, Hill JN, Mueller N, LaVela SL, Bokhour BG (2017) Patient-centred care is a way of doing things: how healthcare employees conceptualize patient-centred care. Health Expect 21:300–307. https://doi.org/10.1111/hex.12615
5. Donhee L (2019) A model for designing healthcare service based on the patient experience. Int J Healthcare Manage 12:180–188. https://doi.org/10.1080/20479700.2017.1359956
6. Roemer MI (1986) Priority for primary health care: its development and problems. Health Policy Plan 1:58–66. https://doi.org/10.1093/heapol/1.1.58
7. Starfield B, Shi L, Macinko J (2005) Contribution of primary care to health systems and health. Milbank Q 83:457–502. https://doi.org/10.1111/j.1468-0009.2005.00409.x
8. World Health Organization. (2020) COVID-19 strategy update. Printed in Geneva, Switzerland. https://www.who.int/docs/default-source/coronaviruse/covid-strategy-update-14april2020.pdf?sfvrsn=29da3ba0_19&download=true, 14 April 2020

9. European Centre for Disease Prevention and Control (2020) Baseline projections of COVID-19 in the EU/EEA and the UK: update. ECDC, Stockholm. https://www.ecdc.europa.eu/en/publications-data/baseline-projections-covid-19-eueea-and-uk-update#no-link, 17 Sept 2020
10. Zhang SX, Liu J, Afshar Jahanshahi A, Nawaser K, Yousefi A, Li J, Sun S (2020) At the height of the storm: healthcare staff's health conditions and job satisfaction and their associated predictors during the epidemic peak of COVID-19. Brain Behav Immun 87:144–146. https://doi.org/10.1016/j.bbi.2020.05.010
11. Dubey S, Biswas P, Ghosh R, Chatterjee S, Dubey MJ, Chatterjee S, Lahiri D, Lavie CJ (2020) Psychosocial impact of COVID-19. Diabetes Metab Syndr 14:779–788. https://doi.org/10.1016/j.dsx.2020.05.035
12. Observatory COVID-19 Greek Ministry of Health (2020) https://covid19.gov.gr/category/paratiritirio/
13. Vanberkel P, Boucherie RJ, Hans E, Hurink J, Litvak N (2012) Efficiency evaluation for pooling resources in health care. OR Spectrum 34:371–390. https://doi.org/10.1007/s00291-010-0228-x
14. McKee M, Healy J (2000) The role of the hospital in a changing environment. Bull World Health Org 78:803–810. https://doi.org/10.1590/S0042-96862000000600012
15. McKee M, Healy J (2001) The changing role of the hospital in Europe: causes and consequences. Clin Med (Lond)1:299–304. https://doi.org/10.7861/clinmedicine.1-4-299
16. Landers S, Madigan E, Leff B, Rosati RJ, McCann BA, Hornbak R et al (2016) The future of home health care: a strategic framework for optimizing value. Home Health Care Manag Pract 28:262–278. https://doi.org/10.1177/1084822316666368
17. Gottlieb LM (2009) Learning from Alma Ata: The medial home and comprehensive primary healthcare. J Am Board Fam Med 22:242–246. https://doi.org/10.3122/jabfm.2009.03.080195
18. World Health Organization, OECD, International Bank for Reconstruction and Development (2018) Delivering quality health services: a global imperative for universal health coverage. World Health Organization. https://apps.who.int/iris/handle/10665/272465. License: CC BY-NC-SA 3.0 IGO
19. Nolte E, Knai C, Saltman RB (2014) Assessing chronic disease management in European health systems: concepts and approaches. European Observatory on Health Systems and Policies, Copenhagen (Denmark)
20. Rowan MS, Hogg W, Huston P (2007) Integrating public health and primary care. Health Policy 3:160–181. https://doi.org/10.12927/hcpol.2007.19144
21. De Maeseneer J, Twagirumukiza M (2010) The contribution of primary health care to global health. Br J Gen Pract 60:875–876. https://doi.org/10.3399/bjgp10X543998
22. Sarti TD, Lazarini WS, Fontenelle LF, Almeida APSC (2020) What is the role of primary health care in the COVID-19 pandemic?. Epidemiol Serv Saúde 29. https://doi.org/10.5123/s1679-49742020000200024
23. Garg S, Basu S, Rustagi R, Borle A (2020) Primary health care facility preparedness for outpatient service provision during the COVID-19 pandemic in India: cross-sectional study. JMIR Public Health Surveill 6:19927. https://doi.org/10.2196/19927
24. World Health Organization. (2018) Declaration of Astana. Geneva. https://www.who.int/primary-health/conference-phc/declaration
25. Kiriakidis S, Kefallonitis E, Kavoura A (2019) The effect of innovative communication technologies in higher education: current trends and future outlook. In: Khosrow-Pour M (ed) Encyclopedia of information science and technology, 4th ed. IGI Global, Hershey, pp 3827–3838. https://doi.org/10.4018/978-1-5225-2255-3.ch332
26. Asonitou S, Kavoura A (2019) Accounting education, technology and entrepreneurship: current trends and future outlook. The Malopolska Sch Econ Tarnow Res Papers Collect 44:65–78. https://doi.org/10.25944/znmwse.2019.04.6578
27. Snyder CF, Wu AW, Miller RS, Jensen RE, Bantug ET, Wolff AC (2011) The role of informatics in promoting patient-centered care. Cancer J 17(4):211–218. https://doi.org/10.1097/PPO.0b013e318225ff89

Immunity Passports and Entrepreneurial Opportunities in the COVID-19 Era

Eleni Makarona and Androniki Kavoura

1 Introduction

In the uncharted waters we live due to COVID-19, global health and economy is at great risk on the grounds of everyday deaths, but also economic instability that is caused. At the time of writing this paper, statistics from around the world reported 42,717,117 coronavirus cases and 1,152,164 deaths [1]. At the height of its first wave in May 2020, about one third of the world's population had been in lockdown, with all but essential workers (such as medical personnel) confined at home [2]. A fall of 5.9% in 2020 on average on the disposable income of European households is the result of COVID-19 [3]. The World Health Organization (WHO) takes measures to deal with the pandemic at a global level. The ramifications of the pandemic have spanned across the entire spectrum of human activity coming at a tremendous social, ethical and economical cost. The imposed social distancing—the most effective means of containing the spread of a disease that so little is known about—has resulted into stalled national economies, mental health issues [4], hard-to-solve socioeconomic implications (such as the effect on women in vulnerable sectors and economies, as already identified by the World Trade Organization [5], travel restrictions and their influence on international arrivals that have declined by 98% in the month of May 2020 [6] or the devastating consequences in less developed countries, as reported by Bruckner and Mollerus [7]) along with ethical issues about equity in triaging, health resource allocation and social stigmatization [8]. There is an urgent need to leave out of this global crisis,

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which has so far dealt with lockdowns, quarantines, contact tracing, isolation of cases, travel restrictions and human and economic loses.

Despite the highly-paced research on finding appropriate treatments and vaccination schemes, these are still many months away and it has become apparent that alternative strategies must be activated to minimize the disruptions caused by social distancing and recurrent lock-downs. Immunity passports, i.e. digital or physical documents that can certify that an individual has been infected and is purportedly immune to respiratory syndrome coronavirus (SARS-CoV-2) have emerged as a possible practical solution to alleviate the repercussions of lock-downs and quarantine measures. Such passports would allow people deemed—temporarily or permanently—immune to the SARS-CoV-2 virus to return to a state of normalcy, resume their work and hopefully help jump-start the latent economies. The concept of Immunity Passports is not an entirely new one and it has been proposed as a means to safeguard International Health Regulations in a similar way to the yellow fever vaccination certificate [9]. Nonetheless, the very notion of implementing COVID-19 Immunity Passports has stirred up a heated controversy, mainly from an ethical and moral standpoint, with serious concerns about aspects such as Health Inequity, Triage/Resource Allocation, Research Ethics, Data Privacy and Tracing Apps, Exit Strategies (e.g. as discussed in [8]) as well as issues such as Fairness, Social Cooperation, Civil Liberties. Stigmatization and corollary Unintended Harms [10–13]. Also, laws that aim to prevent discrimination come in contrast with issues of equality and participation in economic and business environments. Furthermore, the validation of false-positive and false-negative results, might influence a person's life [10–12]. People may not be able to participate in social activities, pressure may be imposed on them from their working environment, not to mention the cost and discrimination based on socioeconomic, racial, and ethnic inequities related to who can have access to such a certificate [11].

Therefore, inconsistencies emerge in regard to dealing with COVID-19. In this paper, without delving into—but still acknowledging the importance of discussions on—the moral and social implications of the subject and without breaching into the minutiae of scientific aspects, the authors intend to bring forth an overlooked aspect the implementation of COVID-19 Immunity Passports may bring about: the perspectives and the opportunities for innovative entrepreneurship not in just in speeding up processes with regard to testing procedures, but also for the creation of new business opportunities in a time of crisis. Towards this goal, the article begins with a clear definition of the term "Immunity Passports" and a short description of the current state-of-play in terms of scientific developments in order to distinguish the exact stage of development and capabilities of the existing systems from possible erroneous assumptions about their up-to-date functions. Hence, after the Methodology presentation, the next section is devoted in the general outlook of the opportunities for innovative entrepreneurship along with a SWOT analysis. The article is concluded with an effort to exemplify the transformative breakthroughs immunity passports may result to by focusing on two critical market sectors, that of Point-of-Care (PoC) Biodiagnostics and that of Hospitality and Tourism.

2 Methodology

The writing of paper depended on the search of databases like google scholar, Emerald, the repository of medrXiv the current scientific literature published in international peer-reviewed medical and engineering journals as well as daily press. Though not exhaustive due to the ongoing nature of the subject and the continuous publication of articles, the search was based on the most recent publications and provides a solid framework upon which the formulation of the current paper was based. Keywords that were searched were "Immunity Passport", "COVID-19", "SAS-CoV-2", "Innovative Entrepreneurship", "Antibody Testing", "Pandemic". A SWOT analysis is presented based on the literature review and exemplification of Innovative Entrepreneurship from the creation of Immunity Passports are discussed.

3 Definition, Scientific Facts and Current State-of-Play

3.1 Definition

As already stated, a "COVID-19 Immunity Passport" is defined as a physical or digital document that can certify that an individual has been infected, is purportedly immune to respiratory syndrome coronavirus (SARS-CoV-2) and is presumed unlikely to contract or spread the disease. Immunity Passports can take the form of a paper-based certificate, a wristband, a mobile application or a digital marking (e.g. a QR code). Alternative terms have also arisen and can be used interchangeably. Most common among them are Health Pass, Immunity Certificate, Risk-free Pass, Immunity Card and Release Certificate. Their intended use is to ease restrictions on infected and recovered individuals in conjunction to identifying asymptomatic carriers that could well become super-spreaders. Their main role would be to help kick-start the economies and relieve up to a point the psychological, social and economic pressure from quarantine measures.

3.2 Scientific Facts and Current State-of-Play

Up to date and despite the benefits that Immunity Passports can potentially generate in mitigating the socioeconomic disruption that the COVID-19 pandemic has provoked, it is important to underline that Immunity Passports certifying immunity against the SARS-CoV-2 virus do not yet exist. What does exist and is a subject of highly-paced research is the production of accurate antibody testing against SARS-CoV-2. So far detection of antibodies is based on serological tests measuring the level of antibodies in the blood. Unlike nasal or throat swab tests that determine the presence of the virus in the human body, serological tests are intended to

confirm the presence of antibodies. Several tests have been launched into the market from big diagnostic companies and are becoming increasingly available, while over a hundred have been already filed an application at the US Food and Drug Administration (FDA) for approval under the Emergency Use Authorization (EUA). Nonetheless, key scientific questions remain with the most prevalent one being whether the presence of antibodies can infer immunity and if so, how long this immunity may last. Unfortunately, there has not been enough time for scientists to be able to determine and correlate antibody presence to immunity and very prudently WHO has cautioned against use of antibody tests in lieu of immunity certification [14]. The advice is that immunity passports will be constantly reviewed as evidence is progressively accumulated.

Adding to this pressing question—which in essence will define whether antibody tests can become actual immunity passports—there are still perplexing issues that need to be clarified before Immunity Passports can become deployed for en masse testing. To name some: (1) the issue of sensitivity (ability to detect the presence of antibodies) versus specificity (ability to confirm the absence of SARS-CoV-2 antibodies when they are truly absent), which are inversely proportional and can lead to false-positives (resulting into releasing a potentially infectious, person into the workforce) or false-negatives (failing to certify a truly immune person to rejoin the workforce) direly affecting public health and the economy/society, respectively [15, 16], (2) the dependence of the interpretation of the results on seroprevalence in given populations [15, 16], (3) the absence of global golden standards upon current tests can be compared to, (4) the fact that available tests do not necessarily perform as claimed [17], while several of launched products have already been revoked by the FDA (e.g. [18, 19]), (5) the existing ambiguity of which antibodies are better suited to affirm infection and/or immunity [20, 21], (6) the short time since the outbreak of this unknown virus that cannot allow the affirmation of immunity persistence nor its exact duration, and (7) very recent studies that showed that there are cases when infected individuals were re-infected with a different strand of the virus [22].

As ominous and as ambiguous as the situation may seem, developing Immunity Passports seems to be the only viable solution for reopening the economy and society [23]. Equally important, as will be shown in the next section, the process of creating Immunity Passports can give rise to entrepreneurial opportunities inducing a rejuvenating effect on the economy, science and society.

4 Perspectives and Entrepreneurial Opportunities with Regard to Immunity Passports

4.1 General Outlook

The waters we have been sailing with respect to the COVID-19 pandemic are both muddy and uncharted mainly due to the fact that the underlying pathology of this

new virus is completely different from the other corona viruses and scientists have had merely half a year of experience [24]. This crisis might be a very fertile field where disruptive innovation might sprout from; while the need to come up with solutions sooner than later may boost innovation in ways that under more "normal" conditions would take longer or would not even materialize at all. Given the high stakes in terms of global health and global economy, this might be an opportune time for radical and disruptive approaches to come to center stage and create new entrepreneurial opportunities.

Entrepreneurship is by definition the activity of setting up a business or businesses, taking on financial risks in the hope of profit and it inherently contains the notion of risk and opportunity seizing. According to the Business Dictionary an entrepreneur is a person "who exercises initiatives by organizing a venture to take benefit of an opportunity and, as the decision maker, decides what, how, and how much of a good or service will be produced". As already stated in Sect. 3, Immunity Passports do not yet exist and the only way to create them is to first create suitable Antibody Tests that can be rapid, reliable, portable and cost-effective so that they can be employed en masse in a de-centralized way independent of central laboratories. As Mara Aspinall, a biomedical diagnostics professor at Arizona State University's College of Health Solutions, stated what's needed is a "paradigm shift from exquisitely accurate-but-slow tests to fast-and-good enough to quarantine. Slow and accurate works for clinical management, but this virus is a sprinter not a marathoner. We need fast and frequent tests just to keep up" [25]. Consequently, entrepreneurial opportunities may be created both from the creation and the adoption of Immunity Passports and startups seem to be the ideal and most agile players that can realize them. Startups may contribute to provide innovative solutions, can grow and operate in the digital and technology industry [26]. Startups search for a business model, which in practice means continuous testing of business hypotheses [27]. Among significant elements that startups focus on—apart from financial support— is innovation as the way to survival [28], target segmentation in order to match the products' characteristics with customers' needs [29, 30] and the application of business models and changes in the external environment in regard to product features marketing and financial resources [31]. Consequently, alongside the large established pharmaceutical and biodiagnostics companies, there is a new field where start-up and spin-off companies have significant room to play and grow.

Furthermore, since a lot of scientific facts are still missing and are in the process of being added to the picture, this is a great timing for academic entrepreneurship [32, 33] to flourish. Strategic alliances can and should take place between startups and universities/research centers to produce innovative solutions fast. Finally, this is the time where the public sector can meet the private sector in order to devise suitable solutions, as for example Siemens teaming up with the Centers for Disease Control and Prevention along with the Joint Research Centre (JRC) of the European Commission to standardize the tests [34].

The opportunities that arise from the development of Antibody Tests and further down the road the creation of Immunity Passports are not limited to the detection of antibodies and the verification of immunity. On the contrary, rapid and reliable

antibody testing especially in whole blood specimens obtained with minimally invasive ways (such as a fingerpick in an analogous way to glucose measurements) would offer great support to the on-going research on the epidemiology of the virus and the development of vaccines and treatments. In brief, successful tests/passports can be exploited in many other ways than population screening and can have significant impact on (a) scientific discoveries concerning the SARS-CoV-2 virus, (b) on the economy by allowing more people to return to the workforce [10, 11], but more importantly the creation of new business and entrepreneurial ventures, and (c) on society as a whole allowing massive, democratized and de-centralized testing and safeguarding of public health [10, 12]. In short, examples where entrepreneurial ventures stemming from antibody testing may flourish and grow in synergy with other ventures (such as big pharmaceutical companies, In vitro Diagnostic companies, Artificial Intelligence, blockchain and wearable electronics start-ups and spin-offs etc.) are the support studies of immunity and vaccine development, support of seroprevalence studies [35], development of drugs for antibody treatment [36], cost-efficient portable de-centralized testing diagnostic tools [10, 15], blockchain applications [37] and telemedicine [38].

4.2 SWOT Analysis

As with any entrepreneurial venture, it is always beneficial to draw a SWOT analysis. The present SWOT analysis summarizes the above analysis and entails the general aspects with regards to entrepreneurial activities linked to the creation and adoption of Immunity Passports and is by no means exhaustive or sector-specific. Rather its scope is to set a general framework so as to better demonstrate the multiple levels of opportunity for innovative and disruptive entrepreneurship that are created, while at the same time acknowledging the inherent weaknesses and threats of the task at hand.

Strengths. The strengths unfold in the triplet of Economy, Science and Society. The biggest strength is that no satisfactory solutions exist leaving room for creative capacity and disruptive innovation to unfold, therefore apart from the jump-starting of the economy through the application of Immunity Passports, a lot of new businesses can be created contributing in their turn to the creation of new jobs and strengthening of the existing companies The very act of Immunity Passport will reinforce current and future scientific discoveries and augment our understanding of the SARS-CoV-2 virus and future pandemic-causing viruses. From a societal point of view their implementation will support social cohesion, alleviate the economic and psychological pressures of social distancing and support equity in triaging and health-related resource allocation.

Weaknesses. Weaknesses mainly stem from the absence of a globally-accepted legal framework according to which Immunity Passports may be implemented, the lack of the complete scientific facts concerning the epidemiology of the

SARS-CoV-2 virus and conferred immunity, and last but not least the absence—so far—of golden standards in terms of determining the appropriate specificity and sensitivity of the tests themselves.

Opportunities. The business opportunities lie for all players to "grab", from the largest and most-established biomedical companies to newly-founded start-ups and spin-offs. Novel products and services can be developed centered around the development of de-centralized and democratized mass antibody testing. Apart from them, new types of business models and corporate branding through the adoption of Immunity Passports can be created.

Threats. Threats following the creation and adoption of Immunity Passports mainly emanate from social and ethical considerations, among which the most severe are: the inverse effect of social stigma and new forms of discrimination, the risk of intentionally exposing one to infection to obtain a sought-after Immunity Passport [39], fraudulent activities connected to private data breaching or black-market of forged Immunity Passports as well as cultural differences that might lead to either erroneous perceptions about the safety or appropriate use of Immunity Passports [40] or total rejection of their use.

5 Exemplification of Innovative Entrepreneurship from the Creation of Immunity Passports

In order to demonstrate the potential of innovative entrepreneurship that may emanate from the creation and adoption of Immunity Passports, two disparate—but large and significant—market sectors were selected as examples pare excellence, that of PoC Diagnostics and Hospitality and Tourism.

5.1 PoC Diagnostics

Point-of-care (PoC) Diagnostics is one of the most rapidly growing market segments within the field of In vitro Diagnostics (IVD) predicted to reach a USD 46.7 billion by 2024 from USD 28.5 billion in 2019, at a CAGR of 10.4% during the forecast period [41]. The main key drivers behind this speedy growth and high demand for novel solutions are the following [41, 42]: (1) rising incidences and prevalence rates of communicable diseases are attributive to upsurge the demand for better diagnostics in the market, (2) the increasing demand for efficient PoC diagnostics for quicker diagnostics, (3) the rising number of medical and surgical procedures requiring expeditious analyses and the need to move the pressure out of their laboratories, (4) the need to procure low-resource settings with affordable, portable and rapid diagnostic tools, (5) the latest trends of consumer-centric services coupled with high demand for portable and rapid testing devices, (6) a global need

for more de-centralized and democratized diagnostic tools accessible by everyone, (7) the recent surge of pandemics requiring expeditious solutions to monitor the spread of diseases around the globe, (8) the decreasing capacity of central labs to meet the growing demand for healthcare, and (9) the rising adoption of companion diagnostics, the virulence of infectious diseases, and the need for better and regular monitoring systems in near-patient settings. It is expected, thus, that key disruptive feature is likely to be *economic* and the most successful player is the one that can bring into the market the tool that can offer *cost-efficient, de-centralized diagnostics with the accuracy of a large central laboratory* [43]. As set by WHO since 2006, a PoC system must obey the "ASSURED criteria" [44], i.e. the golden standards of **A**ffordable, **S**ensitive, **S**pecific, **U**ser-friendly, **R**apid and **R**obust, **E**quipment-free and **D**eliverable.

An Immunity Passport to be successful has to follow the ASSURED criteria and is by definition a PoC device. The COVID-19 pandemic has brought the race of PoC devices to a new even more-highly paced level, with the key players antagonizing over the optimum solution for affordable but accurate, de-centralized mass-testing. Despite the fact that the disease is afflicting the entire planet in an unprecedented manner it has brought up more than ever the issue of inventing disruptive solutions for PoC diagnostics. The crisis is definitely an opportunity in the making, since the emerging PoC solutions will lift barriers in more ways than one helping in all three fronts, the scientific, the economic and the social. Furthermore, a successful Immunity Passport solution will be sui generis a successful PoC device that can be transformed for a different biomarker to a new product, while it will be there to be developed to a solution for the next wave of a pandemic adding to the global preparedness against a new virulent threat. Adding to that the PoC device can be complemented with AI-algorithms, data mining services, telemedicine applications, wearable electronics and blockchain solutions, one can envision a plethora of disruptive products and services that can be sold separately or as a combination thereof, and can satisfy existing market gaps as well as create the need for new products and offered services in the field of diagnosis, telemedicine and healthcare. In an almost visionary aspect, the process of developing Immunity Passports can be the catalyst for new diagnostic products and a real disruptive breakthrough that has been long-awaited in the field of IVD.

5.2 Hospitality and Tourism

One of the economy sectors that has been hit first and the hardest by the wave of the COVID-19 pandemic was is that of Hospitality and Tourism. Airlines, hotels, restaurants and all businesses related to tourism, travel and leisure have seen their profit plummeting due to travel restrictions, social distancing measures and the decreased income of a large part of the population. It seems almost counter-intuitive that in the midst of this unprecedented crisis it is possible to discuss business opportunities, especially since there are still so many unanswered scientific

questions [45]. As counter-intuitive as it may seem, should Immunity Passports come into play, they can contribute to a partial up-lift of the current obstacles and resuscitate dying enterprises. First of all, travel can be resumed with a higher degree of safety both for passengers and airline/airport employees. In addition, airline companies that have their passengers and staff purportedly immune can vouch for a safe travel and be preferred and become thus more competitive with respect to other airlines that do not implement such safety measures. In general, having the ability to minimize exposure risks would prompt people to resume traveling. Already Heathrow airport has been experimenting with UK's first airport testing facility for outbound travelers in the hope that that testing passengers before travel will both boost confidence about stepping aboard aircraft, and gradually reduce or eliminate quarantine on arrival [46]. As a consequence, more travelers mean automatically mean more customers for hoteliers, restaurateurs and all businesses linked to recreational activities, and hence boost to local economies that rely on tourism.

Nonetheless, there are might some spill-over effects that might be equally beneficial to the increase of clientele. Businesses that will opt to include Immunity Passport testing for employees can start building in a new company/corporate profile on public health and employee safeguarding similar in effect with other branding venues, such as eco-friendliness or equal opportunity environment. In even more visionary business opportunities, one can start discussing online training and teaching—for ex. startups' and entrepreneurs' role to join forces with educational institutions and their contribution of synergies and cross research teams with research laboratories [47].

6 Conclusion

Future research paths could be associated with the examination of more case studies that may present the synergies between universities and technology-oriented companies with economic consequences on local, national and international economic growth by examining the way academics perceive such synergy [32]. Many sectors, apart from hospitality and tourism have been greatly affected by COVID-19. People in different professions have lost their livelihood and are struggling to make ends meet [48]. Cooperation is needed at local, national and international level. Discrepancies exist that need to be taken into consideration. Are the WHO's considerations those to be implemented? Or under the International Health Regulations (2005) (IHR), states can implement health measures? [11]. At the time of writing the paper, immunity passports are in contrast to WHO's recommendations for international travel that declared COVID-19 a Public Health Emergency of International Concern (PHEIC) and any changes need to be incorporated in revised WHO recommendations [11]. Tourism and Hospitality will have to operate in a different manner until the pandemic wanes and the more agile of companies that will incorporate health safeguarding will be the first to have a competitive edge. New business models will have to be devised, creative thinking

about new services must be exploited and disruptive approaches to leisure and travel must be implemented. The first to adapt will be the first to profit.

Opportunities are offered via this high degree of uncertainty that has led both academia and the private sector to turn their focus on and intensify their efforts in going as much knowledge as possible and to come up with solutions to fight this new and aggressive enemy. It is probably the first time that such a coordinated and intense effort towards a common goal has been witnessed globally.

References

1. https://www.worldometers.info/coronavirus/?utm_campaign=homeAdvegas1?
2. Hale T, Webster S, Petherick A, et al (2020) Oxford COVID-19 government response tracker. Blavatnik School of Government. Available https://www.bsg.ox.ac.uk/research/research-projects/coronavirus-government-response-tracker
3. European Commission, EU Science Lab (2020) JRC analyses COVID-19 impact on economy and labour markets to help guide EU response. Accessed at https://ec.europa.eu/jrc/en/news/jrc-analyses-covid-19-impact-economy-and-labour-markets-help-guide-eu-response#:~:text=Simulations%20carried%20out%20by%20a,place%20to%20alleviate%20the%20impacts
4. Wilder-Smith A, Chiew CJ, Lee VJ (2020) Can we contain the COVID-19 outbreak with the same measures as for SARS? Lancet Infect Dis 20:e102–e107. https://doi.org/10.1016/S1473-3099(20)30129-8
5. Secretariat WTO (2020) This document has been prepared under the WTO secretariat's own responsibility and is without prejudice to the positions of members or to their rights and obligations under the WTO, 1–17
6. UNWTO, World Tourism Barometer (2020) Tourism slowly restarting, after a 98% drop in international arrivals in May. UNWTO World Tourism Barometer and Statistical Annex 18:1–36
7. Nations United (2020) COVID-19 and the least developed countries, 66:1–4
8. Xafis V, Schaefer GO, Labude MK, Zhu Y, Hsu LY (2020) The perfect moral storm: diverse ethical considerations in the COVID-19 pandemic. Asian Bioeth Rev 65–83. https://doi.org/10.1007/s41649-020-00125-3
9. Regulations IH (2005) International certificate of vaccination or prophylaxis certificat international de vaccination ou de prophylaxie issued to/Délivré à Passport Number or Travel Document Number Numéro Du Passeport Ou Du Document de Voyage
10. Brown RCH, Savulescu J, Williams B, Wilkinson D (2020) Passport to freedom? immunity passports for COVID-19, 652–659. https://doi.org/10.1136/medethics-2020-106365
11. Phelan AL (2020) COVID-19 immunity passports and vaccination certificates: scientific, equitable, and legal challenges. Lancet 395:1595–1598. https://doi.org/10.1016/S0140-6736(20)31034-5
12. Beriain IDM, Rueda J (2020) Immunity passports, fundamental rights and public health hazards : a reply to Brown et al, 46:660–661. https://doi.org/10.1136/medethics-2020-106814
13. Voo TC, Clapham H, Tam CC (2020) Ethical implementation of immunity passports during the COVID-19 pandemic, 222:715–718. https://doi.org/10.1093/infdis/jiaa352
14. World Health Organization (2020) "Immunity passports" in the context of COVID-19 scientific brief. Accessed at https://www.who.int/publications-detail/immunity-passports-in-the-context-of-covid-19

15. Kumleben N, Bhopal R, Czypionka T, Gruer L, Kock R, Stebbing J, Stigler FL (2020) Test, test, test for COVID-19 antibodies: the importance of sensitivity, specificity and predictive powers. Public Health 185:88–90. https://doi.org/10.1016/j.puhe.2020.06.006
16. Diamandis P, Prassas I, Diamandis EP (2020) Antibody tests for COVID-19: drawing attention to the importance of analytical specificity. Clin Chem Lab Med 58:1144–1145. https://doi.org/10.1515/cclm-2020-0554
17. Ghaffari A, Meurant R, Ardakani A (2020) COVID-19 serological tests: how well do they actually perform? Diagnostics 10:1–14. https://doi.org/10.3390/diagnostics10070453
18. https://www.aha.org/news/headline/2020-08-10-fda-revokes-authorization-antibody-test
19. https://www.fda.gov/news-events/press-announcements/coronavirus-covid-19-update-fda-revokes-emergency-use-authorization-chembio-antibody-test
20. Kontou PI, Braliou GG, Dimou NL, Nikolopoulos G, Bagos PG (2020) Antibody tests in detecting SARS-CoV-2 infection: a meta-analysis. Diagnostics 10. https://doi.org/10.3390/diagnostics10050319
21. Riccò M, Ferraro P, Gualerzi G, Ranzieri S, Henry BM, Said YB, Pyatigorskaya NV, Nevolina E, Wu J, Bragazzi NL, Signorelli C (2020) Point-of-care diagnostic tests for detecting SARS-CoV-2 antibodies: a systematic review and meta-analysis of real-world data. J Clin MeD 9:1515. https://doi.org/10.3390/jcm9051515
22. Tillett RL, Sevinsky JR, Hartley PD, Kerwin H, Crawford N, Gorzalski A, Laverdure C, Verma SC, Rossetto CC, Jackson D, Farrell MJ, Hooser SV, Pandori M (2020) Articles genomic evidence for reinfection with SARS-CoV-2: a case study. Lancet Infect Dis 3099:1–7. https://doi.org/10.1016/S1473-3099(20)30764-7
23. Weinstein MC, Freedberg KA, Hyle EP, Paltiel AD (2020) Waiting for certainty on Covid-19 antibody tests—at what cost? N Engl J Med 383(6):e37
24. https://www.economist.com/by-invitation/2020/08/10/nicholas-christakis-on-fighting-covid-19-by-truly-understanding-the-virus
25. https://www.medtechdive.com/news/covid-19-testing-hits-a-wall-where-do-we-go-from-here/582031/
26. Ghezzi A, Cavallo A (2020) Agile business model innovation in digital entrepreneurship: lean startup approaches. J Bus Res 110:519–537. https://doi.org/10.1016/j.jbusres.2018.06.013
27. Blank S (2013) Why the lean start-up changes everything. Harvard Business Review. https://hbr.org/2013/05/why-the-lean-start-up-changes-everything
28. Cefis E, Bartoloni E, Bonati M (2020) Show me how to live: firms' financial conditions and innovation during the crisis. Struct Chang Econ Dyn 52:63–81. https://doi.org/10.1016/j.strueco.2019.10.001
29. Aulet B (2013) Disciplined entrepreneurship: 24 steps to a successful start up. Wiley, New Jersey
30. Blank S, Dorf B (2020) The startup owner's manual the step by step guide for building a great company. Wiley, New Jersey
31. Juntunen M, Ahonkangas P, Nguyen A (2018) Business model scalability in the cloud business context. J Bus Models 6:19–39. https://doi.org/10.5278/ojs.jbm.v6i1.2396
32. Makarona E, Kavoura A (2019) Redesigning the Ivory Tower: academic entrepreneurship as a new calling supporting economic growth. The Malopolska School of Economics in Tarnow Research Papers Collection, 42:15–26. https://doi.org/10.25944/znmwse.2019.02.1526
33. Spyropoulos T (2019) Start-ups ecosystems comparison: MIT and Greece experiences. The Małopolska School of Economics in Tarnów Research Papers Collection, 42:43–58. https://doi.org/10.25944/znmwse.2019.02.4358
34. https://www.mddionline.com/covid-19/fight-standardize-covid-19-antibody-tests
35. Bendavid E, Mulaney B, Sood N, Shah S, Ling E, Bromley-Dulfano R, Lai C, Weissberg Z, Saavedra R, Tedrow J, Tversky D, Bogan A, Kupiec T, Eichner D, Gupta R, Ioannidis J, Bhattacharya J (2020) COVID-19 antibody seroprevalence in Santa Clara county, California. medRxiv. https://doi.org/10.1101/2020.04.14.20062463
36. Casadevall A, Pirofski LA (2020) The convalescent sera option for containing COVID-19. J Clin Invest 130:1545–1548. https://doi.org/10.1172/JCI138003

37. https://thejournalofmhealth.com/will-covid-19-immunity-passports-be-blockchains-breakthrough-application/
38. https://www.inverse.com/mind-body/mens-telehealth-covid-19
39. Kofler N (2020) Passports are a bad idea. Nature 581:379–381
40. Waller J, Rubin GJ, Potts HWW, Mottershaw AL, Marteau TM (2020) Immunity passports for SARS-CoV-2: an online experimental study of the impact of antibody test terminology on perceived risk and behaviour, 1–9. https://doi.org/10.1136/bmjopen-2020-040448
41. https://www.marketsandmarkets.com/Market-Reports/point-of-care-diagnostic-market-106829185.html?gclid=CjwKCAjw_Y_8BRBiEiwA5MCBJjFRUSdRWwNFA9IZ3yfV2V7bexIEnpQLLD3KItRdoYLZRBg-AQ1TEhoCaWgQAvD_BwE
42. https://www.grandviewresearch.com/industry-analysis/point-of-care-infectious-disease-diagnostics-testing-market
43. Huckle D (2008) Point-of-care diagnostics: an advancing sector with nontechnical issues. Expert Rev Mol Diagn 8:679–688. https://doi.org/10.1586/14737159.8.6.679
44. Peeling RW, Holmes KK, Mabey D, Ronald A (2006) Rapid tests for sexually transmitted infections (STIs): the way forward. Sex Transm Infect 82:1–7. https://doi.org/10.1136/sti.2006.024265
45. Chen H, Freedman DO, Visser LG (2020) COVID-19 immunity passport to ease travel restrictions? J Travel Med 27:1–3. https://doi.org/10.1093/jtm/taaa085
46. https://www.independent.co.uk/travel/news-and-advice/heathrow-offers-covid-tests-for-handful-of-passengers-in-first-step-for-future-of-travel-b1176069.html
47. Kavoura A (2020) Two to tango: entrepreneurs and robots' users in hospitality service innovation. In: Thirumaran K, Klimkeit D, Tang CM (eds) Service excellence in tourism and hospitality insights from Asia. Springer, Singapore
48. Goel A, Kamble Z, Tyagi S, Ganes HV, Mamuwala H, Nyein San N (2020) Rethinking management and promotion of tourist destinations amidst COVID-19: good practices and challenges. In: Kavoura A, Havlovic S, Totskaya N (eds) Strategic innovative marketing and tourism in Covid-19 era. Challenges and Prospects. Springer, Cham (in press)

The Impact of Covid-19 in E-Commerce. Effects on Consumer Purchase Behavior

George Dionysiou, Konstantinos Fouskas, and Dimitrios Karamitros

1 Introduction

On January 9, 2019, in the city of Wuhan, Hubei province, China, several cases of pneumonia occurred. At that time, the Chinese health authorities determined that it was a new formation of Coronavirus (2019-NCOV). According to the World Health Organization (W.H.O.) it is identified as a disease which is transmitted from person to person through droplets from coughing, sneezing, or talking. Consequently, W.H.O. issued limitations, first for self-isolation, and then social distancing [1]. In Greece, the first case occurred on February 26, 2020 in Thessaloniki. As the number of cases increased, the government decided to issue a directive to shut schools and restrict every single event effective immediately. On March 16, following a recommendation from EODY (Greek Public Health Organization), all retail stores were closed as well as service provision stores. Therefore, on March 22, the Greek authorities declared the general lockdown by diminishing travel within and from or towards the country. There were only some cases where citizens could visit pharmacies, supermarkets, banks either going out for cases such as working out dog walking [2]. This resulted in a significant search for other options to cover all shopping habits. No doubt the only way to control the pandemic was to cut off opportunities for human-to-human interaction. However, the major problem was the way citizens could buy their groceries, and other necessities since they could not visit all kinds of shops. That was the reason an increased demand of online shopping was witnessed as evident in other countries as well [3].

This paper aims to compares consumer behavior in specific goods such as non-seasonal and seasonal in pre-COVID-19, during COVID-19 and after the gradual lifting of measures. With these indicators and comparative results, we will

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show that consumer behavior changes, especially in periods of intense macroeconomic and health changes.

2 Literature Review

Covid-19 developed into a pandemic, which urged a global crisis in many areas, such as the economy, politics, society, etc. The transmission speed was a huge problem for every region due to quick decisions that had to be taken, and actions needed to be decided to protect the citizens. As limitations (self-quarantine, social distancing) were going on, it is logical that changes would appear in consumers' shopping habits. However, the way that this has affected shopping habits is here to stay and constitutes an unfamiliar huge impact on ecommerce. The pandemic has changed the face of retail as we know them. According to a research [4] 52% of consumers stopped visiting brick to mortar shops and crowded areas in general. Furthermore 36% avoid shopping in malls or other shops until a vaccine is found. Due to Coronavirus certain group of products had different impact, that means that products like toilet paper, disposable gloves, freezer, bread machine, puzzles had an enormous increase and products like luggage, bridal wear, men's formal wear and other had a serious decrease [4]. Companies that haven't adopted digital commerce keep on facing major financial problems, while companies that utilized it as a primary or complimentary customer relationship channel were well prepared to cope with this change. At the same time, this condition launches a new opportunity for the expansion of digital commerce and its introduction in new service channels [5]. Despite the fact that it is too soon to determine the magnitude of the change, a survey by the Greek company plushost.gr on a sample of 288 online stores presents a first sight of the profound future change, while capturing the change in terms of consumers' habits and the future rapid shift to electronic shopping behavior [6] (Plushost.gr 2020). After Covid-19 pandemic, e-commerce firms have started to experience some short-term changes. For example, Americans are adapting to e-commerce faster as sales online for groceries have increased in double the amount in the middle of March compared to earlier in the month. This due to physical stores closing because of the virus and is pushing consumers to go online for their necessities [7].

From an e-commerce point of view, [8], business is being driven into significant limitations due to the pressure from the pandemic. According to their study, e-commerce is identified as the dependent variable since the rise or the downfall in the demand of online platforms is significantly dependent on the spread of Covid-19 and also on the customer's behavior towards this global issue.

Another study [9], argues that fresh food e-commerce channels are more likely to be associated with panic stockpile behaviors due to higher likelihood of supply shortages than offline channels with government assistance in logistic management. In contrast, community group buy, another format of e-commerce, appears superior in satisfying the consumer needs and easing the panic buying perception.

Usually, consumer shopping habits do not change rapidly, although, in this case we witnessed extreme and rapid changes. SEPE (Association of Information Technology and Communications) reports that consumer shopping habits have not changed over time, but apparently, change came to stay. It was customary to see high visits to online stores during the quarantine due to the lockdown, although these numbers did not return to pre-quarantine levels and remained high. Nowadays, the systematic trend of online purchases has been more than doubled. Since the removal of the lockdown and steadily until May 2020, 21% of internet users had made at least one purchase, while this reached 50% in August 2020 [10].

A study published in GR.EC.A. (Greek Ecommerce Association) conducted in collaboration with the two largest price search engines in Greece, Skroutz and Bestprice, shows a growth rate of 107% in weekly spending for May 2020 compared to May 2019 from a sample of 4451 e-shops. Their study confirms the increase in visits and the weekly change of expenditure after the second phase of governments' limitations. It indicates that there was a rise in both visits and expenditure, which under normal circumstances, would not have occurred [11].

From the aforementioned, we conclude that Consumer behavior is influenced by various factors, especially in times of crisis such as the pandemic. Since the pandemic is still in progress and the data are constantly changing, everything is under study. However, what is evident in the data so far is the buying habit and the general behavior of the consumers influenced by their inability to visit stores due to the lockdown. Their turning to the market of essential items (food, vegetables, etc.) and the reduction of purchases in non-essential items as there was also great financial difficulty.

This paper is a source of important conclusions of consumer behavior due to COVID-19 and its conclusions are a tool for the future management of next day e-commerce.

3 Methods

In order to envisage the change in consumer behavior that occurred during the crisis, we had to choose a tool that observes and captures consumer behavior constantly, multiple times daily, coherent and free from biases. The volume and texture of internet searches seem to be the most uncompromised and sincere factor. Internet search data are capable of providing valuable insights into patterns of behavior. The application of Internet data in the research holds promise and may complement and extend the data foundations [12, 13].

Our tool of choice was Google Trends, a public web facility of Google Inc., based on searches conducted via Google Search box, which shows how often a particular search-term is entered relative to the total search-volume across various regions of the world, and in various languages. The time series for our search stretch from 01/01/2019 to 13/09/2020—89 weekly observations—a limited timespan that includes over a year of "normality" and the birth, the onset and the

on-going development of the Covid-19 crisis. The research was optimized for Greece and included all categories and Web Search/results. For each of the pre-mentioned terms, the related topics indicated on Google Trends were utilized in/order to export the csv file with the related data. We visualized and compared all the extracted data into a single figure to understand the increases and decreases through the search terms' timespan. We included all the numeric data into a table to compare the different results and implemented different statistical algorithms on the datasets by utilizing a statistical program (SPSS).

We choose not to extent our analysis of the data for a broader period, so as not to lose the dynamic of the crisis and to concentrate on the difference observed in consumer behavior in the occurrence of Easter holidays in two consecutive years (2019, 2020) and reveals the change it provoked, almost overnight. Initially, a series of searches were conducted, a data-gathering for 6 terms: three of which concerned Non-Seasonal Goods—from now on NSGs—(Toilet paper, Vegetables, Medicine) and three of which concerned Seasonal Goods—from now on SGs—(Candles, Lamb, Easter eggs).

As NSG are concerned, from a closer examination and comparison of the same periods between 2019 and 2020, it is show that there is indeed a positive variance in interest for NSG, especially in the period from 16/02/2020 till 26/07/2020 with a peak in the week starting 15/03/2020, where an average increase of near 150% in the searches for NSGs is observed.

Figures 1 and 2, are depicted—for a visual comparison—the interest over time and a forecast for one year (until September 2021) for NSG and SG, respectively.

From the graphs above, it is clearly observed that: (i) there is indeed a difference in consumer behavior towards SGs and NSGs, and (ii) that the Covid-19 crisis indeed spiked the internet searches for the terms under consideration. As far as NSGs are concerned, a constant interest for them is observed graphically, an expected finding as they cover every day needs, examining a sizeable increase in the onset of the crisis, and a gradual restoration to normality. Every NSG follows this pattern. Regarding SGs graphically a remarkably similar, almost identical pattern is observed. It is observed a near absence in searches, except for the time

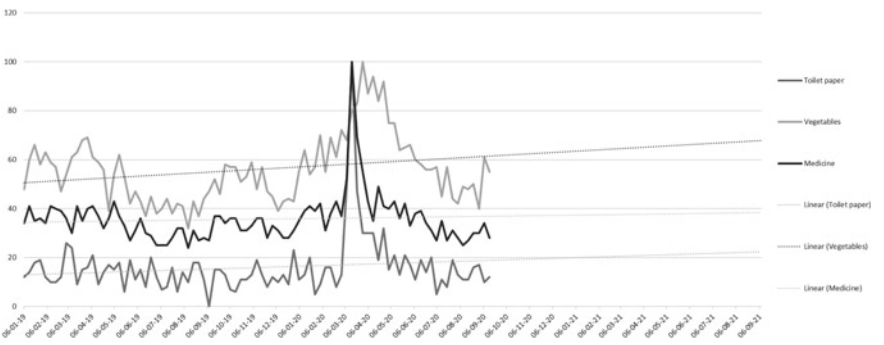

Fig. 1 Interest over time and forecast for Non-seasonal goods

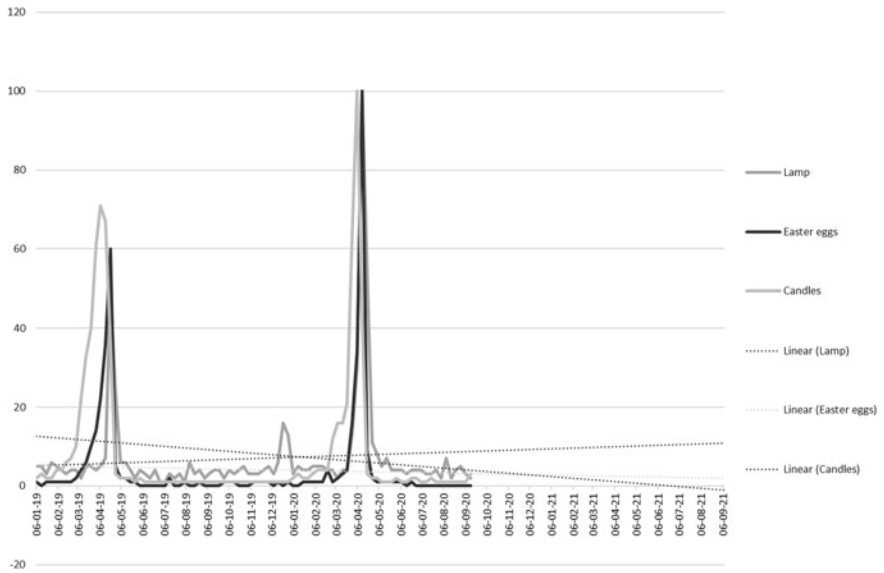

Fig. 2 Interest over time and forecast for Seasonal goods

occurrence of Easter holidays, where the searches are skyrocketing. The internet searches for Easter SGs in the time of crisis have almost doubled compared to the previous year searches. The restoration to normality was also much steeper, i.e. it happened in a minimal amount of time compared to NSGs, to which the restoration to normality in searches happened gradually.

The Linear equations for both SGs and NSGs are depicted in Table 1.

The NSGs are all having a positive (upward) slope, which is indicative of expected future growth in searches. Nevertheless, the coefficient of slope in all of them is of minimal value, a fact that can be interpreted as a sign of a back-to normality near future for the NSGs, without any sharp rises in the forecasted interest, that will eventually lead to a rise in the demanded quantities.

The SGs, on the other hand, show more peculiar linear equations: the only search that produces a positive slope coefficient is the search for Lamb, whereas the searches for Easter Eggs and Candles are having (very small) negative coefficients. A possible interpretation of these fact is that Lamb, as a delicacy and food, will be searched and in other times besides Easter, whereas Candles and Easter Eggs are exclusively orientated in the occurrence of the Easter Holiday.

Table 1 Linear equations for SGs and NSGs

Non-seasonal goods	Seasonal goods
Toilet paper: $y = 0.0096x - 405.03$	Lamb: $y = 0.0059x - 250.34$
Vegetables: $y = 0.0177x - 718.37$	Easter eggs: $y = -0.0033x + 147.06$
Medicine: $y = 0.0041x - 143.46$	Candles: $y = -0.0139x + 617.95$

The difference if the texture of the data obtained between NSGs and SGs can be also viewed in the following frequency graphs of Normal distribution below (Figs. 3 and 4).

According to these graphs, the observations of NSGs are much closer to the normal distribution than the observations of SGs, again a fact that is expected due to their nature, as the interest for them is constant and not limited in a specific and small time period. Visually the most appealing behaviors come from Vegetables, in which the value/frequency area is extended to a greater span, while Toilet paper and Medicine have a more concentrated value/frequency area and more extensive outliers.

In the case of SG's the value/frequency areas against normal distribution are not satisfying in any way, as there is a tremendous concentration in specific frequencies of low volumes which leads, to extensive outliers.

The descriptive statistics for our search terms are presented in Table 2.

As far as statistics measures are concerned, the following conclusions can be drawn:

1. The NSGs are much richer in volume, as the interest for them was constantly depicted in internet searches during the examined time period.
2. The measures of variance and standard deviation are more significant in SG, than NSGs, something that was also expected due to the on-off nature of the goods. The particular SGs are aiming in the Easter Holidays, a small time period of 2–3 weeks every year in which the demand is spiking, without any real interest for the rest of the year.

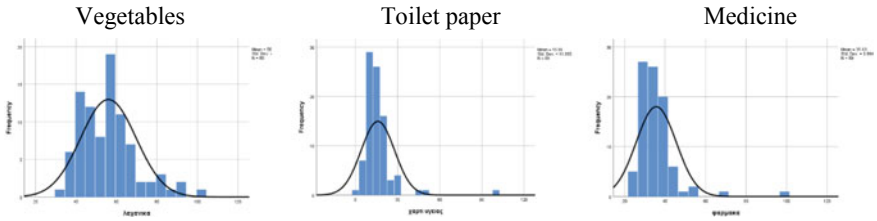

Fig. 3 Time-series data of *Non-seasonal goods against Normal distribution*

Fig. 4 Time-series data of *Seasonal goods against Normal distribution*

Table 2 Statistics for Seasonal and Non-seasonal goods

Seasonal goods statistics					Non-seasonal goods statistics			
	Lamp	Easter eggs	Candles	Average	Toilet paper	Vegetables	Medicine	Average
Mean	7	4.18	8.26	6.48	15.96	56	35.63	35.86
Std. Error of Mean	1.371	1.42	1.921	1.57	1.26	1.451	1.046	1.25
Median	4	1	1	2.00	13	56	35	34.67
Mode	4	0	1	1.67	11	57	31	33.00
Std. Deviation	12.935	13.395	18.123	14.82	11.885	13.687	9.864	11.81
Variance	167.318	179.422	328.45	225.06	141.248	187.341	97.304	141.96
Skewness	5.419	5.405	3.168	4.66	4.55	0.956	3.705	3.07
Std. Error of Skewness	0.255	0.255	0.255	0.26	0.255	0.255	0.255	0.26
Kurtosis	33.364	33.163	10.254	25.59	28.845	1.048	21.068	16.99
Std. Error of Kurtosis	0.506	0.506	0.506	0.51	0.506	0.506	0.506	0.51
Range	99	100	100	99.67	100	68	76	81.33
Minimum	1	0	1	0.67	0	32	24	18.67
Maximum	100	100	100	100.00	100	100	100	100.00
Sum	623	372	735	576.67	1420	4984	3171	3191.67

3. In the same sense, the measures of Kurtosis and Skewness are also more extraordinary in SGs, than NSGs.
4. The sum of values is much greater in NSG, than SG as expected, due to the constant interest for them.

Continuing our analysis, we plot each SGs and NSGs variable against the other two in the respective category to obtain the correlation statistics, both parametric and non-parametric. The results are presented in Tables 3 and 4.

From the data presented above, no sizable differences are observed either in the parametric or non-parametric correlations, which indicates a similar correlation pattern between the SGs and NSGs.

From the correlation statistics, as well as the corresponding graphs, it is not visible a serious correlation either among SGs, or among NSGs. Continuing with the correlation analysis, Fig. 5 presents the visual representation of the plot and the correlations of the search terms.

Table 3 Parametric correlations for Seasonal and Non-seasonal goods

Seasonal goods parametric correlations						Non-seasonal goods correlations				
Pearson correlation		Lamp	Easter eggs	Candles	Average		Toilet paper	Vegetables	Medicine	Average
	Lamp	1	0.853	0.347	0.7333	Toilet paper	1	0.46	0.803	0.754
	Easter eggs	0.853	1	0.634	0.8290	Vegetables	0.46	1	0.625	0.695
	Candles	0.347	0.634	1	0.6603	Medicine	0.803	0.625	1	0.809
	Sum	2.2	2.487	1.981	2.2227	Sum	2.263	2.085	2.428	2.259

Table 4 Non-parametric correlations for Seasonal and Non-seasonal goods

	Seasonal goods non-parametric correlations						Non-seasonal goods non-parametric correlations				
Spearman' Kendall's	tau_b		Lamp	Easter Eggs	Candles	Average		Toilet paper	Vegatables	Medicine	Average
		Lamp	1.000	0.37	0.277	0.549	Toilet paper	1.000	0.215	0.261	0.492
		Easter eggs	0.37	1.000	0.579	0.650	Vegetables	0.215	1.000	0.539	0.585
		Candles	0.277	0.579	1.000	0.619	Medicine	0.261	0.539	1.000	0.600
	s rho	Lamp	1.000	0.439	0.354	0.598	Toilet paper	1.000	0.311	0.354	0.555
		Easter eggs	0.439	1.000	0.656	0.698	Vegetables	0.311	1.000	0.713	0.675
		Candles	0.354	0.656	1.000	0.670	Medicine	0.354	0.713	1.000	0.689
		Sum	3.440	4.044	3.866	3.783	Sum	3.141	3.778	3.867	3.595

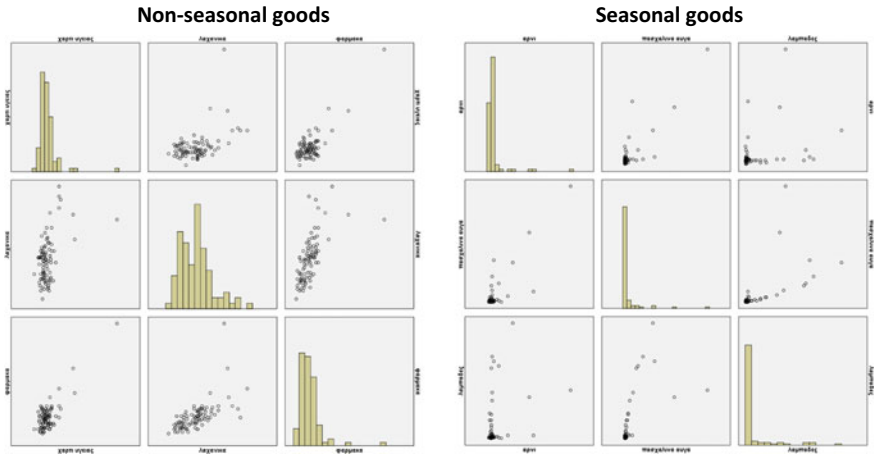

Fig. 5 Plot of search terms of Non-seasonal goods and Seasonal goods

4 In Order to Envisage the Discussion

From the data examined we found that concerning NSGs, the greatest increase was observed in the searches of vegetables (as a total increase of 499 interest volume points is observed in the period of 01/01/2020–13/09/2020, in comparison with the same period in 2019. Toilet paper comes second with a total increase of 219 interest points, while medicine has a total increase of 212 interest points. In general, the above mentioned NSGs are perhaps the most common and typical household supplies and the predicted trendlines are forecasting an increase of interest in the near future.

On the other hand, concerning SGs, the greatest increase came from Lamb (with a total increase of 136 interest volume points), while Easter eggs had a very slight increase of just 12 points and last Candles had a decrease in searches with a total of 70 points. That fact can be explained in a variety of ways, the most prominent being that Lamb is a delicacy, a source of food, critical for survival and social bonding. On the other hand, Candles and easter eggs are, at least in Easter 2020, considered a luxury, with no obvious practical implications as they could not be utilized in social gatherings which were forbitten or churches which remained closed. Evaluating this finding, are also the trendlines of SGs, where the sole upward one, was the Lamb trendline.

In connection with the literature under consideration, in terms of e-commerce and consumer behavior, the main questions asked during the crisis were the following [14]: “How are consumers responding to the current restrictions?”, “Have they converted to online shopping or do they prefer waiting in the queue?” “Is this an opportunity for people to get acquainted with different technologies and will their new habits prevail once things go back to normal?”

It is a fact that retail and commerce in general, has experienced major disruptions in the past, but never consumer preferences and shopping patterns have never shifted so violently and quickly. Online retails need to take into serious consideration that consumers, as well as changing how they shop, changes also the reasons why consumers they shop.

As a roadmap to the new normality, digital retailers need to enhance consumer confidence with responsibility and resilience. Online retailers need to improve shopping efficiency and be ready to respond to rapidly shifting needs as the pandemic evolves. The increased use of digital requires retailers to substantially increase their investment in omnichannel capabilities. With the rise of the digital conscious consumer, a persona characterized from environmental sane and ethical purchasing decisions, digital retailers need to build sustainability into the core of their businesses, and look for new ways to grow.

According to the finding of our study, the crisis transformed profoundly consumers and their behavior towards life and shopping preferences. It also brought to the surface interesting implications such as (i) The concept of the adjusting and conscious consumer (ii) The realization of what the consumer buys and how he buys (iii) The surge in use of ecommerce and omnichannel services, and (iv) The deviations occurred to normality and how consumers live and work during the crisis.

5 Conclusions and Future Research

This study largely involves the interpretation of consumer interest, as this is depicted through internet searches. The findings of this study keep up and verify the common sense. As far as our research questions are concerned, the following conclusions can be drawn. The current research has proven the correlation between different constructs fountained by exploratory research based on Google Trends indicators. Different statistical approaches provide different numbers of correlations, but they kept the same analogy overall between one another. The fact that this research confirms this argument might indicate that the prementioned constructs have stable balances between them when it comes to correlation. From a statistics point of view, it would be challenging to see a model built for the variables presented, set independent and independent variables, perform a linear regression on the model, study the predictors' behavior, and perform forecasting of different constructs utilized by the current research.

The exploration of non-typical sources of knowledge such as Google Trends, sources will be able to provide not just qualitative, but also quantitative data, such as preferences, behavior, and changes in trend. For non-statistical approaches, researches that seek to extract absolute values. The use of new, non-traditional and non-academic, sources of information, as Google Trends is opening exciting opportunities in terms of immediacy and plethora of data. This exploration of non-typical sources of knowledge will allow researchers to provide qualitative and

quantitative data, such as preferences, trends, and changes in behavior. Yet, due to its limited time of induction, researchers have to be very concerned about the data's quality.

As far as the implications of the crisis to the consumer behavior are consider, one could argue that under this unfortunate occurrence, people experienced something we may call "a moment of clarity", a shift towards less materialistic items. They refocused on essential supplies and moved their area of interest to household items. Changes to disposable income and available leisure time are influencing consumers' attitudes, behaviors and purchasing habits. A sizable portion of consumers are finding themselves 'financially-squeezed', with less disposable income compared to before the crisis, and are shopping more cost consciously [15].

Adding to this, there was also necessary,—almost—violent adoption of the internet as a means of acquiring the necessary supplies. With many stores closed, e-commerce has roared in popularity and adoption has accelerated from previously uninitiated users, especially in under-penetrated categories such as grocery.

References

1. https://www.who.int/emergencies/diseases/novel-coronavirus-2019
2. https://en.wikipedia.org/w/index.php?title=COVID-19_pandemic_in_Greece&oldid=979063980
3. Gao X, Shi X, Guo H, Liu Y (2020) To buy or not buy food online: the impact of the COVID-19 epidemic on the adoption of e-commerce in China. PLoS ONE 15(8):e0237900. https://doi.org/10.1371/journal.pone.0237900
4. Bhatti A, Akram H, Basit HM, Khan AU, Raza SM, Naqvi MB (2020) E-commerce trends during COVID-19 pandemic. Int J Future Gener Commun Networking 13(2):5
5. https://www.accenture.com/_acnmedia/Thought-Leadership-Assets/PDF-2/Accenture-COVID-19-Channel-Shift-Prioritizing-Digital-Commerce.pdf
6. https://www.naftemporiki.gr/finance/story/1589435/plushostgr-to-ilektroniko-emporio-stin-ellada-meta-ton-covid10. (In Greek)
7. Elrhim MA, Elsayed A (2020) The effect of COVID-19 spread on the e-commerce market: the case of the 5 largest e-commerce companies in the world. SSRN Scholarly Paper ID 3621166. Rochester, NY: Social Science Research Network. https://doi.org/10.2139/ssrn.3621166
8. Hasanat MW, Hoque A, Shikha FA, Anwar M, Hamid ABA, Tat HH (2020) The impact of coronavirus (COVID-19) on e-business in Malaysia. Asia J Multi Stud 3(1):85–90
9. Hao N, Wang HH, Zhou Q (2020) The impact of online gro-cery shopping on stockpile behavior in Covid-19. China Agr Econ Rev 12(3):459–470. https://doi.org/10.1108/CAER-04-2020-0064
10. http://www.sepe.gr/gr/research-studies/article/16567141/1-stous-2-hristes-tou-diadiktuou-kanei-pleon-online-agores/. (In Greek)
11. https://www.digitalsteps.gr/ilektroniko-emporio-ellada/. (In Greek)
12. Carneiro HA, Mylonakis E (2009) Google trends: a web-based tool for real-time surveillance of disease outbreaks. Clin Infect Dis 49(10):1557–1564
13. Carrière-Swallow Y, Labbé F (2013) Nowcasting with google trends in an emerging market. J Forecast 32(4):289–298
14. https://endeavor.org.gr/
15. https://www.accenture.com/tr-en/insights/retail/coronavirus-consumer-behavior-research

Rethinking Management and Promotion of Tourist Destinations Amidst COVID-19: Good Practices and Challenges

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1 Introduction

Pandemics are considered as large-scale outbreaks of infectious diseases enhancing mortality and morbidity. Likelihood of pandemics have been rising due to a rise in worldwide integration and travel, changes in land usages, urbanization, and higher exploitation of the natural environment. Outbreaks like the Severe Acute Respiratory Syndrome (SARS) and H1N1 had affected numerous people resulting in serious illness widespread, causing numerous deaths. H1N1's impact on tourism includes loss of about a million overseas visitors translating to a loss of billions of dollars. COVID-19 has been the worst in terms of the disruption to mobility, economic, social and political spheres. Hence, tourism organizations have to rethink operations in various new ways, as the resilience system is tested as never before. They struggle with various challenges, due to sudden change in volume, workforce productivity, real-time decision making, and security risks. The paper aims to highlight the challenges and best practices undertaken by destinations and

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businesses to address the COVID-19 situation. It evaluates how businesses and destinations manage and promote tourism during COVID-19 crisis. The paper considers lessons from prior health crises to help tourism sectors to control the disease, stabilize economy and promote tourism. It analysis present measures considered in boosting and supporting tourism by various businesses and governments in the current COVID-19 crisis. Current practices and challenges of selected countries such as USA, Italy, Singapore, Japan, Greece, China, and Spain were chosen. Countries chosen are either reliant on tourism or have dealt with the pandemic in many ways resulting in altered numbers of cases and deaths.

2 Literature Review

Past epidemics, its impact on tourism, challenges and the measures taken by destinations can be a good starting point to understand the present COVID-19 pandemic situation, to manage impacts on tourism. The outbreak of SARS didn't just affect the tourism industry in Asia, it affected travel to more than 20 countries and had a severe negative impact on global tourism industry. This in turn needed to be changed once the epidemic got over and or the crises is managed. Crises management strategies has been studied from various context and perspectives [1, 2]. Blackman and Ritchie (2008) [1] proposed a strategic and holistic framework, that includes a stakeholder perspective on what stakeholders could have done before a disaster, regardless of when it will come, along with how crises could have been dealt with in the emergency state, after which sorting short term goals and then finally the long term needs. Pforr and Hosie (2008) [2] approached crises management from an action perspective and emphasises on preparation for a crisis as critical in making sure that recovery can happen later. Many countries fail to have this preparedness and often act only after an event happens to bring their tourism industry back on its feet rather than being prepared for such an event. Blackman's framework is more comprehensive regarding various steps of dealing with a crisis/disaster and can be more suitable for evaluating a crisis such as the scale of COVID-19.

2.1 Crises or Disaster Management in Tourism

COVID-19 outbreak has brought the world to a standstill with unforeseen impact in our lives, our economies and societies. The containment of the pandemic is of utmost priority and the tourism sector is committed to support all measures taken to curb the outbreak. In an analysis done based on the patterns of previous crises, UNWTO estimates that international tourist arrivals could decline by 20–30% in 2020 and COVID-19 would lead to loss of international tourism export for 300–450 billions, one of the worst crisis which caused loss of almost one third of

US$ 1.5 trillion generated globally [3]. Countries chosen for this research all are reliant on tourism in some way or the other and or have dealt with the pandemic using many different measures. Hence, it's necessary to consider the tourism impact in these countries, namely Singapore, Italy, Spain, USA, Greece, China and Japan.

Singapore's tourism industry braced for the worst impact after a pandemic like SARS in 2003. In 2020, tourist arrivals dropped and directly impacting the cash in-flow into economy due to COVID-19. The biggest source of visitors is from China which contributes towards 20% of Singapore's tourism economy followed by India and Indonesia [4]. A lockdown on China's outbound group tours and banning Chinese nationals from entering the country's border has had a major impact on Singapore's economy, as the majority of arrivals into Singapore come from China. Almost 1600 Mandarin-speaking guides in Singapore have lost their livelihood and are struggling to meet both their ends, as reported by the Singapore Tourism Board. In 2019, Singapore earned a revenue of SGD 27.1 billion equivalent to USD 19.5 billion through tourism. According to the report from DBS Holdings Ltd, the country forecasts a loss of SGD 1 billion through a decline in the arrival of 1 million tourists this year, resulting in a 0.5% decline in Singapore's full-year GDP growth [4]. Similarly, Italy as the fifth most visited country receives more than 46.1 million visitors yearly. Since closure of international borders, the country is expected to face a decrease in approximately 28.5 million visitors this year. The tourism sector is responsible for 13% of Italy's GDP. It lost USD 1.2 billion between March and April 2020 after the country was severely hit by the pandemic [5]. Likewise, coronavirus threatens Spain with a new economic crisis, considering tourism and hospitality have been the major revenue sourcing sector during the last few decades. Lockdown for the whole month of April had resulted in unemployment of more than 3.8 million Spaniards losing their jobs by May. Having a death rate of more than 28,678 people by May 24 had put them as the second hardest-hit European country after Belgium at the point [6]. Spain's tourism industry braced for huge losses over the Easter period and beyond as people cancelled travel plans and major events were postponed as a result of coronavirus. Tourism provides 12.3% of the total GDP and 12.7% of total employment in Spain. In the US, as per the U.S. Travel Association, the number of job losses increased to 20.5 million by May 2020 with unemployment likely to increase weekly. Leisure and hospitality sectors were the hardest hit sector by the lockdown of the country which currently reaches to 7.7 million people being left unemployed. Tourism decline is a driving reason for job losses in states including Nevada, where Las Vegas casinos and jumbo hotels are empty. China as the world's second-largest economy diminished by 6.8% of its income compared to previous year as industries, shops, and tourism sectors were shut down for three months ranging from January 2020 to March 2020 to slow down the spread of COVID-19. In Japan, tourism businesses mainly depend on Chinese tourists who come for business purposes. Close to a sum of 240 billion yen (US$2.3 billion) loss of event-related tourism was noted in 2020, due to the cancellation of the Olympics 2020 [7]. A survey indicated that foreign travelers to Japan had already declined by 64.1% between January and April, compared to 2019 [8] (Japan receives mere 2900 foreign travelers in April, 2020). For Japan, 2020

was supposed to be a record year for foreign arrivals with the Olympics and a boon for the economy, but with more than 1000 confirmed infections, it was already on the brink of recession [7]. COVID-19 outbreak has resulted in a revenue loss of $1.29 bn for Japanese tourism just in the first quarter of 2020, which is mainly due to the reduction of air travel, marine tourism, and travelers. Chinese tourists account for 30% of the country's overseas visitors.

During the outbreak of the diseases such as SARS in 2003 and H1N1 in 2009, governments and hoteliers from respective countries had adopted different measures and guidelines to deal with the situation. With the absence of drugs and vaccines for the virus, an effective way to control transmission depended on implementation of appropriate management and a control strategy [9]. Travel restrictions, shutting down of countries, and thermal screening at international borders were some of the measures put in order to limit spreading of the virus. WHO also recommended several arrangements including wearing protective masks, home isolation for those who have close contacts with the patient and providing temporary accommodation for health care workers [9]. Similarly, with the lesson from SARS and other epidemic outbreaks, after the first outbreak of COVID-19, numerous measures were taken by destinations and businesses.

3 Methodology

This study adopts a qualitative research methodological approach. The sources of data analyzed to support discussions, include recent literature on COVID-19 and tourism, tourism websites, documents and news articles. As the pandemic is currently happening, data on COVID-19 and tourism is limited. The data is analyzed by categorizing under responses/measures taken to plan, implement and support tourism along with promoting tourism post COVID-19. Analysis would be based on identifying best practices and challenges for tourism in the future. This lens is utilized in exploring multiple realities in planning, implementing and promoting tourism in 2020 based on the themes of best practices and challenges.

4 Findings and Discussion

The economy of various countries directly or indirectly have been affected and the future of tourism looks so uncertain given mobility has halted. Governments of various affected nations in collaboration with the World Health Organization (WHO) are working closely to contain the spread of the virus along with developing and unfolding measures to promote tourism in this crisis. Countries have undergone huge losses due to the pandemic. Governments and local businesses in many ways are trying to promote and help tourism recovery process.

4.1 Measures Taken by Governments and Businesses to Sustain and Promote Tourism During COVID-19

Based on the review, the following measures were identified and analysed from the selected countries to identify good practices and challenges. Beginning with Singapore, the tourism industry has been hardest hit with travel restriction for both in-bound and out-bound travel including all other attractions that have had to shut during two months of lockdown. The Singapore government also imposed several supportive measures to help industries and firms stay afloat. The tourism and transport sectors are expected to get targeted help from the government to deal with the impact of COVID-19 [10]. The Singapore Tourism Board has announced that it will waive license fees for hotels, travel agents and tour guides as part of the measures to help the tourism sector. The STB with new government assistance scheme said it'll cover up to 50% of third-party professional cleaning fees with a cap of $20,000 per hotel that accommodated confirmed cases and $10,000 for hotels with suspected cases [11] (Coping with COVID-19: Economic measures for companies and workers, 2020). As it's essential to provide timely and accurate information about the situations to visitors in order for them to make travel decisions, a data analytics platform—the Singapore Tourism Analytic Network (STAN), plays an essential role in leveraging data and strategic planning. The STAN helps the tourism sector in evaluating the impact of the market, allows it to react quickly, and provides appropriate support to tourism businesses. It's expected that STAN will be of great help for businesses making better data-driven decisions as they prepare for the return of travellers. In order to respond to COVID-19 and get back to normal life, a second assistance package with more than S$1 billion will be set aside for the aviation and tourism sectors. With low death rates and low community spread, Singapore promotes for domestic tourism and its marketing communication includes the hygienic practices and measures undertaken at tourist sites and across all sectors. Apart from these innovative tourism experiences such as 'flights to nowhere', 'cruises to nowhere', parked planes functioning as pop-up restaurant and tourism vouchers to residents to induce spending have also introduced in Singapore.

Italy has long been associated with mass tourism, but that could be set to change going forward after the coronavirus pandemic turned the country into a strict no-go zone. The country has already started to ease some of their measures. Sicily, an island in South Italy, is offering flight tickets promotion and as well as pay for one in three nights of their stay at a hotel after the Coronavirus crisis. Sicily's regional government will also make entry to museums and archaeological sites free in order to boost tourism. Tourists will have to avail such vouchers from the island's tourism website. In order to support hard hit sectors like tourism, the Italian government announced that it would inject 25 million euros into the economy [12]. The Government has also expanded the reasons for access to the "Cassa Integrazione Ordinaria" (support of salary paid by the state), providing employers with the possibility to suspend or reduce work activity due to COVID-19, to apply for the

support check “integrazione salariale” with a COVID-19 emergency reason, for a maximum period of nine weeks from 23 February 2020 and by August 2020.

Spain brought out the strictest quarantine measures in Europe. Measures to support companies in the tourism sector and tourism related industry such as hotels, restaurants and retail stores to retain workers with permanent seasonal contracts are that they will be able to apply a “50% reduction of employer’s social security contributions for non-occupational contingencies and for the joint refunding of unemployment benefits, the wage guarantee fund and vocational training” [13]. Additionally, a raise in ICO (Official Credit Institute of Spain) credit line from an initial EUR 100–200 million will be granted as per the budget provided by the Ministry of Industry, Commerce and Tourism [14]. In order for the tourism economy to recover, the government is working on an “exit strategy”. Moreover, different measures are being applied to ensure that Spain is a safe country for tourists to travel by adaptation of tourism. In US, in order to battle COVID-19 and boost the hard-hit tourism sector, the federal government has launched a relief package known as Coronavirus Aid, Relief and Economic security (CARES) act. The package includes significant benefits to the travel industry and has allocated US $ 350 billion for a pay-check protection program which is meant to help small businesses (Less than 500 employees) impacted by the pandemic and economic downfall. CARES act is so far the largest economic relief in the history of the United States. Out of the $350 billion, the US travel and tourism industry claims an aid of $150 billion. In hopes of containing the pandemic, travel bans are in place.

Some destinations have found a way to promote themselves through virtual experiences that tourists can access from their own home ensuring their safety, like Greece has launched a website dedicated to providing virtual experiences to its tourists. By the help of this website, tourists can experience the country’s iconic sites, history, culture, monuments and stunning landscapes via web browser. “Greecefromhome.com was developed as an initiative by the collective Greek tourism authorities in cooperation with Google, which provides free, online digital skills training to the viewers” [15]. The primary motive behind Greecefromhome.com is to help people around the globe maintain a connection with Greece’s unique culture and inspire them while they are at their home during the COVID-19 lockdowns. This will encourage the users and motivate them to visit Greece during the times if and when travelling again is possible. Greece from home’ platform is part of the government’s overall strategic response to the COVID-19 pandemic. Other than taking measures to protect public health and safety and rebooting the economy, the government is taking initiatives to improve the image of the country as a tourist destination. There will be a new set of travel rules during and post COVID-19 like immunity certificates for travellers, pre-flight blood test and temperature check will be the new normal, said the Greece’s tourism minister [16]. Promotion messages from Greece have also been subtle and targeted to rekindle memories of Greece.

In China, with the outbreak of Coronavirus, it will damage the brand image of China as a destination, as tourists may be afraid to visit. China is not only affected as a tourism destination but also affects the many other foreign destinations that rely

heavily on Chinese visitors. To cushion the economic hit caused by coronavirus, Chinese government is easing the burden for the most vulnerable and affected sectors such as transportation, tourism, and hotels. Tourism has been included as a priority in recovery plans and actions and thus several policies to support it were added by the government to control the situation and help the recovery process [17]. Temporary refund for travel agencies' service, guarantee deposit, preferential tax measures for enterprises in the tourism related industry and finally financial support was provided by China' Ministry of Culture and Tourism, Ministry of Finance in China [17]. The government also supported firms by promoting smart tourism which provides service via a mobile phone and 50% off on tickets of many attractions sites above [17]. With the number of confirmed cases declining before second wave in China, more companies, especially those in tourism sectors resumed operation from mid-March. According to Ctrip, China's leading online travel agency it was found out that the potential demand in tourism sectors remain high and that many tourist attractions are beginning to regain more visits starting from March 2020 [18]. On the other hand, the airline business remains in decline and it was predicted that it will take more time for the tourism industry to fully recover [17]. Disneyland in Shanghai reopened some areas (Disney town, Wishing Star Park and Shanghai Disneyland Hotel) on March 9 and officially reopened to the public on 11th May after a month of closing down due to COVID-19. Reopening of few areas was implemented with enhanced health and safety measures [19]. During this official reopening, several new measures were implemented such as limiting the number of customers, temperature screening, maintaining respectful social distancing while queuing, wearing masks throughout the entire visit, and increasing frequency of sanitizing and disinfection.

In Japan, the government has also imposed several measures such as travel restrictions and the banning of entry for passengers who visited China. Additionally, the 2020 Olympics planned to be held in Japan has been postponed to 2021. As a precaution, Tokyo Disney Sea and land are closed to prevent the spread of the virus. In order to help the tourism industry, the government provides employment adjustment subsidies and financial support to these affected sectors [20]. As tourists often need information, when outside their normal environment and that the Japan Tourism Agency and Japan National Tourism Organization are taking essential steps in providing timely information in multiple languages through different channels [21]. Additionally, the Japan Tourism Agency will provide financial support for the environmental development program and spend 3.5 billion JPY to attract more tourists soon as the economy opens up to a new normal. The central government declared that a "public-private tourism recovery campaign, including boosting tourist demands or revitalizing local tourism-related economies, will be carried out after this crisis ends" [8]. Additionally, "emergency measures under public financial institutions are working out to provide assistance to cash-strapped tourism-related companies" [21].

4.2 Good Practices and Challenges

Some of the good practices in the above discussed countries have been summarized Table 1.

Apart from these measures, tourism organizations and boards are making efforts to promote their destinations through different campaigns. The World Tourism Organization (UNWTO), launched several campaigns to save the essence of the tourism industry. The special campaign named "#Travel Tomorrow", has become the common thread that runs through the World Tourism Organization's response to the current crisis, highlighting the enduring values of tourism [22]. "By staying home today, we can travel tomorrow" and the hashtag "#Travel Tomorrow" encapsulates a message of solidarity and hope, through which the UNWTO calls for shared responsibility among travelers and the tourism sector around the world to deal with the COVID-19 pandemic [23]. Other examples of different campaigns include Norway's website launching "Dream Now, Visit Later", UK "Bringing Britain to you" and South Africa "Forfeit Today's Travel, So You Can Travel Tomorrow" [24]. Despite the measures, there are several challenges that are being faced in the tourism industry due to COVID-19, which include a lack of confidence for travelers and restrictions for international travel due to COVID-19. Lack of travel will decrease not just tourism revenue but other businesses too. Planning for generating new revenue sources will be complex as investors will not invest their

Table 1 Good Practices/Measures taken by Government and Tourism Industry

Health related practices in business, airports and tourist attractions	Government support and measures
Safe social distancing Wearing masks Temperature screening Contact tracing Increased sanitation and disinfection Quarantine Opening at partial capacity or certain areas Closing high contact areas	Financial support or subsidies Timely information and communication Promotion to rekindle memories of destinations Pay-check protection programs Temporary refund for travel agencies' service Guarantee deposit Preferential tax measures for tourism enterprises Free, online digital skills training to the viewers Virtual tourism platforms Reduction of employer's social security Contributions for non-occupational contingencies Joint refunding of unemployment benefits Vocational training Data analytics platform for better data-driven decisions Partial cover of third-party cleaning fees for hotels that accommodated confirmed or suspected cases Waive license fees for hotels, travel agents/tour guides Travel bans Travel bubbles Tourism vouchers Innovative tourism experiences

money in companies as their economy has drastically fallen. Some countries and their economies have been mostly dependent on tourism and have been highly affected by this pandemic. Apart from fear of travel and travel restrictions, the pandemic has cut down millions of jobs in the travel and tourism industry worldwide. The standards of operations may change and pose new challenges in terms of new norms, tasks, skills and recruitment. The promotion of tourism will be high as they are running at a huge loss and the air tickets prices will be high for customers after lockdown. Various SMEs are likely to shut down completely due to lack of employees and revenue. The economic capability of people will decrease after the COVID-19 and this may lead to people not willing to spend on leisure and tourism. This will be a complex task for tourism companies to handle such conditions and businesses will rethink their approach to how they will sustain their operations going forward. Post COVID-19, it is about being able to show recovery over a sustained period of time and the long-term goals of businesses to continue optimally.

5 Conclusion

This study is conducted on an ongoing research problem that are based on COVID-19. There is also a lack of previous research on this topic, as it is still ongoing. More countries could be included to ascertain more measures and challenges. Virtual reality and domestic tourism can be used in promoting tourism at least until a vaccine is found. Moreover, to control the further spread of COVID-19, governments could limit their visa quotas on a quarterly basis and allow a certain number of tourists to enter their country which would keep a control on the number of tourists and prevent tourism destinations from becoming over-crowded. COVID-19 continues to threaten the lives and economies and the lockdown of most countries have so far helped to break the chain of this disease. This is only a short term solution as countries will have to eventually open up to keep incomes ongoing. The pandemic has taught us how important the travel industry is, and how it contributes to countries' economy internationally.

References

1. Blackman D, Ritchie BW (2008) Tourism crisis management and organizational learning: the role of reflection in developing effective DMO crisis strategies. J Travel Tour Mark 23:45–57. https://doi.org/10.1300/J073v23n02_04
2. Pforr C, Hosie PJ (2008) Crisis management in tourism: preparing for recovery. J Travel Tour Mark 23:249–264. https://doi.org/10.1300/J073v23n02_19
3. United Nations World Tourism Organization (2020) Retrieved 18 Apr 2020 from https://www.unwto.org/tourism-covid-19

4. Mokhtar F, Amin H (2020) Singapore braces for 30% tourism drop after virus outbreak. Retrieved 18 Apr 2020 from Bloomberg https://www.bloomberg.com/news/articles/2020-02-11/singapore-tourism-cries-help-as-coronavirus-pummels-arrivals
5. Globaldata Travel (2020) Italy Covid-19 concerns are lessening as nation prepares to restart tourism. Retrieved 18 Apr 2020 from Globaldata Travel https://www.airport-technology.com/comment/italy-covid-19-concerns-tourism/
6. Stewart C (2020) Incidence of coronavirus (COVID-19) deaths in the European Economic Area and the United Kingdom as of May 22, 2020, by country. Retrieved 19 Apr 2020 from Statista https://www.statista.com/statistics/1111779/coronavirus-death-rate-europe-by-country/
7. Daniel L, Makiko Y (2020) Coronavirus crisis threatens to silence Japan's tourist boom. Retrieved 19 Apr 2020 from https://in.reuters.com/article/health-coronavirus-japan-tourism/coronavirus-crisis-threatens-to-silence-japans-tourist-boom-idINKBN20T0FN
8. Japanese government supports the tourism industry under the second emergency package against the novel coronavirus (2020) Retrieved from Travel Voice Japanese Travel Trade News https://www.travelvoice.jp/english/the-japanese-government-supports-the-tourism-industry-under-the-second-emergency-package-against-the-novel-coronavirus
9. WHO (2003) Summary of SARS and air travel. Retrieved 20 Apr 2020 from https://www.who.int/csr/sars/travel/airtravel/en/
10. Baker JA (2020) Tourism, transport sectors to get targeted help in response to coronavirus economic impact. Retrieved 18 Apr 2020 from CNA https://www.channelnewsasia.com/news/singapore/wuhan-virus-government-help-tourism-transport-heng-swee-keat12376848?cid=h3_referral_inarticlelinks_24082018_cna
11. Coping with COVID-19: Economic measures for companies and workers. How the Government is helping firms to stay afloat in these uncertain times (2020) Retrieved 18 Apr 2020 from gov.sg https://www.gov.sg/article/coping-with-COVID-19-economic-measures
12. Venturini M (2020) What does the future look like for Italian tourism. Retrieved 19 Apr 2020 from Wanted in Rome https://www.wantedinrome.com/news/what-does-the-future-look-like-for-italian-tourism.html
13. Measures adopted in response to the exceptional situation caused by COVID-19 impacting industry, trade and tourism (2020) Retrieved 21 Apr 2020 from https://www.mincotur.gob.es/en-us/COVID-19/Documents/explanatory_note_on_measures_taken_by_COVID-19.pdf
14. Spain: Government and institution measures in response to COVID-19 (2020) Retrieved 23 Apr 2020 from KPMG https://home.kpmg/xx/en/home/insights/2020/04/spain-government-and-institution-measures-in-response-to-covid.html
15. Baratti L (2020) How to visit Greece virtually during COVID-19. Retrieved 19 Apr 2020 from The Travelpulse Podcast https://www.travelpulse.com/news/destinations/how-to-visit-greece-virtually-during-COVID-19.html
16. Smith H (2020) Greece preparing new tourism rules with EU in wake of coronavirus. Retrieved 7 May 2020 from https://www.theguardian.com/world/2020/apr/26/greece-preparing-new-tourism-rules-in-wake-of-coronavirus
17. Hong Z (2020) Graphics: how is the coronavirus outbreak reshaping China's tourism market? Retrieved 18 Apr 2020 from CGTN https://news.cgtn.com/news/2020-04-17/How-is-the-coronavirus-outbreak-reshaping-China-s-tourism-market-PLrMJJSbII/index.html
18. Bo Q (2020) Chinese tourists still willing to travel after the epidemic: report. Retrieved 23 Apr 2020 from CGTN https://news.cgtn.com/news/2020-03-21/Chinese-tourists-show-willingness-to-travel-after-the-epidemic-Report-P2Py43DSZG/index.html
19. Shanghai Disneyland Reopens with Controlled Capacity on May 11 (2020) Retrieved 23 Apr 2020 from Shanghai Disney Resort https://www.shanghaidisneyresort.com/en/
20. Kyodo (2020) Japan's transport and tourism sectors struggle to cope with virus outbreak. Retrieved 25 Apr 2020 from The Japan Times https://www.japantimes.co.jp/news/2020/02/29/business/economy-business/transportation-tourism-coronavirus/#.XrA37C2B1mA

21. Government Emergency Programs for the Crisis COVID 19—Tourism Sector (2020) Retrieved 20 Apr 2020 from Alide http://www.alide.org.pe/wp-content/uploads/2020/04/goverment-emergency-2.pdf
22. Ranasinghe R, Damunupola A, Wijesundara S, Karunarathna C, Nawarathna D, Gamage S, Idroos AA (2020) Tourism after corona: impacts of Covid-19 pandemic and way forward for tourism, hotel and mice industry in Sri Lanka. Hotel and Mice Industry in Sri Lanka (22 Apr 2020)
23. Impact Assessment of the COVID-19 Outbreak on International Tourism (2020) Retrieved 22 Apr 2020 from UNWTO https://www.unwto.org/impact-assessment-of-the-covid-19-outbreak-on-international-tourism
24. Hausold A (2020) Tourism campaigns spread hope for better times. Retrieved 20 Apr 2020 from Tourism Review News https://www.tourism-review.com/tourism-campaigns-present-the-bright-side-news11475

Social Media During the COVID-19 Era in 5* Hotels in Attica, Greece

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1 Introduction

Nowadays, travellers of all ages increasingly use the new technologies in order to search for, seek, and choose their travel destinations so as to later plan, and store their travel experiences while also sharing them with friends and acquaintances through the internet [1]. Information and Communication Technologies (ICTs) have enabled users not only to search for content but also to create it and there is a wide range of platforms, called social media, that make two-way communication possible (e.g. blogs, weblogs, virtual communities and social networking sites) [2]. The user now has an active role in the dissemination of information [3]. Consequently, the interactive nature of social media democratised the internet and bridged the communication gap that existed between the supply and demand sides in the tourist sector [4, 5]. Additionally, social media usage has widely been adopted by businesses as it constitutes a cost-efficient marketing solution. But above and beyond the aforementioned attributes of social media, it is important to note that in times of crisis, they can keep individuals informed about the current situation and its progress in real time [6]. Under the pressure that the Covid-19 crisis has brought to global economy, an important part of which is tourism, the sectors' professionals seem to have realised the role of social media in their businesses and to now include them in their crisis management plans [7, 8].

The tourism industry, which accounted for the 10.3% of the global GDP and 20.8% of Greek GDP in 2019 [9], is undergoing the most severe downturn of the last fifteen years. During a health crisis, governments tend to impose restrictions on citizens' free movement (lockdown) aiming to curb the pandemic proliferation [10],

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which has direct negative effects on tourists' behaviour and the industry's key performance indicators such as turnover and return on investment. In the Covid-19 crisis, the same pattern was followed, causing the global tourism industry to almost collapse. This fact reveals the vulnerability of tourism industry in periods of crises due to it being a service-oriented sector [11, 12]. According to the World Tourism Organization [13], the restrictions that were applied on travel and tourism due to COVID-19 caused a 70% decrease in the number of international arrivals in the first eight months of 2020. In greater detail, 700 million fewer international arrivals were recorded since the Covid-19 outbreak in comparison with international arrivals during the same period in 2019. That fact can be translated into a loss of US$ 730 billion export revenues that would have been generated by tourism, and it seems to be eight times more than the loss that the globe experienced in the financial crisis of 2009.

As only a few crises with such a wide impact have been recorded in global tourism history, there is an intense research interest in this field. However, little research has been conducted focusing on the impact of health crises [14, 15] such as SARS [16], Ebola [17] and Foot and Mouth Disease [18] on tourism flows and economic figures related with tourism. Research on the impact of heath crises on the communication strategies of hotels and the content created on social networks is even more limited [19]. This article aims to record and analyse how hotels used social media during the Covid-19 crisis in an effort to cope with the negative effects that this pandemic caused on tourism and makes suggestions for further relevant research.

2 Literature Review

It is evident that the perceived risk and travel and tourism demand share a negative relation and consequently an increase in the perceived risk will cause an increase in consumers' reluctance to buy tourism products [20]. Having a crisis communication plan which includes both marketing and public relation tactics during blur periods is important and can eliminate losses. Much research has been conducted aiming to reveal the outcomes of the different communication strategies used by countries, organisations (DMOs, Convention Bureaus etc.) or businesses (e.g. tour operators, airline companies, hotels) [20, 21]. If a crisis was a matter of bad service provision or operational failures, organizations could have adopted a basic crisis communication strategy that follows a reasoning like expressing regret, acting to resolve the issue, providing reassurance that the situation will not reoccur and offering compensation and support [21]. In the case of Covid-19, such a model is not appropriate as the tourism business cannot promise that the situation will change soon neither can it act to resolve or to assign blame. This situation can be paralleled with the case of tourism destinations when they are in a position to confront crises caused by terrorism (e.g. Middle East) [21]. There are times when tourism destinations choose

to totally ignore the crisis, announce a new era or disseminate different positive images for example, by promoting events and festivals [21].

Moreover, it is important to make reference to the tools that businesses and organizations use to disseminate information in crisis situations. Today 55% of Americans and a high percentage of Western European adults receive news from social media [22, 23]. The wide acceptance with which consumers embrace social media and mobile devices urge businesses to adopt them and to invest in tools and automations of their internal functions in order to enhance consumer experiences, gain insights and support marketing actions [24]. Social media enable businesses to listen the public concerns, monitor opinions about the risk, develop and sustain relationships [25]. Additionally, as crises create a need for information, social media can act as a channel to provide timely and accurate information and to offer an update in times of emergency. People who experienced the crises can share their experiences while multimedia content can be spread. Even OECD acknowledged the importance of social media in risk and crisis communication and shared good practices in an attempt to educate organizations and businesses [26].

The tourism sector proved to be vulnerable as it received the negative waves of the economic downturn (e.g. 2009—Global Economic Crisis) and the consequences of terrorism attacks (e.g. September 11th), natural disasters, (e.g. 2010—eruption of Eyjafjallajokull in Iceland, 1991—eruption of Pinatubo) and health pandemics (e.g. 2003—SARS, 2019—COVID-19). The strong differentiation and the fragmented productive structure of tourist businesses do not allow a proper preparation for and a fast response to unexpected external dangers [27, 28]. In international bibliography, besides studying relevant theories [27, 29, 30], guidelines to overcome possible crises have been issued [27, 31], with communication and information provision being points of convergence [31, 32]. Although much research has been conducted regarding social media application and their role as two-way communication channels in tourism marketing, few studies have focused on their use in crisis management and recovery efforts [33, 34].

3 Methodology

This study aims to detect practices that were adopted by the total of 5* hotels of Attica region during the lockdown and post-lockdown period in order to overcome the crisis of COVID-19. Qualitative research method was used as social media posts were collected and analysed. A sample of 42 5* hotels was chosen and content that hotels have uploaded on their official Facebook pages from January to August was retrieved. From a total of 3.274 posts only 473 (14.45%) posts were selected as they seem to be linked with Covid-19 (Table 1).

First of all, popularity of posts were examined and then a content analysis was conducted based on keywords that were such as Stay home, Stay safe, Stay strong, Covid-19, Endless Greek Summer, State of mind, Soon, Offer, Support Greek Industry. It is important to note that from the 42 5* hotels, 35 (83.3%) were active

Table 1 Hotels of Attica region (by category)

	5*	%	4*	3*	2*	1*	Total
Hotels	**42**	**6,2%**	127	157	241	112	679
Rooms	**6.594**	**19,9%**	9.962	7.063	7.327	2.181	33.127
Beds	**12.640**	**20,1%**	19.238	13.118	13.518	4.385	62.899

Source Hellenic Chamber of Hotels 2019

on Facebook while 7 (16.7%) were almost silent with less than one post/week during the months that research took place. In greater detail 5 (11.9%) active hotels creates posts once a week, 19 (45.2%) twice, 8 (19.0%) up to three and there was a 2.4% (one hotel) that creates content more than 5 times a week. It is interesting to note that through the analysis of the 473 posts regarding no clear communication strategy dealing with the crisis seems to be adopted by the proportion of the 5* hotels. Throughout the study period the vast majority of hotels posts, 2,801 (85.55%) did not change style and content but remained to the common pattern.

4 Results and Discussion

Based on literature review Social Media consider to be important for tourism businesses in current digital era [2, 3, 6]. The development of new two-way digital communication channels [1, 4, 5] has significantly bridged the communication gap between supply and demand ratios of tourist services and has widely been adopted as it constitutes a cost-efficient marketing solution [3, 25]. Although in times of crisis social media could play a catalytic role in counteracting the negative effects [7, 8, 14], in the case of COVID-19 they were not used in this way by 5* hotels in Attica. The communication response to the crisis was initially "awkward" [15, 18, 20, 29], as evidenced by the declining number and the content of posts. The hoteliers did not change their communication tactics, continuing to make the usual offers of the period. Over time, under the guidance of the specialized media agency (Marketing Greece), hoteliers began to ignore the current negative situation [30, 32] by focusing through social networks on positive images of the future [21, 33].

Figure 1 depicts the popularity of posts based on the "likes" that keywords received. "Stay strong" seems to be the most favorable keyword as it received 29% of the total number of likes and "Endless Greek Summer" follows with 28% of the total likes. "Stay safe" comes third with 26% of the total likes while "Covid-19" received only 4% of the total likes and "Support Greek Industry" 62 of the 30.859 likes.

Table 2 shows the frequency of each keyword and the total number of likes it received. In particular the key words that were most used are "Stay safe" which appears in 227 post (accounts for 36% of the total posts) and "Stay strong" which appears in the 118 post and accounts for 19% of the total posts. "Covid-19" was

Fig. 1 Facebook posts popularity by keyword

mentioned only 87 times (it accounts for 14% of the total posts) and its avoidance can be interpreted as an effort to avoid the creation of negative feelings that could be linked with hotel's brand. Moreover, "Endless Greek Summer" was used 98 (16%) and "State of Mind" 23 (4%). These two keywords are mentioned together as they are part of "Marketing Greece" official campaign that was reshared by hotels. "Marketing Greece" is a non-profit initiative of the Greek Tourism Confederation (SETE) and the Hotels Chamber of commerce that aimed to promote Greece as a tourism destination. That campaign appeared early in June in order to initiate the "re-opening" of the Greek tourism industry. It is important also to note that there was a 24% of post that included the key-word "soon" and that was perceived as an effort to reassure people that crisis will end in the near future. From the facts turns out that audience reacted more to the positive messages, than to warnings and statements.

Figure 2 presents hotels activity on social media by capturing the total number of Facebook posts from March to August. As it is depicted in Fig. 2 during the first months of Covid-19 crisis, hotels reduced the number of their weekly posts by 50.4%. This trend has changed since the launch of the new campaign of Marketing Greece which coincide with industry's re-opening and hotels activity on social networks seems to become more intense. During the first period hard selling tactics were adopted with offers and rate reductions to overwhelm official hotels pages on social media. After the first shock, hotels focused on building trust, sense of

Table 2 "Keywords and "Likes" in Facebook posts (total number / frequency)"

	Keywords		Likes		Average likes/k.w.
Covid-19	87	**14%**	1.307	**4%**	**15,0**
Stay safe	227	**36%**	7.953	**26%**	**35,0**
Stay strong	118	**19%**	9.051	**29%**	**76,7**
Greece from home	72	**11%**	1.709	**6%**	**23,7**
Endless Greek Summer	98	**16%**	8.634	**28%**	**88,1**
State of mind	23	**4%**	2.143	**7%**	**93,2**
Support Greek Tourism Industry	6	**1%**	62	**0%**	**10,3**
Total	**631**		**30.859**		**48,9**

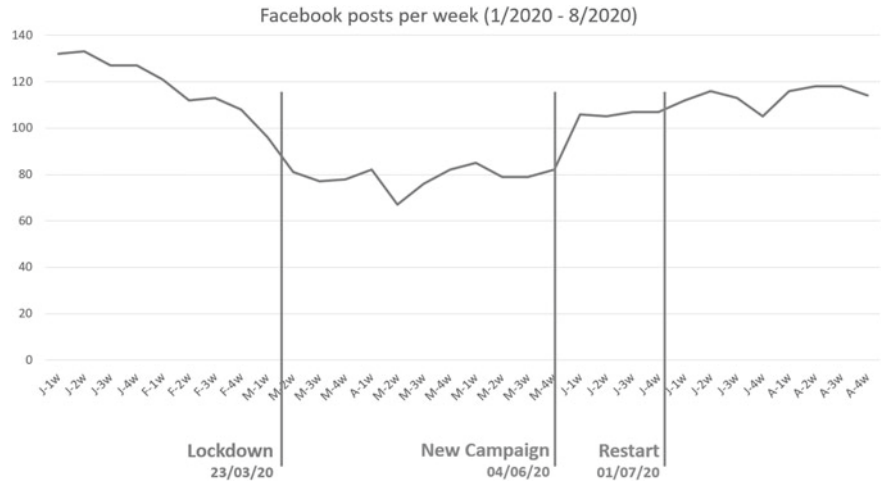

Fig. 2 Facebook posts per week during 01.01.2020–31.08.2020

security and they strived to encourage consumers. Keywords like stay safe and stay strong are becoming more and more popular on official Facebook posts. Consequently, a strong Communication Agency like Marketing Greece can act as a lighthouse pointing the way for the whole industry. According to the latest facts and figures, the Covid-19 pandemic will be a long term crisis and therefore, basic communication strategies are not indicated. The proportion of hotels in the first stage of the crisis choose to totally ignore the external environment and continue to promote their existing product by spread-ing hard-selling messages. Offers and discounts accompanied with corresponding multimedia content. That can be interpreted as an attempt to escape from the un-known and to regain the control of the situation, which inevitably could not be achieved. Messages of regret, reas-surance and support was not a solution while compensation was not always possible as hotels had to cope with the financial problems that the crisis caused to the

tourism sector. The initiative of Marketing Greece opened the way for a more human oriented marketing strategy. Messages of sympathy and hope were spread during the second stage of the pandemic.

5 Conclusion

Hotels' presence on social media enables them to build direct communication channels with their followers and keep them informed during the Covid-19 crisis. The flexibility and freedom that social media provide through the creation of adapted, to the current situation, communication strategies constitute a competitive advantage even for small and medium size businesses due to the low cost and the ease of use. However, a need for help and guidance provided by governmental bodies or employed experts is revealed. Hotel managers and marketers should acquire technical skills and gain insights regarding the functions of social media and the power of content. It was quite interesting that in the first period of Covid-19 crisis a decrease on the number of posts was recorded while no content adaptation or change in the type (hard-selling) or content of post was detected. The campaign of 'Marketing Greece' initiated a new era in hotels' marketing as since then hotels tried to enhance the sense of security and to strengthen tourism destination's brand image. Interviews with hotels' managers and marketers are suggested as further research in order to bring light on how social media can be used in crises such as Covid-19. Also, it would be interesting to study how other social media platforms, such as Instagram, can be used in periods of crisis by the tourism industry.

References

1. Buhalis D (2020) Technology in tourism-from information communication technologies to eTourism and smart tourism towards ambient intelligence tourism: a perspective article. Tour Rev 75:267–272. https://doi.org/10.1108/TR-06-2019-0258
2. Leung D, Law R, Hoof H, Buhalis D (2013) Social media in tourism and hospitality: a literature review. J Trav Tour Market 30:3–22. https://doi.org/10.1080/10548408.2013.750919
3. Chatzigeorgiou C, Christou E (2020) Adoption of social media as distribution channels in tourism marketing: a qualitative analysis of consumers' experiences. J Tour Heritage Serv Market 6:25–32. https://doi.org/10.5281/zenodo.3603355
4. Skoultsos S, Kontis A, Sarantakou E (2017) Conceptualization of changes in tourism industry's distribution channels: the case of peer-to-peer (P2P) business models and sharing economy platforms. J Tour Res 16:292–303. ISSN 2241-7931
5. Kontis AP, Skoultsos S, Papayiannis D (2019) Tourism marketing channels in digital evolution era: online travel agencies in Greek tourism industry. In: Kavoura A, Kefallonitis E, Giovanis A (eds), Strategic innovative marketing and tourism, pp 1303–1310. Springer, Cham. Springer Proceedings in Business and Economics. https://doi.org/10.1007/978-3-030-12453-3_149

6. Wright DK, Hinson MD (2009) Examining how public relations practitioners actually are using social media. Public Relat J 3(3):2–32
7. Sigala M (2011) Social media and crisis management in tourism: applications and implications for research. Inf Technol Tour 13(4):269–283. https://doi.org/10.3727/109830512X13364362859812
8. Veil SR, Buehner T, Palenchar MJ (2011) A work-in-process literature review: incorporating social media in risk and crisis communication. J Contingencies Crisis Manag 19(2):110–122. https://doi.org/10.1111/j.1468-5973.2011.00639.x
9. World Travel and Tourism Council (2018) Travel and tourism economic impact 2018 Greece. WTTC, London
10. Mason P, Grabowski P, Du W (2005) Severe acute respiratory syndrome, tourism and the media. Int J Tour Res 7(1):11–21. https://doi.org/10.1002/jtr.519
11. Biggs D, Hall CM, Stoeckl N (2012) The resilience of formal and informal tourism enterprises to disasters: reef tourism in Phuket, Thailand. J Sustain Tour 20(5):645–665. https://doi.org/10.1080/09669582.2011.630080
12. Hall CM (2010) Crisis events in tourism: subjects of crisis in tourism. Curr Issues Tour 13 (5):401–417. https://doi.org/10.1080/13683500.2010.491900
13. UNWTO (2020) World tourism barometer. UNWTO, Madrid
14. Hall CM (2011) Biosecurity, tourism and mobility: institutional arrangements for managing tourism-related biological invasions. J Policy Res Tour Leisure Events 3(3):256–280. https://doi.org/10.1080/19407963.2011.576868
15. Mair J, Ritchie BW, Walters G (2016) Towards a research agenda for post-disaster and post-crisis recovery strategies for tourist destinations: a narrative re-view. Curr Issues Tour 19 (1):1–26. https://doi.org/10.1080/13683500.2014.932758
16. Zeng B, Carter RW, De Lacy T (2005) Short-term perturbations and tourism effects: the case of SARS in China. Curr Issues Tour 8(4):306–322. https://doi.org/10.1080/13683500508668220
17. Novelli M, Gussing Burgess L, Jones A, Ritchie BW (2018) 'No Ebola…still doomed'—The Ebola-induced tourism crisis. Ann Tour Res 70:76–87. https://doi.org/10.1016/j.annals.2018.03.006
18. Frisby E (2003) Communicating in a crisis: The British tourist Authority's responses to the foot-and-mouth outbreak and 11th September 2001. J Vacation Market 9(1):89–100. https://doi.org/10.1177/135676670200900107
19. Luo Q, Zhai X (2017) "I will never go to Hong Kong again!" How the secondary crisis communication of "occupy Central" on Weibo shifted to a tourism boycott. Tour Manag 62:159–172. https://doi.org/10.1016/j.tourman.2017.04.007
20. Gonzalez-Herrero A, Pratt CB (1998) Marketing crises in tourism: communication strategies in the United States and Spain. Public Relat Rev 24(1):83–97. https://doi.org/10.1016/S0363-8111(98)80022-2
21. Mak AK, Song AO (2019) Revisiting social-mediated crisis communication model: The Lancôme regenerative crisis after the Hong Kong Umbrella Movement. Public Relat Rev 45 (4):01812. https://doi.org/10.1016/j.pubrev.2019.101812
22. Pew Research Centre: Americans are wary of the role social media sites play in delivering the news. https://www.journalism.org/2019/10/02/americans-are-wary-of-the-role-social-media-sites-play-in-delivering-the-news/. Last accessed 5 Oct 2019
23. Pew Research Centre: Majorities in Most European Countries Get News from Social Media. https://www.journalism.org/2018/05/14/many-western-europeans-get-news-via-socialmedia-but-in-some-countries-substantial-minorities-do-not-pay-attention-to-the-source/pj_2018-05-14_western-europe_5-02. Last accessed 8 May 2018
24. Stavrinoudis T, Tsartas P, Papatheodorou A (2013) Chapter 13: Business environment and accommodation policies in Europe. In: Trends in European tourism planning and organisation, pp 174–186. Channel View, Clevedon. https://doi.org/10.21832/9781845414122-017

25. Kavoura A, Katsoni V (2013) From e-business to c-commerce: collaboration and network creation for an e-marketing tourism strategy. Tourismos 8(3):113–128
26. Wendling C, Radisch J, Jacobzone S (2013) The use of social media in risk and crisis communication. OECD Working Papers on Public Governance 24. https://doi.org/10.1787/5k3v01fskp9s-en
27. Laws E, Prideaux B (2005) Tourism crises: management responses and theoretical insight. Haworth Press, Philadelphia
28. Ritchie BW (2004) Chaos, crises and disasters: a strategic approach to crisis management in the tourism industry. Tour Manag 25(6):669–683. https://doi.org/10.1016/j.tourman.2003.09.004
29. Ritchie BW, Bentley G, Koruth T, Wang J (2011) Proactive crisis planning: lessons for the accommodation industry. Scand J Hosp Tour 11(3):367–386. https://doi.org/10.1080/15022250.2011.600591
30. Ritchie BW, Dorrell H, Miller D, Miller GA (2004) Crisis communication and recovery for the tourism industry: Lessons from the 2001 foot and mouth disease outbreak in the United Kingdom. J Travel Tour Market 15(2–3):199–216. https://doi.org/10.1300/J073v15n02_11
31. Deukhee P, Woo GK, Soojin C (2019) Application of social media analytics in tourism crisis communication. Curr Issues Tour 22(15):1810–1824. https://doi.org/10.1080/13683500.2018.1504900
32. Scott N, Laws E, Prideaux B (2008) Tourism crises and marketing recovery strategies. J Travel Tour Market 23(2–4):1–13. https://doi.org/10.1300/J073v23n02_01
33. Avraham E (2016) Destination marketing and image repair during tourism crises: the case of Egypt. J Hosp Tour Manag 28:41–48. https://doi.org/10.1016/j.jhtm.2016.04.004
34. Ketter E (2016) Destination image restoration on facebook: the case study of Nepal's Gurkha Earthquake. J Hosp Tour Manag 28:66–72. https://doi.org/10.1016/j.jhtm.2016.02.003

Redefining and Redesigning Modernity in the COVID-19 Era: The Case of Xenia Hotels in Greece

Loukia Martha, Maria Vrasida, and Chara Agaliotou

1 Introduction

As the COVID 19 pandemic spreads globally, people-to-people industries like hospitality are in dire straits. The travel and tourism industry, including hospitality, have been halted in the short term but the after effect is going to last into the foreseeable future—and possibly forever [1]. The re-launching of global tourism, more specifically the reopening of hotels, will have to follow the new reality and acknowledge the fact that the globe is entering the new era of safety [2]. In light of the new events, architects and designers are increasing research and technical skills to identify new functional and material specifications that will be incorporated into hotels in the future [3].

Hotel designers and architects are reworking existing projects and starting new ones with a focus on social distancing and contact-free systems. That means that fundamental changes are taking place to hotels' meeting spaces, lobbies, guest rooms, and food and beverage options. At the same time, as the accommodation industry is called upon to face the COVID 19 challenge, hoteliers are concerned about ensuring safety for their customers and staff [4]. Some hotels have become shelters for guests who need to self-isolate [5]. The top priority now is finding an efficient way to both protect guests and employees while maintaining a regular, economically viable, workflow.

The emphasis is on flexibility and transformation by rethinking existing hotels and transforming the already available buildings into clean safe spaces. The challenge of the new era is to design spaces by creating spaces that can evolve with the realities of public health as well as with the needs and preferences of guests. These

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concepts are designed with an eye on the future, while it is expected that even a vaccine isn't likely to derail some of the changes now in place.

Unfortunately, epidemics are nothing new. Nor are the changes that they can force upon the way people view the design of their spaces. In the book "X-Ray Architecture" [6], Beatriz Colomina discussed the relationship between illness and architecture, explaining how the fight against tuberculosis influenced the construction of hospitals, but also modern architecture in general. In the deadly wakes of cholera, tuberculosis, and flu pandemics, early twentieth century architect incorporated the needs of their times in their building and twentieth century modernism emerged. Before the development of medications for tuberculosis, its treatment was environmental [7]. These clinical environments inspired the new modern architecture. As Le Corbusier declared, "A house is only habitable when it is full of light and air" [8].

Now with the new needs of social distancing and sanitary, clean spaces, it is imperative to revisit and transform yet again the flexible modern architecture building in order to prepare and respond to the new era in tourism. Xenia hotels once modern architectural landmarks of a prospering tourism sector are now becoming more relevant than ever in an attempt to exploit their modern flexibility into a contemporary recommendation for the post COVID 19 era. The aim of the paper is to offer a new approach to modern design buildings at a functional diagram level in order to comply with new COVID 19 regulations and restriction.

2 Architectural Modernity

The modern movement in architecture first emerged in the early twentieth century, and by the 1920s, though the work of Le Corbusier, Walter Gropius, and Ludwig Mies van der Rohe, it became the predominant design thinking until the late 1980s [9]. Purity of form, geometry, cleanliness of lines and volumes, buildings striped from all decorative ornamental elements, were within the basic ideas of the modern movement. The 3 Fs of modernity (form follows function) enclave in the most simplistic way that architectural design should bear no more ornament than it is necessary to accommodate the functionality of the building [10]. Architectural modernism though is more than just a clarification of forms, it is a set of social, political, cultural and psychological conditions which were shaped through historical events and were spatially expressed [11]. It was a revolutionary movement away from social stereotyping, and societal classes [12]. The human needs are placed at the center of the modern movement but not in the renaissance humanistic style. Everyday human activities, interaction, social life and health become the compass for determining space and form.

3 The Modern Movement in Greek Hotels

Modernity came late to Greece due to the political situation of the country. **A**ris Konstantinidis, is one of the Greek architects, that has connected his name with the modern movement but he is also the architect of some of the most emblematic Greek Hotels the Xenia Hotels. It was the time that the Greek National Tourism Organisation (GNTO) launched the first organised mass attempt at providing high quality accommodation for the promotion of Greek tourism. Some of the times most accomplished Greek architects were commissioned to participate in the project and design the Hotels. In total more than 70 buildings were built all over the country including different accommodation types (hotels, motels, hostels pavilions etc.) and most of them can be classified as modern, post-war examples of Greek architecture [13].

The initial functional diagrams of the buildings and the layout follow a geometrical grid. The functional diagram, being loyal to the principles of the modern movement does not include any ornamental elements and the floor plan accommodates the basic human and functionality needs of a Hotel. The Hotels follow the same geometrical principals implemented in three basic typologies that are analysed below and the needs of the tourist at the time they were build was the main guideline for the design choices [14].

Due to the recent event with COVID 19 the needs of the guests may differ according to their age-group, reason for traveling, and personal motivations. Business travelers generally stay for short periods of time requiring a basic comfortable room with the capacity to hold meetings. Leisure travelers need to be protected but without introducing the element of fear, therefore the emphasis is more on safe socializing and maintaining the modus-operandi as close to their perceived normal as possible [15]. There are also people and guests who may choose to put themselves into a self-imposed isolation due to medical or other reasons. For this category of guests, the emphasis is on providing large apartment like hotel rooms (apartrooms) with all the necessary amenities and total privacy. The new arising needs due to the pandemic create a new narrative for hotels in terms of achieving guest satisfaction and meeting the needs of their customers. It is a matter of economic survival for the accommodation industry to address these needs and find new and alternative designs capable of responding to the emerging challenges.

3.1 Design Considerations and Suggestions for the Pandemic

The two distinct typologies of Xenia Hotels, as mentioned above, are the linear typology and the enclosed typology. Two different suggestions will be made for each typology in an attempt to incorporate the need for hygiene and safety but at the

same time serve the functionality of the building. The structural elements of the building in every scenario remain intact and each floor proposal can be repeated or combined to create a final accommodation establishment that will cater for as many of the travelers needs as possible.

Linear Typology Proposal 1 Private lounge area per room
See Diagram 1.

In the first proposal three of the initial rooms are united to create a room with a private lounge area, thus giving more space to the visitors and creating the feeling of a small private apartment rather than a shared hotel room. The total number of rooms is significantly lower than before. The initial floor plan consists of 4 double suites (with a small lounge), four single rooms, and seventeen double rooms, in total twenty five rooms per floor. Proposal 1, consists of four double suites and seven *apartrooms* (larger rooms with a lounge). The grid that the layout follows allows the same alterations to occur in every floor. Privacy is achieved to the maximum and every *apartroom* is autonomous suitable for the self-isolation trend that occurred after COVID 19. Social distancing is also achieved and there are no public gathering areas in the new layout. Every room has ample openings allowing for natural air and light to enter the room.

Linear Typology Proposal 2 Creating Public Islands
See Diagram 2.

In the second proposal two of the initial rooms are united to create a larger room and a common seating area is provided for the exclusive use of the adjacent rooms. The second proposal is less private and isolated and allows for a certain degree of social interaction between the guests but maintains the number of people interacting in the common lounge very small. It is based on a model of controlled interaction in terms of people and is not promoting total privacy and isolation. Common lounge or dining areas are also provided on the two sided of the corridors. This proposal offers a solution for the F&B services of the hotels by providing smaller dining areas in every floor rather than a large dining hall for the all the guests. The new number of rooms again is significantly lower than the initial twenty-five rooms per floor. In total proposal 2 consists of 4 suites and eleven rooms with eleven lounge areas

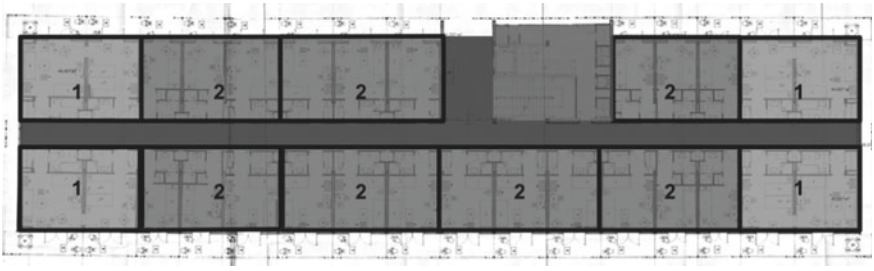

Diagram 1 Proposal 1—Apartroom

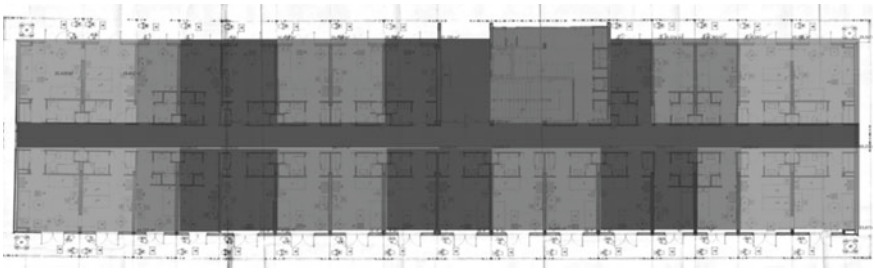

Diagram 2 Semi-private public islands

accordingly. One of the key points of this layout is that the lounge areas are very well aired and lighted by naturally through large opening and this was intentional since social interaction is to some extend accommodated by the floor plan.

Enclosed Typology Proposal 1 Open Access Public Island
See Diagram 3.

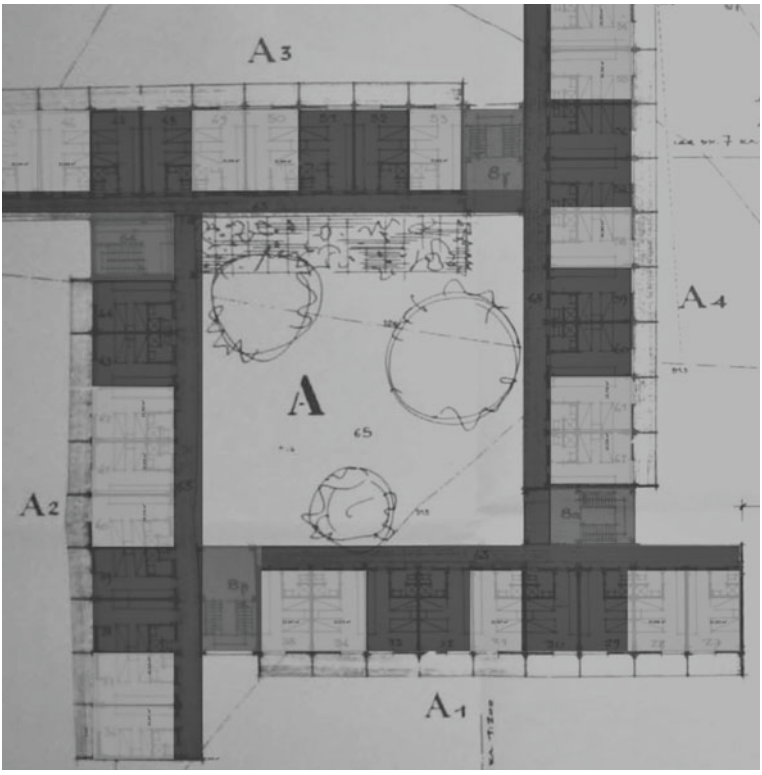

Diagram 3 Open access semi-private lounge

The proposal follows the basic principle of allowing some level of controlled interaction and socializing of the guests in small numbers. It is mainly proposed to serve recreational travelers that tend to need the interaction and socializing more than business travelers and to maintain the overall accommodation experience as close to the previous conditions as possible but without jeopardizing the need for social distancing and safety. Semi -private communal lounges are created by uniting two adjacent rooms. The communal rooms act as intervals to the room continuity allowing for further distancing in the movement areas. This layout allows for natural ventilation and natural lighting in all the rooms but also very importantly in the movement areas as well. The initial number of rooms per floor was 36 and with the new layout there are 20 rooms, which is not significantly lower. The advantage of this layout is that it offers safety and abides with the new COVID 19 requirements, while not reducing the number of rooms to a point that would no longer be economically viable for the hotel.

Enclosed Typology Proposal 2 Open Access Lounge
See Diagram 4.

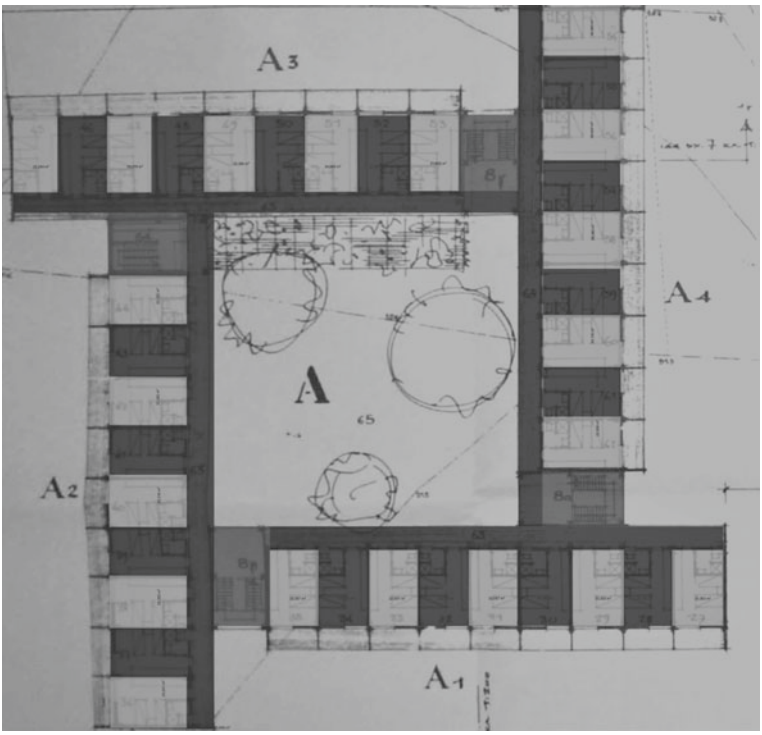

Diagram 4 Open access lounge

In this proposal for every room there is an adjacent lounge provided for the use of the room. The lounge areas are open to the common and movement areas and they allow for a visual socialization of the guest but maintaining the safe suggested social distancing. The total number of rooms from 36 in the initial layout, drops to 18 per floor. The vital space of guests remains the same and they cannot serve the need for long-term stay or self-imposed isolation. This layout is mostly suitable for short stays and business travelers who require a semi-private lounge for conducting business and a controlled level of social interaction.

4 Conclusion

Having discussed the way COVID-19 has changed our lives, it was only expected that changes should be made in the tourism and accommodation industry as well. Socializing and leisure are becoming threatened commodities and the needs and requirements of the tourist are shifting toward a more isolated pattern of behavior. Coronavirus is changing the tides in architecture and the primary needs become those of social distancing, natural air and natural lighting and the space requirements in absolute terms are also increasing. Rooms of 35–40 square meters that used to be classified as sufficient even for 4–5 star hotels, can no longer fulfill the need for social distancing imposed by the pandemic [16]. Therefore hotel architecture needs to adapt and provide larger rooms with less common areas. Private autonomous rooms are the new trend followed by private dining areas with personalized service. In the beginning of the era of hygiene -safety marked by the coronavirus pandemic, modern building are more relevant than ever to provide a first line of defence and act once again the environmental and design barrier to the widespread of disease.

References

1. Yiang Y, Wen J (2020) Effects of COVID-19 on hotel marketing and management: A perspective article. Int J Contemp Hosp Manag 32:2563–2573. https://doi.org/10.1108/IJCHM-03-2020-0237
2. Chen MH (2011) The response of hotel performance to international tourism development and crisis events. Int J Hosp Manag 30:200–212. https://doi.org/10.1016/j.ijhm.2010.06.005
3. Johns Hopkins University (2020) COVID-19 map, available at: https://coronavirus.jhu.edu/map.html?mod=article_inline
4. de la Vega de León M (2017) Towards Authenticity: Greece in Modern Architecture since 1900. Athens J Arch, 3:7–20. https://doi.org/10.30958/aja.3-1-1
5. BC Housing (2020) Community self-isolation sites & shelter expansions https://www.bchousing.org/COVID-19/community-sites
6. Colomina B (2019) X-Ray Architecture. Zürich, Lars Müller Publishers

7. Adams A, Schwartzman K, Theodore D (2008) Collapse and expand: architecture and Tuberculosis therapy in Montreal, 1909, 1933, 1954. Technol Cult 49:908–942. https://doi.org/10.1353/tech.0.0172
8. Campbell M (2005) What tuberculosis did for modernism: the influence of a curative environment on modernist design and Architecture. Med Hist 49:463–488. https://doi.org/10.1017/s0025727300009169
9. Wagner O (1988) Modern architecture: a guidebook for his students to this field of art. Getty Center for the History of Art and the Humanities, Getty, CA
10. Henket HJ (2002) Modernity, modernism and the modern movement. In: Henket H, Henyen, H (eds) Back from Utopia: The challenge of the modern movement. Rotterdam: 010 Publishers
11. Giddens A (1990) The consequences of modernity. Cambridge, Polity Press
12. Wojtkun G (2019) The origin of modern movement in architecture—ideal and utility premises. IOP Conf. Ser.: Mater. Sci. Eng
13. Moussa M (2012) Xenia Hotels Project, 1950–1967. Re-approaching the role of Post-War Modern Architecture in Greece. 1st International Conference on Architecture & Urban Design Proceedings 19-21 April 2012. www.icaud.epoka.edu.a
14. Konstantinides A (2004) For architecture. Agra publications, Athens
15. Chebli A (2020) The impact of COVID-19 on tourist consumption behaviour: a perspective article. J Tour Manag Res 7:169–207. https://doi.org/10.18488/journal.31.2020.72.196.207
16. World Health Organisation, Operational (2020) Considerations for COVID-19 management in the accommodation sector Interim guidance. https://www.who.int/en/