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Tourism, Smart Specialization and Sustainable Development

Edited by
João Romão

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João Romão

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Editor
João Romão
Yasuda Women's University
Japan

Editorial Office
MDPI
St. Alban-Anlage 66
4052 Basel, Switzerland

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Cover image courtesy of João Romão.

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About the Editor

João Romão has extensive experience as a consultant, researcher, and instructor in tourism, urban studies, and regional science. He is an economist and holds a Ph.D. in Tourism (completed in 2012). Since then, he has almost 50 publications and 500 citations, including top journals in tourism, environmental science, and regional and urban studies, along with a single-authored book and several works as an editor. Other interests besides tourism economics, management, and planning include innovation dynamics, creative economies, and sustainable development, often applying spatial econometric methods and integrating concepts from new tendencies in economic geography into tourism studies. With substantial international experience, living and working in different countries during the last 10 years (Portugal, USA, Netherlands, and Japan), João is also a co-chair of the cluster on Tourism, Leisure and Recreation of NECTAR (Network on European Communications and Transport Activities Research), a member of the editorial board of several academic publications and a founding member of the Regional Science Academy and the Euro-Asian Tourism Studies Association.

Preface to "Tourism, Smart Specialization and Sustainable Development"

This Special Issue offers a thematically and geographically diversified set of perspectives on the relations between tourism activities, smart specialization strategies, and sustainable development. Following different methodologies, case studies developed in Asia, Europe, and Africa address these problems at different territorial scales, including the local, regional, national, and supranational, emphasizing how the different levels of governance are inter-related when looking at innovation processes and their implications for globalized activities like tourism. This issue includes valuable and original research works based on diverse quantitative and qualitative methods, supported by adequate conceptual and theoretical frameworks to discuss economic, social, and institutional aspects of innovation and sustainable development in relation to tourism dynamics.

With quick adoption as a core concept for the formulation of regional innovation strategies in Europe, the concept of smart specialization emphasizes the importance of endogenous resources and existing territorial capabilities, aiming at exploring the variety of each economy to develop inter-sectoral relations, potentially generating spillover effects of innovation processes. Assuming an entrepreneurial approach to innovation, where local companies and other institutions play a central role, the smart specialization approach also stresses the importance of "key-enabling technologies" and information and communication technologies as core strategic elements boosting the development of the priority sectors defined for each region. As an activity that mobilizes contributions from different economic sectors, tourism may play a central role in smart specialization strategies, by exploring those sectorial interconnections and potentially innovative approaches to the utilization of local resources.

In the first article in this issue, João Romão [1] presents an overall overview of the concept of smart specialization, including its origin, characteristics, and utilization within the context of regional innovation strategies in Europe, with a particular focus on its relation with tourism dynamics, long-term approaches to competitiveness and sustainable development. The results show high potential for the tourism sector to benefit from geographical, cultural, and institutional forms of proximity, suggesting that knowledge externalities may emerge from interactions with both related or unrelated sectors, by exploiting interactions and connectivity with sectors with both low and high cognitive distances. Similarly, when looking at similarities and differences regarding the sustainability of tourism development in European Mediterranean regions, Smiljana Pivcevic, Lidija Petric, and Ante Mandic [2] observe the importance of diversified strategies and policies for the sustainable management of tourism in different territories, even when they share similar geographical characteristics.

Four articles addressing specific questions of innovation in rural areas, including the valorization of traditional products are then presented. With an important empirical application in the Chinese region of Wuhan, Huiqin Li, Peter Nijkamp, Xuelian Xie, and Jingjing Liu [3] analyze how smart specialization approaches to rural revitalization may promote a sustainable transformation of the farmers' livelihood, introducing the Livelihood Sustainability Index as a balanced system to support the evaluation of sustainable development achievements in rural tourism destinations. A second empirical work developed in a rural context is proposed by Leanard Otwori Juma, Izabella Mária Bakos, and Aniko Khademi-Vidra [4], addressing the importance of interpretation of natural sites for regional sustainable development. Focusing on a Natural Reserve in Kenya, the work shows that

the collaborative implementation of nature interpretation initiatives by all the relevant stakeholders involved may have a long-term impact on the sustainable development of the area, contributing to a better informed and adequate process of visitor management. Questions related to information and to a better contextualization of tourists in the territories they visit are also at the core of the analysis proposed by Maria Hełdak, Sultan Sevinç Kurt Konakoğlu, Izabela Kurtyka-Marcak, Beata Raszka, and Banu Çiçek Kurdoğlu [5], when looking at the perceptions about the uniqueness and quality of local food products, recipes, and dishes, to promote sustainable processes of tourism development in rural areas from Turkey and Poland. Concluding this group of works addressing aspects with direct relation to rural areas and productions, Juan Carlos Martín, Carmen Orden-Cruz, and Slimane Zergane [6] enlarge the scope of the analysis of the production and utilization of Halal products in the context of tourism development, by taking into consideration other aspects culturally and institutionally connected, like the principles of Islamic finance.

With a particular focus on technology, two articles with empirical applications in Asia emphasize the role of innovation within smart specialization strategies for tourism development. By looking at the satisfaction of tourists visiting Macau with their smart tourism technology experience (informativeness, accessibility, interactivity, personalization, and security), Chen-Kuo Pai, Yumeng Liu, Sangguk Kang, and Anna Dai [7] reveal how smart tourism technology contributes to travel satisfaction, happiness, and revisit intention, thus reinforcing the importance of the interconnections between tourism services and advanced information technologies. From a different perspective, Lusha Huang and Newman Lau [8] use a game design approach to analyze the engagement, motivation, and enjoyment with the tourism experience of people with visual impairments visiting Hong Kong. Apart from the original utilization of a gamified approach to research in tourism, the study emphasizes the importance of advanced technologies for tourism experiences, while focusing on a part of the population often neglected in tourism markets and related research, thus, stressing the importance of "Accessible Tourism for All" as a crucial aspect of sustainable development.

The Special Issue concludes with two studies enlarging the territorial scope of the analysis to the national and international levels. In the first case, Ivan Paunović, Marc Dressler, Tatjana Mamula Nikolić, and Sanja Popović Pantić [9] propose a model to advance the methodologies to measuring and understanding national-level destination competitiveness, sustainability, and governance, by identifying major predictors for these outcomes. The results show that different development levels and the position in the life-cycle of different destinations have significant impacts, calling for diverse policy and managerial solutions. Concluding this volume, Jie Yin, Yahua Bi, and Yingchao Ji [10] propose an international analysis focused on the cooperation between China and the ASEAN countries. Supported by social network analysis, the work reveals a low level of cooperation, despite the reduced restrictions, which may be related to differences in governance, income, and consumption levels. By emphasizing aspects related to institutional dynamics, this work complements previous approaches focused on economic and social aspects of resource management, innovation processes, and smart specialization strategies for sustainable tourism development.

1. João Romão. Variety, Smart Specialisation and Tourism Competitiveness in European Regions. *Sustainability* **2020**, *12*, 5765, doi:10.3390/su12145765

2. Smiljana Pivčević, Lidija Petrić, and Ante Mandić. Sustainability of Tourism Development in the Mediterranean Regions: Interregional Similarities and Differences. *Sustainability* **2020**, *12*, 7641, doi:10.3390/su12187641

3. Huiqin Li, Peter Nijkamp, Xuelian Xie, and Jingjing Liu. A New Livelihood Sustainability Index for Rural Revitalization Assessment—A Modelling Study on Smart Tourism Specialization in China. *Sustainability* **2020**, *12*, 3148, doi:10.3390/su12083148

4. Leanard Otwori Juma, Izabella Mária Bakos, and Aniko Khademi-Vidra. Nature Interpretation and Visitor Management Objectives: A Survey of Tourist Attitudes at Maasai Mara National Reserve, Kenya. *Sustainability* **2020**, *12*, 7246, doi:10.3390/su12187246

5. Maria Hełdak, Sultan Sevinç Kurt Konakoğlu, Izabela Kurtyka-Marcak, Beata Raszka, and Banu Çiçek Kurdoğlu. Visitors' Perceptions towards Traditional and Regional Products in Trabzon (Turkey) and Podhale (Poland). *Sustainability* **2020**, *12*, 2362, doi:10.3390/su12062362

6. Juan Carlos Martín, Carmen Orden-Cruz, and Slimane Zergane. Islamic Finance and Halal Tourism: An Unexplored Bridge for Smart Specialization. *Sustainability* **2020**, *12*, 5736, doi:10.3390/su12145736

7. Chen-Kuo Pai, Yumeng Liu, Sangguk Kang, and Anna Dai. The Role of Perceived Smart Tourism Technology Experience for Tourist Satisfaction, Happiness and Revisit Intention. *Sustainability* **2020**, *12*, 6592, doi:10.3390/su12166592

8. Lusha Huang and Newman Lau. Enhancing the Smart Tourism Experience for People with Visual Impairments by Gamified Application Approach through Needs Analysis in Hong Kong. *Sustainability* **2020**, *12*, 6213, doi:10.3390/su12156213

9. Ivan Paunović, Marc Dressler, Tatjana Mamula Nikolić, and Sanja Popović Pantić. Developing a Competitive and Sustainable Destination of the Future: Clusters and Predictors of Successful National-Level Destination Governance across Destination Life-Cycle. *Sustainability* **2020**, *12*, 4066, doi:10.3390/su12104066

10. Jie Yin, Yahua Bi, and Yingchao Ji. Structure and Formation Mechanism of China-ASEAN Tourism Cooperation. *Sustainability* **2020**, *12*, 5440, doi:10.3390/su12135440

João Romão
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Article

Variety, Smart Specialization and Tourism Competitiveness

João Romão [1,2]

[1] Department of International Tourism and Business, Yasuda Women's University, Hiroshima 7300000, Japan; romao-j@yasuda-u.ac.jp

[2] Centre for Advanced Studies in Management and Economics (CEFAGE), University of Évora, 7000-645 Évora, Portugal

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Abstract: This work analyzes how regional tourism dynamics (demand, supply and specialization) and innovation performance may influence tourism competitiveness. The novelty and originality of the analysis is the inclusion of aspects related to the sectorial priority options defined within smart specialization strategies in European regions as potential explanatory factors. By using a panel data model and focusing on regions where tourism is one of the priority sectors for Regional Innovation Strategies (RIS3, 2014–2020), the results reveal positive impacts of tourism demand, supply and specialization on the value added produced by tourism activities. Moreover, immaterial aspects related to the qualification of the regional labor force and innovation dynamics (investment in research in development) also exert a positive impact on tourism competitiveness. The novel results obtained regarding the impacts of smart specialization strategies show a high potential of the tourism sector to benefit from geographical, cultural and institutional forms of proximity. The results also suggest that knowledge externalities arising from interactions with both related or unrelated sectors—by exploiting interactions and connectivity with sectors with both low and high cognitive distances—may emerge.

Keywords: relatedness; proximity; network; innovation; specialization; panel data

1. Introduction

Framing this approach within the studies on tourism competitiveness [1,2] and adopting a methodology inspired by a recent study on European regions [3], the purpose of this work is to analyze the relations between regional tourism dynamics and regional systems of innovation [4,5] taking into account strategic options defined within smart specialization regional polices. The originality and novelty of the analysis is the consideration of different sectorial priority options defined within such regional innovation strategies as potential explanatory factors for tourism competitiveness, offering the first empirical approach to this question.

Tourism is assumed as an activity deeply embedded into the characteristics of the territories. The supply of tourism products and services in a destination is highly constrained by the existing resources, climate, natural landscape or the material and immaterial cultural heritage. Moreover, specific characteristics of the tourism sector, like co-spatiality, co-temporality and co-terminality—and the related localized interactions emerging from these aspects—emphasize territorial embeddedness, while making the tourism destination a repository of information about behaviors, needs, preferences and motivations of visitors. Processes of co-creation of services, experiences, policies or destinations may emerge from these interactions [6]. The increasing utilization of information and communication technologies (ICT) in the provision and consumption of tourism services [7] reinforces these localized interactions. In this sense, tourism is not only a place-based activity, but it tends to also be a knowledge-based activity, rooted into the characteristics of the places and potentially contributing to the emergence and development of local and regional innovation networks [8,9].

The supply of tourism services in a destination may be also seen as a decentralized value chain, where a relatively large number of small and medium sized companies (SME) operate. These companies often have limited structures or formal mechanisms to assimilate and integrate information for the reorganization of productive systems, the creation of new products and services and adaptation to new circumstances [10,11]. However, they establish interconnections with consumers and suppliers, developing different types of links [12]. In this sense, tourism companies can create different forms of connectivity with a broad range of other firms and institutions, potentially assuming a central role within regional innovation networks [13].

Concerns with the embeddedness of regional economies into the specific characteristics of the territories, the importance of local knowledge and capabilities, or the externalities and mutual benefits potentially arising from the linkages, interactions and networks existing in a place are also at the core of the smart specialization strategies, currently under implementation in European regions (Regional Innovation Strategies, 2014–2020) [14,15]. The implementation of such innovation strategies—and the availability of information allowing for an international analysis—offers an opportunity for assessing their impacts on regional tourism dynamics, taking into account aspects related to connectivity, networks and efficiency underlying the smart specialization approach. This analysis constitutes one of the first empirical assessments of the results of the implementation of smart specialization strategies in European regions focusing on aspects related to tourism. One of the very few other works on related topics is a study very recently published analyzing the role of tourism within regional specialization and its impacts on economic growth and resilience [16].

A detailed explanation and discussion of these concepts is presented in Section 2, while the data and variables used are described in Section 3. The econometric analytical model developed following a panel data approach [17] is presented in Section 4. The concluding Section discusses the results obtained, taking into account aspects related to the variety and diversity of regional economic structures, relatedness of the tourism sector with different activities and their impacts on tourism competitiveness. Where existing, results from previous studies on similar topics are discussed, although the implications of smart specialization strategies on tourism performance have not been the object of previous analyses.

2. Literature Review and Conceptual Framework

2.1. Information, Networks and Smart Specialization

Tourism supply may be seen as a decentralized value-chain, where most of the tourism products and services are provided by SME. As a result of the interactions established with each user—enhanced by contemporary digital technologies—tourism providers potentially accumulate large amounts of information about preferences, motivations, needs or behaviors of tourists. The information obtained by those SMEs tends to be tacit (implying processes of codification and adaptation in order to contribute for the generation of innovative solutions) and localized (rooted in the characteristics of the destination and the existing services). The destination becomes a repository of unique and inimitable knowledge, not necessarily implying the development of new products and services, or the implementation of new forms of organization, because SMEs tend to be less engaged in innovation networks, not taking full advantage of their potential to increase productivity [18].

The effectiveness of the interactions between stakeholders appears to be crucial to boost the regional innovation potential [9] by transforming this unique and localized knowledge into reorganizations of the tourism supply, contributing to the differentiation of destinations. This potential depends on education levels or investments in research and development (as proposed in the model developed in this work). Previous studies have focused on these issues, when looking at labor productivity in hospitality [19] or to the positive impacts of labor qualification on the performance of high ranking hotels [20] or hotels following an explicit differentiation strategy [21]. With particular interest for the tourism sector, the distinctions between organizational vs spatial proximity and circumstantial vs consequential spillovers recently proposed [22] allow for the identification of diverse types of relatedness

and their impacts on different aspects of innovation in tourism: for the case of spatial proximity, the formation of clusters and regional innovation models may be seen as linked to circumstantial spillovers, while consequential spillovers can be observed when looking at effects on tourism flows, attractions or market shares.

The importance of place and regional capabilities driving specialization patterns [23] are central elements for smart specialization [24], which inspires the Regional Innovation Strategies (RIS 3, for 2014–2020) being implemented in European regions. By focusing on a limited number of priority sectors, such strategies aim at boosting bottom-up entrepreneurial innovation processes, by promoting spinoff effects arising from interactions within networks of interconnected regional stakeholders [25,26]. Apart from geographical proximity, it is expected that knowledge proximity (related to products, services, organizations, production processes, technologies or markets) or cultural and institutional proximity [27–29] contribute to the development of regional innovation networks, leading to improvements in productivity. Specialization (or diversification) patterns may occur among sectors with high proximity ("related variety", contributing to a quick and easy diffusion of innovations and/or economic impacts) but also with higher distance ("unrelated variety", based on the development of economic sectors with low interdependencies, implying difficulties for the diffusion of innovation and economic impacts, but reducing the vulnerability of the regional economy to sectorial negative shocks) [30–32].

The diversity of services comprising the destination value chain opens a high potential for the tourism sector to assume a central role within smart specialization strategies [33,34]. Tourism can develop strong intra-industry interconnections, by exploring the knowledge proximity between accommodation services, food provision, entertainment, tour guides and the most traditional hospitality services [35]. However, a strong connectivity between unrelated sectors [36] may also emerge, with the specific needs of the tourism markets potentially contributing for the creation of interactions with transport and mobility services, health services, water or waste management or energy production and consumption. Moreover, innovation in tourism may also benefit from knowledge externalities and spillovers arising from the development of a creative regional economy, where other activities (like manufacturing or high-tech sectors) contribute to diversify regional economic structures [37,38].

As it will be seen, the empirical analysis developed in this work allows for the identification of a very diverse set of economic activities coexisting with tourism as priority sectors in smart specialization strategies, while positively contributing for tourism competitiveness. This suggests that tourism may benefit from different types of externalities and forms of proximity, which justifies the coexistence of diverse strategic options in different regions, according to their own territorial characteristics. A more detailed analysis of the transmission mechanisms of these spillovers and their concrete impact on tourism competitiveness is a matter for further research, requiring other types of information and methodology. One very interesting and detailed study [39] makes an effort to systematize these aspects, by identifying spatial and sectorial correlations when looking at the distribution of labor qualifications and the production of patents, as proxies for technological developments and innovation processes. However, the fact that tourism is not classified as a sector for statistical purposes (comprising different activities and sectors) imposes specific difficulties for this type of analysis for the tourism industry.

2.2. Innovation and Competitiveness

Tourism may be seen as a knowledge-based activity [40] relying on the generation, analysis and reutilization of information, in a permanent process of co-creation of services, experiences and destinations, potentially involving a wide range of stakeholders [6]. These characteristics of tourism activities are dependent on economic, technological and political aspects: the "inner layer" shaping tourism competitiveness [1], which may be distinguished from the "outer layer" (the most stable, related to natural and geographical characteristics) and the "intermediate layer" (related to socio-cultural features). Being vulnerable to processes of change and transformation, these forces contribute to

define the efficiency, effectiveness and ability of the tourism sector to generate economic growth and development, constituting sources of competitive advantage.

The tourism system can be observed as an innovation network, not necessarily limited by the boundaries of the destination and potentially including other stakeholders in the region, taking advantage of geographical proximity and potential interactions [18,41,42]. The concept of a "regional innovation network" [4,5,43] may contribute to the systematization and analysis of the aspects shaping innovation in tourism, within a geographical scope that is larger than the destination itself [8,44].

Assuming the problems and limitations to measure the aspects shaping innovation systems and their relations with tourism activities [45], the analytical model presented in this work considers the regional efforts in innovation (measured according to the investment in Research and Development (R&D) activities) and the qualifications of the labor force (measured by the share of the active population with tertiary education) as the variables broadly defining the innovative environment in each region. Similar territorial levels were considered for the analysis of tourism competitiveness in Italy [46], China [21] or Japan [47].

Following different approaches, formulations, models and/or indicators, competitiveness in tourism has been extensively analyzed over the last few decades [48]. Furthermore, different international institutions proposed comprehensive sets of indicators and guidelines for the assessment of tourism competitiveness [49,50]. However, most of these approaches do not establish a link between explanatory aspects of tourism competitiveness and an output indicator for its measurement [2]. Thus, those studies follow an explanatory rather than a definitional approach to competitiveness. These two perspectives use indicators from the definitional approach (such as the ability to attract visitors) and from the explanation approach (including production and contextual factors) [51]. Supported by this point of view, the model presented in the following section offers a macro-level analysis of the relation between innovation and tourism competitiveness [4,52] including aspects characterizing the regional tourism dynamics (tourism demand, supply and level of specialization) causally linked to a measure of competitiveness (gross value added by the tourism sector, as an indicator of the economic impacts on the region).

Considering the importance of proximity and territorial characteristics for the agglomeration of innovative tourism activities, the concept of "tourism districts" can also be used for the analysis of tourism competitiveness [52]. Other studies [46,53] also follow a regional approach to frame the analysis of tourism competitiveness, taking into account aspects related to innovation dynamics. Focusing on a much larger number of regions (but also considering aspects related to smart specialization), a recent study [3] adopts a methodology and variables comparable with the present work (in particular, the adoption of the gross value added by tourism as a proxy for tourism competitiveness), while a different methodology is used to frame this problem in the context of sustainable regional development [54].

In fact, gross value added by tourism activities emerged relatively early in the literature on these topics when establishing a clear link between competitiveness and sustainability in tourism [1]: in fact, a long term approach to tourism competitiveness implies the creation of economic benefits for the host communities and also the protection of sensitive resources contributing to the attractiveness of the destination and shaping its uniqueness. Thus, this competitiveness should not be achieved by significant increases in tourism demand (with related pressures and damages on the territories), but through the ability to generate a higher value added for the local and regional economies. Assuming this definition of competitiveness and a long-term perspective, value added appears as an adequate measure of tourism competitiveness, even though it does not cover all the dimensions of this aspect [3,41,52].

3. Model, Data and Variables

Focusing on the "inner layer" of the determinants of tourism competitiveness [1], the framework for the econometric model presented in this work includes the impacts of traditional production factors (physical and human capital), contextual variables related to innovation dynamics (such as the

intensity of research and development or labor qualifications), tourism dynamics (related to supply and demand) and characteristics of the patterns of specialization within regional economic structures (level of specialization in tourism and strategic priority sectors within Regional Innovation Strategies). The output variable is the regional tourism performance (expressed by the gross value added created by tourism in each region), as a measure of competitiveness [3]. By analyzing a relatively long period (2006–2017), this variable reveals the continuous socio-economic impacts of tourism, with the related benefits for the local population. Figure 1 represents this research plan.

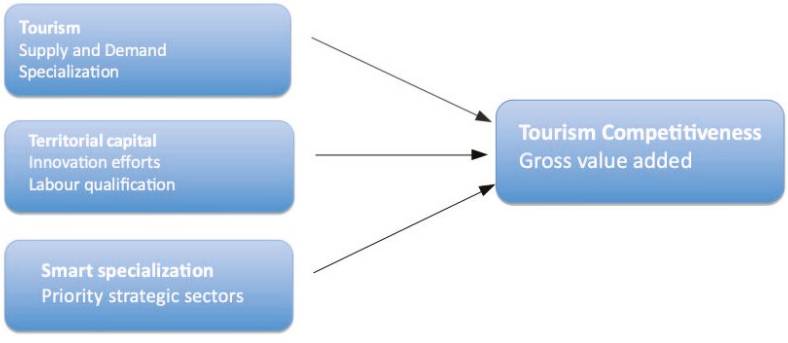

Figure 1. Architecture of the model.

The territorial level of analysis is the NUTS-2 regions, following the classification adopted by Eurostat for European regions. This scale is adequate for the purposes of the current work, as these regions exhibit some territorial coherence (despite the existence of several tourism destinations within each of them), while the existence of comparable data allows for an international analysis. These regions are defined at the European level following the same demographic, socio-economic, geographical and political criteria, implying a certain level of similarity between regions. Moreover, this is the territorial scale commonly assumed within European policy institutional frameworks for the definition of regional development and/or the innovation of strategic plans, along with tourism planning and management processes. This territorial level is also relevant for the observation of innovation dynamics, human resource endowment, inter-sectorial relations, structural transformations and the evolution of regional economic systems, which are difficult to access at the destination level. Thus, policy and managerial implications of the results obtained can be discussed at an appropriate territorial and institutional level.

This study covers a relatively long period of 11 years (2007–2017), including 55 NUTS-2 regions in the European Union. For all the variables except the sectorial priorities for regional innovation strategies, secondary data collected at Eurostat were used. For the strategic priorities, the data were collected at the S3Platform (Joint Research Centre of the European Commission). All the NUTS-2 regions with available statistical information and defining tourism and/or hospitality services as a priority specialization sector were included in the study. Most of them were located in the south of Europe, but regions from Denmark, Germany or Romania were also analysed, contributing to a relatively large and diverse sample. Hovedstaden, Midtjylland and Nordjylland (Denmark); Brandenburg and Niedersachsen (Germany); Burgenland and Tirol (Austria); Centru and Sud-Est (Romania); Anatoliki Makedonia, Kentriki Makedonia, Dytiki Makedonia, Ipeiros, Thessalia, Ionia Nisia, Dytiki Ellada, Sterea Ellada, Peloponnisos, Attiki, Voreio Aigaio, Notio Aigaio and Kriti (Greece); Valle d'Aosta, Friuli-Venezia Giulia, Emilia-Romagna, Toscana, Lazio, Molise, Campania, Puglia, Calabria, Sicilia, Sardegna (Italy); Galicia, Cantabria, Navarra, La Rioja, Aragón, Castilla-la-Mancha, Extremadura, Cataluña, Valencia, Illes Balears, Andalucía, Murcia and Canarias (Spain); Norte, Algarve, Centro, Lisboa, Alentejo, Açores, Madeira (Portugal); Cyprus; and Malta. These regions are represented in

the map presented in Figure 2 (due to problems of space, relatively remote islands from Portugal and Spain—Açores, Madeira and Canary Islands—are not depicted).

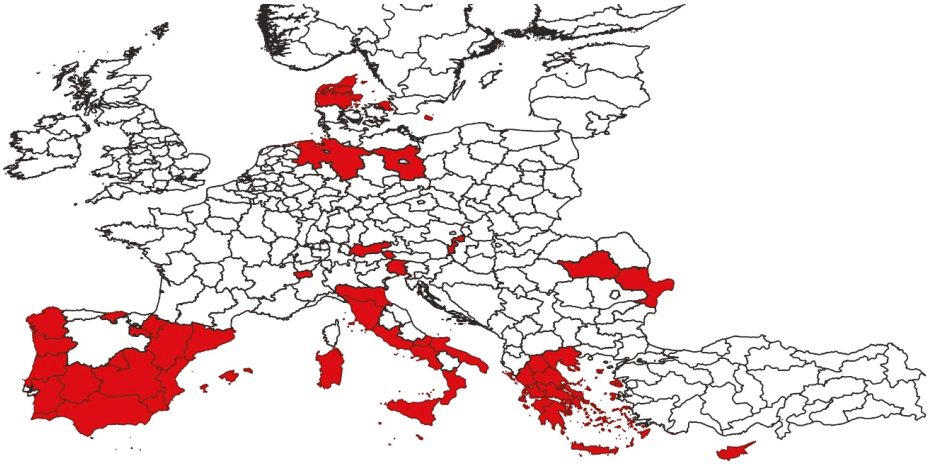

Figure 2. Regions considered in the study.

This work assumes a broad definition of tourism services, as defined by Eursotat, where most of the statistical information has been collected (including wholesale and retail trade; transport; accommodation and food service activities; and ICT services). This definition assumes the relevance of ICT for contemporary tourism dynamics. Being noteworthy that the importance of these services may rely on aspects not strictly related to the tourism sector, it was possible to achieve relevant and interesting results considering the objectives of this work and its policy and managerial implications. The positive correlation identified between the growth value added by this broadly defined tourism sector and tourism demand (measured according to the overnight stays) or tourism supply (measured by the number of beds available in accommodation establishments) reveals the adequacy of this approach.

The dependent variable considered in the panel model to be estimated ("GVAT") is a proxy for tourism competitiveness, measured according to the regional gross value added by tourism activities per capita (at constant prices and considering purchasing power standards). The gross value added measures the difference between the revenues obtained by tourism activities and the cost of the related inputs, and the utilization of this type of variable as an indicator of tourism competitiveness has been used in previous studies, as noted before. In particular, the analysis presented in a recent work focusing on European regions [3] supports and is expanded by this analysis, through the consideration of a longer period and the inclusion of information about smart specialization strategic options. In fact, the observation of this indicator over a relatively long period allows one to assess several dimensions of tourism competitiveness, including the socio-economic impacts on the regions and the process of growth, while being, at least implicitly, linked to the satisfaction obtained by visitors. Considering constant prices along the period under analysis avoids eventual problems relating to different inflationary problems among regions, while the consideration of the size of the regions (by calculating scores per habitant) allows for a more precise evaluation of the efficiency of regional tourism systems.

For computational purposes, natural logarithms were applied to the variables characterizing regional tourism supply (number of beds available in accommodation establishments, per capita—"BEDS") and demand (number of overnights registered in accommodation establishments, per capita—"NPC"), as explanatory variables for tourism competitiveness. Explanatory factors relating to immaterial aspects aiming at assessing knowledge production and innovation dynamics in the

region were measured taking into account the percentage of the work force with tertiary education ("EDUC") and the percentage of the regional GDP invested in research and development ("RD"), while the level of specialization in tourism was measured according to the percentage of the sector within regional employment ("EMPT"). Finally, the potential impacts on tourism competitiveness of regional sectorial priority choices within smart specialization strategies were assessed by using dummy variables (Si), with a score of 1 when the sector was a regional priority, and 0 otherwise (this information was collected in the website of the S3P platform, the European Commission office supporting the preparation and implementation of these strategies by regional authorities).

Using the "car" package in R [55], Variance Inflation Factor (VIF) tests for all the variables in the model were performed, leading to scores clearly below the threshold of five [56], thus suggesting the inexistence of problems of multicollinearity. Furthermore, two tests for the normality of the distributions have been performed (Shapiro–Wilk and Pearson), whose *p*-values clearly show this characteristic for all the variables in the model, thus suggesting the inexistence of problems of heteroskedasticity. The list of variables, their code, unit, average score and standard deviation, are presented in Table 1, along with the results for the VIF tests and the *p*-values for the normality tests.

Table 1. Variables, codes and scores for the (Variance Inflation Factor) VIF and normality tests.

Variable	Code	Unit	VIF	S-W	Pearson
Gross value added by tourism per capita (PPS)	GVAT	Ln	*[Depend]*	6.238×10^{-15}	$5.662e^{-11}$
Beds in accommodation establishments	BEDS	Ln	3.003	$<2.2e^{-16}$	$<2.2e^{-16}$
Share of tourism in employment	EMPT	%	2.948	$2.978e^{-13}$	$<2.2e^{-16}$
Nights in accommodation establishments	NPC	Ln	3.975	$1.488e^{-12}$	$<2.2e^{-16}$
Investment in research and development	RD	%	1.847	$<2.2e^{-16}$	$<2.2e^{-16}$
Workforce with tertiary education	EDUC	%	1.825	$1.516e^{-13}$	$<2.2e-^{16}$
Agriculture and food (42 regions)	S01	Dummy	2.265		
Energy (27 regions)	S02	Dummy	1.817		
Health (35 regions)	S03	Dummy	2.833		
Environmental technologies (19 regions)	S04	Dummy	1.549		
Mobility and transports (13 regions)	S05	Dummy	1.648		
Logistics (5 regions)	S06	Dummy	1.602		
Culture and creativity (32 regions)	S07	Dummy	2.197		
ICT (9 regions)	S08	Dummy	1.378		
Manufacture (19 regions)	S09	Dummy	1.604		
Technologies of the sea (15 regions)	S10	Dummy	1.636		
Biotechnologies (7 regions)	S11	Dummy	1.379		
Housing and construction (6 regions)	S12	Dummy	1.651		
Advanced materials / technologies (12 regions)	S13	Dummy	1.652		

The stationarity of the data was also tested, with the "plm" package in R [57]. Four tests were computed (for trends and individual intercepts), by using the Im-Pesaran-Shin Unit-Root Test [58], with the number of lags limited to 2 or 4, according to the Akaike Information Criteria. The *p*-values obtained were below $2.2e^{-16}$, revealing the stationarity of the data [17]. Furthermore, a Pesaran CD test for cross-sectional dependence [59] was calculated and the *p*-value obtained (0.012) suggests the inexistence of this characteristic. Once panel data models allow for the simultaneous analysis of temporal and geographical units, they are suitable tools for the purposes of this work and the models were computed by suing the "plm" package in R.

As the choice of priority sectors for each smart specialization regional strategy was modeled by using dummy variables, the constant term obtained for each region (depending on the scores for those dummies) was different. Thus, a pooling effects model is suitable for the purposes of this work.

However, a different specification was computed, based on a fixed effects model (which accounts for specific time effects possibly affecting all the regions in each period under analysis), which was supported by the result of a Hausmann test (p-value <2.2 e^{-16}) [60]. In both cases, the models were estimated based on the Ordinary Least Squares method. The similar results obtained revealed the consistency of both models.

4. Innovation, Smart Specialization and Tourism Competitiveness: A Panel Model

This model is therefore defined as:

$$\begin{gathered} \text{GVATit} = ß0 + ß1\ \text{BEDSit} + ß2\ \text{NPCit} + ß3\ \text{EMPTit} + ß4\ \text{RDit} + ß5\ \text{EDUCit} + \\ ß6\ \text{SO1it} + ß7\ \text{S02it} + ß8\ \text{SO3it} + ß9\ \text{S04it} + ß10\ \text{SO5it} + ß11\ \text{S06it} + ß12\ \text{SO7it} + \\ ß13\ \text{S08it} + ß14\ \text{SO9it} + ß15\ \text{S10it} + ß16\ \text{S11it} + ß17\ \text{S12it} + ß18\ \text{S13it} + \text{uit} \end{gathered} \quad (1)$$

where i is an index for the regions, t is an index for the time period, and u is the error term.

The results presented in Table 2 clearly show the robustness of the estimations, once the parameters estimated in both models are extremely similar: the variables whose impact is statically significant are always the same, while keeping the same sign for the estimated parameters. The measure for the goodness of fit (R-Square) is very high (above 0.8 in both cases). Table 3 shows the (time) fixed effects, revealing from 2009 the negative impact that the international crisis affecting the global economy had on tourism dynamics. This tendency would be reverted in 2012, when the fixed effect increased regarding the previous year, but the tendency has not been clearly stable since then.

Table 2. Estimation of the models.

Variable	Pooling Model				Fixed Effects Model			
	Estim.	**Std. Er.**	**Pr(> |t|)**	**Sign.**	**Estim.**	**Std. Er.**	**Pr(> |t|)**	**Sign.**
BEDS	**4567.99**	387.44	<2.2e^{-16}	***	**4938.86**	374.94	<2.2e^{-16}	***
NPC	**553.55**	62.47	<2.2e^{-16}	***	**494.24**	60.33	1.541e^{-15}	***
EMPT	**63.6**	9.7	1.156e^{-10}	***	**68.13**	9.29	7.192e^{-13}	***
RD	**971.03**	55.79	<2.2e^{-16}	***	**986.63**	53.38	<2.2e^{-16}	***
EDUC	**14.69**	5.33	0.00604	**	**19.9**	5.21	0.00015	***
S01	**−1085.86**	109.96	<2.2e^{-16}	***	**−987.96**	133.51	4.609e^{-13}	***
S02	**621.58**	124.57	7.885e^{-07}	***	**654.27**	122.9	1.440e^{-07}	***
S03	**300.2**	124.3	0.01602	*	**353.98**	130.3	0.00679	**
S04	**−440.43**	130.98	0.00082	***	**−414.94**	129.84	0.00147	**
S05	**464.29**	161.27	0.00413	**	**447.41**	154.28	0.00387	**
S08	**712.02**	170.5	3.397e^{-05}	***	**767.02**	164.23	3.711e^{-06}	***
S09	**275.42**	129.26	0.0335	*	**353.78**	134.97	0.009	**
S10	**293.17**	140.2	0.03694	*	**347.78**	137.6	0.01174	*
S11	**684.63**	197.9	0.00058	***	**730.17**	190.91	0.00014	***
S13	**−308.93**	162.49	0.00577	.	**−277.54**	155.22	0.07428	.
Intercept	**−3560.05**	425.01	3.744e^{-16}	***				
R-Squared	**0.80026**				**0.81819**			

Signif. codes: 0 *** 0.001 ** 0.01 * 0.05.

Table 3. Fixed (time) effects.

2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
−2782.2	−2790.7	−3311.7	−3481.1	−3621.1	−3568.6	−3661.6	−3622.0	−3537.0	−3560.1	−3502.2

All the variables taken into account to characterize regional tourism dynamics and innovation dynamics exert a positive impact on tourism competitiveness. Aspects related to supply (number of beds available), demand (number of nights spent in accommodation establishments) and tourism specialization (share of the regional labor force working in the tourism sector) have a positive impact

on tourism competitiveness in these regions. Moreover, the aspects related to innovation dynamics taken into account were also found to be positively correlated with regional tourism competitiveness. Both education (qualification of the regional labor force) and efforts on innovation (regional investment in research and development) have a positive correlation with the creation of value added by the tourism sector in the regions under analysis.

The innovative analysis of the relation between smart specialization priority sectors performed in this work offers some relevant insights which are difficult (or impossible) to compare with previous studies. A first main observation is that a very large number of priority sectors may exert a positive impact on tourism competitiveness. In fact, only three sectors (logistics, chosen in 5 regions; culture and creativity, defined as a priority in 32 regions; and housing and construction, prioritized by 6 regions) had no statistical relation with the gross value added generated by the tourism sector. These results suggest—at least for the activities related to the cultural and creative sectors—that new approaches to their integration into regional tourism supply may be needed. A similar observation can be made when looking at agriculture and food production (with clear links with tourism supply and defined as priority by 42 regions) and at environmental technologies (chosen by 19 regions), which have a negative correlation with the competitiveness of the tourism sector.

Positive impacts on tourism competitiveness were mostly observed from priority sectors with some proximity and potentially high interconnections with tourism activity (including ICT or mobility and transports). However, positive correlation was also found with sectors with some cognitive distance, but potentially establishing different forms of connectivity (health services, energy production, or mobility and transports). Finally, sectors relatively unrelated to tourism dynamics (like manufacture, biotechnologies or advanced materials) also appear as positively correlated with tourism competitiveness, suggesting the importance of the spatial concentration of knowledge for the creation of positive spinoffs and externalities, while revealing the importance of the geographical, cultural and institutional context, even when knowledge proximity is limited.

5. Conclusions

This work offers a "macro-level" analysis of innovation in tourism [4,5], focusing on interactions between economic, political and technological aspects—the "inner-layer" determinants of tourism competitiveness [1]. The econometric model presented combines elements from an explanatory approach [2] with a definitional approach [51]. The territorial unit of analysis allows for the assessment of the role of regional innovation systems and specialization patterns on tourism competitiveness, taking into account both material and immaterial aspects. This work constitutes a first attempt to evaluate the impacts of sectorial choices within smart specialization strategies in European regions on the performance of the tourism sector.

The results of the model presented confirm the expected positive impact of the size of tourism demand and supply on the value added generated by the tourism sector. Similar results had been obtained in different studies, and in particular, in a recent analysis focusing on a broader set of European regions (237) with the same territorial level but including territories where tourism plays an important socio-economic role and also others where this does not happen [51]. Similarly, the immaterial aspects defining the role of knowledge and innovation capabilities in the regional economic systems are both positively correlated with tourism competitiveness, confirming the importance of technological incorporation for the development of innovative products and services. Similar results had been obtained in previous studies [20,21], focusing on different aspects and adopting different methodologies.

However, the results of the model presented in the current analysis reveal an important difference when compared with others recently obtained for European regions [3,54]. Those studies showed that a high specialization of the regional labor force in tourism was negatively correlated with the creation of value added by the tourism sector. This suggests that regions where tourism dynamics are based on labor intensive services for large scale markets (predominantly located in South Europe, as also noted) generate proportionally lower levels of value added. In the case of the current study, the analysis

is exclusively focused on regions where tourism is a priority for regional specialization (with a very large dominance of South European regions) and the results reveal a positive correlation between relatively high levels of employment and value added by tourism activities. These different results suggest that regions where tourism plays an important role within specialization patterns tend to reveal a similar performance (by linking employment and value added in similar proportions), while regions where tourism is less important within regional economic structures tend to achieve better results (higher levels for the value added, not implying a labor intensive supply). Implicitly, this reveals higher levels of productivity and lower negative impacts on the territories, as identified before [19].

The most innovative and relevant results of the current work relate to the analysis of the impact of different sectorial priority choices for smart specialization in European regions. In a general sense, the broad set of priority sectors with positive correlation with the performance and competitiveness of the tourism sector suggests that tourism can have a central role within regional innovation strategies [13,34]. This can be achieved by exploring interactions and processes of interconnectivity with activities with both high proximity (related variety) and low proximity (unrelated variety) [29,30,38]. The results show that tourism may benefit from the knowledge externalities created by a wide number of other activities, taking advantage of the geographical, cultural and institutional proximities, even when not sharing the same technological, organizational or commercial knowledge [27].

In particular, this analysis identifies positive correlations between regional tourism competitiveness and the choice of priority sectors with some proximity to tourism activities, which can emerge from interactions related to commercial opportunities arising from the existence of a dynamic tourism market. According to different analyses [28,31,35], this may happen with the sectors related to energy production, health services, mobility and transport, logistics, culture and creativity or ICT, which can be seen as relatively related to tourism.

On the other hand, relatively unrelated activities, like manufacturing, technologies of the sea and biotechnologies also reveal a positive correlation with tourism performance, suggesting that positive knowledge externalities may emerge despite the cognitive distances, taking advantage of geographical, cultural and institutional proximity, facilitating the diffusion of ideas and innovations [36,37].

Finally, it should be mentioned that the negative correlation observed for the relationship between agriculture and food production and tourism competitiveness suggests that additional efforts are required in order to reinforce the interconnectivity potentially existing between these activities. In general terms, these results also reveal the benefits of a balanced and diversified regional economic structure, where close links between tourism and other activities may contribute to an effective integration of knowledge into innovation processes, as proposed by the smart specialization approach [14,24].

Assuming the difficulties to obtain comparable indicators to assess the impacts of innovation dynamics on the tourism sector [9,41], further developments of the current analyses may focus on localized case studies aiming at identifying place-specific opportunities and constraints. It is also noteworthy that strategic priorities within smart specialization strategies were analyzed in this work based on the intentions expressed by regional authorities in their planning processes. An economic analysis of the impacts of these choices may also shed new light on this issue when information about the results of the overall regional innovation strategies (2014–2020) is available.

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References

1. Ritchie, J.; Crouch, G. *The Competitive Destination: A Sustainable Tourism Perspective*; CABI International: Oxfordshire, UK, 2003.

2. Mazanec, J.A.; Wöber, K.; Zins, A.H. Tourism Destination Competitiveness: From Definition to Explanation? *J. Travel Res.* **2007**, *46*, 86–95. [CrossRef]
3. Romão, J.; Nijkamp, P.A. spatial econometric analysis of impacts of innovation, productivity and agglomeration on tourism competitiveness. *Curr. Issues Tour.* **2019**, *22*, 1150–1169. [CrossRef]
4. Cooke, P. Regional Innovation Systems, Clusters, and the Knowledge Economy. *Ind. Corp. Chang.* **2001**, *10*, 945–974. [CrossRef]
5. Asheim, B.; Smith, H.L.; Oughton, C. Regional Innovation Systems: Theory, Empirics and Policy. *Reg. Stud.* **2011**, *45*, 875–891. [CrossRef]
6. Binkhorst, E.; Dekker, T. Towards the co-creation tourism experience? *J. Hosp. Mark. Manag.* **2009**, *18*, 311–327.
7. Buhalis, D.; Law, R.; Law, R. Progress in information technology and tourism management: 20 years on and 10 years after the Internet—The state of eTourism research. *Tour. Manag.* **2008**, *29*, 609–623. [CrossRef]
8. Williams, A.M. *Tourism Innovation*; Routledge: London, UK, 2014.
9. Hjalager, A.-M. A review of innovation research in tourism. *Tour. Manag.* **2010**, *31*, 1–12. [CrossRef]
10. Millar, C.; Choi, C.J. The innovative future of service industries: (anti-)globalization and commensuration. *Serv. Ind. J.* **2011**, *31*, 21–38. [CrossRef]
11. Strambach, S.; Klement, B. Cumulative and Combinatorial Micro-dynamics of Knowledge: The Role of Space and Place in Knowledge Integration. *Eur. Plan. Stud.* **2012**, *20*, 1843–1866. [CrossRef]
12. Aarstad, J.; Kvitastein, O.A.; Jakobsen, S.-E. Related and unrelated variety as regional drivers of enterprise productivity and innovation: A multilevel study. *Res. Policy* **2016**, *45*, 844–856. [CrossRef]
13. Bellini, N.; Grillo, F.; Lazzeri, G.; Pasquinelli, C. Tourism and regional economic resilience from a policy perspective: Lessons from smart specialization strategies in Europe. *Eur. Plan. Stud.* **2017**, *25*, 140–153. [CrossRef]
14. Piirainen, K.A.; Tanner, A.N.; Alkærsig, L. Regional foresight and dynamics of smart specialisation: A typology of regional diversification patterns. *Technol. Forecast. Soc. Chang.* **2017**, *115*, 289–300. [CrossRef]
15. Foray, D. Smart specialization strategies and industrial modernisation in European regions—Theory and practice. *Camb. J. Econ.* **2018**, *42*, 1505–1520.
16. Romão, J. Tourism, Smart specialization, growth and resilience. *Ann. Tour. Res.* **2020**. [CrossRef]
17. Baltagi, B. *Econometric Analysis of Panel Data*, 3rd ed.; John Wiley and Sons Ltd.: West Sussex, UK, 2001.
18. Tödtling, F.; Kaufmann, A. The Role of the Region for Innovation Activities of SMEs. *Eur. Urban Reg. Stud.* **2001**, *8*, 203–215. [CrossRef]
19. Cvelbar, L.K.; Dwyer, L.; Koman, M.; Mihalič, T. Drivers of Destination Competitiveness in Tourism: A Global Investigation. *J. Travel Res.* **2015**, *55*, 1041–1050. [CrossRef]
20. Yang, Z.; Cai, J. Do regional factors matter? Determinants of hotel industry performance in China. *Tour. Manag.* **2016**, *52*, 242–253. [CrossRef]
21. Úbeda-García, M.; Cortés, E.C.; Marco-Lajara, B.; Zaragoza-Sáez, P. Strategy, training and performance fit. *Int. J. Hosp. Manag.* **2014**, *42*, 100–116. [CrossRef]
22. Song, H.; Xie, K.; Park, J.; Chen, W. Impact of accommodation sharing on tourist attractions. *Ann. Tour. Res.* **2020**, *80*, 102820. [CrossRef]
23. Neffke, F.; Henning, M.; Boschma, R. How Do Regions Diversify over Time? Industry Relatedness and the Development of New Growth Paths in Regions. *Econ. Geogr.* **2011**, *87*, 237–265. [CrossRef]
24. Foray, D.; Goddard, J.; Beldarrain, X.; Landabaso, M.; McCann, P.; Morgan, K.; Ortega-Argilés, R. *Guide to Research and Innovation Strategies for Smart Specialisation*; S3P—European Union: Brussels, Belgium, 2012.
25. Boschma, R.; Gianelle, C. *Regional branching and smart Specialisation Policy. Joint Research Centre Technical Reports*; Institute for Prospective Technological Studies: Seville, Spain, 2014.
26. McCann, P.; Ortega-Argilés, R. Smart Specialization, Regional Growth and Applications to European Union Cohesion Policy. *Reg. Stud.* **2013**, *49*, 1291–1302. [CrossRef]
27. Boschma, R.A. Proximity and Innovation: A Critical Assessment. *Reg. Stud.* **2005**, *39*, 61–74. [CrossRef]
28. Boschma, R.; Minondo, A.; Arancegui, M.N. The Emergence of New Industries at the Regional Level in Spain: A Proximity Approach Based on Product Relatedness. *Econ. Geogr.* **2012**, *89*, 29–51. [CrossRef]
29. Davids, M.; Frenken, K. Proximity, knowledge base and the innovation process: Towards an integrated framework. *Reg. Stud.* **2017**, *52*, 23–34. [CrossRef]

30. Frenken, K.; van Oort, F.; Verburg, T. Related Variety, Unrelated Variety and Regional Economic Growth. *Reg. Stud.* **2007**, *41*, 685–697. [CrossRef]
31. Asheim, B.T.; Boschma, R.; Cooke, P. Constructing Regional Advantage: Platform Policies Based on Related Variety and Differentiated Knowledge Bases. *Reg. Stud.* **2011**, *45*, 893–904. [CrossRef]
32. Content, J.; Frenken, K.; Jordaan, J. Does related variety foster regional entrepreneurship? Evidence from European regions. *Reg. Stud.* **2019**, *53*, 1531–1543. [CrossRef]
33. European Commission. Guide on EU Funding for the Tourism Sector. In *European Commission—Directorate*; General for Enterprise and Industry: Brussels, Belgium, 2015.
34. Weidenfeld, A. Tourism Diversification and Its Implications for Smart Specialisation. *Sustainability* **2018**, *10*, 319. [CrossRef]
35. Lazzeretti, L.; Capone, F.; Innocenti, N. The impact of related variety on tourist destinations: An analysis of tourist firms clustering. In *Tourist Clusters, Destinations and Competitiveness Theoretical Issues and Empirical Evidences*; Capone, F., Ed.; Routledge: Abingdon, UK, 2016; pp. 62–80.
36. Öztürk, H.E. (Un)related variety, urban milieu and tourism-company differentiation. *Tour. Geogr.* **2016**, *18*, 422–444. [CrossRef]
37. Hansen, T.; Winther, L. Innovation, regional development and relations between high- and low-tech industries. *Eur. Urban Reg. Stud.* **2011**, *18*, 321–339. [CrossRef]
38. Aarstad, J.; Kvitastein, O.A.; Jakobsen, S.-E. Related and unrelated variety in a tourism context. *Ann. Tour. Res.* **2016**, *57*, 254–256. [CrossRef]
39. Balland, P.-A.; Boschma, R. *Smart Specialization: Beyond Patents*; European Commission: Brussels, Belgium, 2019.
40. Racherla, P.; Hu, C.; Hyun, M.Y. Exploring the Role of Innovative Technologies in Building a Knowledge-Based Destination. *Curr. Issues Tour.* **2008**, *11*, 407–428. [CrossRef]
41. Malakauskaite, A.; Navickas, V. Level of Clusterization and Tourism Sector Competitiveness. *Eng. Econ.* **2001**, *21*, 60–67.
42. Medina-Muñoz, D.R.; Medina-Muñoz, R.D.; Zúñiga-Collazos, A. Tourism and Innovation in China and Spain: A Review of Innovation Research on Tourism. *Tour. Econ.* **2013**, *19*, 319–337. [CrossRef]
43. Asheim, B.T.; Coenen, L. Contextualising Regional Innovation Systems in a Globalising Learning Economy: On Knowledge Bases and Institutional Frameworks. *J. Technol. Transf.* **2005**, *31*, 163–173. [CrossRef]
44. Romão, J. *Tourism, Territory and Sustainable Development: Theoretical Foundations and Empirical Applications in Japan and Europe*; Springer: Singapore, 2018.
45. Sánchez, I.R.; Williams, A.M.; Hall, C.M. Tourism innovation policy: Implementation and outcomes. *Ann. Tour. Res.* **2014**, *49*, 76–93. [CrossRef]
46. Cracolici, M.F.; Nijkamp, P. The attractiveness and competitiveness of tourist destinations: A study of Southern Italian regions. *Tour. Manag.* **2009**, *30*, 336–344. [CrossRef]
47. Romão, J.; Saito, H. A spatial econometric analysis on the determinants of tourism competitiveness in Japanese Prefectures. *Asia Pac. J. Reg. Sci.* **2017**, *1*, 243–264. [CrossRef]
48. Song, H.; Dwyer, L.; Li, G.; Cao, Z. Tourism economics research: A review and assessment. *Ann. Tour. Res.* **2012**, *39*, 1653–1682. [CrossRef]
49. European Commission. *Agenda for a Sustainable and Competitive European Tourism*; Communication from the Commission: Brussels, Belgium, 2007.
50. World Economic Forum. *The Travel and Tourism Competitiveness Report 2017*; World Economic Forum: Geneva, Switzerland, 2017.
51. Medina-Muñoz, D.R.; Medina-Muñoz, R.D.; Chim-Miki, A.F. Tourism Competitiveness Assessment: The Current Status of Research in Spain and China. *Tour. Econ.* **2013**, *19*, 297–318. [CrossRef]
52. Camisón, C.; Forés, B. Is tourism firm competitiveness driven by different internal or external specific factors?: New empirical evidence from Spain. *Tour. Manag.* **2015**, *48*, 477–499. [CrossRef]
53. Daskalopoulou, I.; Petrou, A. Urban Tourism Competitiveness: Networks and the Regional Asset Base. *Urban Stud.* **2009**, *46*, 779–801. [CrossRef]
54. Romão, J.; Neuts, B. Territorial capital, smart tourism specialization and sustainable regional development: Experiences from Europe. *Habitat Int.* **2017**, *68*, 64–74. [CrossRef]
55. Fox, J.; Weisberg, S. *An R Companion to Applied Regression*, 3rd ed.; Sage: Thousand Oaks, CA, USA, 2019.

56. O'Brien, R.M. A Caution Regarding Rules of Thumb for Variance Inflation Factors. *Qual. Quant.* **2007**, *41*, 673–690. [CrossRef]
57. Croissant, Y.; Millo, G. Panel Data Econometrics in R: The plm Package. *J. Stat. Softw.* **2008**, *27*, 1–43. [CrossRef]
58. Pesaran, M. A simple panel unit root test in the presence of cross-section dependence. *J. Appl. Econ.* **2007**, *22*, 265–312. [CrossRef]
59. Pesaran, M.H.; Ullah, A.; Yamagata, T. A bias-adjusted LM test of error cross-section independence. *Econ. J.* **2008**, *11*, 105–127. [CrossRef]
60. Elhorst, J.P. Specification and Estimation of Spatial Panel Data Models. *Int. Reg. Sci. Rev.* **2003**, *26*, 244–268. [CrossRef]

sustainability

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Sustainability of Tourism Development in the Mediterranean—Interregional Similarities and Differences

Smiljana Pivčević *, Lidija Petrić and Ante Mandić

Department of Tourism and Economy, Faculty of Economics, Business and Tourism, University of Split, 21000 Split, Croatia; lipe@efst.hr (L.P.); ante.mandic@efst.hr (A.M.)

* Correspondence: smiljana.pivcevic@efst.hr; Tel.: +385-(0)21430669

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Abstract: This study adjusts the Driving forces–Pressures–State–Impact–Response framework (DPSIR) to analyze the interregional similarities and differences with regard to sustainable tourism development in selected Mediterranean (MED) regions. The study involved three steps. The first step was a critical reflection on sustainable tourism indicators and DPSIR as a grouping approach. The analysis yielded 29 sustainability indicators distributed within four components of the DPSR framework. The data were collected for 54 NUTS 2 level MED regions. In the second step, an exploratory factor analysis (EFA) followed by a cluster analysis (CA) were performed to group homogenous regions and generate the Med Regions Cluster Matrix (MRCM). The investigation revealed that although countries in the Mediterranean share many characteristics in terms of tourism development and impacts, universal policies in mitigating the pressures are not appropriate. The main contributions of the study are (1) the application of the DPSIR model in the sustainable tourism context (2) and the analysis of the similarities and differences regarding the sustainability of tourism development in the selected MED regions. The conclusions of the analysis may stimulate the debate on mutual responses and sustainable tourism policy responses in the MED region.

Keywords: sustainable tourism development; tourism policy; sustainability indicators; cluster analysis; factor analysis; Mediterranean; DPSIR

1. Introduction

The twenty-first century has brought new challenges and opportunities for tourism development, including environmental issues, growing concerns about social justice and income equity, funding and the capacity of valuable resources and expectations of tourism as a panacea for economic and social ills [1]. Sustainability has become a key variable in the competitiveness of tourist destinations and, consequently, a primary objective for public managers. However, making tourism sustainable is not easy, with a part of the reason lying in the imprecise nature of the sustainability concept [2]. The conventional definitions of sustainable tourism often put it at the intersection of activities that are at the same time environmentally appropriate, socially acceptable and economically viable. Thus, in the last two decades, the exploration of positive and negative environmental impacts of tourism development has become a primary research interest.

The United Nations Environmental Programme (UNEP) and World Tourism Organization (UNWTO) [3] view sustainable tourism as something that takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment and host communities. However, the history of sustainable tourism is one of two parallel stories, each with several threads, embedded within a broader context of social change, large-scale experimentation with development concepts and initiatives and a growing academic interest

in tourism [4]. The rising interest in tourism is a consequence of the tremendous growth of tourism as a social and economic phenomenon and its potential cultural and economic consequences and concerns. On the other hand, sustainability arose from four initially separate but eventually converging themes: the impact of human activity on the environment; international interest in development; notion of "Quality of life" and changes in models of governance. Sustainable development, including the subconcept of sustainable tourism, is one term among several, which has emerged in an attempt to reconcile conflicting value positions concerning the environment [5]. The growing contribution of tourism to environmental change, including climate change, coupled with tourism simultaneously being promoted as a means of economic growth, suggests that sustainable tourism development is a significant policy problem [6]. Thus, many authors stress the need to develop methods for evaluating impacts, so that objective criteria can be established to regulate sustainability and tools designed to support public policies, i.e., destination responses [7,8].

Within the communication "Europe, the world's No. 1 tourist destination—A new political framework for tourism in Europe" [9], the European Commission (EC) has recognised that competitiveness of tourism is closely linked to its sustainability, as the quality of destinations is strongly influenced by their natural and cultural environment and their integration into the local community. However, the responses from tourism business across Europe to concerns about sustainability have varied widely, which suggests that finding mutual answers to pressures induced by excessive tourism development in the Mediterranean, the most vibrant European tourism area, will not be an easy task. Furthermore, the authors of [10] stressed that the coordination of sustainable tourism activities of a large group of stakeholders remains a challenge at the EC's intergovernmental level.

The adverse impacts of tourism on sustainability are often at the local scale and require national tailor-made policy responses. For example, the authors of [11] discuss tourism degrowth policies implemented in Barcelona to address the escalating social protests and unrests. However, some challenges that tourism faces are mutual, and thus, it is reasonable to look for joint responses. This has been acknowledged with a recently published [12] report on overtourism, in which the authors proposed eleven different strategies and 68 measures to manage visitor growth in urban destinations.

This study responded to the call for further research on the sustainability of tourism development of individual EU member states [10] with a particular focus on the Mediterranean region. The study aims to reveal interregional similarities and differences and foster the discussion on mutual policy responses. We outline the development of Mediterranean (MED) Regions Cluster Maps (MRCMs) to explore the heterogeneity, drivers and sustainability of tourism development, using NUTS 2 level data for 54 Mediterranean regions. The MRCM is a crucial component of the publicly available participative decision support system (PDSS), the main output of the ShapeTourism project (http://www.shapetourism.eu/), consisting of a system of tools designed to analyze data and provide intelligence for decision making in the Mediterranean.

In the subheadings below, we discuss the selection of the indicators to analyze the sustainability of tourism development in MED regions, and finally, the development of an MRCM and implications for policymakers.

2. The Need for Indicators of Sustainable Tourism Development

Despite the traditional lack of data, the tourism industry has a long tradition of monitoring destination performance using conventional tourism indicators such as arrival numbers, length of stay and tourism expenditure [13]. However, monitoring sustainable tourism development in a destination is a complex process, which requires a comprehensive approach. In the early 1990s and after the Rio Earth Summit, many organizations led by the UN began to develop indicators as tools for monitoring the progress made towards the broad goals of sustainable development [14]. The indicators play a key role as main quantitative instruments used to parameterize activities and their sustainability. Their vital contribution to the decision-making process, related to public management and planning, derives from their ability to describe and measure the reality of a specific area in terms of objective parameters [2].

However, the indicators cannot create sustainable tourism—they are a tool, not the solution and a technical approach to a very human problem [13], and public policies are required to move activities in a sustainable direction.

The World Tourism Organization (UNWTO) defines an indicator as a "quantitative, synthetic instrument that facilitates analysis and assessment of information in such a way that when used in combination with other types of instruments, it enables decision-makers to reduce the likelihood of inadvertently making poor decisions" [15]. Thus, the UNWTO [16] argues that tourism sector decision-makers need to know the links between tourism and the natural and cultural environments, including the effects of environmental factors on tourism and the impacts of tourism on the environment. Although institutions such as the UN, UNWTO, EC and Organization for Economic Co-operation and Development OECD have developed sustainable development-related indicators, an increasing number of tourism researchers stress the need for the development of more comprehensive sustainable tourism indicators that make the critical connection between tourism and broader economic, environmental and social processes in a destination [17]. McCool et al. [18] question how can we know if tourism development is contributing to sustainability without a set of indicators to measure progress. The emphasis is not only on the development of new indicators but also on using and combining the existing ones and building indicator systems to broaden the understanding of sustainable tourism development [19–22]. An indicator system is a set of simple indicators that are structured within the framework of a specific scheme, reflecting the purpose of the metric and the study objectives to generate a new, different perspective of the phenomenon studied [2]. In most cases, various indicators related to certain phenomena are grouped, i.e., organized in a specific manner. The indicator systems facilitate the interpretation of relationships between the variables that can potentially result in a proposition of qualitative responses to address destination challenges. In this study, a comprehensive indicator system is used to analyze the challenges of sustainable tourism development and potential public responses in selected MED (NUTS 2 level) regions.

DPSIR Framework

Given that indicators are more than discreet variables considered separately, it is vital to test only logically organized indicators. Miller and Twining-Ward [17] suggest three basic approaches to construct a clear and logical indicator framework: (1) Building indicator categories, (2) Driving forces–Pressure–State–Impact–Response (DPSIR) and (3) Goal–matrix framework. This study applies the adjusted DPSIR approach.

This grouping system has significantly evolved in the last three decades. The earlier antecedent for DPSIR was the Pressure–State–Response (PSR) framework developed by the OECD in 1994 [23]. It provided a means of organizing and assessing the interconnections among environmental pressures, the state of the environment and environmental responses as cause and effect relationships that can be represented by indicators [24]. The focus of PSR on anthropocentric pressures and responses in its evaluation of environmental problems proved to be problematic [25]. Therefore, the UN Commission on Sustainable Development [26] attempted to address this problem by expanding the PSR with a Driving force–State–Response (DSR) framework. Addressing the remaining criticism has resulted in the development of the final framework for an integrated assessment, i.e., the DPSIR. The framework can be used for assessing the causes, consequences and responses to change holistically [27]. After it was adopted by the European Environmental Agency in 1999, the DPSIR framework has become a commune approach to analyze the genesis and persistence of environmental problems at scales ranging from global to local. In its essence, the concept is at the same time simple, comprehensive and evolving, limited only by the boundaries of researchers' understanding and specifics of phenomena explored.

Under the DPSIR framework (Figure 1), drivers (Ds) refer mostly to fundamental social processes (such as the distribution of wealth) which shape the human activities that have a direct impact on the environment [23]. Drivers are highly dependent upon phenomenon explored, which is the same as other dimensions of the framework. They lead to human activities that exert pressures (*p*s) on

the environment as a result of production or consumption processes [28]. The state is mostly seen as the condition of the environment—the quality of various environmental compartments [29]. It is a reflection of the current state and environmental trends as well. The changes in a state may have an environmental or economic impact (I) on the functioning of ecosystems, their life-supporting abilities, human health and the economic and social performances of society [28]. Responses (Rs) generally refer to institutional efforts to address changes in states as prioritized by impacts [23]. It usually results from the understanding of impacts generated by the driving forces.

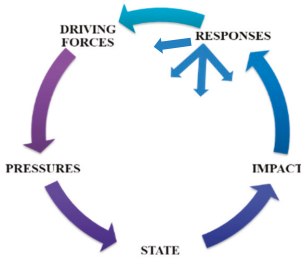

Figure 1. A visual representation of the Driving force–Pressure–State–Impact–Response framework, adapted from [28].

Due to its comprehensiveness, the DPSIR framework is commonly used in sustainable development literature. Koundouri et al. [30] used the DPSIR framework as a basis for the development of sustainable environmental and socioeconomic management of freshwater ecosystem services. Bidone and Lacerda [31] applied similar focus and also evaluated sustainability in coastal areas within the DPSIR framework integrating natural and socioeconomic indicators. Odermatt [32] delivers a meta-analysis of sustainability in the mountain regions and focuses on the identification of critical responses that were implemented through more than 100 case studies conducted in mountain regions. Research findings suggest that tourism is one of five key response categories in the context of sustainable development. Atkins et al. [27] focus on the management of the marine environment and identify social and economic development changes as critical drivers measured throughout different indicators. In their research emphasis is on the treatment of ecosystem services and societal benefits within the overall framework of the ecosystem approach. Haberl et al. [29] used the DPSIR framework and socioeconomic metabolism approach to focus on the improvement of understanding socioeconomic biodiversity pressures and drivers. Svarstad et al. [33] argue that the DPSIR framework has evolved as an interdisciplinary tool to provide and communicate knowledge on the state and causal factors regarding environmental issues. Their findings suggest that the framework is most compatible with the preservationist discourse type and thus tends to favor the conservationist position over other positions. The authors conclude that DPSIR is characterized by a lack of communication between researchers and stakeholders and policymakers. The framework has also been applied in tourism research, among others, to assess the risks associated to wildlife tourism [34] and nature-based tourism development [35], estimate the sustainability of traditional mass tourism destinations [36] and sustainable tourism planning and adaptation to climate change [37].

The DPSIR framework has been criticized for several shortcomings. One of the common criticisms is that the framework creates a set of stable indicators that serve as a basis for analysis that may not take into account the changing dynamics of the system in question. Therefore, the framework cannot capture trends except by repeating the study on the same indicators at regular intervals [23]. Critiques toward the DPSIR approach are often directed at the mechanic oversimplification of the scheme, scheme linearity and the difficulty in handling parameters that may act as both a response and driving force [38]. Ness et al. [39] stress the problem of the scheme's ability to encompass the multidimensional and multilevel relationships of problems. Tscherning et al. [40] have highlighted

that criticism of the framework mainly refers to its implicit hierarchical structure. In that manner, Carr et al. [23] argued that this structure causes a hierarchy of elements as well as of actors, individuals and groups who are affected by social and environmental changes, and who have only the potential to address impacts. According to Carr et al. [23], most of the criticism rests on a misunderstanding of DPSIR, both by critics of the framework and by those trying to apply it to their research. Just as its predecessors, DPSIR is not a model, but a means of categorizing and disseminating information related to particular environmental challenges. As pointed out by Karageorgis et al. [41], to be able to understand the cause-effect relationship associated with a specific environmental issue, one must focus on the links between the different categories (DPSIR). In this focus, the application of particular social science with physical science models becomes appropriate. Finally, the framework may serve as a tool that enhances the assessment and monitoring function concerning the activity, evaluates the performance of tourism planning and supports the sustainable management of a tourism destination and the development of spatial (regional) policies by considering the overall impacts. In other words, it enables policymakers to respond appropriately [37].

3. The Empirical Analysis

3.1. Methodology

In this study, we use the adjusted DPSIR framework to analyze the challenges of sustainable tourism development in 54 MED NUTS 2 level regions within Cyprus, Spain, France, Greece, Croatia, Italy, Malta, Slovenia and Portugal. This convenient sample of Mediterranean regions leading in tourism was primarily conditioned by the aim and scope of the project and data availability and the fact that NUTS 2 units are the basis of EU regional policy and eligible for support from cohesion policy [42]. In the analysis, each NUTS 2 level region was considered individually (for example, each region in Spain as a separate unit) to enable interregional comparisons and reduce the potential bias which might appear when viewing regions as parts of countries. Due to the nature of the investigation and the theoretical discrepancies concerning the distribution of indicators among the state and impact categories, we have followed [26] and decided to omit the impacts component and to rely on a reduced DPSR framework.

We have selected and grouped the adequate indicators into four comprehensive interdependent model components, i.e., driving forces, pressures, state, responses. Following [39], when explaining the correlation between the different dimensions of sustainability, the first step is to reduce the indicator number to the smallest number of uncorrelated factors. To do so, we have used an Explanatory Factor analysis (EFA), which analyses the structure of correlations among a large number of variables by defining sets of variables that are highly interrelated and represent the dimensions within the data, known as factors [43]. The general purpose of an EFA is to summarize the information contained in several original variables into a smaller set of new, composite dimensions of factors with a minimum loss of information [43,44]. We have used an EFA to create factors within each category of the DPSR framework. Furthermore, we have extracted their factor scores and used them in a cluster analysis (CA) to generate MED Regions Cluster Maps (MRCMs). The purpose of this procedure was to obtain clusters of homogenous regions in the four model components and analyze if and to what extent clusters (i.e., their membership) match in the four model components. An MRCM was used to analyze and compare regional differences and to broaden the understanding of challenges of sustainable tourism development within MED regions by comparing factor scores to each cluster's mean [45] and by map visualizations using Geographic Information System (GIS) software.

3.2. Choice of Indicators and the Research Sample

The concept of sustainable tourism development is widely explored [46] and recently the focus has been on "measuring" sustainability by using different indicators [47–49]. A comprehensive list of core indicators used to analyze sustainable tourism development is given in [50], based on a

meta-analysis of relevant studies published between 2000 and 2015 that proposed sustainable tourism dimensions and indicator themes. The conclusions on key sustainability dimensions were an essential guideline in the process of selecting indicators in this study. Furthermore, special attention was given to the adequacy of the indicators chosen within each component of the DPSR framework and data availability. The indicator list (Table 1) resulted from a comprehensive analysis of available indicators. Before the final analysis, the indicator list was presented and discussed with a panel of experienced sustainable tourism researchers from Ca' Foscari University of Venice, Italy; The University of the Algarve, School of management, hospitality and tourism, Portugal; University of Split, Faculty of economics, business and tourism, Croatia; CCEIA, Cyprus Center for European and International Affairs, Cyprus; ZRC SAZU, Research Center of Slovenian Academy of Science and Arts, Anton Melik Geographical Institute, Slovenia; Council of European Municipalities and Regions (CEMR), Italy; University of Malaga, Department of Economics and Management, Spain.

Table 1. The list of indicators.

Code	Indicator	Source of Data
	DRIVING FORCES	
B8r	Price competitiveness	WEF, own calculation
C10r	Air transport infrastructure	WEF, own calculation
C11r	Ground and port infrastructure	WEF, own calculation
C12_01r	The capacity of collective tourist accommodation	Eurostat
D14_03r	Sport and leisure facilities	ESPON Database
Gdpipo	GDP per inhabitant PPS	TOURMEDASSETS database
AN2_05ipo	Monuments and other tourist sights	TOURMEDASSETS database
AN2_15ipo	Number of beds in hotels and similar establishments per inhabitant	TOURMEDASSETS database
AN2_23ipo	Accessibility	TOURMEDASSETS database
EH2_44ipo	Share of employment in wholesale, retail, hotel and restaurants	TOURMEDASSETS database
	PRESSURES	
arr_nripo	Arrivals in hotels and similar establishments: nonresidents	TOURMEDASSETS database
arr_ripo	Arrivals in hotels and similar establishments: residents	TOURMEDASSETS database
arr_r2ipo	Arrivals in other establishments: residents	TOURMEDASSETS database
MM2_64ipo	Airport rank	TOURMEDASSETS database
B9_03r	Arrivals of tourists/km2, Nights spent/km2, Arrivals of tourists/1000 people, Nights spent/1000 people	Eurostat
D14_04r	Number of congresses held in the region	ESPON Database
	STATE	
A2r	Safety and security	WEF, own calculation
D13_05	Quality of the natural environment	WEF, own calculation
D13_05r	Quality of preservation of natural landscape based on Natura 2000 sites	ESPON Database
SC2_02ipo	Satisfied residents	TOURMEDASSETS
B9_03	Sustainability of travel and tourism industry development	TOURMEDASSETS
	RESPONSES	
B6_01	Government prioritization of the travel and tourism industry	WEF, own calculation
B6_02	T&T government expenditure	WEF, own calculation
B6_03	Effectiveness of marketing and branding to attract tourists	WEF, own calculation
B6_04	The comprehensiveness of annual T&T dana	WEF, own calculation
B6_05	Timeliness of providing monthly/quarterly T&T dana	WEF, own calculation
B6_06	Country brand strategy rating	WEF, own calculation
B9_01r	The coverage rate of municipal waste collection by NUTS 2 regions	Eurostat (Data were not available for GR and CY, MED area average was used)
B9_02	Enforcement of environmental regulations	WEF, own calculation

The driving forces were analyzed using ten indicators, pressures using six, the state using five and responses using eight. The data for the analysis were retrieved from the World Economic Forum (WEF), Eurostat, ESPON Programme database and TOURMEDASSETS project database. Data for all indicators for 54 MED regions were collected at the level of NUTS 2 for the year 2015 (Table 2). Wherever possible, regional level indicators were used (indicated by the subscript "r"). In other cases, national-level indicators were used. This was especially the case with RESPONSES as they can be created and implemented mostly by national-level policies. To maintain comparability across regions, the country-level indicators retrieved from the WEF were regionalized using NUTS 2 data for the population/area or calculated as a percentage of the totals. In this way, regional weights were constructed and standardized between 0 (the region does not possess the given characteristics) and 1 (the region which has the maximum value for the given characteristic). Finally, each regional and country-level indicator was standardized between 1 (lowest value) and 7 (highest value) while

indicators with a negative effect on competitiveness were standardized using a reverse scale. The use of national-level data and their regionalization for the analysis are a limitation of the research as well as an indication of how monitoring sustainability of tourism development could be improved.

Table 2. NUTS 2 Mediterranean (MED) regions included in the research.

	CODE	Country	NUTS 2	Name of the Region		CODE	Country	NUTS 2	Name of the Region
1.	CY	Cyprus	CY00	Cyprus	28.	HR	Croatia	HR03	Jadranska Hrvatska
2.	ES	Spain	ES51	Cataluña	29.	HR	Croatia	HR04	Kontinentalna Hrvatska
3.	ES	Spain	ES53	Illes Balears	30.	IT	Italy	ITH3	Veneto
4.	ES	Spain	ES52	Comunidad Valenciana	31	IT	Italy	ITI4	Lazio
5.	ES	Spain	ES24	Aragón	32.	IT	Italy	ITI1	Toscana
6.	ES	Spain	ES61	Andalucía	33.	IT	Italy	ITH5	Emilia-Romagna
7.	ES	Spain	ES64	Ciudad Autónoma de Melilla	34.	IT	Italy	ITC4	Lombardia
8.	ES	Spain	ES63	Ciudad Autónoma de Ceuta	35.	IT	Italy	ITC3	Liguria
9.	ES	Spain	ES62	Región de Murcia	36.	IT	Italy	ITC1	Piemonte
10.	FR	France	FR82	Provence-Alpes-Côte d'Azur	37.	IT	Italy	ITI2	Umbria
11.	FR	France	FR71	Rhône-Alpes	38.	IT	Italy	ITH4	Friuli-Venezia Giulia
12.	FR	France	FR81	Languedoc-Roussillon	39.	IT	Italy	ITF3	Campania
13.	FR	France	FR83	Corse	40.	IT	Italy	ITC2	Valle d'Aosta/Vallée d'Aoste
14.	FR	France	FR62	Midi-Pyrénées	41.	IT	Italy	ITI3	Marche
15.	GR	Greece	EL42	Notio Aigaio	42.	IT	Italy	ITG2	Sardegna
16.	GR	Greece	EL43	Kriti	43.	IT	Italy	ITG1	Sicilia
17.	GR	Greece	EL30	Attiki	44.	IT	Italy	ITF1	Abruzzo
18.	GR	Greece	EL62	Ionia Nisia	45.	IT	Italy	ITF2	Molise
19.	GR	Greece	EL41	Voreio Aigaio	46.	IT	Italy	ITF4	Puglia
20.	GR	Greece	EL61	Thessalia	47.	IT	Italy	ITF6	Calabria
21.	GR	Greece	EL54	Ipeiros	48.	IT	Italy	ITF5	Basilicata
22.	GR	Greece	EL52	Kentriki Makedonia	49.	MT	Malta	MT00	Malta
23.	GR	Greece	EL64	Sterea Ellada	50.	PT	Portugal	PT17	Área Metropolitana de Lisboa
24.	GR	Greece	EL65	Peloponnisos	51.	PT	Portugal	PT15	Algarve
25.	GR	Greece	EL51	Anatoliki Makedonia, Thraki	52.	PT	Portugal	PT18	Alentejo
26.	GR	Greece	EL63	Dytiki Ellada	53.	SI	Slovenia	SI04	Zahodna Slovenija
27.	GR	Greece	EL53	Dytiki Makedonia	54.	SI	Slovenia	SI03	Vzhodna Slovenija

As previously elaborated, the EFA was used to reduce the number of indicators and create factors [43] within each component of the DPSR framework. Within each component of the DPSR framework, two factors and their factor scores were generated. The factor scores were used as inputs in the cluster analysis [43–45] within each DPSR component.

3.3. Factor Analysis

Following the methodological guidelines [43,44], before conducting the EFA for each component of the framework variables (D, P, S, R), the interitem correlation matrix and anti-image correlation matrix were constructed and analyzed. In the correlation matrix, a check for a patterned relationship among variables was performed. Variables with a large number of low correlation coefficients $r < \pm 0.30$ were removed as they indicate a lack of patterned relationships. The same applies to correlations above $r = \pm 0.90$, which demonstrate the data multicollinearity [51]. As per the anti-image matrix, correlations with measures of sampling adequacy MSA > 0.50, were considered appropriate [44]. Furthermore, in each component, the sample size was appropriate as the number of observations exceeded the 1:5 criteria [43]. For all components, the Kaiser–Meyer–Olkin measure of sampling adequacy [44] and Bartlett's test of sphericity revealed that data were appropriate for an EFA [52] (Table 3). Thus, all the procedures confirmed that EFA assumptions were met [44].

Table 3. Checking the assumptions for Explanatory Factor analysis (EFA).

	Number of Items Retained in the Analysis *	Kaiser–Meyer–Olkin Measure of Sampling Adequacy	Bartlett's Test of Sphericity		
			Approx. Chi-Square	df	Sig.
Driving Forces	7	0.673	161.071	21	0.000
Pressures	6	0.779	168.954	15	0.000
State	5	0.551	75.129	10	0.000
Responses	6	0.557	352.540	15	0.000

* After checking the interitem correlation matrix and the anti-image correlation matrix.

The Cattell scree test and the "Eigenvalue" criterion were used for determining the number of factors [43]. In each component, two factors were extracted. For the purpose of spreading variability more evenly among factors and enabling the interpretation of the factors [43], the varimax rotation with Kaiser normalization was performed. The factor loading cut-off level of 0.50 was used to determine the items loading to each factor [44]. The resulting percentage of variance explained ranged from 65.31 to 87.01% (Table 4). These values are acceptable [43,44,53] and above the average of variance explained in other studies and metastudies [54,55]. Furthermore, less than 50% of the nonredundant residuals with absolute values were higher than 0.05 [44,51] confirming the solutions' goodness of fit. This was further validated comparing the reproduced correlation matrix with the original correlation coefficients matrix, revealing small residuals between two [51] in all four components.

Table 4. The summarized EFA results.

	Factors	Indicator Code	Indicator Description	Factor Loadings	Percentage of Variance Explained
Driving Forces	Basic tourism resources and facilities	zC12_01 rzAN2_15ipo zEH2_44ipo	Tourist service infrastructure Monuments and other tourist sights Share of employment in wholesale, retail, hotel and restaurants	0.797 0.908 0.827	66.47
	Tourism development preconditions	zC11r zgdpipo zAN2_05ipo zAN2_23ipo	Ground and port infrastructure GDP per capita Number of beds in hotels and similar establishments per inhabitant Accessibility	0.500 0.797 0.742 0.709	
Pressures	Tourist demand	zarr_nripo zarr_ripo zarr_r2ipo zD14_04r	Arrivals in hotels and similar establishments: nonresidents Arrivals in hotels and similar establishments: residents Arrivals in other establishments: residents Sport and leisure facilities	0.659 0.918 0.854 0.780	76.17
	Tourism spatial pressures	zMM2_64ipo zB9_03r	Airport rank Arrivals of tourists/km^2, Nights spent/km^2, Arrivals of tourists/1000 people, Nights spent/1000 people	0.747 0.902	
State	Environment quality and sustainability	zD13_05r zB9_03 – zD13_05	Quality of preservation of natural landscape based on Natura 2000 sites Sustainability of travel and tourism industry development Quality of the natural environment	0.878 0.668 0.933	65.31
	Life quality and safety	zA2r zSC2_02ipo	Safety and security Satisfied residents	0.750 0.721	
Responses	Policy efficacy in creating preconditions for tourism attractiveness	zB6_05 zB6_06 zB9_02	Timeliness of providing monthly/quarterly T&T data Country brand strategy rating Enforcement of environmental regulations	0.891 0.894 0.916	87.01
	Strategic orientation towards T&T industry	zB6_01 zB6_02 zB6_03	Government prioritization of the travel and tourism industry T&T government expenditure Effectiveness of marketing and branding to attract tourists	0.960 0.853 0.867	

The EFA extraction results suggest (Figure 2) that the "Basic tourism resources and facilities" and "Tourism development preconditions" are the driving forces resulting in "Tourist demand" and "Tourism spatial pressures". These are the causes of "Environment quality and sustainability" as well as "Life quality and safety", which are in turn the basis for the "Policy efficacy in creating preconditions for tourism attractiveness" and "Strategic orientation towards T&T industry". The factors extracted are fundamentally rooted in the general tourism development trajectory framework as they highlight the critical tourism development causes and consequences and their mutual interrelations, which support the theoretical as well as the practical validity of the proposed model. This is

especially the case for components that "close" the framework circle–responses and driving forces. The fit among them reveals the logic in the economic reality that the policy responses ("Policy efficacy in creating preconditions for tourism attractiveness" and "Strategic orientation towards T&T industry") determine the essential tourism resources and facilities development as well as other tourism development preconditions.

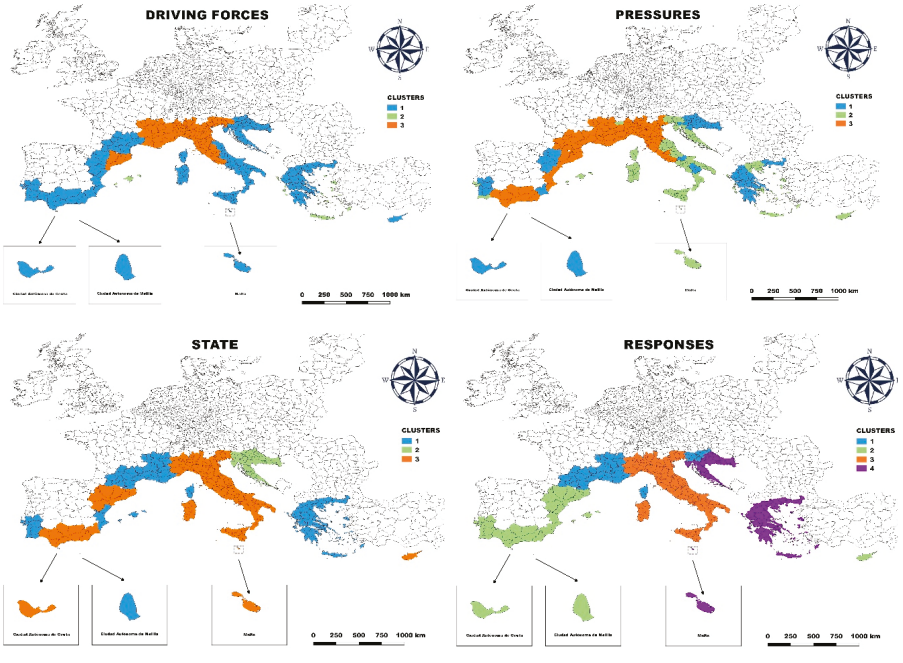

Figure 2. Visual representation of the cluster analysis.

3.4. MED Regions Cluster Maps (MRCMs)

To classify MED regions into homogenous groups and generate an MRCM, we have applied a CA on factor scores for each factor generated [44]. Factor scores represent the degree to which a particular region exhibits the characteristics of a specific factor [44]. More precisely, they represent the degree to which each region scores high on the group of items with high loadings on a factor [43]. Prior to the analysis, factor scores were standardized to have a mean of 0 and standard deviation of 1. Comparing the factor scores with each cluster's mean [45], a competitive position of each cluster was determined.

Hierarchical agglomerative clustering using the Ward method was applied. The decision on the number of clusters was made based on the dendrograms produced [43]. The CA produced three clusters of regions for the driving forces, pressures and state components and four clusters for responses (Figure 2). The generated cluster solutions were confirmed by a one-way ANOVA for all factors within all four components ($p = 0.000$) (Table 5).

Table 5. One-way ANOVA results for Driving forces–Pressures–State–Response (DPSR) components.

COMPONENT			Sum of Squares	df	Mean Square	F	Sig.
DRIVING FORCES	F1	Between Groups	35,510	2	17,755	51,775	000
		Within Groups	17,489	51	343		
		Total	53,000	53			
	F2	Between Groups	38,000	2	19,000	64,600	000
		Within Groups	15,000	51	294		
		Total	53,000	53	17,755		
PRESSURES	F1	Between Groups	35,510	2	17,755	51,775	000
		Within Groups	17,489	51	343		
		Total	53,000	53			
	F2	Between Groups	38,000	2	19,000	64,600	000
		Within Groups	15,000	51	294		
		Total	53,000	53			
STATE	F1	Between Groups	38,265	2	19,133	66,222	000
		Within Groups	14,735	51	289		
		Total	53,000	53			
	F2	Between Groups	32,336	2	16,168	39,903	000
		Within Groups	20,664	51	405		
		Total	53,000	53			
RESPONSES	F1	Between Groups	52,116	3	17,372	983,320	000
		Within Groups	883	50	018		
		Total	53,000	53			
	F2	Between Groups	47,560	3	15,853	145,708	000
		Within Groups	5440	50	109		
		Total	53,000	53			

Within the driving forces, Cluster 1, consisting of 35 regions (Cyprus, Comunidad Valenciana Aragón, Andalucía, Ciudad Autónoma de Melilla, Ciudad Autónoma de Ceuta, Región de Murcia, Languedoc-Roussillon, Corse, Midi-Pyrénées, Attiki Thessalia, Ipeiros, Kentriki Makedonia, Sterea Ellada, Peloponnisos, Atoliki Makedonia, Thraki, Dytiki Ellada, Dytiki Makedonia, Jadranska Hrvatska, Kontinentalna Hrvatska, Campania, Marche, Sardegna, Sicilia, Abruzzo, Molise, Puglia, Calabria, Basilicata, Malta, Área Metropolitana de Lisboa, Algarve, Alentejo, Vzhodna Slovenija), shows a somewhat weaker (negative) relationship with both factor 1 and factor 2 compared to other clusters (Figure 3), meaning that these regions perform weaker in terms of these two factors than the regions in other clusters. The most pronounced level of development of basic tourism resources and facilities (F1) is found in cluster 2 consisting of five EU NUTS 2 regions (Spanish Illes Balears, and Greek regions Notio Aiagaio, Kriti, Ionia Nisia, and Voreio Aiagaio). These regions, situated on islands, are highly dependent on tourism and due to their location, are sparsely populated. As a result, they score the highest in comparison to other regions. Simultaneously, this cluster has a weaker (negative) relationship with the second factor—tourism development preconditions (F2)—as a result of their isolated location (accessibility) and lower GDP per capita. Cluster 3, consisting of the 14 EU NUTS 2 regions (Cataluna, Provence-Alpes Côte d'Azur, Rhone-Alpes, Veneto, Lazio, Toscana, Emiliga-Romagna, Lombardia, Liguria, Piemonte, Umbria, Friuli-Venezia-Giulia, Valle d'Aosta, Zahodna Slovenija), has a positive and relatively intense relationship with factor 2 (F2—tourism development preconditions). As these regions belong to highly developed countries in terms of both general and tourism development and are among the most abundant regions in the world in terms of the number of important and protected monuments and sites, such a result is expected. However, they show a slightly weaker (negative) relationship with factor 1 (basic tourism resources and facilities). The reasons behind this are two-fold: (1) a high population density resulting in lower indicators in relative terms (such as number of beds in hotels and similar establishments per inhabitant and share of employment in wholesale, retail, hotel and restaurants) and (2) economic activity not being exclusively oriented to tourism.

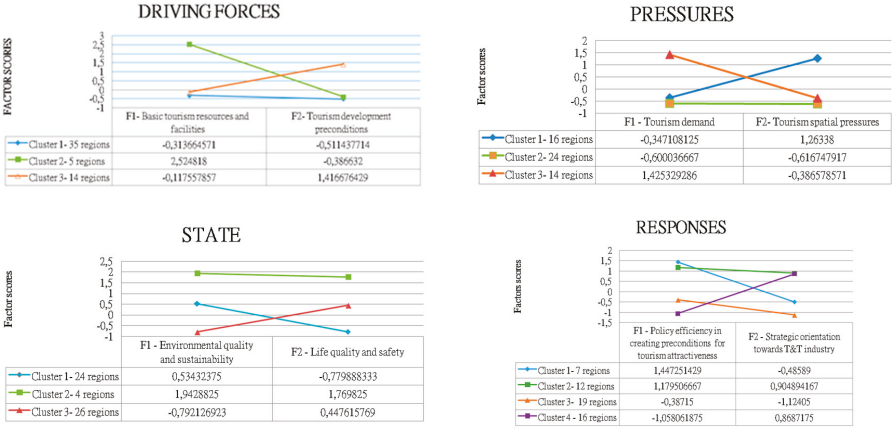

Figure 3. Relationships between the factors of driving forces; pressures; state; responses and cluster means.

In the pressures component, cluster 1, consisting of 16 regions (Ipeiros, Sterea Ellada, Peloponnisos, Anatoliki Makedonia, Thraki, Dytiki Ellada, Dytiki Makedonia Aragón, Ciudad Autónoma de Melilla, Ciudad Autónoma de Ceuta, Región de Murcia, Thessalia, Kontinentalna Hrvatska, Molise, Basilicata, Alentejo, Vzhodna Slovenija), is characterized by a slightly negative (weak) relationship with the factor 1 tourism demand (Graph 1). In other words, the tourism demand indicators presented in absolute numbers are weaker in this cluster than in others. As some of the regions within this cluster are in continental areas, it is not surprising that the tourism demand is not as intense as in coastal destinations. Furthermore, two out of three indicators for tourism of demand (factor 1) refer to domestic tourists' arrivals in hotels and other establishments while in most Mediterranean regions, domestic tourism is not as intense as international tourism. On the other hand, cluster 1 shows a positive and moderately intense relationship with factor 2—tourism spatial pressures. This factor represents the density of tourists in a region, i.e., the higher the factor score, the bigger the tourism pressure on the space. Thus, the results indicate that these regions are spatially more saturated by tourism than other MED regions. Cluster 2, consisting of 24 regions (Cyprus, Illes Balears, Corse, Notio Aigaio, Kriti, Attiki, Ionia Nisia, Voreio Aigaio, Kentriki Makedonia, Jadranska Hrvatska, Umbria, Friuil-Venezia Giulia, Campania, Valle d'Aosta/Valléed'Aoste, Marche, Sardegna, Sicilia, Abruzzo, Puglia, Calabria, Malta, Área Metropolitana de Lisboa, Algarve, Zahodna Slovenija), shows a moderately negative relationship with both factor 1 and factor 2. This means that, compared to other clusters, the tourism demand and the resulting spatial pressures are less intense. Cluster 3, consisting of 14 regions (Cataluña, Comunidad Valenciana, Andalucía, Provence-Alpes-Côte d'Azur, Rhône-Alpes, Languedoc-Roussillon, Midi-Pyrénées, Veneto, Lazio, Toscana, Emilia-Romagna, Lombardia, Liguria, Piemonte), shows a positive relationship with factor 1 and a moderately negative relationship with factor 2, indicating relatively lower spatial pressures. As a substantial number of visitors visit regions within this cluster, the lower spatial saturation can be attributed to the surface and population density included in the composite indicator (zB9_03r).

Within the state component, cluster 1, consisting of 24 regions (Illes Balears, Comunidad Valenciana, Ciudad Autónoma de Melilla, Ciudad Autónoma de Melilla, Provence-Alpes-Côte d'Azur, Rhône-Alpes, Languedoc-Roussillon, Corse, Midi-Pyrénées, Notio Aigaio, Kriti, Attiki, Ionia Nisia, Voreio Aigaio, Thessalia, Ipeiros, Kentriki Makedonia, Sterea Ellada, Peloponnisos, Anatoliki Makedonia, Thraki, Dytiki Ellada, Área Metropolitana de Lisboa, Algarve, Alentejo), shows a moderately positive relationship with factor 1—environmental quality and sustainability and slightly negative correlation with the factor 2—life quality and safety (Figure 3). Although these two findings seem to be

contradictory, a closer look at the indicators explains this result. Namely, factor 1 indicators relate to either the subjective perception of environmental quality by expert groups or to the officially declared areas of protection which additionally contributes to a region's attractiveness. As per factor 2, after a certain point, the growing number of tourists in a destination starts to diminish the quality of life and safety in a destination. Cluster 2, consisting of four regions (Jadranska Hrvatska, Kontinentalna Hrvatska, Zahodna Slovenija, Vzhodna Slovenija), shows a positive and intense relationship with both factor 1 and factor 2. These four regions are not very densely populated and are abundant with high-quality environmental resources. Furthermore, they are recognized as very safe destinations and the most pleasant to live in. Cluster 3, consisting of 26 regions (Cyprus, Cataluña, Aragon, Andalucia, Ciudad Autónoma de Ceuta, Región de Murcia, Veneto, Lazio, Toscana, Emiligia Romagna, Lombardia, Liguria, Piemonte, Umbria, Friuli-Venezia Giulia, Campania, Valle d'Aosta/Vallée d'Aoste, Marche, Sardegna, Sicilia, Abruzzo, Molise, Puglia, Calabria, Basilicata, Malta), shows a slightly negative relationship with factor 1 and moderately positive correlation with factor 2. In the first case, a massive number of tourists in most of the regions belonging to this cluster endanger the quality and sustainability of undoubtedly attractive natural resources and sites. At the same time, the quality of life and security seems to be more appealing here than in other regions (which is also an essential motivation for tourists to visit them).

Within the responses component, four clusters have been identified. Cluster 1, consisting of seven regions (Provence-Alpes-Côte d'Azur, Rhône-Alpes, Languedoc-Roussillon, Corse, Midi-Pyrénées, Zahodna Slovenija, Vzhodna Slovenija), is characterized by a relatively intense positive relationship with factor 1—policy efficacy in creating preconditions for tourism attractiveness (Graph 1), meaning that relevant policy measures are successful in improving the attractiveness of these regions. It also shows a slightly negative relationship with factor 2—strategic orientation towards the Travel & Tourism (T&T) industry, indicating that either national level policy of the countries these regions belong to does not take tourism as a strategic orientation or the regions concerned do not accept this orientation as the dominant one. Cluster 2, consisting of 12 regions (Cyprus, Cataluña, Illes Balears, Comunidad Valenciana, Aragón, Andalucía, Ciudad Autónoma de Melilla, Ciudad Autónoma de Ceuta, Región de Murcia, Área Metropolitana de Lisboa Algarve, Alentejo), is characterized by a positive, moderate relationship with both factor 1 and factor 2. These are mostly regions belonging to Portugal, Spain and Cyprus. They are oriented toward tourism as a strategic activity, and their national policies successfully help them enhance their attractiveness through efficient strategies and policies. Cluster 3, consisting of 19 regions (Veneto, Lazio, Toscana, Emilia-Romagna, Lombardia, Liguria, Piemonte, Umbria, Friuli-Venezia Giulia, Campania, Valle d'Aosta/Vallée d'Aoste, Marche, Sardegna, Sicilia, Abruzzo, Molise, Puglia, Calabria, Basilicata), shows a slightly negative relationship with factor 1 and an even more negative one with factor 2. This means that these regions neither stress tourism as a strategic orientation nor put much effort into creating preconditions to enhance their attractiveness. Cluster 4, consisting of 16 regions (Notio Aigaio, Kriti, Attiki, Ionia Nisia, Voreio Aigaio, Thessalia, Ipeiros, Kentriki Makedonia, Sterea Ellada, Peloponnisos, Anatoliki Makedonia, Thraki, Dytiki Ellada, Dytiki Makedonia, Jadranska Hrvatska, Kontinentalna Hrvatska, Malta), is characterized by a moderately negative relationship with factor 1, and a moderately positive correlation with factor 2. Thus, these regions, although oriented towards tourism as a strategic industry, are less efficient in policy measures aiming at tourism attractiveness enhancements. Comparing these results with the T&T competitiveness report [56] for these countries, it is clear that all three are highly leaning on tourism. Thus, Malta, being the 36th in the overall global rank, scored 6.2/7 points for its prioritization of T&T, Greece as 24th scored 5.5 and Croatia as 32nd scored 4.5. Simultaneously, they scored lower on the sustainability dimension, i.e., on average 4.5 points for environmental sustainability, 3.9 points for natural resource quality and 2.5 for cultural resource quality, which indicates inefficient policies in preserving resources and, consequently, a negative impact on the overall competitiveness.

4. Conclusions

The objective of the study is the analysis of interregional similarities and differences in sustainable tourism development in the MED area using the indicator system developed within the adjusted DPSIR framework. The goal was to create an appropriate set of indicators as the basis for the Decision Support System (DSS) that can help identify adequate and possibly universal policies and measures for tourism development in the regions studied. We used an EFA to extract two underlying factors within each of the four DPSR components. The fundamental driving forces affecting sustainable tourism development in the MED region are, as anticipated, primary tourism resources and facilities coupled with the tourism development preconditions in terms of overall economic and infrastructural development. A high number of tourists in the area, resulting in excessive use of infrastructure and local resources, induces the pressures. Both ultimately affect the state of the environment and the local population's quality of life. As a result, the public sector responds with diverse regulations to preserve/achieve tourism attractiveness, reflecting on its strategic orientation towards tourism development.

The structure of the factors extracted proves the validity of the proposed theoretical model and the interrelations among the four framework components. The findings of our analysis support the conclusion that policy responses are grouped into two factors—"Policy efficacy in creating preconditions for tourism attractiveness" and "Strategic orientation towards T&T industry"—and determined that the tourism driving forces consist of "Basic tourism resources and facilities" and "Tourism development preconditions".

The study has two major contributions. Firstly, it develops a new application of the DPSIR framework in tourism sustainability based on the original system of indicators. Secondly, the indicator system developed was used to analyze the similarities and heterogeneities among Mediterranian NUTS 2 regions by developing an MRCM. This analysis aimed to investigate the adequacy and potential of setting joint and/or universal policies addressing tourism sustainability. The relevance of the study stems from the fact that the coordination of sustainable tourism activities is an ongoing challenge in the EU and its member states, especially in the most visited world region, the Mediterranean, which was the object of the empirical study.

Besides the validation of the theoretical model, the analysis conducted brings forth two crucial and practical policy-relevant findings. First, we concluded that generating universal policies for similar regions is a complex and hard-to-deliver task. Namely, the analysis based on DPRS components revealed that homogeneity is scattered within the four DPSR model components. In other words, different regions are grouped as homogenous within the four model components. This indicates that different strategies are appropriate for different regions within the four DPSR components and that formulating universal, regional tourism policies that cover various aspects of the DPSR framework would not be effective. The analysis suggests that mutual regional tourism policies would better be suited based on similarities within each of the DPSR components, i.e., regions homogenous within each of the four DPSR components can strive to similar policies and strategies in respective sustainability aspect. However, within other DPSR components, the similarities and consequently common policy-related activities are to be looked for and possibly harmonized with other regions. An exception to this is found for seven Italian regions (Veneto, Lazio, Toscana, Emiglia-Romagna, Lombardia, Liguria and Piemonte), the only ones falling within the same cluster in all the four DPSR components. Thus, these regions can pursue similar tourism policies aiming at all DPSR components. These homogenous regions in Italy are further proof of the second crucial finding of the study—that universal country-level tourism policies are not an optimal solution. Namely, the regional differences in all four DPSR components are very pronounced in the MED area, i.e., 54 EU NUTS 2 regions belonging to nine countries differ significantly in terms of tourism development, among countries but within the same countries as well. This leads to an important conclusion that, even if brought from the macro governance level, the outcomes of different tourism-related policies are always site-specific.

This study, as any other, has its limitations. The first is the choice of indicators. The indicator selection is always heavily determined by data availability, and in this study, was limited by the scope

of secondary source indicators at a regional level. In the cases where crucial data were not available at the regional level, national data were regionalized and included—this is the second major study limitation. The third one is the analysis was conducted for one year, imposing limits to the generalization of results.

These limitations are useful for pinpointing the remaining research gaps and possible future research tracks. Thus, an analysis of wider timespan is recommended to validate the results as well as model refinement by additional, regional data. The choice of adequate indicators is the most substantial yet crucial challenge in the analysis of sustainable tourism development. The quest for the relevant indicators is a continuous one. It aims to produce a list of generally useful and useable indicators for evaluating tourism impacts and policies. Developing such a database as a core of regional decision support systems could significantly improve a much-required governance efficiency. Furthermore, future studies should conduct the DPSR analysis on a narrower territory with more similarities—for example, regions within the same country or territories (counties, cities, municipalities) within a region. This, again, is determined by the data availability. Finally, we suggest that future studies focus on the analysis of the relationships among the four components of the DPSR framework in tourism development setting using multivariate data techniques, preferably on more significant samples (for example, the whole EU or the whole of Europe). As DPSR is a conceptual framework primarily used for environmentally related threat-solution analyses, a multivariate model validation would further confirm the framework usefulness in a tourism context. In practical terms, such an investigation could reveal the strongest (and the weakest) links among the DPSR components, and, consequently, the priorities of tourism policies.

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References

1. McCool, S.F. Sustainable tourism in an emerging world of complexity and turbulence. In *Reframing Sustainable Tourism*; McCool, S.F., Bosak, K., Eds.; Springer: Dordrecht, The Netherlands, 2015; pp. 3–11.
2. Torres-Delgado, A.; Palomeque, F.L. Measuring sustainable tourism at the municipal level. *Ann. Tour. Res.* **2014**, *49*, 122–137. [CrossRef]
3. United Nations Environmental Programme (UNEP); World Tourism Organization (UNWTO). *Making Tourism more Sustainable—A Guide for Policy Makers*; UNEP: Pari, France; UNWTO: Madrid, Spain, 2005.
4. McCool, S.F. The Changing Meanings of Sustainable Tourism. In *Reframing Sustainable Tourism*; McCool, S.F., Bosak, K., Eds.; Springer: London, UK, 2016; pp. 13–31.
5. Hall, D.; Gössling, C.M.; Scott, S. (Eds.) *The Routledge Handbook of Tourism and Sustainability*; Routledge: New York, NY, USA, 2015.
6. Hall, C.M. A typology of governance and its implications for tourism policy analysis. *J. Sustain. Tour.* **2011**, *19*, 37–41. [CrossRef]
7. Chapin, F.S.; Folke, C.; Kofinas, G.P. (Eds.) *Principles of Ecosystem Stewardship: Resilience—Based Natural Resource Management in a Changing World*; Springer: London, UK, 2009.
8. Fernández, J.I.P.; Rivero, M.S. Clustering tourism destinations by means of composite indices of sustainability. In *Economics of Sustainable Tourism*; Routledge: Oxon, UK, 2011; pp. 129–150.

9. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: Europe, the world's No 1 tourist destination—A new political framework for tourism in Europe. Available online: https://ec.europa.eu/growth/content/commission-communication-2010-europe-worlds-no-1-tourist-destination-new-political-0_en (accessed on 2 July 2010).
10. Estol, J.; Font, X. European tourism policy: Its evolution and structure. *Tour. Manag.* **2016**, *52*, 230–241. [CrossRef]
11. Milano, C.; Novelli, M.; Cheer, J.M. Overtourism and degrowth: A social movements perspective. *J. Sustain. Tour.* **2019**, *27*, 1857–1875. [CrossRef]
12. United Nations World Tourism Organization (UNWTO), Centre of Expertise Leisure, Tourism & Hospitality; NHTV Breda University of Applied Sciences; NHL Stenden University of Applied Sciences. *'Overtourism'?—Understanding and Managing Urban Tourism Growth beyond Perceptions*; Executive Summary; UNWTO: Madrid, Spain, 2018. [CrossRef]
13. Ceron, J.P.; Dubois, G. Tourism and sustainable development indicators: The gap between theoretical demands and practical achievements. *Curr. Issues Tour.* **2003**, *6*, 54–75. [CrossRef]
14. United Nations. *Indicators of Sustainable Development: Guidelines and Methodologies*; United Nations: New York, NY, USA, 2007.
15. United Nations World Tourism Organization (UNWTO). *Pilot Study on Indicators for the Sustainable Management of Tourism: Villa Gesell and Peninsula Valdes*; Secretaria de Turismo Argentina and Madrid: Buenos Aires, Argentina, 1995.
16. United Nations World Tourism Organization (UNWTO). *Indicators of Sustainable Development for Tourism Destinations: A Guidebook*; UNWTO: Madrid, Spain, 2004.
17. Miller, G.; Twining-Ward, L. (Eds.) *Monitoring for a Sustainable Tourism Transition: The Challenge of Developing and Using Indicators*; CABI Publishing: Oxfordshire, UK, 2005.
18. McCool, S.F.; Moisey, R.N.; Nickerson, N.P. What should tourism sustain? The disconnect with industry perceptions of useful indicators. *J. Travel Res.* **2001**, *40*, 124–131. [CrossRef]
19. Blancas, F.J.; Lozano-Oyola, M.; González, M.; Guerrero, F.M.; Caballero, R. How to use sustainability indicators for tourism planning: The case of rural tourism in Andalusia (Spain). *Sci. Total Environ.* **2011**, *412–413*, 28–45. [CrossRef]
20. Miller, G. The development of indicators for sustainable tourism: Results of a Delphi survey of tourism researchers. *Tour. Manag.* **2001**, *22*, 351–362. [CrossRef]
21. Pérez, V.; Guerrero, F.; González, M.; Pérez, F.; Caballero, R. Composite indicator for the assessment of sustainability: The case of Cuban nature-based tourism destinations. *Ecol. Indic.* **2013**, *29*, 316–324. [CrossRef]
22. Twining-Ward, L.; Butler, R. Implementing std on a small island: Development and use of sustainable tourism development indicators in samoa. *J. Sustain. Tour.* **2002**, *10*, 363–387. [CrossRef]
23. Carr, E.R.; Wingard, P.M.; Yorty, S.C.; Thompson, M.C.; Jensen, N.K.; Roberson, J. Applying DPSIR to sustainable development. *Int. J. Sustain. Dev. World Ecol.* **2007**, *14*, 543–555. [CrossRef]
24. Giupponi, C. From the DPSIR Reporting Framework to a System for a Dynamic and Integrated Decision Making Process. In Proceedings of the European policy and tools for sustainable water management, Venice, Italy, 21–23 November 2002.
25. Bowen, R.E.; Riley, C. Socio-economic indicators and integrated coastal management. *Ocean Coast. Manag.* **2003**, *46*, 299–312. [CrossRef]
26. United Nations Division for Sustainable Development (UNDSD). *From Theory to Practice: Indicator for Sustainable Development*; United Nations: New York, NY, USA, 1997.
27. Atkins, J.P.; Burdon, D.; Elliott, M.; Gregory, A.J. Management of the marine environment: Integrating ecosystem services and societal benefits with the DPSIR framework in a systems approach. *Mar. Pollut. Bull.* **2011**, *62*, 215–226. [CrossRef] [PubMed]
28. Kristensen, P. The DPSIR framework. In Proceedings of the Comprehensive/Detailed Assessment of the Vulnerability of Water Resources to Environmental Change in Africa Using River Basin Approach, Nairobi, Kenya, 27–29 September 2004; pp. 1–10.

29. Haberl, H.; Gaube, V.; Díaz-Delgado, R.; Krauze, K.; Neuner, A.; Peterseil, J.; Plutzar, C.; Singh, S.J.; Vadineanu, A. Towards an integrated model of socioeconomic biodiversity drivers, pressures and impacts. A feasibility study based on three European long-term socio-ecological research platforms. *Ecol. Econ.* **2009**, *68*, 1797–1812. [CrossRef]
30. Koundouri, P.; Rault, P.K.; Pergamalis, V.; Skianis, V.; Souliotis, I. Development of an integrated methodology for the sustainable environmental and socio-economic management of river ecosystems. *Sci. Total Environ.* **2016**, *540*, 90–100. [CrossRef]
31. Bidone, E.D.; Lacerda, L.D. The use of DPSIR framework to evaluate sustainability in coastal areas. Case study: Guanabara Bay basin, Rio de Janeiro, Brazil. *Reg. Environ. Chang.* **2004**, *4*, 5–16. [CrossRef]
32. Odermatt, S. Evaluation of Mountain Case Studies by Means of Sustainability Variables. *Mt. Res. Dev.* **2004**, *24*, 336–341. [CrossRef]
33. Svarstad, H.; Petersen, L.K.; Rothman, D.; Siepel, H.; Wätzold, F. Discursive biases of the environmental research framework DPSIR. *Land Use Policy* **2008**, *25*, 116–125. [CrossRef]
34. Mustika, P.L.K.; Welters, R.; Ryan, G.E.; D'Lima, C.; Sorongon-Yap, P.; Jutapruet, S.; Peter, C. A rapid assessment of wildlife tourism risk posed to cetaceans in Asia. *J. Sustain. Tour.* **2017**, *25*, 1138–1158. [CrossRef]
35. Mandić, A. Structuring challenges of sustainable tourism development in protected natural areas with driving force–pressure–state–impact–response (DPSIR) framework. *Environ. Syst. Decis.* **2020**, 1–7. [CrossRef]
36. Rebollo, J.F.V.; Baidal, J.A.I. Measuring sustainability in a mass tourist destination: Pressures, Perceptions and policy responses in torrevieja, Spain. *J. Sustain. Tour.* **2003**, *11*, 181–203. [CrossRef]
37. Bonzanigo, L.; Giupponi, C.; Balbi, S. Sustainable tourism planning and climate change adaptation in the Alps: A case study of winter tourism in mountain communities in the Dolomites. *J. Sustain. Tour.* **2016**, *24*, 637–652. [CrossRef]
38. Klijn, J.A. (Ed.) *Driving Forces behind Landscape Transformation in Europe, from a Conceptual Approach to Policy Options*; Springer: Dordrecht, The Netherlands, 2004.
39. Ness, B.; Anderberg, S.; Olsson, L. Structuring problems in sustainability science: The multi-level DPSIR framework. *Geoforum* **2010**, *41*, 479–488. [CrossRef]
40. Tscherning, K.; Helming, K.; Krippner, B.; Sieber, S.; y Paloma, S.G. Does research applying the DPSIR framework support decision making? *Land Use Policy* **2012**, *29*, 102–110. [CrossRef]
41. Karageorgis, A.P.; Kapsimalis, V.; Kontogianni, A.; Skourtos, M.; Turner, K.R.; Salomons, W. Impact of 100-year human interventions on the deltaic coastal zone of the Inner Thermaikos Gulf (Greece): A DPSIR framework analysis. *Environ. Manag.* **2006**, *38*, 304–315. [CrossRef] [PubMed]
42. Darvas, Z.; Mazza, J.; Midoes, C. *How to Improve European Union Cohesion Policy for the Next Decade*; Breugel: Saint-Josse-ten-Noode, Belgium, 2019.
43. Hair, J.F.; Black, W.C.; Babin, B.J.; Anderson, R. *Multivariate Data Analysis*, 7th ed.; Pearson Prentice Hall: Upper Saddle River, NJ, USA, 2010.
44. Mooi, E.; Sarstedt, M. *A Concise Guide to Market Research: The Process, Data and Methods Using IBM SPSS Statistics*; Springer: Berlin/Heidelberg, Germany, 2011.
45. Rašić-Bakarić, I. Uncovering Regional Disparities—The Use of Factor and Cluster Analysis. *Croat. Econ. Surv.* **2007**, *9*, 11–34.
46. Rasoolimanesh, S.M.; Ramakrishna, S.; Hall, C.M.; Esfandiar, K.; Seyfi, S. A systematic scoping review of sustainable tourism indicators in relation to the sustainable development goals. *J. Sustain. Tour.* **2020**, 1–21. [CrossRef]
47. Blancas, F.J.; Lozano-Oyola, M.; González, M.; Caballero, R. A dynamic sustainable tourism evaluation using multiple benchmarks. *J. Clean. Prod.* **2018**, *174*, 1190–1203. [CrossRef]
48. Farinha, F.; Jos, M.; Silva, E.M.J.; Lança, R.; Pinheiro, M.D.; Miguel, C. Selection Process of Sustainable Indicators for the Algarve Region—Observe Project. *Sustainability* **2019**, *11*, 444. [CrossRef]
49. Lozano-Oyola, M.; Contreras, I.; Blancas, F.J. An Operational Non-compensatory Composite Indicator: Measuring Sustainable Tourism in Andalusian Urban Destinations. *Ecol. Econ.* **2019**, *159*, 1–10. [CrossRef]
50. Agyeiwaah, E.; McKercher, B.; Suntikul, W. Identifying core indicators of sustainable tourism: A path forward? *Tour. Manag. Perspect.* **2017**, *24*, 26–33. [CrossRef]
51. Yong, A.G.; Pearce, S. A Beginner's Guide to Factor Analysis: Focusing on Exploratory Factor Analysis. *Tutor. Quant. Methods Psychol.* **2013**, *9*, 79–94. [CrossRef]

52. Norman, G.; Streiner, D. *Biostatistics: The Bare Essentials*; BC Decker Inc.: Hamilton, ON, Canada, 1994.
53. Merenda, P.F. A guide to the proper use of factor analysis in the conduct and reporting of research: Pitfalls to avoid. *Meas. Eval. Couns. Dev.* **1997**, *30*, 156–164. [CrossRef]
54. Tinsley, H.E.A.; Tinsley, D.J. Uses of Factor Analysis in Counseling Psychology Research. *J. Couns. Psychol.* **1987**, *34*, 414–424. [CrossRef]
55. Peterson, R.A. A Meta-Analysis of Variance Accounted for and Factor Loadings in Exploratory Factor Analysis. *Mark. Lett.* **2000**, *11*, 261–275. [CrossRef]
56. World Economic Forum. *The Travel & Tourism Competitiveness Report 2017*; World Economic Forum: Geneva, Switzerland, 2017.

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A New Livelihood Sustainability Index for Rural Revitalization Assessment—A Modelling Study on Smart Tourism Specialization in China

Huiqin Li [1], Peter Nijkamp [2,*], Xuelian Xie [1] and Jingjing Liu [1,*]

[1] School of Economics and Management, China University of Geosciences, Wuhan 430074, China; huiqinli123@hotmail.com (H.L.); xuelianxie1113@hotmail.com (X.X.)
[2] Center for European Studies, Alexandru Ioan Cuza University, Bulevardul Carol 1, 19, 700517 Iasi, Romania
* Correspondence: pnijkamp@hotmail.com (P.N.); jenny2015ams@hotmail.com (J.L.)

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Abstract: In our rapidly urbanizing world, the problem of rurality versus urbanization is becoming a source of concern. Rural tourism development may become a new important stimulus for promoting a sustainable transformation of the farmers' livelihood. This calls for a smart specialization in rural tourism where the focus is on a balanced rural revitalization strategy. As part of the empirical research, this paper introduces a livelihood sustainability index. This index helps to construct a balanced system for the evaluation of livelihood sustainability achievements in rural tourism destinations. It is based on livelihood capital, livelihood strategy, and the interlinkage between livelihood and environment, in order to dynamically assess the livelihood sustainability of rural households. Taking Huangpi District of the Wuhan area in China as our applied case study, the livelihood sustainability index appears to show over the past years a significant rise, based on a comprehensive index method, an entropy method, and a coupling coordination model. Our findings show that the development of rural tourism has clearly promoted livelihood sustainability. This has inter alia resulted in the accumulation of livelihood capital, an asset of which both social and cultural capital have benefitted greatly; livelihood strategies have also improved, and therefore so have livelihood diversity and stability; and finally, the interlinkage and coordination degree between livelihood and the environment has also changed positively from a primary to intermediate balanced development. However, the livelihood sustainability index in the area concerned is still relatively low, and has not yet reached its possible optimal level. Hence, there is still much room for improvement. Various approaches can be proposed to achieve a more sustainable livelihood, such as enhancing livelihood capital; narrowing the economic gap between farmers by participating in professional tourism activity; establishing the mechanism of industrial integration and the development of rural eco-tourism; and coordinating a balanced development of livelihood and environmental quality.

Keywords: sustainable livelihoods; rural ecological environment; rural tourism; smart specialization; livelihood sustainability index; rural revitalization strategy

1. Rural Revitalization and Smart Specialization: New Opportunities for Rural Tourism

The rapid urbanization of our world has started already more than half a century ago. Nowadays, cities—and in a more general sense, urban agglomerations—accommodate already more than half of the world's population. From this perspective, the UN is even speaking of the "urban century" as a new epoch in human history. This rising urbanization is not only a simple geographic and demographic phenomenon of spatial movements of people. The new map of our planet, called the "New Urban World" by Kourtit, mirrors also a change in economic–political power positions of modern cities [1]. In the "urban century" we observe a fundamental transformation in the roles of urban

agglomerations and mega-cities (cities with more than 10 million inhabitants), which may be generally described as "urban empires" [2]: cities and urban areas tend to become economic–political magnets, which attract a significant part of global socio-economic activity (e.g., business, visitors, culture, science and technology) and become the smart leaders of world economic forces.

The above sketch of global megatrends prompts two broad categories of policy challenges, viz. (i) an effective management of the multi-faceted constellation of large-scale urban areas (e.g., housing, mobility, poverty, environmental quality, human health); and (ii) sufficient care for a balanced socio-economic position of the rural population, which is nowadays gradually turning into a minority, at least from a geographic–demographic perspective. In the present study we will focus our attention on the development of new opportunities for the rural population in the urban world. In particular, we will address here novel perspectives offered by rural tourism to the agricultural sector where we will use China as a case study.

Rural development strategies have been advocated worldwide as a policy intervention aiming at supporting a healthy livelihood for the rural population, often oriented towards agriculture, handicraft, small-scale informal activities, wellness, nature, and ecology [3]. In recent decades, eco-tourism—inspired by an environmentally benign orientation of less urbanized areas—has become a new focal point of rural development opportunities. There is a growing set of studies on rural transitions in the context of regional resilience. An interesting case study on the attractiveness of rural landscapes and nature in small-scale tourism can be found in a Japanese case study on rural wellness by Romao et al. [4].

It is clear that a re-orientation of a local economy towards rural tourism is a major challenge, from both an economic and sustainability point of view. This calls for a long-range strategic policy, which will ensure economic livelihood, entrepreneurial vitality, and environmental awareness of all stakeholders involved. The framing of the present research on a smart, sound, and sustainable development of rural areas in China will be based on a so-called "smart specialization" policy [5]. Smart specialization has in recent years become a popular policy strategy for supporting less privileged areas. Given the territory-specific assets in a given area that is in need of public assistance, new public stimuli aiming at innovative behavior by all actors have to be provided in a tailor-made way that support specific and novel development opportunities of the area concerned. Generic policies (e.g., general infrastructure, education) do not adequately address the weaknesses of a given area; a "one size fits all" strategy is not sufficient for a significant upgrading of a certain less developed region [6]. Smart specialization calls for a case-specific approach that exploits all forms of local or regional capital and balances emerging discrepancies or disparities by a carefully harmonized supply of public resources aiming at strengthening local opportunities and eliminating local bottlenecks. Various scientific studies on smart specialization as promising forms of new regional development policy can be found inter alia in Boschma [7], Capello and Kroll [8], Foray [9], and Romao and Nijkamp [10].

In addition to research and policy interest in the impact of tourism strategies, it should be noted that sustainable development of rural tourism has a far-reaching impact on village residents. In villages located in mountainous areas, the contribution of sustainable development of agricultural tourism activities to economic improvement and demographic trends cannot be ignored either [11]. In post-socialist rural areas, sustainable development of tourism has diversified the rural economy towards ecological, economic, and social sustainable development, especially in terms of improving the quality of life of the local people, reducing poverty, as well as mitigating social and environmental degradation [12]. It is noteworthy that the sustainability of rural tourism is based on the idea of combining the social and economic interests of rural areas and the interests of the natural environment. Combining rural and local resources and traditional products that are unique to rural areas with tourism activities can facilitate the current trend of sustainable development [13].

In our analysis of the potential of—and bottlenecks for—a sound rural tourist development, we will take the region of Wuhan in China as an example. The rapid urbanization of China has exerted a deep impact on China's rural areas, with lagging public facilities, a declining population, and less

prosperous local economic perspectives. A clear orientation of rural areas towards small-scale rural tourism may be an interesting form of smart specialization for agriculture in these areas. However, before such a smart rural tourism policy can be implemented more generally, it is necessary to profoundly analyze the strengths and weaknesses of rural tourism in the appropriate, dedicated target areas to be tested. In our approach, we will put the emerging Chinese Rural Revitalization Strategy in the context of a more general Smart Specialization Policy by zooming in on rural tourism development opportunities in the Wuhan region. We aim to identify the critical success factors of such a strategy, based on a wealth of statistical data. Using a quantitative analysis of evidence-based facts, we also will distil useful policy lessons.

This paper is organized as follows. After this introductory section, we will offer a sketch of China's Rural Revitalization Strategy (Section 2), followed by a presentation of the empirical data base (Section 3). The research methodology is outlined in Section 4, while the research results are presented in Section 5. Conclusions and policy lessons are given in Section 6.

2. Sustainable Livelihoods for China's Farmers

In recent years, China's economic development policy has increasingly focused on the improvement of the growth potential of rural areas. The report of the 19th National Congress of the Communist Party of China put forward the implementation of the new Rural Revitalization Strategy. The livelihood of farmers is an important factor affecting the prosperity of both industry and human life in general. Before analyzing the concept of sustainable livelihoods, we pay attention to the meaning of sustainable tourism development, which usually refers to meeting the needs of local residents and foreign tourists, while protecting the resources they rely on so as to ensure future opportunities and possibilities for tourism development (World Tourism Organization, 1993) [14]. In analyzing sustainable tourism, in addition to the study of the impact of tourism development, researchers will also focus on the excessive development of tourism and on the sustainable development of tourism companies. Over-exploitation of tourist destinations will increase interference with local lifestyles and cause residents to develop a feeling of exclusion, thereby affecting their sustainable tourism development [15]. For tourism enterprises, tourism SMEs and tourism clusters can foster new sustainable development narratives and maintain sustainable ecotourism through absorption, innovation, and adaptability [16].

We know that residents 'attitudes towards tourism are the key to ensuring the success and long-term sustainable development of tourism destinations, and are also important factors in favoring tourism products and protecting the sustainable development of local communities [17]. Compared with urban tourism destinations, the seasonality of tourism will have a greater impact on the sustainable development of rural tourism destinations. The seasonality of the tourism industry will further affect the attitude of the residents towards the tourism industry by affecting the composition of the residents' livelihood capital [18]. At the same time, it is pertinent to consider the typical conflicts of interest in rural areas. In the planning process, one should prioritize the sustainability of protection and the development goals [16]. Therefore, it is without doubt necessary to study the sustainability of rural households' livelihoods in rural areas.

A sustainable livelihood is an important goal of the Rural Revitalization Strategy. "Livelihood" refers to the way people can make a living, which affects the ecological environment depending on their capabilities and assets. Livelihoods are sustainable when people can cope with changes in fragile environments and can recover from external shocks, as well as maintain or strengthen capacities and assets for the benefit of future generations without damaging natural resources [19]. Sustainable livelihoods also include livelihoods that are independent of external support and do not destroy others [20]. In this context, the Sustainable Livelihoods Framework (SLF) proposed by the UK's Department for International Development (DfID) provides a systematic approach to conduct research on poverty governance and rural development [21]. The SLF reveals the nature of livelihoods, demonstrates the relationship between development and poverty, helps people identify their own livelihood capital and adaptations to the external environment, and leverages their strengths and

external environmental support in order to achieve sustainable livelihoods. Being a holistic and people-centered approach to sustainability, SLF has proved to be a useful analytical tool for the examination of tourism and community relations, particularly in a rural context [22,23].

As a balanced tourism development causes less damage to natural resources than other types of development, China has regarded tourism as one of the most effective approaches for rural area development. Rural tourism has become more popular since the 1990s in China [24]. The development of rural tourism is an important driving force for the transformation of the livelihood of rural households [25]. The livelihood value of tourism is mainly reflected in livelihood capital, livelihood strategy, and livelihood outcomes, and should be sustainable from generation to generation [26]. Tourism development affects the reserves, quality, and allocation of livelihood capital, while the combination, flow, and transformation of capital may become more flexible, which may increase the ability of farmers to reduce risks to a considerable extent [27–29]. The development of rural tourism has promoted the reconstruction and change of the farmers' livelihoods. The traditional single livelihood approaches tend to be diversified, which helps to spread risks and reduce livelihood vulnerability [25]. Livelihood outcomes include increased household income, greater welfare, lower livelihood vulnerability, improved food security, and a sustainable use of natural resources. In addition, factors such as household income and expenditure, mental health, physical health, and the social and natural environment are usually included in the evaluation of sustainable livelihood outcomes [30–32]. The development of rural tourism has an important impact on the farmers' livelihood. The tourism-oriented specialized livelihood model is of great significance for achieving the sustainability of farmers' livelihood [29]. However, insufficient accumulation of livelihood capital, lack of professional organizational guidance, and residents' own myopic perspectives have sometimes prevented farmers from benefiting from tourism development [33,34].

In general, farmer poverty is closely related to the vulnerability of their livelihood. Consequently, important questions are: Does the development of rural tourism improve the sustainability of farmers' livelihood? What are its limiting factors? Clearly, how farmers can be helped to build a sustainable livelihood is related to the realization of the general goal of poverty alleviation in China. At present, tourism and livelihood have gradually become an attractive topic of academic research, and most of this is horizontal or comparative, based on static or multiple livelihood methods [35], with only a few dynamic and longitudinal research studies. Taking the Huangpi District of Wuhan as an example, this paper aims to (i) construct a sustainable evaluation index system for assessing rural households' livelihood; (ii) dynamically assess the sustainable livelihood of farmers before and after they participate in tourism; (iii) uncover its constraints; and (iv) explore novel ways to improve the farmers' sustainable livelihood. Finally, this paper provides a guide for the implementation of the strategy for Rural Revitalization in China and the alleviation of rural poverty through tourism.

3. Overview of Research Area and Data Sources

3.1. Overview of the Study Area

Our study area, Huangpi District, is located in the northern part of the province of Wuhan, with a land area of 2261 km^2 and a population of 1.13 million. Huangpi District was selected as the site of the case study in this paper, mainly because of the following considerations: 1) Rural tourism in Huangpi District has a promising socio-economic foundation and the farmers' driving effect is clearly visible. In recent years, Huangpi District, relying on landscape resources, has created the Mulan eco-cultural tourism brand and is vigorously developing rural tourism. At present, there is 1 AAAAA (5A)-level tourist scenic spot; five AAAA (4A)-level tourist scenic spots; and more than 600 star-rated farmhouses. In 2018, the number of tourists in the region reached 24.043 million, and the total tourism income reached 14.31 billion yuan, assisting about 100,000 farmers in the region to benefit from tourism development. 2) The rural tourism development model in Huangpi District is typical. In 2016, Huangpi District was included in China's first batch of global tourism demonstration zones, and

implemented a project that involves "citizens going to the countryside, capable people returning to the countryside, and enterprises revitalizing the countryside", according to the official local government. This initiative gradually generated a favorable development trend in driving the promotion of scenic areas, helping enterprises and the participating farmers. In view of this, our study takes the Huangpi Mulan eco-cultural tourist area as the main research area; the scenic spots at different development stages and with high popularity were selected as the empirical research case. According to the ranking of strength of the surrounding villages, the bottom eight villages were selected as the research sites. The basic situation, location, and participation mode of the surveyed villages are shown in Appendix A (Table A1 and Figure 1). Farmers in Huangpi District appear to participate in various forms of tourism, mainly tourism business activities, including catering, accommodation, tourist shops, and fruit picking on farms. Some farmers also obtain tourism income through land transfer, vacant farmhouse rentals or investment, scenic spots or hotel activity, and ticket bonus sharing. Some tourist enterprises at scenic spots got a great deal of revenue from selling entrance tickets, and gave a proportion of this revenue (e.g., 10%–30%) to the local people, who supply land, forests, and other resources used by tourists.

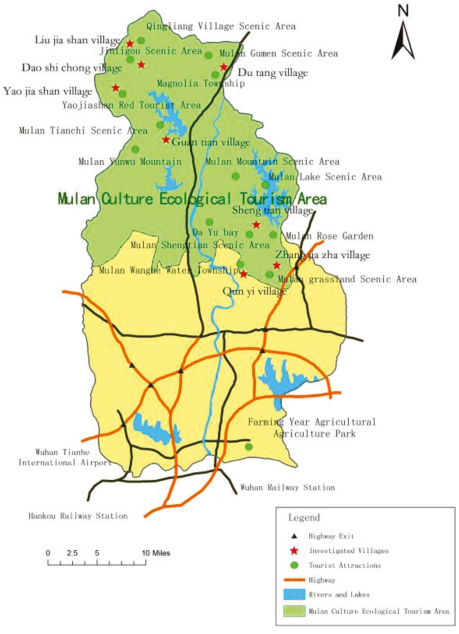

Figure 1. Locations of the investigated villages in Huangpi District.

3.2. Data Sources

Many data in our research stem from field investigations and surveys. Using the participatory rural assessment method, the authors conducted field research in Huangpi District in July 2018. First, the authors conducted in-depth interviews with village authorities and scenic area managers to acquire data on the development of rural tourism, the livelihood of the farmers, and the changes in the rural ecological environment. Secondly, using random sampling, 103 farmers who participated in the tourism were selected from eight villages; the investigation was conducted in the form of one-on-one in-depth interviews. The survey time for each household was about 60 minutes. The survey included: 1) basic information of family members (gender, age, education level, health status, etc.); 2) the status of household livelihood capital before and after participating in tourism (natural capital, physical capital, financial capital, social capital, and cultural capital) and livelihood strategies (means of livelihood and

livelihood stability); and 3) farmers' evaluation of the rural ecological environment before and after tourism development. The basic situation of the surveyed farmers is shown in Appendix A (Table A2). The gender, age, and participation time of the survey participants appear to be quite evenly distributed. Most of the interviewees were educated up to the junior high school level, while their overall education level is low. The family size is mostly 3–5 members. After the presentation of our database, we will sketch out in Section 4 the research methodology applied for our study.

4. Research Methods

4.1. Composition of the Indicators System

This paper combines the sustainable livelihood framework of the abovementioned DfID with the current research information [35], in order to construct the sustainable livelihood evaluation index of farmers in rural tourism destinations. The indicators system includes livelihood capital, livelihood strategy, and the linkage (coupling) and coordination degree between farmers' livelihood and ecology. All indicators are given in Appendix A (Table A3).

Livelihood capital is at the core of the sustainable livelihood framework, including natural capital, material capital, human capital, financial capital, and social capital (for a broader overview of the different forms of capital for regional development, see Capello 2019 [36]). Rural culture is an important attraction for rural tourism [37], while scholars such as Gale introduce cultural capital [38]. Livelihood capital is an important basis for farmers to carry out livelihood activities and is also an important barrier against livelihood risk [35]. A lack of livelihood capital is an important factor in restricting the benefit people obtain from tourism development. Therefore, livelihood capital is an important part of evaluating the sustainability of farmers' livelihood [39]. Livelihood strategies are the ways in which farmers can combine and use their own livelihood assets in order to pursue positive livelihood outputs or achieve their livelihood goals [40].

Livelihood diversification is an important indicator of livelihood strategies, which can diversify livelihood, facilitate risk spreading, and reduce vulnerability [25]. The stability of livelihood is an important goal of sustainable livelihoods, and is mainly expressed by the annual change in household income [40,41].

The transformation and upgrading of the farmers' livelihood and the improvement of the ecological environment are important elements of rural revitalization; they are an important guarantee for the sustainable development of rural tourism. The relationship between livelihood and the ecological environment is complex, since they mutually promote and restrict each other. The rural ecological environment is the basis for maintaining the livelihood of farmers, while ecological governance also offers the possibility of improving livelihood [42]. It should be noted here that farmers are often both the destroyers of the ecological environment and its defenders. The improvement of the farmers' sustainable livelihood is an important force in promoting environmental protection [43]. Tourism development clearly plays a vital role in realizing the improvement of the farmers' livelihood and ecological protection [44]. The sustainable and balanced development of livelihoods and the ecological environment is an important condition for farmers to achieve a sustainable livelihood. Therefore, the coupling and coordination degree between the farmers' livelihood and the rural ecological environment is an important indicator for evaluating the sustainable development of the farmers' livelihood. Referring to the coupling coordination model [45], the coupling degree between livelihood and the ecological environment includes the two systems of livelihood and the ecological environment. The standard PSR (Pressure–State–Response) model is then constructed according to the way in which the rural-tourism–ecological-environmental index system is constructed [46,47].

4.2. Data Processing

The study mainly compares the livelihood sustainability index of farmers before and after participating in tourism through the calculation of comprehensive values, the degree of coordination

of livelihood and ecosystem coupling, and the livelihood sustainability index, so as to evaluate the impact of rural tourism development on the sustainable livelihoods of farmers.

During the calculation, livelihood capital, livelihood strategy, livelihood system, and the ecosystem lead to a comprehensive value of livelihood by using a weighted summation. The data is processed dimensionless by the method of extreme difference normalization. In order to avoid a bias caused by subjective factors, the weight of the index is calculated by the entropy method of objective weighting [45].

In order to calculate the comprehensive value of each system, the following formula was used:

$$f = \sum_{j=1}^{n} \omega_j X_j \tag{1}$$

where: f represents the comprehensive value ($0 \le f \le 1$); n represents the nth indicator of criteria on j (j = 1, 2, 3, … n); ω_j represents the weight of each indicator; X_j represents the mean value of each indicator.

Next, we may calculate the degree of coupling between the livelihood system and the ecosystem by

$$C = \left\{ \frac{f(L) \cdot f(E)}{\left[\frac{f(L)+f(E)}{2} \right]^2} \right\}^k \tag{2}$$

where: C is the degree of coupling (the larger the value, the better the coupling); f (L) and f(E) are the comprehensive value of the livelihood system and the ecosystem (its value is calculated by Formula (1)); k ($n \ge 2$) is the regulation coefficient, and k is set as 2.

Now, to increase the discrimination capacity of the coupling degree, we may calculate the coupling coordination degree of the two systems by

$$T = \alpha f(L) + \beta f(E) \tag{3}$$

$$D = \sqrt{C \cdot T} \tag{4}$$

where: α and β represent the weights of the livelihood system and the ecosystem (in this study, both are equally important, so both are set to 0.5); D represents the degree of coupling coordination.

Subsequently, the livelihood sustainability index was derived as follows:

$$S = \omega_1 X_{LC} + \omega_2 X_{LS} + \omega_3 X_{LEC} \tag{5}$$

where: S represents the livelihood sustainability index; ω represents the weight including ω_1, ω_2, ω_3; X_{LC}, X_{LS} and X_{LEC} represent the combined value of livelihood capital, livelihood strategy, and the coupling degree between livelihood and the ecological environment. The above equations will now be used in our empirical analysis.

5. Empirical Research Results

Our empirical results are presented in Figure 2 and Table 1, respectively. They will now concisely be described.

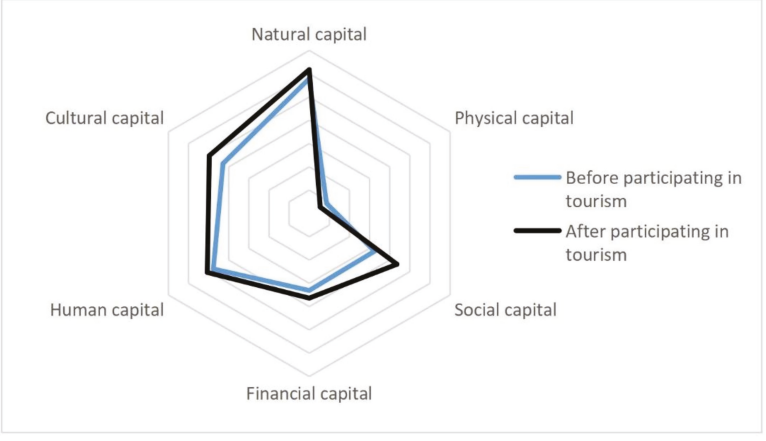

Figure 2. The change in sustainable livelihoods in 2018.

Table 1. The change in weight and value of livelihood capital.

Subject	Previous Weight	Posterior Weight	Previous Value	Posterior Value
Natural capital	0.1785	0.1601	0.1158	0.1235
Land capital	0.0450	0.0327	0.0068	0.0029
Family location	0.0693	0.0650	0.0620	0.0607
Drinking water quality	0.0641	0.0624	0.0470	0.0600
Physical capital	0.1199	0.1139	0.0109	0.0172
Housing capital	0.0609	0.0546	0.0077	0.0080
Durable goods value	0.0479	0.0506	0.0030	0.0091
Livestock value	0.0111	0.0087	0.0001	0.0002
Financial capital	0.1956	0.1903	0.0661	0.0727
Family savings	0.0576	0.0531	0.0125	0.0163
Borrowing, loans, subsidies, etc.	0.0089	0.0180	0.0001	0.0014
Ease of borrowing	0.0644	0.0600	0.0275	0.0287
Ease of loan	0.0647	0.0592	0.0259	0.0263
Human capital	0.1977	0.2012	0.0953	0.1013
Labor force	0.0648	0.0604	0.0297	0.0277
Labor education	0.0689	0.0641	0.0437	0.0406
Cognitive ability	0.0630	0.0604	0.0219	0.0312
Skill training time	0.0010	0.0163	0.0000	0.0018
Social capital	0.1539	0.1777	0.0649	0.0872
Human expenditure	0.0496	0.0484	0.0075	0.0135
Telephone bill	0.0371	0.0476	0.0055	0.0133
Social network support	0.0007	0.0179	0.0001	0.0049
Welcome to tourists	0.0664	0.0638	0.0518	0.0555
Cultural capital	0.1545	0.1569	0.0857	0.0993
The level of understanding of folk customs	0.0659	0.0629	0.0397	0.0434
Willingness to inherit folk customs	0.0657	0.0630	0.0391	0.0436
Want to retain traditional manual skills	0.0229	0.0310	0.0069	0.0123

(Note: Since the decimal value is retained to the fourth digit, the value of the skill training indicator before participation is 0).

5.1. Livelihood Capital

The development of rural tourism has clearly promoted the improvement of the farmers' livelihood capital, the changes in livelihood capital reserves, and its portfolio allocation, among which social capital and cultural capital show the greatest increase. The changes in livelihood capital before and after farmers participate in tourism are shown in Table 1. The development of rural tourism has prompted some farmers to move closer to the scenic spot, which is conducive to tourism management, while the livelihood value of the family location has increased in several aspects: 1) the drinking water

conditions have improved. The quality of the drinking water of a few farmers has changed from the previous pond and well water to tap water, benefiting from the improvement of rural infrastructure construction; 2) material capital has also significantly increased. After participating in rural tourism, some farmers have independently renovated their old houses, built new houses, and even purchased other houses in order to provide tourist accommodations and catering facilities, so their housing capital value has risen. The capital value of the households' durable goods has also increased substantially, and so has the number of TVs and air conditioners. Some farmers have even bought small cars; 3) financial capital has been effectively upgraded. After participating in tourism, the farmers' income and savings have increased. As a result of the large investment required at an early stage and the increase in the amount of loans and borrowing, the government has decided to give appropriate subsidies to the farmers who manage accommodation and catering. Consequently, the enthusiasm of farmers to participate in tourism has grown, the government support has increased, and farmers believe that borrowing finance is easier; 4) the human capital of farmers has increased. Mainly after participating in tourism, their degree of cognitive ability and the extent of skill training has increased significantly, especially for employees at scenic spots and in hotels. The amount of training carried out by enterprises has increased, which has improved the professional skills and knowledge base of the farmers; 5) the relationship between people has intensified, and their expenditure on personal expenses and telephone calls has increased significantly. The value of social network support has increased. Whether a relative or friend is in the public village domain or is a scenic spot manager is very important for farmers in their decision to participate in tourism. Farmers are increasingly welcoming tourists, and it is generally believed that more tourists will generate more benefits; and 6) the value of cultural capital has increased. Rural culture is an important part of rural tourism resources. Folk customs in rural areas are the basis of rural authenticity. In order to attract more tourists, farmers pay more attention to rural culture and are willing to actively understand and inherit traditional culture.

Notwithstanding the overall success, the accumulation of the farmers' livelihood capital is still not at its maximum, while the difference in livelihood capital among farmers is large. After participating in tourism, the family livelihood mode has often changed from farming to tourism management; thus, the dependence on land becomes lower, so that land capital was greatly reduced. Most farmers who are willing to participate lack opportunities to conduct tourism operations because of a poor family situation. Housing capital and household durable goods are the basis for the farmers' production and life, but material capital is still at a low level. Financial capital is still low, especially for farmers who run farmhouses. Due to the large investment required for tourism development, household savings are small or even zero. The existence of human capital is generally characterized by a low level of education, and the number of farmers receiving skills training is also low. Such training mainly happens on the job. Most farmers lack social network support and social capital. Although farmers have an understanding of local folk customs and are willing to inherit them, the cultural characteristics of rural tourism products are still insufficient, and the cultural capital is relatively low.

5.2. Livelihood Strategy

The development of rural tourism has promoted the reconstruction and change of farmers' livelihoods; nowadays their livelihoods tend to be more diversified. After the completion of the construction of new tourist attractions, the number of non-tourist livelihood farmers has decreased significantly. Before farmers participated in tourism, there were more farmers who had a single way of livelihood, and they were mainly migrant workers. The proportion of farmers who participated in two or more livelihoods after tourism has increased, but only slightly. More farmers are participating in catering and accommodation, followed by working in tourism enterprises. More than 50% of the farmers participate in one type of tourism, mostly accommodation and catering, and family members are almost all involved in tourism management, while tourist shops, tourism enterprises, and rentals require less labor, and are usually performed by other members of the family. Clearly, other livelihood options can be chosen as well.

The stability of livelihood in this area has certainly improved, and rural tourism has a definite role in promoting the stability of the farmers' livelihoods. In addition to being affected by the macroeconomic environment, livelihood stability is also related to the level of education, work skills, and engaging in specific livelihood strategies. Before participating in tourism, the farmers' livelihood stability was poor, the frequency of their work changes was large, and their annual income was unstable. After participating in tourism, however, the overall livelihood stability of farmers has slightly improved, and the work situation became relatively fixed. In particular, the annual income of employees who rent out houses, land, and tourism enterprises is relatively stable now.

Consequently, after participating in tourism, the number of farmers with only one source of income has not fallen sharply. The single way of farming and working has now changed into a single way of tourism livelihood. Most farmers have a higher dependence on tourism. Although the tourism livelihood is more stable than the livelihoods based on farming and labor, the farmers involved in tourism management are highly dependent on the level of development at scenic spots, especially those farmers participating in catering, accommodation, and tourist shops, whose income depends on the tourists who visit the scenic spot. Quantity, and thus overall stability, is not high. At the same time, as more and more farmers participate in the operation of catering, accommodation, and tourist shops, the need for product homogeneity is serious and competition is fierce, resulting in low tourism income for some farmers. Here, a single way of tourism livelihood and low livelihood stability are both factors that restrict the sustainability of farmers' livelihood.

5.3. Coupling Degree between Livelihood and Ecology

Farmers appear to believe that rural tourism has improved the rural ecological environment, including the water environment, the atmospheric environment, the soil environment, and animal and plant resources. Compared with the natural environment, the improvement of the rural human environment has been greatly improved, especially in terms of physical and mental health. Tourism companies help to upgrade the villages' infrastructure and enhance the rural environment. Governments, scenic spots, and communities have also improved their policies, funds, and facilities for the improvement of the rural ecological environment. As a direct beneficiary of tourism development, farmers are paying more attention to the protection of the rural ecological environment and can actively participate in village governance and ecological protection. Tourism has had a definite positive effect on the improvement of the rural environment, and its ecological function is remarkable, as is shown in Table 2.

Table 2. The change of weight and value of the ecological system.

Subject		Before Weight	After Weight	Before Value	After Value
Pressure		0.2530	0.2309	0.1493	0.0833
Resource utilization	Domestic water usage	0.0628	0.0543	0.0351	0.0158
	Household electricity	0.0628	0.0558	0.0355	0.0160
Material discharge	Household refuse	0.0637	0.0588	0.0365	0.0213
	Noise pollution	0.0637	0.0620	0.0422	0.0302
Natural ecological Environment	State	0.4366	0.4489	0.2744	0.3246
	Water environment	0.0618	0.0621	0.0386	0.0396
	Air environment	0.0617	0.0649	0.0448	0.0490
	Soil environment	0.0626	0.0635	0.0394	0.0412
	Animal and plant	0.0634	0.0642	0.0417	0.0464
Social environment	Social security	0.0631	0.0644	0.0415	0.0480
	Sanitation status	0.0615	0.0646	0.0337	0.0492
	Physical and mental health	0.0625	0.0652	0.0347	0.0511
Response		0.3102	0.3202	0.1544	0.2336
Government-community Enterprise	Remediation policy	0.0627	0.0645	0.0323	0.0467
	Remediation funds	0.0619	0.0648	0.0306	0.0466
	Remediation facility	0.0621	0.0646	0.0312	0.0472
Personal	Farmers	0.0621	0.0644	0.0303	0.0469
	Tourists	0.0614	0.0619	0.0300	0.0463

The coupling degree reflects the interaction between the livelihood and the ecosystem. Before and after the introduction of tourism, the coupling in terms of correlation between livelihood and the ecosystem is very high, 0.95 and 0.96, respectively, which is close to 1, indicating that the coupling of the two systems is significant. The two are mutually restrained and have strong synergies. Achieving a win–win situation between the two systems plays an important role in promoting the harmonious development of human–land relations. The coordination degree of coupling measures the level of overall coordinated development of these relations. According to the type of coordination and the development of coupling and coordination, before and after tourism, the coupling degree of farmers' livelihood and the ecosystem is 0.69 and 0.74, respectively, from primary to intermediate. However, although rural tourism has a definite role in promoting the coupling and coordination of livelihood and the ecosystem, the improvement appears to be relatively small, and the livelihood and the ecosystem are not coordinated very successfully, which restricts the sustainability of the farmers' livelihood.

Tourism development has resulted in the improvement of the rural tourism ecological environment, but nevertheless, the ecological pressure has increased significantly. Most of the farmers who are involved in catering and accommodation have significantly increased their use of water and electricity, but also the volume of garbage, while the ecological pressure has increased. Some farmers believe that rural noise pollution will increase, which will have a definite adverse impact on daily life. Even after the development of rural tourism, the level of coupling and coordination of livelihood and the ecosystem is still low, and the relationship between humans and the land has not yet reached its optimal state. It is, therefore, necessary to further adjust the smart specialization development model of rural tourism, to improve the ecological environment of rural tourism, and to achieve a win–win situation between livelihood and the ecosystem.

5.4. Livelihood Sustainability Index

According to the entropy method and Formula (1), the values of ω_1, ω_2, and ω_3 before the residents participated in tourism are respectively, 0.3268, 0.2923, and 0.3809, while after participation the values are 0.3429, 0.3150, and 0.3421. The index weights have not changed greatly. X_{LC}, X_{LS}, and X_{LEC} have contributed, respectively, to the tourism values with 0.4636, 0.3613, and 0.3421, while the participation values were 0.5980, 0.4141, and 0.6867. After the farmers participated in the tourism, the coupling of livelihood capital, livelihood strategy, and livelihood and the ecosystem were improved.

According to Formula (5), the farmer's livelihood sustainability index increased from 0.4143 to 0.5704. Tourism thus has a definite role in promoting the sustainability of farmers' livelihoods, but there is insufficient accumulation of livelihood capital, and a poor livelihood diversity, stability, and ecology. As a result of the impact of the poor level of coordinated development and other constraints, the tourism livelihood sustainability index is still at a relatively low level. Figure 3 clearly shows the difference in the livelihood sustainability index between farmers before and after participating in tourism.

To examine the effects of the independent variables, such as family characteristics and livelihood characteristics, on the livelihood sustainability index, a one-way variance analysis was used in our research (see Table 3). The number of those engaged in household labor, the highest level of education, and the number of livelihoods all have a significant impact on the livelihood sustainability index. The livelihood sustainability index does not increase with the number of family members and the number of family laborers. The households with a household labor force of four family members have the highest index of livelihood sustainability, while families with fewer or many family members might require more help and support. The level of education and the number of livelihoods are positively correlated with the livelihood sustainability index. From the perspective of the increase in that index, it appears that Guantian Village has the largest increase (0.2198) and Qunyi Village (0.1359) has the smallest, mainly because the development cycle of the scenic spots is different. The Mulan Tianchi Scenic Area appears to be relatively mature and attracts more tourists. The farmers' livelihood in this village is relatively sustainable.

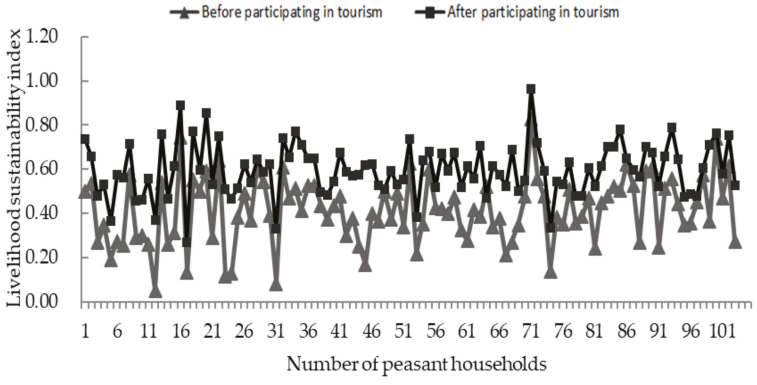

Figure 3. The change in the livelihood sustainability index.

Table 3. Analysis of variance of the livelihood sustainability index.

Dimension	Variable	F	Sig.
Before participating in tourism Farmers' livelihood sustainability index	Number of family members	3.195	0.007
	Number of household labor	3.576	0.009
	Family members with the highest level	3.607	0.005
	Number of livelihood methods	8.023	0.001
After participating in tourism Farmers' livelihood sustainability index	Number of family members	2.656	0.020
	Number of household labor	5.478	0.001
	Number of family members with the	2.675	0.026
	Number of livelihood methods	11.726	0.000

6. Conclusions and Recommendations

6.1. Conclusions

This study has positioned rural tourism strategies in the broader context of smart specialization as a vehicle for effective regional development. The Chinese case study has highlighted the importance of sustainability objectives in regional smart specialization policy.

According to the sustainable livelihood concept, the present paper has developed a livelihood sustainability index. Next, this index was applied and tested in order to dynamically assess the sustainability of farmers' livelihood before and after tourism. The study found that, after farmers participate in tourism, the livelihood sustainability index improves, and so does the coupling of livelihood capital, livelihood strategies, and the linkage of livelihoods and ecology. The number of those engaged in household labor, the highest level of education of family members, and the number of different livelihoods all have a significant impact on the livelihood sustainability index. Nevertheless, the farmers' livelihood strategies are still relatively simple, and they are still vulnerable. The livelihood of farmers has not yet reached its optimal state (in comparison to opportunities elsewhere), and there is still much room for improvement. The factors that restrict the sustainability of farmers' livelihood include insufficient accumulation of livelihood capital, a single livelihood, poor stability, and high ecological pressure, while the coupling of livelihoods and the ecological environment are of a relatively poor quality and lack a coordinated development.

6.2. Recommendations

The transition from traditional farming to more modern rural tourism activities calls for effective resilience of all actors involved. Farmers are in a favorable position in the development of rural tourism, which guarantees benefits to farmers. In fact, a sustainable development of farmers' livelihoods

may be the end-result of a sustainable development of rural tourism and of the underlying Rural Revitalization Strategy, as a specific case of smart specialization. In order to continuously increase the value of tourism for livelihood, the following implementation path seems plausible and realistic: 1) enhancing the degree of specialization of tourism livelihood capital, strengthening education and skills training, encouraging skilled workers to go to the countryside, establishing interest in protection and benefit-sharing mechanisms, and ensuring that farmers have equal opportunities for development; 2) guiding farmers to participate professionally in tourism according to their own conditions, choosing appropriate tourism livelihood methods, exploring industrial integration mechanisms, implementing an integration of the agriculture, tourism and culture industry, and promoting the integration of tourism livelihoods and other livelihood methods in order to achieve livelihood diversification; 3) innovating the development model of eco-tourism, avoiding ecologically destructive development, maintaining ecological balance, rationally arranging regional environmental capacity, and guiding farmers to adopt green development in order to save resources and reduce ecological pressure. Clearly, sustainable tourism development—as part of a smart specialization strategy—needs a balanced and well-orchestrated regional development policy.

Rural tourism destinations have a wide range of perspectives for sustainable development policy and research. This study has focused on a quantitative livelihood indicators evaluation for farmers in transition. Smart specialization appears to be a good strategy for successful resilience. Clearly, the article also has certain shortcomings. Due to the different roles of managers in rural tourism destinations and the differences in farmers' perceptions of tourism in different livelihood strategies, the tourism sustainability assessment system based on farmers' livelihoods needs to be further improved. At the same time, there is a lack of long-term, dynamic follow-up research on farmer livelihood long-run perspectives. Therefore, building a dynamic evaluation database for sustainable tourism livelihoods and dynamically revealing the long-term evolution of sustainable tourism livelihoods and their driving mechanisms will be one of the key points for future research.

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Conflicts of Interest: The authors declare no conflict of interest.

Appendix A Database and Descriptors

Table A1. Situation of the investigated villages.

Villages	Situations	Patterns of Participating in Tourism	Villages	Situations	Patterns of Participating in Tourism
Guan- tian Village	238 households, 938 people; Mulan Tianchi Scenic Area, opened in 2002	Land transfer, Enterprise employees, Farmhouse management, organic farms, Tourist shops, etc.	Dao shi chong Village	356 households, 1284 people; Jinli Valley Scenic Area, opened in 2010	Operating tourism, Enterprise employees, Ticket bonus sharing
Liu jia-shan Village	107 households, 478 people; Qingliang Village Scenic Area, opened in 2006	Operating tourism, Enterprise employees, Ticket bonus sharing	Yaojia Mourntain	213 households, 866 people; Yaojiashan Red Tourist Area, opened in 2015	Operating tourism, Enterprise employees, Ticket bonus sharing
Zhangjia-zha Village	536 households 1603 people; Mulan grassland Scenic Area, opened in 2007	Operating tourism, Enterprise employees	Du tang Village	471 households, 1748 people; Magnolia Township, opened in 2017	Land transfer, Enterprise employees, Vacant farmhouse rental, Shareholding cooperative dividends
Sheng- tian Village	316 households, 1136 people; Mulan Shengtian Scenic Area, opened in 2007; Mulan Rose Garden, opened in 2014	Land transfer, Enterprise employees, vacant farmhouse rental, Operating tourism	Qun yi Village	95 households, 1612 people; Mulan Water Township Scenic Area, opened in 2018	Operating tourism

Table A2. Situation of the investigated peasant households.

Subject	Variable	Frequency	Subject	Variable	Frequency
Gender	Male	53	Age	18–35 years old	24
	Female	50		36–45 years old	21
Education level	Illiteracy	5		46–55 years old	36
	Junior high school and below	71		56–65 years old	17
	High school or secondary school	20		66 years old or older	5
	College	6	Family population	1–2	15
	Bachelor's degree or above	1		3–5	81
Years participating in tourism	0–1year	23		6–7	7
	2–3years	32	Years participating in tourism	6–9 years	16
	4–5years	16		10–13 years	16

Table A3. Evaluation index system of livelihood sustainability in rural destinations.

First Indicator	Second Indicator	Third Indicator	Description of Indicators
Livelihood capital	Natural capital	Land capital [25,30,32,37]	Land quality * land area Land quality assignment: 1. Very poor 2. Poor 3. General 4. Fertile 5. Very fertile
		Family location [30,32]	Distance to the nearest scenic spot
		Drinking water quality [27]	Assignment: 1. Pond River 2. Well Water 3. Tap Water
	Physical capital	Housing capital [27,28,32,37]	Housing quality * housing area Housing quality assignment: 1. Villa, 2. Multi-story building, 3. One-story bungalow, 4. Soil embryo room
		Durable goods value [27,28,32,37]	The sum of the quantity and unit price of household durable goods such as beds, air conditioner, washing machine, TV, computer, refrigerator, bicycle, electric car, motorcycle, car, mobile phone, etc.
		Livestock value [28]	Number of livestock * market unit price
	Financial capital	Family savings [32,33]	Assignment: 0. No 1.10–50 thousand 2.50–100 thousand 3.100–200 thousand 4.200–300 thousand 5.300 thousand or more
		Borrowing, loans, subsidies, etc. [27,28,32,37]	(Unit: 10,000 yuan)
		Difficulty in borrowing [37]	Assignment: 1. Very difficult 2. Not easy 3. General 4. Easy 5. Very easy
		Loan difficulty [37]	Assignment: 1. Very difficult 2. Not easy 3. General 4. Easy 5. Very easy
	Human capital	Labor force [25,27,28,37]	Number of family laborers (labor workers aged 18–65 who are not in school and are healthy)
		Labor education [25,37]	Average length of education of the labor force
		Cognitive ability [48]	The degree of understanding of tourism development, assignment: 1. Do not understand at all 2. Do not understand very much 3. General 4. Understand 5. Very understand
		Skill training times [27,28,32,38,49]	Family skill training times per year (unit: times)
	Social capital	Human expenditure [28,32]	Family annual expenditure (unit: yuan)
		Telephone bill [27,28,32]	Family annual telephone bill (unit: 10,000 yuan)
		Social network support [30,49]	Relatives/friends are village cadres or in government agencies or enterprises, scenic areas management departments, assignments: 0. None 1. Yes
		Welcome to tourists [49]	Assignment: 1. Very unwelcome 2. Not welcome 3. General 4. Welcome 5. Very welcome
	Cultural capital	The level of understanding of folk customs [37]	Assignment: 1. Completely unknown 2. Don't understand 3. General 4. Understand 5. Understand very well
		Willingness to inherit folk customs [37]	Assignment: 1. Very unwilling 2. Unwilling 3. General 4. Willing 5. Very willing
		Whether to retain traditional manual skills [37]	Assignment: 0. No 1. Yes

Table A3. *Cont.*

First Indicator	Second Indicator	Third Indicator	Description of Indicators
Livelihood strategy	Livelihood diversification [39]		Number of household livelihoods
	Livelihood stability [40,41]		The annual change in household income, the value of the assignment: 1. Very large 2. Large 3. General 4. Small 5. Very small
Coordination degree of livelihood and the ecological environment	Livelihood system	Livelihood capital	As above
		Livelihood strategy	As above
	Ecosystem	Pressure [47]	resource utilization: Domestic water usage/Household electricity situation
			Material discharge: household refuse/noise pollution Assignment: 1. Very much 2. More 3. General 4. Less 5. Very little
		Status [46,47]	Natural ecological environment: water environment, atmospheric environment, soil environment, animal and plant resources
			Humanities and social environment: social security, physical health status, mental health Assignment: 1. Very bad 2. Not good 3. Normal 4. Good 5. Very good
		Response [46,47]	Government-Community: Remediation Policy, Remediation Funds, Remediation Facilities
			Individual: farmers, tourists, ecological protection awareness and behavior Assignment: 1. Very bad 2. Not good 3. Normal 4. Good 5. Very good

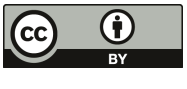
Table A4. Coupling and Coordination Development Type Classification and Evaluation Criteria.

Range	0.00–0.39	0.40–0.49	0.50–0.59	0.60–0.69	0.70–0.79	0.80–0.89	0.90–1.00
Development Type	Severe Disorder Decline Type	Imbalance decay type	Barely coordinated development types	Primary Coordinated Development Type	Intermediate Coordinated Development Type	Well-coordinated development types	Quality Coordinated Development Type

References

1. Kourtit, K. *The New Urban World*; Shaker: Aachen, Germany, 2019.
2. *Urban Empires*; Glaeser, E.; Kourtit, K.; Nijkamp, P. (Eds.) Routledge: London, UK, 2020.
3. *The New European Rurality*; Noronha Vaz, T.; de Morgan, E.J.; Nijkamp, P. (Eds.) Ashgate: Aldershot, UK, 2006.
4. Romao, J.; Nijkamp, P. Impacts of Innovation, Productivity and Specialisation on Tourism Competitiveness. *Curr. Issues Tour.* **2019**, *22*, 1150–1169. [CrossRef]
5. Kopczewska, K.; Churski, P.; Ochojski, A.; Polko, A. *Theoretical Foundations of Specialisation, Agglomeration and Concentration*; Palgrave, MacMillan: London, UK, 2017.
6. Alexiades, S. *The Dilemma of Regional Policy*; Palgrave: London, UK, 2018.
7. Boschma, R. Constructing Regional Advantage and Smart Specialisation. *Sci. Reg.* **2014**, *13*, 51–68.
8. Capello, R.; Kroll, H. From Theory to Practice in Smart Specialisation Strategy. *Eur. Plan. Stud.* **2016**, *24*, 1393–1406. [CrossRef]
9. Foray, D. *Smart Specialisation*; Routledge: New York, NY, USA, 2009.
10. Romao, J.; Machino, K.; Nijkamp, P. Integrative Diversification of Wellness Tourist Services in Rural Areas. *Asia Pac. J. Tour. Res.* **2018**, *23*, 734–746. [CrossRef]
11. Dax, T.; Zhang, D.; Chen, Y. Agritourism Initiatives in the Context of Continuous Out-Migration: Comparative Perspectives for the Alps and Chinese Mountain Regions. *Sustainability* **2019**, *11*, 4418. [CrossRef]
12. Petrović, M.D.; Vujko, A.; Gajić, T.; Vuković, D.B.; Radovanović, M.; Jovanović, J.M.; Vuković, N. Tourism as an Approach to Sustainable Rural Development in Post-Socialist Countries: A Comparative Study of Serbia and Slovenia. *Sustainability* **2017**, *10*, 54. [CrossRef]
13. Adamov, T.; Ciolac, R.; Iancu, T.; Brad, I.; Peț, E.; Popescu, G.; Șmuleac, L. Sustainability of Agritourism Activity. Initiatives and Challenges in Romanian Mountain Rural Regions. *Sustainability* **2020**, *12*, 2502. [CrossRef]
14. Martínez, J.M.G.; Martín, J.M.M.; Fernández, J.A.S.; Mogorrón-Guerrero, H. An Analysis of the Stability of Rural Tourism as a Desired Condition for Sustainable Tourism. *J. Bus. Res.* **2019**, *100*, 165–174. [CrossRef]
15. Martín, J.M.M.; Martínez, J.M.G.; Fernández, S.J.A. An Analysis of the Factors behind the Citizen's Attitude of Rejection Towards Tourism in a Context of Overtourism and Economic Dependence on this Activity. *Sustainability* **2018**, *10*, 2851. [CrossRef]
16. Rodríguez, G.A.J.; Barón, N.J.; Martínez, J.M.G. Validity of Dynamic Capabilities in the Operation Based on New Sustainability Narratives on Nature Tourism SMEs and Clusters. *Sustainability* **2020**, *12*, 1004. [CrossRef]
17. Su, Z.; Aaron, J.R.; Guan, Y.; Wang, H. Sustainable Livelihood Capital and Strategy in Rural Tourism Households: A Seasonality Perspective. *Sustainability* **2019**, *11*, 4833. [CrossRef]
18. Martínez, J.M.G.; de Castro-Pardo, M.; Pérez-Rodríguez, F.; Martín, J.M.M. Innovation and Multi-level Knowledge Transfer Using a Multi-criteria Decision Making Method for the Planning of Protected Areas. *J. Innov. Knowl.* **2019**, *4*, 256–261. [CrossRef]
19. Chambers, R.; Conway, G. *Sustainable Rural Livelihoods: Practical Concepts for the 21st Century*; IDS Discussion Paper 296; University of Brighton: Brighton, UK, 1992.
20. Srijuntrapun, P.A. *Sustainable Livelihood Approach in a World Heritage Area: Ayutthaya, Thailand*; Lincoln University: Lincoln, New Zealand, 2012.
21. Department for International Development. *Sustainable Livelihoods Guidance Sheets*; Department for International Development: London, UK, 2000; pp. 68–125.
22. Tao, T.; Wall, G. Tourism as a Sustainable Livelihood Strategy. *Tour. Manag.* **2009**, *30*, 90–98. [CrossRef]
23. Tao, T.; Wall, G. A Livelihood Approach to Sustainability. *Asia Pac. J. Tour. Res.* **2011**, *14*, 137–152. [CrossRef]
24. Qian, C.; Sasaki, N.; Jourdain, D.; Kim, S.M.; Shivakoti, P.G. Local Livelihood under Different Governances of Tourism Development in China—A Case Study of Huangshan Mountain Area. *Tour. Manag.* **2017**, *61*, 221–233. [CrossRef]
25. He, A.L.; Yang, X.J.; Chen, J.; Wang, Z.Q. Impact of Rural Tourism Development on Farmers' Livelihoods—a Case Study of Rural Tourism Destinations in Northern Slope of Qinling Mountains. *Econ. Geogr.* **2014**, *34*, 174–181.
26. Zuo, B.; Cheng, W. Impacts of Tourist Resorts Development on the Sustainable Livelihoods of Relocated Residents: A Case Study of Chimelong International Ocean Tourist Resort. *Trop. Geogr.* **2016**, *36*, 776–785.

27. Li, F.; Yang, D.; Wang, H. Study on the Impact of Rural Tourism under the Framework of Sustainable Livelihood of Farmers: A Case Study of Lihua Village, Daxing District, Beijing. *Jiangsu Agric. Sci.* **2012**, *40*, 405–407.
28. Kong, X.Z.; Zhong, Z.; Yuan, M.S. The Impacts of Rural Tourism on Farmers' Livelihood Taking Three Tourist Attractions as Hougou Ancient Village, Qiaojia Great Courtyard, and Jinci Temple of Shanxi Province for Example. *Econ. Probl.* **2008**, *341*, 115–119.
29. Shi, Y.; Li, J. The Multifunctional Development of Rural Tourism and the Rural Sustainable Livelihood: A Collaborative Study. *Tour. Trib.* **2018**, *33*, 15–26.
30. Xia, Z.; Yue, Y.; Gong, Y. The Impacts of Ecological Migration on Farmers' Livelihood in World Heritage Site: The Case of Zhangjiajie. *Tour. Forum* **2017**, *10*, 96–106.
31. Wang, X.; Xi, J. Study on Livelihood Transition of Local Residents in the Tourist Resort Area of Jinshitan, Dalian. *Resour. Sci.* **2015**, *37*, 2404–2413.
32. Xi, J.; Zhang, N. An Analysis of the Sustainable Livelihood of Tourism Households: A Case Study in Gougezhuang Village, Yesanpo Tourism Area. *Tour. Trib.* **2016**, *31*, 65–75.
33. Wang, J.; Zhang, Y.; Shi, L. Evaluation Index System of Sustainable Livelihoods Ecotourism Strategy: A Case Study of Wangjiazhai Community in Baiyangdian Wet Land Nature Reserve Hebei. *Acta Ecol. Sin.* **2014**, *34*, 2388–2400.
34. Zhang, H. *Research on Participating in Tourism and Sustainable Livelihood Problems of Herdsmen*; Xinjiang Agricultural University: Urumqi, China, 2013.
35. He, R.; Liu, S.; Chen, G.; Xi, F.; Ya, X.; Li, L. Research Progress and Tendency of Sustainable Livelihoods of Farmers in China. *Prog. Geogr.* **2013**, *32*, 657–670.
36. *Seminal Studies in Regional and Urban Economics*; Capello, R. (Ed.) Springer: Berlin, Germany, 2019.
37. Zhang, C.; Min, Q.; Zhang, H. Analysis on the Rural Households Livelihoods Aiming at the Conservation of Agricultural Heritage Systems. *China Popul. Resour. Environ.* **2017**, *27*, 169–176.
38. Gale, T.E. *Finding Meaning in Sustainability and Livelihood Based on Tourism: An Ethnographic Case Study of Rural Citizens in the Aysén Region of Chile*; ProQuest: Morrisville, NC, USA, 2006.
39. Zhao, X.; Guo, F.; Zhang, L.; Li, W. The Livelihood Sustainability Evaluation of the Gannan Plateau. *J. Northwest Norm. Univ. (Nat. Sci.)* **2014**, *50*, 104–109.
40. Xu, S. Coupling Coordination Analysis of Capital and Livelihood Stability of Farmers—A Case Study of the Resettlement Area of Jinqiao Village in Guangxi. *Econ. Geogr.* **2018**, *38*, 142–148.
41. Sun, X.; Xu, Y.; Tang, Y. Analysis of Non-agricultural Livelihood Stability and Income Difference of Semi-urbanized Farmers on the Loess Plateau. *Hum. Geogr.* **2016**, *31*, 81–87.
42. Zhang, J.; Su, W.; Wang, L. Review on Impacts of Chinese Ecological Restoration Construction on Household Livelihoods. *Ecol. Econ.* **2018**, *34*, 180–185.
43. Xiao, X. Domestic and Overseas Sustainable Livelihood Theory and its Using Trend in the Rural Ecological Management. *J. Yunnan Agric. Univ. (Soc. Sci.)* **2017**, *11*, 42–49.
44. Bao, Z.; Yuan, S. Research Advances on Linkages among Tourism Development, Ecological Conservation and Community Livelihood. *J. Subtrop. Resour. Environ.* **2017**, *12*, 49–57.
45. Wang, X.; Xi, J.; Chen, T. Coupling Coordination between Livelihoods and Land Use Change in Local Community: A Case Study of Jinshitan Resort, China. *Tour. Trib.* **2017**, *32*, 107–116.
46. Meng, R.; Zhou, H.; Xu, J. Study on the Rural Tourism Ecological Development Based on the Triple Bottom Line Theory: A Case Study of Huotong Town. *J. Cent. South Univ. For. Technol. (Soc. Sci.)* **2017**, *11*, 84–89.
47. Meng, L. Research on the Rural Tourism Environmental Protection Based on PSR Model of Evaluation Index System. *Ecol. Econ.* **2017**, *33*, 121–126.
48. Cai, J.; Wu, X. The Impacts of Rural Tourism on the Vulnerability of Farmers' Livelihood: From the Perspective of Coupled Social-ecological System. *Res. Agric. Mod.* **2018**, *39*, 654–664.
49. Wang, K.; Li, Z.; Yi, J. Contrasting the Livelihoods of Immigrants and Non-immigrants in the Wulingyuan World Heritage Area. *Resour. Sci.* **2016**, *38*, 1621–1633.



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Article

Nature Interpretation and Visitor Management Objectives: A Survey of Tourist Attitudes at Maasai Mara National Reserve, Kenya

Leanard Otwori Juma [1], Izabella Mária Bakos [2] and Aniko Khademi-Vidra [2,*]

[1] Institute of Tourism and Hospitality Management, Dedan Kimathi University of Technology, Nyeri 10143, Kenya; leanard.juma@dkut.ac.ke

[2] Faculty of Economics and Social Sciences, Szent István University, 2100 Gödöllő, Hungary; bakos.izabella.maria@gtk.szie.hu

* Correspondence: Khademi.Vidra.Aniko@gtk.szie.hu

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Abstract: Nature interpretation has been advocated as a soft and non-obtrusive on-site visitor management strategy to enhance visitor knowledge and understanding of the resource, mitigate visitor impacts, encourage the conservation and improvement of attraction areas, and assist visitors in enjoying their visit. However, the way in which nature interpretation programs are implemented, and the subsequent attitudes created amongst visitors can pose a challenge to the effectiveness of nature interpretation as a visitor management strategy. The situation becomes more complicated with limited resources to implement, monitor, and evaluate nature interpretation in expansive wilderness areas like Masai Mara National Reserve (MMNR). The question therefore is, does nature interpretation in MMNR create favourable attitudes amongst wildlife tourists, consequently leading to enhanced visitor experiences and satisfaction of the support for conservations, or not? This research, therefore, sought to establish the extent to which the attitudes created by nature interpretation affect visitor satisfaction or the enhanced visitor experience and support for conservation, broadly termed as visitor management objectives in MMNR Kenya. Thus, H_o1 postulated that attitudes created by nature interpretation do not influence visitors' support for conservation in MMNR, and H_o2, that attitudes created by nature interpretation do not enhance visitor experience and satisfaction in MMNR. This study used a structured questionnaire for the survey to collect data from a sample of 351 respondents as a proportion of visitors into MMNR. Research findings revealed that a moderate relationship between attitudes created by nature interpretation and support to conservation with $rs = 0.426$ and $p = 0.000$, thus null hypothesis H_0^1 was rejected. Secondly, results showed that attitudes created by nature interpretation moderately affected visitor satisfaction $rs = 0.478$ and $p = 0.000$, while similarly, null hypothesis H_0^2 was rejected. The research concluded that various forms of NI result in the formation of attitudes that moderately affect support for conservation and visitor satisfaction. The study concluded that enhanced nature interpretation training and awareness creation, along with continual improvement initiatives, could unlock its full potential as a visitor management strategy. This consistent, well-coordinated, and diligent implementation of nature interpretation initiatives by all stakeholders in MMNR would sustain a cumulative, long-term impact.

Keywords: nature interpretation; visitor codes; orientation signage; tour guiding; visitor management; Maasai Mara

1. Introduction

It has been argued that tourism and conservation areas have intimately been related for centuries and that driving, walking, or travelling to experience nature-based attractions has continuously been a

vital component of the operations of nature-based destinations over the years [1]. Research carried out in Germany's Jasmund National Park established that nature-based tourism is among the rapidly-growing segments in contemporary tourism markets [2], a trend that has been echoed by the United Nations World Tourism Organization (UNWTO) [3,4]. Consequently, given that tourism in conservation areas is heavily dependent on the quality of in-situ cultural and natural resources, the impacts of visitation must be managed carefully, directed, and mitigated wherever possible by all stakeholders for sustainability. It has been observed that the type of management adopted by a tourist destination will mainly depend on the values and objectives it seeks to pursue and that proactive planning of tourism development and visitor management will promise their realisation [5–7]. This is because, whereas changes in the resource as a result of visitor use are inevitable, they might be desirable, and therefore, to mitigate these, destination managers are compelled to influence the behaviour of resource users and consequently, the tourism induced impacts [7]. Visitor management is therefore considered to be part of destination management in protected areas and destinations keen on sustainable tourism; it has never been a function of high visitor numbers, but always been part of any destination or attraction [8,9].

Olson et al. [10], McArthur & Hall [11], and Van der Donk [12] define visitor management as the summation of all practices and programs implemented to ensure visitors realise quality experiences while concurrently supporting the realisation of a destination area's aggregate conservation objectives. This definition evokes three essential elements about visitor management, which is to safeguard and augment the resource, help guests enjoy their visit, and sustain and expand the economic benefits that tourism can bring [13]. Visitor management initiatives such as site hardening, safety barriers, information centres, provisions of visitor adequate and suitable amenities are envisioned to not only protect the resource from further negative impacts, but also to enhance the quality and diversity of destination experiences. On the other hand, visitor management initiatives like the provision of maps and orientation signage, visitor information, safety and safety and risk management strategies, are thought to enhance a visitor's experience. Lastly, approaches like tour guiding services will create local jobs and additional visitor experiences for a fee.

Candrea & Ispas [14] opine that the visitor management techniques available to managers of nature-based destinations include: regulating tourist use by zoning; seasonal pricing to control the type of visitation; differentiated entry or user fees; restricting access to only accredited organisations or individuals to bring visitors to the site; provide nature interpretation programmes and facilities; and lastly, visitor behaviour regulation using codes of conduct. The current study will focus on the last two visitor management techniques, and these are nature interpretation and behaviour regulation. Nature interpretation has been defined as an educational activity that endeavours to reveal meanings and interrelationships through the use of objects, firsthand experiences, or by illustrative media, rather than by merely communicating factual information [13,15,16]. Ham & Sandberg, and Ham et al. [17] assert that as a visitor management strategy, nature interpretation chooses and delivers messages while appreciating the impact this communication can have on protected areas and its visitors. Nature interpretation constitutes personal forms like tour guiding services and non-personal forms such as codes of conduct, display boards, maps, and orientation signage.

Research carried out in Australia by Eagles et al. [1] supports the opinion that nature interpretation can be used as a non-obtrusive visitor management strategy. This research appreciates that regardless of the type or form, nature interpretation as a strategy assists visitor management at the site level because " ... it represents a link between the resources and the visitors ... making areas accessible and delivers insights to visitors about the place [2], while acknowledging the range of stakeholders involved" [18]. Further to these, research carried out at Kinabalu Park in Malaysia reveals that there is an increasing demand for guiding services and educational information at interpretation centres [19–22]. Positive attitudes amongst both the visitors and interpretative service providers (tour guides and managers) are critical for the success of forms of nature interpretation as a strategy for conservation area visitor management. Given these, nature interpretation should endeavour to create favourable attitudes amongst its users.

In Kenya, research carried out in Mombasa Marine Park and Reserve identified nature interpretation as a tool that can influence the actions or inactions of resource users, and thereby affecting the management of marine resources [23]. In recognition of the impact nature interpretation can have in visitor management, the Nairobi Safari Walk, for instance, has been appreciated as one of the supreme nature-based tourism and conservation education facility in Kenya with diverse and detailed interpretive services [24]. Contrary to these, however, other attraction sites and museums have step-on guides that are poorly regulated and mainly provided by freelancers and trainees with little attention given as to their professional skills and competencies [25–27]. Further to this, Ikiara & Okech [28] identified inadequate nature and cultural interpretation of natural tourist attractions as one of the challenges facing the tourism industry in Kenya and that environmental regulations are either disregarded or ineffectively implemented. Indeed, according to Adeola and Aderemi Ayinla [29], this unfortunate scenario has also been replicated in Nigeria. Edinborough et al. [19] observe that ad hoc approaches drive the provision of interpretative services considerably in some nature conservation areas. This observation acknowledges that in some conservation areas, interpretative services are unplanned or lack adequate emphasis by the relevant stakeholders.

MMNR is one of Kenya's well-kept secrets and one of the most famous national reserves in Africa and indeed the world. The rolling savanna grasslands receive regular rainfall that supports a large and diverse selection of herbivores, predators, and birdlife. As a biodiversity hotspot, MMNR is famous for nature-based tourism activities like game drives, balloon safaris, camping, and birding, among others. Globally, there is increased demand for nature-based tourism destinations [3,4,30] like MMNR that receive hundreds of thousands of visitors annually. Thus, the sustainability of natural resources like the MMNR ecosystem that tourism highly depends on requires visitor information, education, and interpretation to better manage the tourists and potential impacts thereof [12,26].

Although stakeholders have touted forms of nature interpretation as some of the best non-obtrusive on-site visitor management strategies, unfavourable attitudes pose a challenge to the effectiveness of types of nature interpretation as visitor management strategies. It is especially so amongst its direct users and visitors, tour guides, and relevant visitor managers. The issue becomes more complex as the application of forms of nature interpretation in visitor management is an intricate task that must involve many interests and different stakeholders to address the diverse objectives thereof effectively. Indeed, earlier researchers have identified inadequate interpretation of natural tourist attractions as one of the challenges facing Kenya's tourism industry [28]. Visitor management through different forms of nature interpretation in Masai Mara National Reserve (MMNR) is characterised by low coordination and a lack of commitment amongst tourism operators and the County Government of Narok, with each having different visitor management priorities. While the County Government of Narok is keen to sustainably conserve the reserve and sustainable tourism utilisation, tourism operators are interested in customer satisfaction.

The visitor management situation in MMNR is compounded further by the existence of several freelance tour guides providing interpretative services, albeit with wanting competences and minimal regulation. Even though nature interpretation is an effective form of communication in such a scenario, its ability to create favourable visitor attitudes for the realisation of desired visitor management objectives in MMNR is questionable. This study sought to establish the extent to which nature interpretation influences visitors' attitudes towards the support for conservation, and enhanced visitor experience and satisfaction in MMNR.

2. Literature Review

2.1. The Call for Visitor Management and the Place of Nature Interpretation

Over the years, the United Nations World Tourism Organisation (UNWTO) has reported and projected sustained and steady tourism growth globally [3,4,30]. This tourism growth trend has indeed been replicated and reported in most regions, destinations, or tourist market segments

around the world. For instance, contemporaries in Germany have observed that nature-based tourism is among the fastest-growing market segments [2]. Similarly, Eagles et al. [1], Frost, Laing, and Beeton [31], Chen and Prebensen [32], in their researches on tourism and conservation areas in East Asia, observed that the global travel in the contemporaries marketplace is growing. Besides, they continue to add that journeys are not only swelling, but also that holiday travel to nature-based destinations like parks, reserves, and similar conservation areas are also tremendously increasing. In this regard, therefore, as visitor numbers grow, so do the management challenges thereof.

It could be argued that, in most cases, visitors are unaware of the fact that this type of behaviour might be impacting negatively on the environment. Actions including casual damage to sensitive areas; exploring areas of fragile biodiversity; littering; feeding wild animals; moving too close to wild animals (harassment); removal of souvenir pieces; making noise; vandalising vegetation and graffiti on-site have significant impacts on the environment [6,14,32–38]. Unpleasant tourists' behaviour may be attributed partly to a lack of visitor management and information provision. In this regard, therefore, it calls for careful management of visitor experiences that must minimise harmful impacts at attractions, while at the same time maximising enjoyment, understanding, and appreciation of the resource through satisfactory and suitable access, and nature interpretation.

On the other hand, Sharpley [35,39,40] asserts that visitor management is a necessary evil in a sense. That is, inasmuch as tourists enjoy the liberties and impulsiveness that holiday affords them to an extent, visitor management imposes some restrictions on that freedom. In essence, some of these restrictions are seen as essential for the sustainability of destination resources upon which tourism depends, but may also preserve visitor safety and welfare, albeit appearing to curtail visitor freedom on the face value. In this regard, visitor management becomes necessary to mitigate the potential negative impacts of tourism activities, while at the same time enhancing visitor comfort and safety by minimising potential hazards and risks to visitors. Nevertheless, ideally, visitor management should be unobtrusive, non-regulatory, and able to heighten visitor experiences.

On a similar note, Bhati & Pearce [41] and Kuo [42] observe that *hard* visitor management strategies are primarily suitable for short-term results in visitor negative impacts management. However, *hard* visitor management strategies applied alone might not realise long-term outcomes because they have obstructive aspects. Scholars support the opinion that conservation education or nature interpretation as a soft visitor management strategy ought to be applied to compliment *hard* management strategies [13,41,43–45]. These researchers, as endorsed by other earlier scholars, observe that nature interpretation elaborates the reasons behind regulatory actions like zone closures or limiting the number of visitors is necessary and, indeed, the implications of inappropriate behaviour [1,19]

According to Bhati and Pearce [41], Alazaizeh and Hallo [43], and Durao and Joao Carneiro [45], they relentlessly endorse nature interpretation as a visitor management technique that assists with site management; it represents a link between the resources and the visitors. Likewise, Albrecht [13] and Sterry [27] assert that nature interpretation is a necessary and practical component of a tourism planner's tool kit. In essence, a well-designed focused and presented nature interpretation has a critical role in enhancing visitor experiences and satisfaction, mitigating visitor impacts, and encouraging positive behaviour towards nature conservation.

Indeed, conservation education and nature interpretation are fundamental tools used by managers in attraction and destination areas to regulate visitors to attractions in a non-intrusive or non-obstructive manner better, thereby reducing negative impacts while increasing the positive effects [13,32,34,38–40,46]. Furthermore, nature interpretation raises general awareness that will lead to support for resource management policies and agencies. On a similar note, Mason [47], Alazaizeh and Hallo [43], and Bhati & Pearce [41], all affirm that diligent application of nature interpretation programs significantly enhances the visitor experiences, thus making the attraction area more competitive. Indeed, nature interpretation is not the same as information provision. Whereas the later provides facts about phenomena, the former, on the other hand, endeavours to reveal concepts, meanings, and the interrelationships that exist within the wonders of mother nature. In this regard, therefore,

nature interpretation educates the visitor about his new environment and enhances the experience thereof [19,48]. The guided tours provided to visitors, nature interpretation information contained on display boards, visitor codes, and orientation signage not only enhance the understanding that tourists get at the destination but also healthier interactions and satisfaction.

Nevertheless, the values and attitudes of visitors are changing; they now demand more environmentally responsive services and products, as well as information [25]. Indeed, these sentiments have been echoed by Durao and Joao [45] and Juma [16], observe that visitors want to learn about the environment they visit and also want to understand the connections with a broader ecosystem. Nature interpretation can be a treasured tool to intensify conservation awareness and appreciation amongst tourists and site-level tourism operators, depending on these nature conservation areas. Nature interpretation also illustrates how tourists and site-level tourism operators can support the conservation and sustainability of natural and cultural resources upon which they may depend for non-consumptive utilisation today and into the future.

Studies by Farrell and Marion [49] identify minimising visitor impacts, evaluation, and public involvement and shared learning as some of the objectives in visitor management through nature interpretation. More inclusively, Raasch [2] supports the argument that various forms of nature interpretation have a variety of goals and benefits for conservation, as well as to visitor enjoyment. In other words, different kinds of nature interpretation enhance visitor knowledge and understanding (educational activity), improve visitor experiences (recreational activity), and support conservation.

Nonetheless, nature interpretation is not always successful. Scholars have identified some of the reasons why nature interpretation may not realise its full potential as a tool for visitor management [41,44,45]. However, the full potential can only be realised after understanding how to use nature interpretation as a tool. Other challenges can present themselves as impediments to achieving these potentials. These include a lack of creativity in the implementation of nature interpretation, lack of an evaluation culture, and limited training on destination visitor management objectives [50]. In light of increasingly higher numbers of visitations UNWTO [3], Albrecht [13], Bhati and Pearce [41], Hovardas et al. [18], Donk and Cottrell [51], Sterry [27] and Van der Donk [12] stress that education, interpretation, and information are vital tools used by administrators to manage visitors better. For instance, in Kenya, nature-based tourism, also referred to as wildlife tourism, is the largest segment and accounts for over 90% of nature-based tourism and nearly 75% of aggregate tourism earnings [16,52,53]. In conclusion, the literature reviewed indicates that nature interpretation, as a visitor management strategy, enhances visitor knowledge and understanding, supports conservation, and enhances visitor experiences. Hence, the current research considered the latter two elements as key indicators (herein referred to as visitor management objectives) of visitor management through nature interpretation in the Masai Mara National Reserve. Generally, nature interpretation is a communication strategy that simplifies how visitors interacts with the spatial areas visited. Indeed, scholars describe nature interpretation as an educational activity, a communication process, or a management tool [17]), to practice stimulating and encouraging appreciation [19].

On the other hand, Tilden [15], as cited in Raasch [2] and Carranza et al. [35], Juma [16], notes that nature interpretation is an educational activity that aims to reveal meaning and interrelationships through the use of real objects, firsthand experiences or by illustrative media, rather than communicating factual information. Tilden [15] continues to assert that interpretation provokes curiosity and interest. It relates to everyday experiences of visitors, reveals a memorable message, and addresses the whole story using a unifying theme [7,14,16,20,36,44–46,54]. Ceballos-Lascuráin [55], Edinborough et al. [19], Hansen & Fowler [56], and Borges & Ronda [57] assert that not having a nature interpretation program in a conservation area is akin to inviting guests into your abode and then vanishing. In this regard, the role of various forms of nature interpretation is first to make visitors more conscious of the spaces and places they visit [16,26,45]. Secondly, nature interpretation provides information to guests that increase their understanding and consequently stimulating interest, that will result in grander enjoyment and possibly responsible behaviour amongst visitors within the visited site [10,13,14,18,55].

Ham and Sandberg [17] assert that, when nature interpretation successfully provokes individuals to have independent thinking and to attach separate meanings about an object or place, it helps in shaping that person's experience with an entity or site if these thoughts are pleasing or gratifying, thereby enhancing a person's experience.

Undeniably, regardless of the type or form, nature interpretation as a visitor management technique assists in site management as it represents a link between the resources and the visitors and make places accessible and provide visitors with insights into a site [2]. Nevertheless, nature interpretation is a component of contemporary conservation area management planning in Kenya [58]. Some of the forms of nature interpretation found in Kenya's attraction sites include the printed word (maps, guidebooks, pamphlets), tour guiding services, visitor codes of conduct, and orientation signage. Further to these interpretative displays (storyboards or audiovisual displays) are visitor centres, mechanical or interactive devices, and more [24]).

2.2. Theoretical and Conceptual Framework

Fishbein and Ajzen [59] define an attitude as the tendency to respond to an object with some degree of favorableness or un-favorableness. In other words, attitudes are likes and dislikes or a tendency to react either negatively or positively towards a specific person, object, idea, or situation. Elaboration-Likelihood Theory (E.L.M.) propounded by Cacioppo et al. [60] explains the diverse ways in which a person evaluates the information s/he receives. Sometimes a person may assess messages elaborately through critical thinking, while on other occasions through a more straightforward and less significant manner [61]. Therefore, Elaboration likelihood is defined as a variable and can range from poor to excellent as the likelihood of elaborate thoughts on a phenomenon depends on the way an individual processes a received message and involves the cognitive and affective domains of attitudes [62,63]. E.L.M. studies carried out by Ham & Sandberg [17] established that an interpretive encounter provoking more thinking would result in more robust and enduring attitudes and resultant behaviour patterns. That is, any communication which successfully stimulates an audience into critical thinking stands a better chance of affecting attitudes than a conversation that does not provoke thought. This persuasion theory is relevant to this study because forms of nature interpretation are persuasive communication: tour guiding services, maps, orientation signage, and visitor codes of conduct.

Nature interpretation presented to visitors in MMNR was postulated to create an understanding of the issues and interrelationships that exist amongst phenomena in the wild and how they affect or can be affected by wildlife viewers' actions or inactions. As a technique for presenting nature and cultural information, nature interpretation generates understanding, herein referred to as the cognitive domain of attitudes; consequently, this understanding shapes the affective domain by creating the liking or disliking of the phenomena, and ultimately, the affective domain shapes the behavioural intentions and behaviour displayed by the visitors while interacting with the flora, fauna, landscape, and other aspects of MMNR. In this regard, tour guiding as a nature interpretation technique not only helps tourists to identify natural and cultural phenomena, but will also reveal why things are the way they are, the interrelationships therein, and their relevance to the environment and society. Visitor information and orientation signage as another technique similarly helps wildlife viewing participants to make responsible decisions, and navigate safely to their destinations. Lastly, visitor codes of conduct, also referred to as rules and regulations, prescribe the appropriate and desired behaviour and actions presented as do's and don'ts. These interpretational techniques individually and collectively shape the attitudes of visitors to varying degrees, consequently affecting their behaviour and behavioural intentions, and thus impacting their support for conservation or satisfaction thereof.

In Figure 1, tour guiding services, visitor information, and orientation signage, and visitor codes of conduct as forms of nature interpretation are the independent variables. Visitors' attitudes are considered as the intervening variable, while visitor management objectives are the dependent variable and eventual outcomes. The premise of this research is that tour guiding services, maps, and orientation signage and visitor codes of conduct are the objects that generate and shape attitudes amongst visitors

for support towards conservation and enhanced experience and satisfaction. On the other hand, unfavourable visitor attitudes emanating from interacting with these forms of nature interpretation will affect the realisation of visitor management objectives in nature-based tourism attractions like MMNR; that is, deviance and lack of support for conservation initiatives and poor visitor experiences and dissatisfaction. Thus, the first null hypothesis ($H_0{}^1$) states that nature interpretation does not influence visitors' support for conservation in MMNR. The second null hypothesis ($H_0{}^2$) postulates that nature interpretation does not enhance visitors' experiences or satisfaction of MMNR.

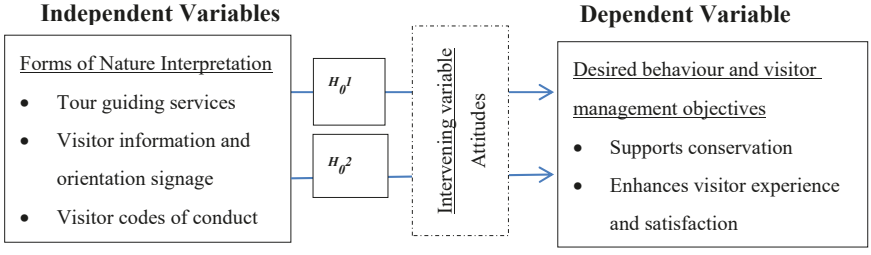

Figure 1. Conceptual Framework. **KEY**: H_0—Null Hypothesis. Source: Reviewed literature and Researchers (2020).

It has been established from reviewed literature that focus has been limited to themes like relationship between nature interpretation and visitor management [2,13,64,65], attitudes, or behaviour regulation [16,19,54,66,67]; destination management [10,66,68,69], effectiveness [23,42,70–74]; importance [43,45,65,74,75]; visitor satisfaction [65,75,76]; and sustainability [7,14,18,41,43,56]. The current study not only sought to establish if nature interpretation influences the attitudes among visitors, but also the extent to which the created attitudes impact the realisation of the enhanced experience of satisfaction and support for conservation.

3. Materials and Methods

3.1. Research Context

The study was conducted in MMNR, one of the most visited reserves in Kenya. For instance, in 2018, MMNR received over 291,017 visitors, as shown in Table 1, and a total of about 62,719 safaris (tour) jeeps carrying them [77]. MMNR covers an area of 1510 Kms^2 and teams up with vastly diverse populations of big game; herbivores, carnivores, birdlife, and plants that breathe life over its rolling landscape. For tourists who wish to spend a night or more in MMNR, there are many accommodation facilities dotted in and around the reserve totalling over 7000 bed nights [77]. The wildlife reserve has July and August as the high season months, with June, September, October, November, and December as shoulder season months, the rest of the months are considered low season months.

Table 1. Monthly visitor arrivals into Masai Mara National Reserve (MMNR) for the period 2018–2019.

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
2018	9396	11,870	12,836	9031	10,969	26,409	54,365	59,974	28,003	23,009	14,458	30,697	291,017
2019	13,775	15,963	9124	11,190	7929								

Source: [77].

This reserve was gazetted as a national reserve in the years 1951 and situated in the County Government of Narok (C.G.N.), which manages the ecosystem, infrastructure, access permits, leases, revenue collection, and other destination management activities. The reserve lies about 265 Kms from the city of Nairobi via Narok town that is 105 kms away by road. There exists tarmac road to the main gate Sekenani, and this vast and remote wildlife reserve is served with a network of

all-weather roads. Game drive trails within MMNR are preferably accessed experienced safari tour guides on four-wheel-drive vehicles. In this exciting ecosystem, visitors require nature interpretation and wilderness navigation from experienced driver guides to get an enriching experience. Besides, given the distance, MMNR, as a rich biodiversity-ecosystem, promises unforgettable experiences. Many visitors to the MMNR are rarely day trippers but overnight that averages two to three days.

3.2. Research Design and Methods

The research adopted a descriptive research design using a survey and semi-structured questionnaires to collect mainly quantitative data from visitors to the MMNR as respondents. The study used visitors into MMNR as a transient population with a monthly average of 11376 guests which gave a total of 22752 visitors as the study population. Data collection was from late January to mid-March 2020. These months were considered, given the relaxed atmosphere for the adequate provision and access to various nature interpretation techniques, unlike the crowded frenzy associated with high tourism seasons in the MMNR. The sample size of 351 respondents was considered the necessary minimum and thus representative of infinite populations at a 95% confidence level and a 5% confidence interval to enable the generalisation of findings. The study used a semi-structured questionnaire consisting of mainly closed-ended items rooted on Likert scale items. This choice was informed by the fact that, although attitudes are reasons for individuals behaviour, they are latent constructs that cannot be observed directly but are inferred from overt responses using Likert scale items rather than being measured directly [66–76,78]. Secondly, time and cost constraints compelled the use of questionnaires to establish the perceptions and attitudes that nature interpretation had created amongst tourists to support conservation and enhanced experience and satisfaction within a short time frame compared to the observation method.

Questionnaires for the study were distributed to visitors through their tour driver guides at the Sekenani main entry gate for filling at their convenient time. Receptionists at tourist lodges were enlisted to recruit their guests as respondents for the study during check-in or check-out. The research considered this procedure as the most practical and courteous approach for data collection, given that tourists accessed this remote destination after a long and tiring journey on *safari* jeeps. The filled questionnaires were dropped at the designated reception areas of the wilderness lodges, and at the exit gates by the tourist vehicle drivers. Quantitative data collected was collated and analysed using SPSS 25 software for descriptive and inferential statistics to answer research objectives. The study variables were subjected to the Pearsons's goodness-of-fit chi-square test to evaluate how well a proposed model fits or predicts research data set. This test is said to give valid results under four assumptions that is, the variables are categorical; the observations are independent; the categorical variables must be mutually exclusive, and lastly that the sample is large enough but generates less than five counts per category of grouped data. These are conditions that the data collected and collated for the current study met. Consequently, a spearman ranked order correlation test was used to establish the strength of the relationship between the attitudes created by nature interpretation versus visitors support of conservation and enhanced visitor experiences at MMNR. This correlation was used to test the hypothesis because the questionnaire predominantly had ordinal data. On the other hand, content analysis in NVIVO (version 12) was used to analyse the qualitative data from open-ended questionnaire items to establish themes. Eventually, the research employed tables and charts to present study findings.

4. Results

4.1. Demographics of the Respondents

The study had a sample (n) size of 351 respondents, which accounted for a 54.8% response rate after administering 640 questionnaires in total for the survey, a shortfall necessitated by the challenges associated with the COVID-19 pandemic. Out of 351 respondents, 49.9% were non-residents, 32% were

Kenyan citizens, while a further 18.1% were foreigners residending in Kenya. Concerning the gender composition of the respondents (n = 351), 54.6% were females, 44.7% males, while another 0.6% never indicated their gender. This result is indicative that there are more about 10 % more males visiting MMNR that females, a statistic that implies men seek exciting wildlife tourism destinations more than females. This is against the fact that in most human adult populations, the ratio of males to females is nearly 1, with negligible variations [62]. On the age structure of the respondents, 49.6% constituted those aged below 25 years, 39.2% aged between 26 to 50 years, and another 11.2% aged 51 years and above. This result shows that MMNR receives more youthful tourists with over 88.8% (49.6% + 39.2%) aged below 50 years and a small fraction of those above 51 years. This result could be attributed to the fact that MMNR challenging destination and has uncomfortable all-weather access roads traits that are prime considerations for senior citizens' travel decisions. As regards the educational levels of the respondents for the study; 57.6% had college-level education, 35.5% University, 5% secondary. This statistic is descriptive of an educated sample population that could adequately respond to the study.

As regards the primary purposes of visiting MMNR, in a multiple-response questionnaire item, the study established that holiday or nature-based activities (67%) were the primary purposes of visit MMNR; this was followed by education and research (33%) as indicated in Table 2 below. Business and work were last at 10.8% of the respondents.

Table 2. Main Purpose of Visiting MMNR (multiple responses where n = 351) [79].

No.	Purpose of Visiting	Frequency	Per Cent	Valid Percent
a	Business and work	38	10.8	10.9
b	Holiday and Nature-based activities	235	67.0	67.0
c	Education and Research	116	33.0	33.1
d	Others	6	1.7	1.7
	Missing values	1	0.3	

4.2. Visitor Attitudes Towards Forms of Nature Interpretation in the MMNR

The study delved into finding out the various forms of nature interpretation found in MMNR by the visiting public.

From Figure 2, 93% of respondents indicated that tour guides in MMNR are knowledgeable as represented by strongly agree (56%) and agree (37%). Neither agree or disagree followed at (4%), and last was disagree, and strongly disagree with 1% each, a further 2% was representing missing values. On the questionnaire item as to whether tour guides in MMNR were presentable, a modest 81% had positive attitudes expressed by strongly agree (34%) and agree (47%). Neither agree nor disagree that depicted an ambivalence had 8%. Negative attitudes were represented by 6% of the respondents, that is, disagree at 4%, and strongly disagree with 5% and missing values of 6%.

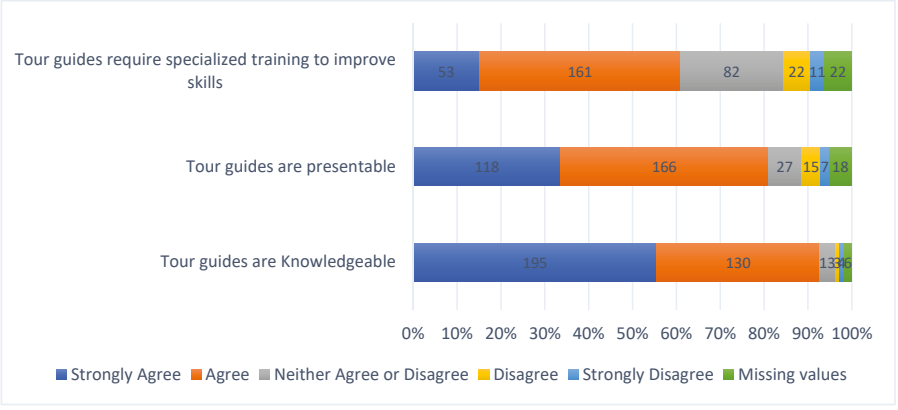

Figure 2. Showing visitors' attitudes towards tour guides in Masai Mara National Reserve (MMNR) (n = 351) [79].

Study results revealed that 78.1% of the respondents recognised the availability of tour guiding services in the MMNR, as detailed in Table 3. It was followed closely by visitor information and orientation signage, visitor codes (16.2%) came at a distant third, and lastly, Others (1.7%).

Table 3. Forms of Nature Interpretation in MMNR (where n = 351) [79].

No.	Forms of Nature Interpretation	Frequency	Per Cent	Valid Percent
a	Tour guiding	274	78.1	78.1
b	Visitor information and signage	257	73.2	73.2
c	Visitor codes/Do's and Don'ts	57	16.2	16.2
d	Others	6	1.7	1.7

On the third attitude dummy for tour guiding, the interview sought to find out visitors' views as to whether tour guides require specialised training to improve their nature interpretation skills, 61% were affirmative, that is, strongly agree (15%), and agree (46%). Further to these findings, 23% of the respondents showed ambivalence (neither agree nor disagree) to this questionnaire attitude item. Similarly, like other attributes on tour guiding, a small portion of the respondents showed negative attitudes (9%); 6% disagreed and another 3% strongly disagreeing that tour guides' need further training to enhance their nature interpretation skills.

Study results in Figure 3 explicitly show that the respondents had positive attitudes towards visitor information and signage. The questionnaire item, visitor signage are easy to understand and follow had the highest positive responses; 86% of the respondents responded affirmatively; 54% agree, and 32% strongly agree. Those with negative attitudes were few comprising a small aggregate total of 4%; 3% disagree, and 1% strongly disagree. 7% of the respondents neither agreed nor disagreed with the statement and a further 2% missing as missing values.

Responses on visitor information and signage are adequate to meet user needs came second, with over 72% positive responses and these attitudes; 51% agree, and 21% strongly agree (Figure 3 above). In this category of questions on Visitor information and signage, this questionnaire item had relatively higher negative responses totalling 15%; 10% disagree, and 5% strongly disagree. Ambivalence and missing values recorded 8% and 5%, respectively. Last in this set of questions was whether reserve users followed visitor information and signage, slightly more than half of the respondents (52%) showed positive attitudes; 38% agreed, and another 14% agreed strongly. In this set of questionnaire items, "visitor signage is followed by reserve users" had the highest ambivalence (35%) and missing values (6%) (Figure 3).

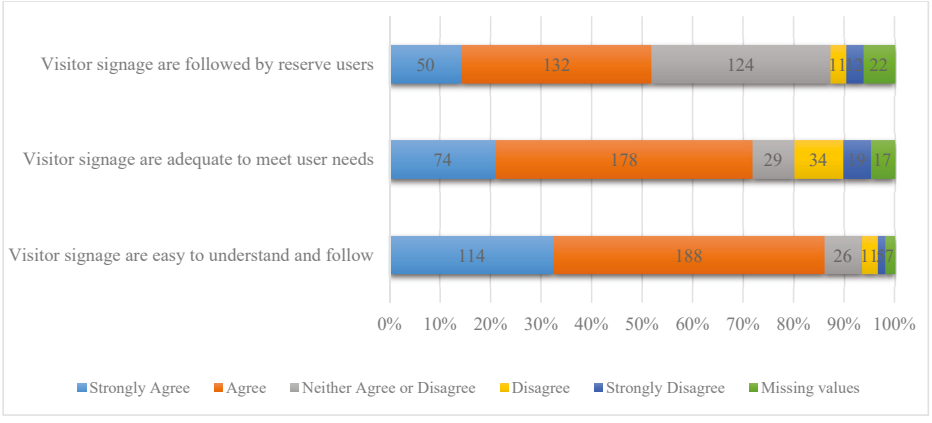

Figure 3. Attitudes towards visitor information and signage in MMNR (n = 351) [79].

The last set of questionnaire items used to measure attitudes towards forms of nature interpretation in MMNR was on visitor codes or rules and regulations. Similar to other types of nature interpretation, visitor codes in MMNR received affirmative responses indicating positive attitudes (Figure 4). Visitor codes are easy to understand and follow received on aggregate the highest positive responses (89%), where 50% strongly agreed, and 39% agreed with the statement.

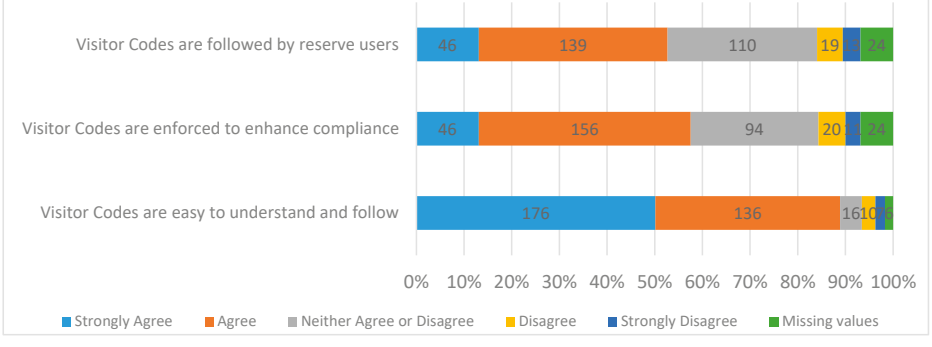

Figure 4. Attitudes towards visitor codes/do's and don'ts in MMNR (n = 351) [79].

Only 5% of the total respondents had negative reactions to the statement, where 3% disagreed, and a further 2% strongly disagreed. Ambivalence and missing values accounted for 2% of the respondents each. Visitor codes are enforced to enhance compliance received the second-highest positive feedback from 57% of the respondents, where 44% agreed, and 13% strongly agreed. Negative responses accounted for 9% of the answers, with 6% of the visitors disagreeing, and a further 3% on strongly disagree (Figure 4).

Interestingly, ambivalence was relatively high as 27%, while missing cases accounted for 7% of the responses. "Visitor codes were observed/followed by reserve users" had an aggregate positive score of 53%, where 40% agreed with the statement and a further 13% who strongly agreed with the statement. An ambivalence of 31% was relatively higher compared to other attitudinal questionnaire items on visitor codes. Negative responses in total stood at 9%, where 5% disagreed, and 4% strongly disagreed (Figure 4). Missing values accounted for 7% of the total number of respondents.

4.3. Attitudes Created by Nature Interpretation versus Visitor Management Objectives

The research sought to establish the effects of NI on the support for conservation in MMNR. In this vein, the study identified three dummy variables to test visitor attitudes; these were reduced negative visitor impacts, responsible visitor behaviour, and visitors' financial support towards conservation initiatives.

Overall, there was positive visitor feedback that nature interpretation indeed supports conservation objectives in the MMNR (Figure 5 above). First, 74% of the respondents gave positive responses that Nnature interpretation leads to reduced negative visitor impacts in MMNR, represented by 44% of the respondents who strongly agreed, and another 30% who agreed, as shown in Figure 5 below. Contrary to these attitudes amongst the majority, 17% showered negative attitudes presented by 13% who disagreed with the statement that nature interpretation leads to reduced negative visitor impacts in MMNR, and a further 4% who strongly disagreed. A small fraction of the respondents showed ambivalence (6%) and that there were a few who never responded (3% of missing values).

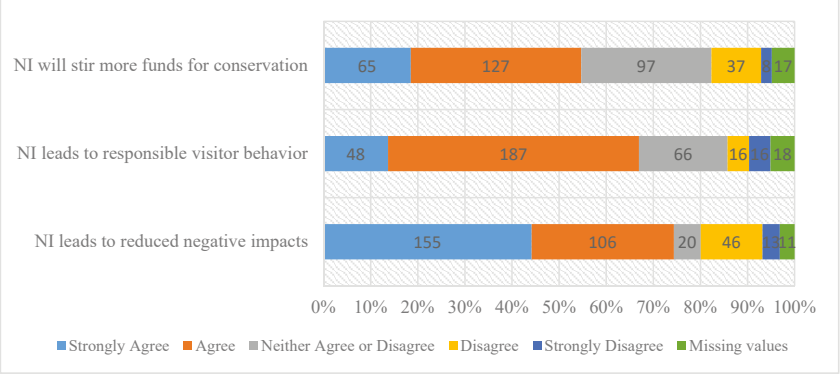

Figure 5. Nature Interpretation and support to conservation in MMNR (n = 351) [79].

As to whether nature interpretation provided in MMNR lead to responsible visitor behaviour, 67% of the respondents responded favourably, where 14% strongly agreed, and another 53% agreed (Figure 5). 10% of the respondents did not agree with the notion that nature interpretation leads to responsible visitor behaviour in MMNR. A negative answer that was denoted by those who disagreed (5%) and strongly disagreed (5%). 19% of the respondents neither agreed nor disagreed, indicating a stance of indecisiveness, whereas a further 5% were missing values.

In an attempt to establish if the nature interpretation provided in the MMNR helped to stir people towards financially support conservation, study findings confirmed that 55% of the respondents gave an affirmative response (Figure 6 below). It was explicitly shown by the 19% who strongly agreed to the statement that nature interpretation stirs more funds for conservation and another 36% who agreed. This questionnaire item had the highest level of ambivalence, where 28% of the respondents neither agreed nor disagreed with the statement, with a further 5% appearing as missing values. On the flip side, a total of 13% of the respondents disagreed (11%) and strongly disagreed (2%) with the statement that nature interpretation stirs more funds for conservation.

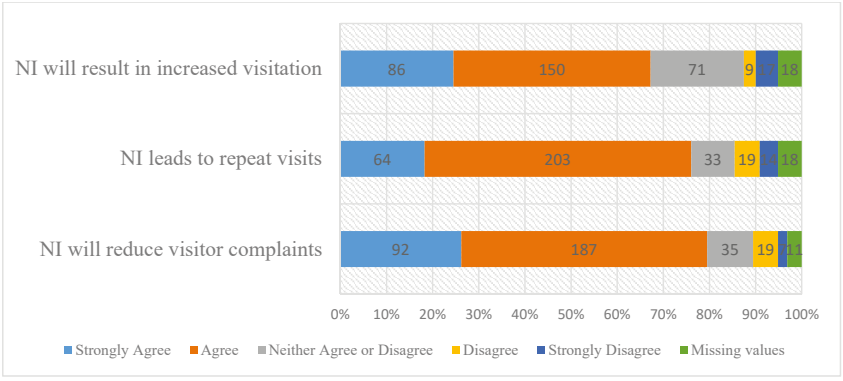

Figure 6. Nature Interpretation and visitor satisfaction in MMNR (n = 351) [79].

Study results show that 78% of the respondents affirmed that nature interpretation created attitudes that would reduce visitor complaints in MMNR, this was represented by 26% strongly agree, and 53% agree in Figure 6 below. Only a small fraction (7%) of the respondents had contrary views, as represented by those who disagreed (5%), and strongly disagreed (2%) that nature interpretation would reduce visitor complaints in MMNR. 10% of the respondents were uncertain, and thus neither agreed nor disagreed, while a further 3% were missing values.

Second, in the positive attitudes was the questionnaire item that nature interpretation leads to repeat visits in MMNR with an aggregate of 76% of the respondents giving their affirmation as represented by 18% who strongly agreed, and 58% who agreed in Figure 6 above. Nevertheless, 9% of the respondents either did not agree or disagree with the assertion, thereby reflecting ambivalence with another 5 percent of missed values. On the flip side, negative responses accounted for a total of 9%, that is, disagree (5%) and strongly disagree (4%). On the questionnaire item as to whether nature interpretation provided in MMNR will lead to visitor satisfaction, a total of 68% responses were affirmative as represented by strongly agree (25%), and agree (43%) in Figure 6 above. Neither agree nor disagree accounted for 20%, disagree 3%, and strongly disagreed and missing values accounted for 5% each.

Further analysis of qualitative responses to open-ended questionnaire items on suggested measures that can be used to improve nature interpretation in MMNR, Nvivo 12 results indicated that over 87% of the responses gave positive comments, as represented by very positive (50%), and moderately positive (37%), with only 13% somewhat negative responses (Figure 7 below). These results generally denoted healthy positive attitudes formed as a result of nature interpretation with tour guides, signage, and display boards are facilitators.

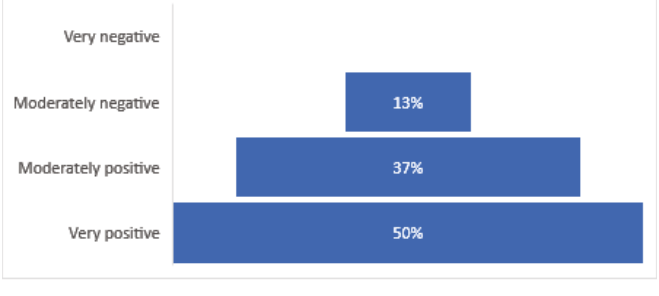

Figure 7. Summary of attitudes from qualitative data (n = 351) [79].

On further scrutiny of the qualitative data collected, seven main themes emerged; tour guides, interpretation, nature, education, research, skilled and knowledge, as detailed in Figure 8 below. Whereas tour guiding (17 counts) is a form of nature interpretation, results indicated that it plays a central role in shaping visitor attitudes and behaviour at MMNR. Interpretation (11) came second followed closely by nature (10), education came a distant fourth (5), followed by research, skilled, and knowledge that all had a count of four.

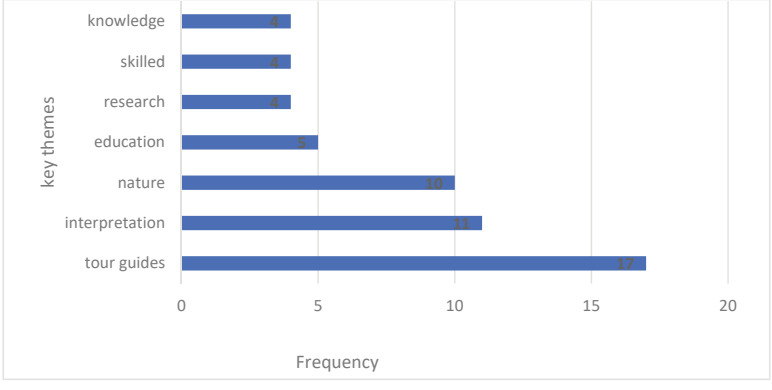

Figure 8. Key themes that emerged from qualitative data (n = 351) [79].

These results were further amplified by a frequency query of the thirty (30) most used words in the qualitative responses. This word frequency query revealed that although 'guides' had the highest weighted frequency, education had the highest word count and second-highest weighted percentage (Figure 9 below). Of the seven themes identified in Figure 8 above, five were among the top ten words with the highest count. These are education (1st) with 34 counts, followed by guides (2nd) with 30 counts, and nature (5th) with 17 counts, interpretation (7th) with 13 counts, and skilled (9th), with 13 counts also. The research was ranked 11th with 11 counts, and lastly, knowledge ranked 17th with nine counts. These qualitative analysis results revealed the fact that nature interpretation is an educational activity, with eleven of the top thirty keywords relating to nature interpretation and education (Figure 9. These are education (ranked 1st), guides (2nd) nature (5th), training (6th), interpretation (7th), rules (8th), research (11th), signage (12th), knowledge (17th), languages (24th), and awareness which is ranked 25th (Figure 9).

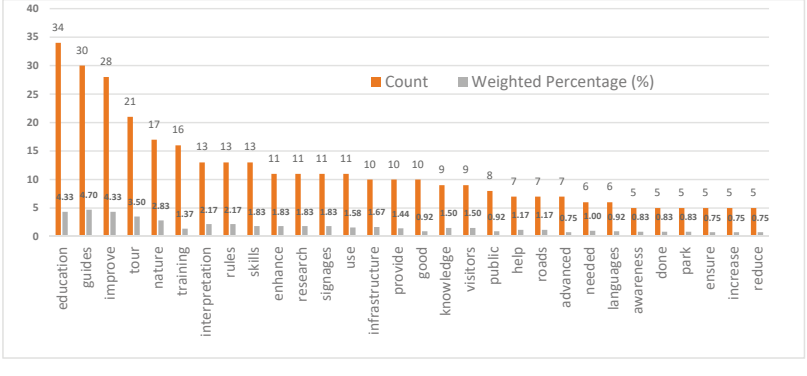

Figure 9. Counts and weighted percentages of keywords in qualitative responses [79].

On the other hand, verbs relating to the improvement of nature interpretation that emerged amongst the thirty keywords query are, improve (ranked 3rd), enhance (10th), provide, good, help, advanced, needed, done (26th), ensure (28th), increase (29th), and reduce (30th). These findings indeed highlighted that there is always room for continual improvement for nature interpretation to be effective in the long run. Enhanced and regular awareness creation and training of tour guides and visitor information should be programmed and executed diligently. On the other hand, visitor display boards and orientation signage requires regular maintenance and, most importantly, monitoring and evaluation.

4.4. Hypothesis testing

The study sought to establish if visitor attitudes formed on forms of nature interpretation will affect support for conservation in MMNR, Kenya. Using Spearman correlation, as shown in Table 4 below, research findings indicated that there is a moderate relationship between the two variables. Attitudes created by nature interpretation moderately affected support to conservation with $r_S = 0.426$ and $p = 0.000$. The calculated significance level is lower the given p-value of 0.05, meaning the results are reliable up to a confidence level of 99% and an error margin of less than 1%. In this regard, the null hypothesis $H_0 1$ was rejected, and the alternate hypothesis was accepted.

Table 4. Attitudes created by nature interpretation and support for conservation ($n = 351$) [79].

		Value	Asymptotic Standard Error [a]	Approx. T [b]	Approx. Sig.
Nominal by Nominal	Cramer's V	0.418			0.000
Ordinal by Ordinal	Spearman Correlation	0.426	0.051	8.776	0.000 [c]
N of Valid Cases		349			

[a] Not assuming the null hypothesis. [b] Using the asymptotic standard error assuming the null hypothesis. [c] Based on normal approximation.

The research subjected the null hypothesis variables to a Pearson's goodness-of-fit chi-square test. The test was intended to establish if the proposed correlation model fits into and predicts the data sets in the study. Research findings on attitudes created by nature interpretation versus support for conservation ($H_0 1$) established a χ^2 (440, $n = 351$) = 1685.65, and a calculated *p value* of 0.000 that is lower that the given $p = 05$ (Table 5 below). This were significant results that indicated the categorised likert scale data was reliable to answer the null hypothesis.

Table 5. Pearson's chi-square goodness-of-fit test ($n = 351$) [79].

	Pearson Chi-Square	df	Sig.
Attitudes on nature interpretation versus support for conservation	1685.65	440	0.000
Attitudes on nature interpretation versus enhanced visitor experience and satisfaction	607.77	440	0.000

On the $H_0 2$, attitudes created by forms of nature interpretation moderately affected visitor satisfaction $rs = 0.478$ and $p = 0.000$, as emphasised by Cramer's V values (Table 6 below). The calculated *p-value* was far below the given *p-value* of 0.05. Consequently, the calculated results are reliable, up to 99% with an error margin of less than 1%. In this regard, the null hypothesis $H_0 2$ was rejected, and thus the research adopted the alternate hypothesis that there is a relationship between attitudes created by nature interpretation and visitor satisfaction.

Table 6. Attitudes created by nature interpretation and visitor satisfaction (n = 351) [79].

		Value	Asymptotic Standard Error [a]	Approx. T [b]	Approx. Sig.
Nominal by Nominal	Cramer's V	0.484			0.000
Ordinal by Ordinal	Spearman Correlation	0.478	0.047	10.116	0.000 [c]
N of Valid Cases		348			

[a] Not assuming the null hypothesis. [b] Using the asymptotic standard error assuming the null hypothesis. [c] Based on normal approximation.

A further goodness-of-fit test on the categorical data for H_0^2 generated χ^2 (440, n = 351) = 607.77, and a calculated p value of 0.000. The calculated p-value of 0.000 was significantly lower that the given p-value of 0.05 for the current research (Table 5 above). This means the data collected was reliable to answer the null hypothesis.

5. Discussion and Conclusions

Study results indicate that for the low season period of January to March, MMNR is visited mainly by persons aged below 50 years (88.8%). The respondents were 94.1% of the visitors into the MMNR had college and above level of education. This result echoes the theory that an increased level of education, means that awareness and travel propensity levels will tend to be higher (Meng & Uysal [78]; Schmid et al. [80]). As regards the primary purposes of visiting MMNR over two-thirds of the respondents (67%) recognised MMNR as a nature-based tourism destination. Indeed this echoes the appropriateness of the study in space and time as emphasised by UNWTO ([3,81]). This could be attributed to the fact that MMNR is a vibrant biodiversity hot spot, which has been voted five years in a row as one of the leading wildlife tourism destinations in Africa and indeed the globe [81,82]. On the other hand, the rich biodiversity of wildlife and the interwoven, social-cultural, and economic significance and management challenges at MMNR attracts a significant number of tourists for education and research (33%).

Holiday and nature-based activities, and education and research constitute the two primary purposes of visiting MMNR. A small fraction of tourists visits MMNR for business and work-related reasons. This category of visitors could include conferencing guests retreating to this serene wilderness area, individuals providing outsourced goods and services to the myriad tourism and hospitality facilities in MMNR, just to name but a few. A study finding that could be attributed to the seasonal changes in visitor demographic profiles. The study was carried out between a shoulder season and the start of a low season when tourism products are substantially cheaper in terms of the effort and price tag of getting the services for education and research groups. The statistic for this visitor categorisation could significantly have been different if the study was carried out during the high season when demand and supply forces in the destination skims top cream consumers in the tourist market place [83,84]. These results on the purpose of visit notwithstanding, a further 10.8% accounted for those travelling for business and work. Given that the broader MMNR ecosystem has over 7000 total bed nights (C.G.N. [77]), and thus diversify their product offering to include conferencing guests, a finding that other scholars have endorsed in an attempt to manage the seasonality in nature-based tourism destinations [83]. This study finding also includes hospitality staff working in tourist facilities in and around the MMNR.

In an attempt to establish the forms of nature interpretation found in MMNR, study findings established that 78.1% of respondents recognised the availability of tour guiding. Although 78.1% was relatively high, it was however expected to be higher, given that a majority of the visitors in the MMNR were in chauffeur-driven tour jeeps. Further to this, tour guiding is among the most popular forms of nature interpretation in nature-based destinations [84–89]. The remainder of the respondents (21.9% could be due to two reasons, first, that a small fraction of the respondents were on self-drive tours, and probably some of the respondents did not understand what the forms of nature interpretation are. Relative to other types of nature interpretation, the study explicitly established that there were little visitor codes (do's and don'ts) in MMNR. These results are indicative of the need for more visitor

codes in MMNR and more awareness creation to the general public visiting the MMNR. It is important to note that visitor management through nature interpretation as a strategy will only be successful if diverse forms of nature interpretation are used for complementarity [7,16,34,43] None of the forms of nature interpretation is a panacea, as endorsed by other scholars [43,44,90].

The results above notwithstanding, a majority (93%) of the respondents gave had positive attitudes towards nature interpretational knowledge possessed by the tour guides in MMNR. This statistic was indeed an overwhelming endorsement of earlier research carried out in a similar nature interpretation ecosystem in the state of Virginia, U.S.A [74,84]. However, on the contrary, there was a small fraction who had negative attitudes towards nature interpretational knowledge possessed by tour guides in MMNR. It was indicative that generally, the visitors had positive attitudes towards tour guiding services as a nature interpretation and visitor management strategy in MMNR. It was evident on all the attributes on tour guiding that were being tested and registered high aggregate positive scoring. First, tour guides are knowledgeable at 93%, followed by 'tour guides are presentable' with 81%, and lastly, 'tour guides require specialised training to improve skills' with an aggregate positive score of 61%. The aggregate negative score or attitudes were low; 'tour guides are knowledgeable' at 2%, 'tour guides are presentable' with 6%, and lastly, tour guides require specialised training to improve skills with an aggregate positive score of 9%. The visitors generally had positive attitudes towards tour guiding and therefore depicting its critical role in managing sustainable interactions of tourists with attractions and ecosystems like MMNR. This viewpoint has been underscored by similar earlier researches that emphasise the role of nature interpretation in visitor management at destination level with a bias towards tour guiding [16,43,91].

As regards visitor codes, respondents had positive attitudes, that is, they are easy to understand and follow at 89% responses, followed by visitor codes are enforced to enhance compliance at 57% of the responses. Lastly, reserve users observe/follow visitor codes at 53%. However, as positive responses decreased, ambivalence and missing values increased tremendously. It is apparent that, like other similar researches, visitor codes attract negative attitudes more unlike other forms of nature interpretation [92,93]. Indeed, as Sharpley [36], asserts that visitor codes as a destination management strategy are a necessary evil in a sense. That is, in as much as tourists enjoy the liberties and impulsiveness that holiday affords them to an extent, visitor management imposes some restrictions on that freedom. Such a strategy is bound to stir negative attitudes amongst its target audience.

Nevertheless, the visitors in this study opined that, generally, nature interpretation leads to reduced negative visitation impacts (74%), nature interpretation leads to responsible visitor behaviour (67%), and lastly, that nature interpretation positively stirs people towards funding conservation initiatives in MMNR (55%). An observation that was seen to be lower relative to positive responses; some respondents showed ambivalence and uncertainty as to whether nature interpretation positively or negatively affects people's attitudes towards supporting conservation objectives. 19% for nature interpretation leads to responsible visitor behaviour, and 28% for nature interpretation stirs more funds for conservation.

Results from the qualitative analysis indicated that over 86.6% of the responses were positive, as represented by very positive (50%), and moderately positive (36.6%), with only 13.4% somewhat negative responses. Indeed, according to the farther of nature interpretation Freedman Tilden, it is evident that the chief aim of nature interpretation is not instruction but provocation [15]. The Elaborative Likelihood Model affirms that the more a persuasive communication makes people think, the better the likelihood of influencing and shaping positive attitudes and behaviour. Nature interpretation serves as a valid form of communication, and what is though-provoking is talk provoking. Thus a positive word of mouth simulates positive thoughts to support conservation and, most importantly, satisfaction.

Qualitative analysis identified seven main themes of the study, that is tour guides, interpretation, nature, education, research, skilled and knowledge. All these themes are critical in an effective nature interpretation strategy at any destination level. Indeed, for vast wildlife destinations like MMNR, the personal touch of tour guides has presented itself as a critical nature interpretation

techniques that shape visitor attitudes and thereby their support for conservation and enhanced visitor experience and satisfaction. This result from the qualitative data analysis subordinated other forms of nature interpretation that were either grossly absent or had a lesser impact in creating memorable impressions in the minds of the tourists. It can also be argued that this result is because a majority of tourists in MMNR are always in the company of tour drivers cum guides. These notwithstanding for self-drive tourists, other non-personal forms of nature interpretation like visitor codes, interpretative display boards, orientation signage, and visitor information/education centres play an important role. They should, therefore, never be denounced as less important.

On further scrutiny using inferential statistics, to answer the first research objective and H_0^2, study results indicated that there was a moderate relationship between attitudes created by nature interpretation and support for conservation. Thus, the research adopted the alternate hypothesis that there is a relationship between attitudes created by nature interpretation and support for conservation. Although, earlier investigations observed that nature interpretation influences visitors attitudes that consequently lead them to support the conservation of attractions [16,20,23,24,43], findings of this study have endorsed this notion with some caution. The current research observes that this relationship highly depends on how nature interpretation is implemented. Current study findings have established a moderate correlation between the attitudes created by nature interpretation and the support for conservation as a visitor management strategy. These results suggest that, if nature interpretation were uniformly, consistently, and diligently delivered by all stakeholders, it would have had a higher impact on shaping visitor attitudes and thereby the resultant behaviour and behaviour intentions. On the flip side, it will not have a meaningful effect if the implementation of nature interpretation lacks uniformity, consistency, and commitment by all its stakeholders.

On the second objective and H_0^2, study results established that there is a moderate relationship between attitudes created by nature interpretation and visitor satisfaction as inferred by spearman correlation. Indeed, further descriptive statistics confirmed these results; 78% of respondents endorsed the statement that nature interpretation reduces visitor complaints in MMNR. An additional 76% acknowledged that nature interpretation could lead to repeat visits, and lastly, 68% affirmed that nature interpretation could lead to increased visitation in MMNR. This finding generally resonates well with other earlier researches that link nature interpretation's potential to create positive attitudes and consequently enhanced visitor experiences and visitor satisfaction [32,42,45,83,94]. Although the current study findings resonate with earlier studies, the present results underscore the strength of this correlation. In the case of MMNR where there exist diverse stakeholders involved in nature interpretation with different visitor management objectives, the moderate relationship exists in an environment that lacks uniformity, consistency, and diligence by all interested parties. These include the management of MMNR as the provider and regulator of nature interpretation, the tourist lodges, tour operators, tour guides as providers and consumers, and lastly, the tourists as the consumers of nature interpretation. In this regard, the current study results suggested that nature interpretation would have had a higher impact on shaping visitor attitudes and thereby enhanced visitor experience and satisfaction if uniformly, consistently, and diligently delivered by all the relevant stakeholders.

This finding presents a complex visitor management scenario and therefore calls for interpreted and coordinated stakeholder efforts and programmes. Whereas the CGN and the management of MMNR might be keen on balancing between conservation and visitor satisfaction by creating a favourable nature interpretation environment, other stakeholders should be involved to share the common vision for the sustainability of the destination area. The focus should not only be on designing and enforcing visitor codes and other interpretative initiatives but also awareness creation programmes and importantly monitoring and evaluation to ensure their effectiveness [69,74,94–96]. The development and proper sighting of orientation signage and display boards should be accompanied by the provision of adequate road infrastructure, wildlife viewing trails and designated viewing points. This is because it has been observed that inadequate, poor or impassable roads necessitate most off-road or off-trail driving in wildlife destinations [97–99]. The development of visitor information centres at

designated areas and entry points will go along way to enhance, nature interpretative experiences for those visiting MMNR. Visitor information centres at main entry points will not only provide a sneak preview of what to expect at the destination but also reminding visitors of the code of conduct. Most tourists briefly stop at the entry or exit points as they check-in, check-out or even a little stretch up after long hours in the tour vehicles. The visitor information centres will supplement other existing amenities like cloakrooms, customer care services but also double up as attractions in themselves.

Among other things, study results underscore the role of nature interpretation in visitor management at attraction and level and should always be part of the tourist destination manager's planning and implementation tool kit. Although the study was carried out in low season when the visitor demographics might be different as well as the travel motives and behaviour, it is imperative to note that nature interpretation is indispensable and never changes. This implies that there might be more monitoring and evaluation, more often repositioning of temporary display boards and orientation signage, and deployment more tour guides and awareness programmes, in the high season compared to a low season. And therefore, the only variable that that might change is the level of resource commitment towards nature interpretation from one season to another.

Therefore, the research concludes that various forms of nature interpretation result in the formation of attitudes that consequently moderately affect the realisation of visitor management objectives in MMNR; that is, support for conservation and visitor satisfaction. Study results attest that nature interpretation, among other phenomena not included in the study, affects the realisation of visitor management objectives. However, unlike other study findings, the current study sought to establish the extent to which nature interpretations shape attitudes towards support for conservation and enhanced visitor experience or satisfaction. Tour guiding created healthier positive attitudes that enhanced visitor experience and visitor satisfaction and could elicit support for conservation. Other non-personal forms of nature interpretation like display boards, visitor codes, and orientation signage created moderate attitudes. These notwithstanding, the non-personal forms of nature interpretation play a complementary role and served as critical infrastructure for individual tourists on self-drive tours. The low season months appears to attract a significant number of youthful tourists.

The study recommends diligent monitoring and evaluation and other continuous improvement initiatives to be instituted to unlock the full potential of nature interpretation as a visitor management strategy. The study further recommends the development of visitor education or information centres that are strategically situated within the expansive MMNR. Interpretational training for tour guides, regular environmental education, and awareness creation on the code of conduct combined with a consistent, well-coordinated, and meticulous implementation of nature interpretation initiatives by all stakeholders in MMNR would sustain a cumulative and long-term impact of this visitor management strategy. This study was carried out during low season months, thus calling for follow-up research to be carried out during the high season months when the MMNR is abuzz with touristic activities; a period when tourist facilities and resources are stretched to the extreme to establish if there is any variance from the current study findings.

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References

1. Eagles, P.F.J.; Coburn, J.; Swartman, B. Plan quality and plan detail of visitor and tourism policies in Ontario Provincial Park management plans. *J. Outd. Recreat. Tour.* **2014**, *7–8*, 44–54. [CrossRef]
2. Raasch, U. *Interpretation as a Visitor Management Strategy in National Parks; A Case Study of Jasmund National Park on the Island of Rügen, Germany*; Bournemouth University: London, UK, 2004.
3. UNWTO. *Continued Healthy Growth in International Tourism in the First Nine Months of 2018*; World Tourism Barometer: UNWTO: Madrid, Spain, 2018.
4. UNWTO. *Tourism in Africa: A Tool for Development. UNWTO, Affiliate Members Regional Report, 4 (Tourism in Africa: A Tool for Development*; UNWTO: Madrid, Spain, 2015.
5. Pearce, D.G.; Schänzel, H.A. Destination management: The tourists' perspective. *J. Destin. Market. Manag.* **2013**, *2*, 137–145. [CrossRef]
6. Bushell, R.; Bricker, K. Tourism in protected areas: Developing meaningful standards. *Tour. Hosp. Resefarch* **2017**, *17*, 106–120. [CrossRef]
7. Leung, Y.; Spenceley, A.; Hvenegaard, G.; Buckley, R.; Groves, C. *Tourism and Visitor Management in Protected Areas: Guidelines for Sustainability*; IUCN: Gland, Switzerland, 2018. [CrossRef]
8. Zelenka, J.; Kacetl, J. Visitor management in protected areas. *Czech J. Tour.* **2013**, *2*, 5–18. [CrossRef]
9. Kebete, Y.; Wondirad, A. Visitor management and sustainable destination management nexus in Zegie Peninsula, Northern Ethiopia. *J. Destin. Market. Manag.* **2019**, *13*, 83–98. [CrossRef]
10. Olson, E.C.; Bowman, M.L.; Roth, R.E. Interpretation and Nonformal Environmental Education in Natural Resources Management. *J. Environ. Educ.* **1984**, *15*, 6–10. [CrossRef]
11. McArthur, S.; Hall, C. *Visitor management: Principles and practice. Heritage Management in New Zealand and Australia*; McArthur, S., Hall, C., Eds.; Oxford University Press: London, UK, 1996; pp. 37–51.
12. Van der Donk, M. Framework for a Visitor Management Plan. Visitor Management P.A.N. Parks. 2014. Available online: http://www.panparks.org/sites/default/files/docs/publications-resources/asnatureintended_large_0.pdf (accessed on 18 May 2020).
13. Albrecht, J.N. Introduction to Visitor Management in Tourism Destinations. In *Visitor Management in Tourism Destinations*; Albrecht, J.N., Ed.; CABI: Wallingford, UK, 2017; pp. 3–8. [CrossRef]
14. Candrea, A.N.; Ispas, A. Visitor Management, a Tool for Sustainable Tourism Development in Protected Areas. *Bull. Transilv. Univ. Brasov. Ser. V Econ. Sci.* **2009**, *2*, 131–136.
15. Tilden, F. Interpreting our heritage. In *Chapel Hill Books*; University of North Carolina Press: Chapel Hill, NC, USA, 1997; Available online: https://doi.org/973.07TIL (accessed on 23 November 2019).
16. Juma, L.O. *Nature Interpretation and Visitor Management in Protected Areas: An Analysis of Stakeholder Attitudes*; Lambert Academic Publishing: Saarbrücken, Germany, 2016.
17. Ham, S.H.; Sandberg, E.K. Interpretation as Strategic Communication in Protected Area Management. In *The 6th International Conference on Monitoring and Management of Visitors in Recreational and Protected Areas, Stockholm, Sweden, 21–24 August 2012*; Fredman, P., Stenseke, M., Liljedahl, H., Mossing, A., Daniel, L., Eds.; MMV: Stockholm, Sweden, 2012; pp. 132–133.
18. Hovardas, T.; Togridou, A.; Pantis, J.D. Environmental education as a crucial component of the environmentalist dimension of ecotourism: Inducing short-term effects on environmental literacy with long-term implications for protected area management. In *Ecotourism: Management, Development and IMPACT*; Nova Science Pub Inc.: London, UK, 2011.
19. Edinborough, P.; Frew, E.A.; Hodgson, L.; Wearing, S. *Enhancing Visitor Experience Through Interpretation: An Examination of Influencing Factors*; CRC for Sustainable Tourism: Queensland, Australia, 2008.
20. Goh, H.C.; Rosilawati, Z. Conservation education in Kinabalu park, Malaysia: Analysis of visitors' satisfaction. *J. Trop. Forest Sci.* **2014**, *26*, 208–217.
21. Jaafar, M.; Kayat, K.; Tangit, T.M.; Yacob, M.F. Nature-based rural tourism and its economic benefits: A case study of Kinabalu National Park. *Worldw. Hosp. Tour. Themes* **2013**. [CrossRef]
22. Zuliskandar, R. Heritage Tourism in Malaysia: Potential Challenges. *Soc. Sci.* **2017**, *12*, 431–440. [CrossRef]
23. Haring, D.S.D. Effective interpretation for recreational marine resource use in the Mombasa Marine Park and Reserve, Kenya [James Cook University, Townsville, Australia]. 2014. Available online: http://researchonline.jcu.edu.au/40679/ (accessed on 17 September 2019).

24. Kenya Tourist Board (K.T.B.). The Nairobi Safari Walk. 2012. Available online: http://www.magicalkenya.com/index.php?option=com_contenttask=viewid=271Itemid=415 (accessed on 17 September 2019).
25. Akama, J.; Kemboi, D. The development of cultural tourism in Kenya: A case study of the Bomas of Kenya. In *Cultural Tourism in Africa: Strategies for the New Millennium*; Akama, J.S., Sterry, P., Eds.; Association for Tourism and Leisure Education: Arnhem, The Netherlands, 2000; Available online: http://www.atlas-euro.org/pages/pdf/CulturaltourisminAfricaDeel1.pdf (accessed on 17 September 2019).
26. Sitati, N.W.; Ipara, H. Indigenous Ecological Knowledge of a Human-Elephant Interaction in Transmara District, Kenya: Implications for Research and Management. *Adv. Anthropol.* **2012**, *2*, 107. [CrossRef]
27. Sterry, P. Interpreting cultural heritage: The challenge for African initiatives. In *Cultural Tourism in Africa: Strategies for the New Millennium*; Akama, J., Sterry, P., Eds.; Association for Tourism and Leisure Education: Arnhem, The Netherlands, 2000; pp. 184–185. Available online: http://www.atlas-euro.org/pages/pdf/CulturaltourisminAfricaDeel1.pdf (accessed on 17 September 2019).
28. Ikiara, M.; Okech, C. Impact of Tourism on Environment in Kenya: Status and Policy. In *KIPPRA Discussion Paper*, 19th ed.; Kenya Institute for Public Policy Research and Analysis: Nairobi, Kenya, 2002. Available online: https://www.eldis.org/document/A21267 (accessed on 17 September 2019).
29. Adeola, A.; Aderemi Ayinla, A. Rural Tourism Entrepreneurship as Strategy for Economic Development in Nigeria. *Schol. Int. J. Manag. Dev.* **2016**, *3*, 164–175, ISSN 2394-3378. [CrossRef]
30. UNWTO. *UNTWO Tourism Highlights: 2017 Editon*; UNWTO: Madrid, Spain, 2017.
31. Frost, W.; Laing, J.; Beeton, S. The Future of Nature-Based Tourism in the Asia-Pacific Region. *J. Travel Res.* **2014**, *53*, 721–732. [CrossRef]
32. Chen, J.S.; Prebensen, N.K. Nature Tourism. In *Nature Tourism*; Chen, J.S., Prebensen, N.K., Eds.; Routledge: Abingdon, UK, 2017. [CrossRef]
33. Bayliss, J.; Schaafsma, M.; Balmford, A.; Burgess, N.D.; Green, J.M.H.; Madoffe, S.S.; Okayasu, S.; Peh, K.S.H.; Platts, P.J.; Yu, D.W. The current and future value of nature-based tourism in the Eastern Arc Mountains of Tanzania. *Ecosyst. Ser.* **2014**, *8*, 75–83. [CrossRef]
34. Buckley, R.; Zhong, L.; Ma, X. Visitors to protected areas in China. *Biol. Conserv.* **2017**, *209*, 83–88. [CrossRef]
35. Carranza, T.; Manica, A.; Kapos, V.; Balmford, A. Mismatches between conservation outcomes and management evaluation in protected areas: A case study in the Brazilian Cerrado. *Biol. Conserv.* **2014**, *173*, 10–16. [CrossRef]
36. Karanth, K.K.; DeFries, R. Nature-based tourism in Indian protected areas: New challenges for park management. *Conserv. Lett.* **2011**, *4*, 137–149. [CrossRef]
37. Lee, T.H.; Jan, F.H. Ecotourism Behavior of Nature-Based Tourists: An Integrative Framework. *J. Travel Res.* **2018**, *57*, 792–810. [CrossRef]
38. Lóczy, D.; Ciglić, R. *Nature Conservation*; Springer: Cham, Switherland, 2018. [CrossRef]
39. Sharpley, R. Tourism development and the environment: Beyond sustainability? In *Tourism Development and the Environment: Beyond Sustainability?* Routledge: London, UK, 2009. [CrossRef]
40. Sharpley, R. *Travel and Tourism*; SAGE Publications Ltd.: Sauzend Oaks, CA, USA, 2006. [CrossRef]
41. Bhati, A.; Pearce, P. Tourist behaviour, vandalism and stakeholder responses. In *Visitor Management in Tourism Destinations*; CABI: Wallingford, UK, 2017. [CrossRef]
42. Kuo, I.-L. The effectiveness of environmental interpretation at resource-Sensitive tourism destinations. *Int. J. Tour. Res.* **2002**, *4*, 87–101. [CrossRef]
43. Alazaizeh, M.; Hallo, J. Indicators and standards-based visitor management frameworks in achieving sustainability at cultural heritage sites. In *Visitor Management in Tourism Destinations*; CABI: Wallingford, UK, 2017. [CrossRef]
44. Bakiewicz, J.; Leask, A.; Barron, P.; Rakic, T. Using heritage interpretation to manage film-induced tourism at heritage visitor attractions. In *Visitor Management in Tourism Destinations*; CABI: Wallingford, UK, 2017. [CrossRef]
45. Durao, M.; Joao, C.M. Strategies for successful interpretation techniques in visitor attractions: The operationalisation of guided tourism in museums. In *Visitor Management in Tourism Destinations*; Albrecht, J.N., Ed.; CABI: Wallingford, UK, 2017; pp. 131–150.
46. Shackley, M. Visitor Management. In *Visitor Management*; Routledge: Abingdon, UK, 2009. [CrossRef]
47. Mason, P. Visitor Management in Protected Areas: From 'Hard' to 'Soft' Approaches? *Curr. Issues Tour.* **2005**, *8*, 181–194. [CrossRef]

48. Marschall, S.; Granquist, S.M.; Burns, G.L. Interpretation in wildlife tourism: Assessing the effectiveness of signage on visitor behaviour at a seal watching site in Iceland. *J. Outd. Recreat. Tour.* **2017**, *17*, 11–19. [CrossRef]
49. Farrell, T.A.; Marion, J.L. The Protected Area Visitor Impact Management (PAVIM) Framework: A Simplified Process for Making Management Decisions. *J. Sustain. Tour.* **2002**, *10*, 31–51. [CrossRef]
50. Hall, C.M.; McArthur, S. *Heritage Management in Australia and New Zealand: The Human Dimension*; Oxford University Press: Auckland, New Zealand, 1996. Available online: https://catalogue.nla.gov.au/Record/1332915 (accessed on 16 June 2020).
51. Donk, C.S.P. Developing a Visitor Management Framework for W.W.F.'s P.A.N. Parks Project: Case Study of a National Park in France. In *Monitoring and Management of Visitor Flows in Recreational Protected Areas*; Arnberger, A., Brandenburg, C., Muhar, A., Eds.; MMV: Vienna, Austria, 2002.
52. Republic of Kenya. Kenya Tourism Agenda 2018–2022. 2018. Available online: http://www.tourism.go.ke/wp-content/uploads/2018/06/Agenda-18-22-Final-4Launch.pdf (accessed on 16 June 2020).
53. Republic of Kenya. Ministry of Tourism and Wildlife. 2019. Available online: www.tourism.go.ke (accessed on 16 June 2020).
54. Xu, F.; Fox, D. Modelling attitudes to nature, tourism and sustainable development in national parks: A survey of visitors in China and the UK. *Tour. Manag.* **2014**, *45*, 142–158. [CrossRef]
55. Ceballos-Lascuráin, H. *Tourism, Ecotourism, and Protected Areas*; IUCN: Grand, Swiss, 1996. [CrossRef]
56. Hansen, D.; Fowler, J. Protect and Present—Parks Canada and Public Archaeology in Atlantic Canada. In *Past Meets Present*; Jameson, J.H., Baugher, S., Eds.; Springer: New York, NY, USA, 2007. [CrossRef]
57. Borges, D.L.; Ronda, J.G. Whale and Dolphin Watching, and Visitors' Experiential Responses: A Qualitative Study on Comments in a Travel Forum. In *Wildlife Tourism, Environmental Learning and Ethical Encounters*; de Borges, L.I., Green, R.J., Eds.; Springer International Publishing: Cham, Switzerland, 2017; Volume 11, pp. 183–193. [CrossRef]
58. Kenya Wildlife Service. *Nairobi National Park Ecosystem Management Plan (2005–2010)*; Kenya Wildlife Service: Nairobi, Kenya, 2005.
59. Fishbein, M.; Ajzen, I. *Predicting and Changing Behavior: The Reasoned Action Approach*; Psychology Press: New York, NY, USA, 2010.
60. Cacioppo, J.T.; Petty, R.E.; Kao, C.F.; Rodriguez, R. Central and peripheral routes to persuasion: An individual difference perspective. *J. Personal. Soc. Psychol.* **1986**, *51*, 1032–1043. [CrossRef]
61. Griffin, R.W. Attitude Theory. In *Wiley Encyclopedia of Management*; Littlejohn, S.W., Foss, K.A., Eds.; John Wiley Sons, Ltd.: Hoboken, NJ, USA, 2015; p. 1. [CrossRef]
62. Mucha, D.; Halpenny, E. Exploring the human dimension: Visitor use analysis of Park, Willmore Wilderness. In *The 6th International Conference on Monitoring and Management of Visitors in Recreational and Protected Areas, Stockholm, Sweden, 21–24 August 2012*; Fredman, P., Stenseke, M., Liljedahlhl, H., Mossing, A., Daniel, L., Eds.; MMV: Stockholm, Sweden, 2012; pp. 388–389.
63. Mucha, D.; Halpenny, E. Using a Mixed-Methods Approach to Explore the Human Dimension of Willmore Wilderness Park, Alberta, Canada. In *The 6th International Conference on Monitoring and Management of Visitors in Recreational and Protected Areas, Stockholm, Sweden, 21–24 August 2012*; Fredman, P., Stenseke, M., Liljedahlhl, H., Mossing, A., Daniel, L., Eds.; MMV: Stockholm, Sweden, 2012; pp. 271–290.
64. McGrath, G.M. Tour Guides as Interpreters of Archaeological Sites: Heritage Tourism in Cusco, Peru. In *PQDT–Global*; University of Surrey: Surrey, UK, 2005.
65. Weiler, B.; Walker, K. Enhancing the visitor experience: Reconceptualising the tour guide's communicative role. *J. Hosp. Tour. Manag.* **2014**, *21*, 90–99. [CrossRef]
66. Milfont, T.L.; Duckitt, J. The environmental attitudes inventory: A valid and reliable measure to assess the structure of environmental attitudes. *J. Environ. Psychol.* **2010**, *30*, 80–94. [CrossRef]
67. Papageorgiou, K. A Combined Park Management Framework Based on Regulatory and Behavioral Strategies: Use of Visitors' Knowledge to Assess Effectiveness. *Environ. Manag.* **2001**, *28*, 61–73. [CrossRef]
68. Powell, R.B.; Ham, S.H. Can ecotourism interpretation really lead to pro-conservation knowledge, attitudes and behaviour? Evidence from the Galapagos Islands. *J. Sustain. Tour.* **2008**, *16*, 467–489. [CrossRef]
69. Munro, J.K.; Morrison-Saunders, A.; Hughes, M. Environmental Interpretation Evaluation in Natural Areas. *J. Ecotour.* **2008**, *7*, 1–14. [CrossRef]

70. Pierssené, A. Environmental interpretation. *Explain. Our World* **2010**, 1–14. [CrossRef]
71. Coghlan, A.; Ruth Fox, K.; Prideaux, B.; Lück, M. Successful interpretation in great barrier reef tourism: Dive in or keep out of it? *Tour. Mar. Environ.* **2011**, *7*, 167–178. [CrossRef]
72. Inversini, A.; Buhalis, D.; Pesonen, J. Agile Marketing for Tourism Destinations. In Proceedings of the Academy of Marketing Conference 2014, Bournemouth, UK, 7–10 July 2014.
73. Littlefair, C.J. *The Effectiveness of Interpretation in Reducing the Impacts of Visitors in National Parks*; National Parks Griffith University: Queensland, Australia, 2003.
74. Sim, K.-W.; Kim, B.-G.; Lee, J.-H.; Poung-Sik, Y. The evaluation of effectiveness of the interpretive program at national parks. *J. Outd. Recreat. Tour.* **2018**, *21*, 69–75. [CrossRef]
75. Moscardo, G. Interpretation and tourism: Holy grail or emperor's robes? *Int. J. Cult. Tour. Hosp. Res.* **2014**, *8*. [CrossRef]
76. Huang, S.; Weiler, B.; Assaker, G. Effects of Interpretive Guiding Outcomes on Tourist Satisfaction and Behavioral Intention. *J. Travel Res.* **2015**, *54*, 344–358. [CrossRef]
77. County Government of Narok (C.G.N.). *Masai Mara Visitation Trends 2018–2019*; County Government of Narok: Narok, Kenya, 2020.
78. Crano, W.D. Attitudes and Attitude Change. In *Attitudes and Attitude Change*; Psychology Press: New York, NY, USA, 2011. [CrossRef]
79. Juma, L.O.; Bakos, I.M.; Khademi-Vidra, A. *Research Data as Analyzed Using Data Analysis Software; SPSS, Excel, and Nvivo 12*; Szent Istvan University: Godollő, Hungary, 2020.
80. Schmid, B.; Balac, M.; Axhausen, K.W. Post-Car World: Data collection methods and response behavior in a multi-stage travel survey. *Transportation* **2019**, *46*, 425–492. [CrossRef]
81. UNWTO. Tourism—Key to development, prosperity and well-being, International tourism in 2016–Key trends and outlook. In *UNTWO Tourism Highlights: 2017 Editon*; UNWTO: Madrid, Spain, 2017; Volume 1–2, pp. 2–4.
82. CNN. African Safari: 8 Best National Parks to View Wildlife|CNN Travel. CNN Travel. 2018. Available online: https://edition.cnn.com/travel/article/africa-safari-national-parks/index.html (accessed on 24 August 2020).
83. World Travel Awards. Africa's Leading National Park 2018. World Travel Awards-2018. 2018. Available online: https://www.worldtravelawards.com/award-africas-leading-national-park-2018 (accessed on 24 August 2020).
84. Connell, J.; Page, S.J.; Meyer, D. Visitor attractions and events: Responding to seasonality. *Tour. Manag.* **2015**, *46*, 283–298. [CrossRef]
85. Kim, Y.; Kim, C.; Lee, D.K.; Lee, H.; Andrada, R.I.T. Quantifying nature-based tourism in protected areas in developing countries by using social big data. *Tour. Manag.* **2019**, *72*, 249–256. [CrossRef]
86. Kabii, F.; Wandaka, J.K.M.; Jilo, N. Assessment of the impact of Smartphone Technology on Tour Guide Performance in Kenya. *Int. J. Soc. Sci. Res.* **2019**. [CrossRef]
87. Makopo, B.M.; Geldenhuys, S.; Sime, L. The role of tourist guides in interpretation: A survey of secondary school teachers at Maropeng and the Sterkfontein caves, South Africa. *Afr. J. Hosp. Tour. Leisure* **2018**, *7*, 12–25.
88. Pabel, A.; Pearce, P.L. Selecting humour in tourism settings—A guide for tourism operators. *Tour. Manag. Perspect.* **2018**, *25*, 64–70. [CrossRef]
89. Panca Syahputra, B. Study of the Interpreting Techniques used by the Tourist Guides in the Tourism Attractions of North Sumatra. *Int. J. Engl. Lang. Treansl. Stud.* **2017**, *5*, 14–20.
90. Yang, S.-Y.; Hsu, C.-L. A location-based services and Google maps-based information master system for tour guiding. *Comput. Electr. Eng.* **2016**, *54*, 87–105. [CrossRef]
91. Rodríguez-López, N.; Diéguez-Castrillón, M.I.; Gueimonde-Canto, A. Sustainability and Tourism Competitiveness in Protected Areas: State of Art and Future Lines of Research. *Sustainability* **2019**, *11*, 6296. [CrossRef]
92. Poudel, S.; Nyaupane, G.P. The Role of Interpretative Tour Guiding in Sustainable Destination Management: A Comparison between Guided and Nonguided Tourists. *J. Travel Res.* **2013**, *52*, 659–672. [CrossRef]
93. Holmes, A.P.; Grimwood, B.S.R.; King, L.J. Creating an Indigenized visitor code of conduct: The development of Denesoline self-determination for sustainable tourism. *J. Sustain. Tour.* **2016**, *24*, 1177–1193. [CrossRef]
94. Roberts, M.; Mearns, K.; Edwards, V. Evaluating the effectiveness of guided versus non-guided interpretation in the Kruger National Park, South Africa. *Koedoe* **2014**, *56*, 1–8. [CrossRef]

95. Patroni, J.; Simpson, G.; Newsome, D. Feeding wild fish for tourism-A systematic quantitative literature review of impacts and management. *Int. J. Tour. Res.* **2018**, *20*, 286–298. [CrossRef]
96. Mayorga, M.; Cable, T.T.; Mullins, C. Evaluation of Interpretive Media Use and Effectiveness at a Nature Center. *J. Interp. Res.* **2017**, *22*, 15.
97. Mifsud, M.C. The Development and Evaluation of an Environmental Awareness Course Addressed to Student Tourist Guides in the Maltese Islands. In *Handbook of Theory and Practice of Sustainable Development in Higher Education*; Leal Filho, W., Brandli, L., Castro, P., Newman, J., Eds.; Springer International Publishing: Cham, Switzerland, 2017; Volume 1, pp. 333–347. [CrossRef]
98. Kioko, J.; Kiffner, C.; Phillips, P.; Patterson-Abrolat, C.; Katers, S. Driver knowledge and attitudes on vehicle collisions in Northern Tanzania. *Trop. Conserv. Sci.* **2015**, *8*, 352–366. [CrossRef]
99. Hurdle, J. Off-Road Drivers Still Battling Conservationists over Access to Pinelands. New Jersey SpotLight. 2019. Available online: https://www.njspotlight.com/2019/08/19-08-04-off-road-drivers-still-battling-conservationists-over-access-to-pinelands/ (accessed on 24 August 2020).

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Visitors' Perceptions towards Traditional and Regional Products in Trabzon (Turkey) and Podhale (Poland)

Maria Hełdak [1,*], Sultan Sevinç Kurt Konakoğlu [2], Izabela Kurtyka-Marcak [3], Beata Raszka [1] and Banu Çiçek Kurdoğlu [4]

1 Institute of Spatial Economy, Wroclaw University of Environmental and Life Sciences, Norwida 25, 50-375 Wrocław, Poland; beata.raszka@upwr.edu.pl
2 Department of Urban Design and Landscape Architecture, Amasya University, 05100 Amasya, Turkey; sultansevinc.kurt@amasya.edu.tr
3 Institute of Economics Sciences, Wroclaw University of Environmental and Life Sciences, Norwida 25, 50-375 Wrocław, Poland; izabela.kurtyka-marcak@upwr.edu.pl
4 Department of Landscape Architecture, Karadeniz Technical University, 61080 Trabzon, Turkey; banukurdoglu@ktu.edu.tr
* Correspondence: maria.heldak@upwr.edu.pl; Tel.: +48-601-838-360

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Abstract: Gastronomy tourism is defined as a type of tourism that deals with the relationship between food and beverages and culture in the context of the local culinary culture. Local dishes, recipes, and culinary culture, which express the lifestyle of cities, are an important part of tourists' choice of destinations. According to many studies undertaken in recent years, tourists have seen an increase in the number of trips conducted to taste a cultural dish and to learn cooking techniques and cooking skills. In this study, the Trabzon (Turkey) and Podhale (Poland) regions were selected as a study area. These regions are characterised by unique, very interesting culture and art and, especially, folklore. The cuisines from Podhale and from the Trabzon region are equally attractive. The study was conducted on 151 people in Trabzon and 102 respondents in the Podhale region. The study revealed that only 15 out of 253 respondents had not heard about regional and traditional products. The authors analyzed whether people from different age groups had specific habits concerning the place of purchasing regional products in the analysed regions of Poland and Turkey. Regarding the question of whether the motivation to buy regional products was the same in households with a larger and smaller number of residents, it was found that only one correlation proved to be statistically significant: the correlation between household size and buying regional products because of their price.

Keywords: traditional and regional products; gastronomy tourism; regional cuisine; Trabzon; Podhale region

1. Introduction

Throughout history, people have traveled to areas outside of their own for various reasons. These trips, which were made only by rich and idle people in the past, are made by people everywhere depending on the development of industry and technology, the increase of the income per capita, the increase of the level of prosperity, the increase of free time, and cheaper transportation [1].

According to the European Commission [2], there is increasing interest in local cultures and urban tourism because of the increase in the level of education of the people, the increase of their incomes, the attraction of different tastes, the recognition of different cultures and shopping, and the serious attraction of sun, sea and sand tourism.

The food culture of a region consists of food and beverage types and habits belonging to the region [3]. Food has historically been considered a key attraction for tourists, with many destinations attempting to provide tourists with culinary experiences [4]. According to Capaldi [5], eating is one of the most fundamental human activities; therefore, research on food has globally increased in many disciplines and is recognized as an important tourism attraction [6–8].

Food culture and tourism have a very close relationship [9,10]. Several authors have investigated the relationship between gastronomy and tourism as follows: Henderson [9] presented three research lines around the relationship between tourism and gastronomy; as food tourism products, food tourism as a tourist destination, and the marketing of food and general development tools. Besides this work, Cheng and Huang [11] point to a narrow relationship between gastronomy and tourism, with four different lines. First, gastronomy is part of the local culture; second, gastronomy plays a role for tourists; third, food is considered a tourist product; and fourth, gastronomy is a tourism experience. Finally, Björk and Kauppinen-Räisänen [12] investigated gastronomy and current trends in the relationship between tourism and suggested two different lines. First, gastronomy tourism has emerged as a lure because travelers are attracted to new food-based feelings and experiences with the new [13]. The visits are carried out to identify the location of a food culture, providing an economic contribution to the region.

The aim of this study is to assess the perception of regional cuisine products as well as the preferences and motivations of their purchase by tourists who visit selected destinations in Poland and Turkey. The authors analyzed the perception of traditional and regional products that have the relevant certificates. Each of the analyzed countries has different legal regulations that govern the granting of regional product certificates for specific groups of products.

2. Literature Review

Since tourism is a rapidly growing and developing industry, it is difficult to define the concept of tourism in a simple way. Stephan, Smith and Xiao [14] describe tourism as an experience that teaches local resource values and boosts their consumption. When tourism is considered in this respect, local dishes constitute an important part of recognizing the culture of the destination. According to Hjagaler and Richards [15], local food is an important part of tourism, providing both a cultural and fun experience. Visitors tend to prefer traditional local products, increasing the value of the destination [16]. For some tourists, trying or buying local products is the main purpose of tourism activities.

Gastronomy is a concept that examines the tastes and structures of foods and beverages in local culinary culture and the relationship between tableware and culture. Gastronomy was popular in the 1800s and has been used to signify "good eating and drinking" [17]. The concept of gastronomy is associated with art, cuisine, food and culture [18]. Different names such as "gastro-tourism„"" "food tourism," "gourmet tourism," "culinary tourism," and "gastronomy tourism" are used in the literature to describe food and beverage-based tourism activities [12,19].

Wolf [20] defines gastronomy tourism as travel which searchs for prepared food and beverages and memorable gastronomic experiences. However, all visits to a restaurant should not be considered to be gastronomy tourism, but are shaped by tourists' interest in traditional local products. Gastronomy tourism is carried out at food festivals and restaurants, to taste the dishes of a particular chef and to buy traditional local products [21]. The creation of cultural theme trails, including culinary trails, is considered an important factor of regional development [22].

Local cuisine attractiveness significantly contributes to tourists' perceptions of a destination's attractiveness [23]. Gastronomy tourism can be narrowly defined as tourists visiting food producers, restaurants, food-related festivals, and other places where special foods and their ingredients are produced, sometimes by professional chefs. Gastronomy tourism describes trips aimed at tasting unique food, and it is also referred to as food tourism or kitchen tourism [24]. This type of tourism offers tourists the opportunity to experience cultural and local tastes and smells which will remain

with them forever [25]. Çalışkan [25] stated that gastronomic tourism is an important tool for reflecting the cultural identity and heritage of the region.

The analyzed regions are subject to different legal regulations concerning the certification of regional products. In Poland, which is a Member State of the European Union, the Quality Policy is realized by means of granting certification signs to those agricultural and food products that originate from specific regions and are manufactured with the use of traditional methods. The system of protecting and manufacturing regional and traditional products is an important factor that influences the sustainable development of rural areas. As a result, the objectives of the First Pillar of the Common Agricultural Policy are realised by the system of protection and promotion of regional and traditional products. This policy contributes to the protection (and sometimes creation) of new jobs and improves the protection of cultural heritage. In Turkey, due to the European Union, regulatory compliance with the Decree Law Regulation no. 555 on the Protection of Geographical Indications has been protected legally since 1995. According to Article 1 of this Decree, the law covers all the definitions and conditions relevant to the Geographical Indications protection of all natural, agricultural, mining, arts, crafts, and industrial products that comply with the definitions. The Turkish Patent Institute is the authorized organ for the registration of geographical indications. In Geographical Indications registration, the aim is to protect the quality of the product in question, to ensure standardized production and to enable the producers in the region to benefit from registration [26,27]. Many countries around the world, especially European countries, protect their local products with a geographical indication.

Turkey is also one of the countries with local products that are legally protected under the geographical indication. According to European Union regulations in Turkey, there are many traditional food products which must be registered for geographical indication [28–30]. The number of studies related to gastronomy tourism in the world and Turkey has been increasing in recent years. Çalışkan [25], Cheng and Huang [11], Sengel et al. [31], Pérez Gálvez et al. [21], and Başaran [32] conducted a literature review and questionnaire in their studies.

Turkish cuisine consists of soups, vegetable dishes, meat dishes, olive oil labor, pastry products, dried legume dishes, salads, and sweets [32]. Trabzon cuisine is a typical Anatolian cuisine, which consists mainly of animal products such as meat, milk, yogurt, cereals, vegetables and herbs. The cuisine of the Trabzon region consists of black bean soup, kuymak, slippery, pickled roast, Tonya butter, Kulek cheese, Vakfıkebir bread, Surmene pita bread, Akcaabat meatball, anchovy, rice with anchovy, and Hamsiköy rice pudding.

In line with the literature review, the following hypothesis is examined: traditional and regional products are an important factor for tourists when choosing a city to visit. Local food holds great potential to enhance sustainability in tourism, contribute to the authenticity of the destination, strengthen the local economy, and provide an environmentally friendly infrastructure [33].

3. Materials and Methods

The aim of the presented research was to recognize the preferences of tourists who visit the Podhale (Poland) and Trabzon (Turkey) regions with respect to purchasing traditional and regional products. These categories include all products that possess the relevant certificates (product description has been presented above). Pursuant to the established research objective, a literature review was conducted and a survey was carried out on 253 tourists, including 151 people in the Trabzon region and 102 in Podhale.

The following research hypotheses were formulated:

H1: The motivations of tourists to purchase regional products are similar in both analyzed regions in Poland and Turkey.

H2: The price and lack of access to regional products is the main barrier preventing tourists from purchasing them, regardless of the analyzed region, both in Poland and Turkey.

The research was divided into the following stages:

- Review of subject literature and setting the research objective;

- Identification of regional products that were granted the relevant certificates in the Podhale and Trabzon regions, divided into categories;
- Preparing the survey (questionnaire);
- Conducting research in selected regions of Poland and Turkey;
- Analysis of the obtained results carried out with the use of descriptive and statistical methods, as well as the analysis of the following correlations:

    - Paying attention to the marketing of regional products vs. the age of respondents;
    - Distinguishing regional products vs. the gender of respondents;
    - Place of purchasing regional products in the analyzed regions of Poland and Turkey vs. the age of respondents;
    - Motivation for purchasing regional products vs. place of residence of respondents;
    - Motivation for purchasing regional products vs. the number of persons in the household.

- Verification of research hypotheses.

The respondents for the survey were selected by targeted random sampling. The main criterion was the place of residence of the respondents outside the analyzed region (to select persons who visited Podhale and Trabzon as tourists). Source materials were collected based on a survey carried out in the form of a questionnaire [34,35]. The survey was conducted on randomly selected persons from outside the region, collecting a total of 253 respondents in various age groups. The authors did not specify any guidelines concerning the number of respondents of the given gender, age or place of residence. The number of respondents was important.

The respondents were asked to answer questions concerning their knowledge of the term "regional products" and "traditional products" and the way of distinguishing regional products from other products. They were also asked to give the names of the products that they purchased most often. Apart from the type of most frequently purchased products, the survey contained lists of possible answers (multiple choice questions). Thirteen such questions were asked altogether. This type of questioning is easier to use both for the respondent and the interviewer. Moreover, such questions eliminate the respondent's inability to express their opinion. They facilitate the classification, encoding, reduction, and analysis of data. The survey also analyzed how often tourists purchase regional products, the reasons for this purchase and whether they encounter any obstacles in purchasing such products. Here, the optional answers were also specified. Potential obstacles in purchasing products included price, quality, lack of information, taste, difficult access, smell, lack of knowledge or other factors specified by the respondent. One of the questions concerned the places where respondents most often purchased traditional products. The options included restaurants, supermarkets, stalls, local shops, regional markets, and other. Obviously, the survey also contained control questions concerning the age and gender of the respondents, their education, type of place of residence, and the number of persons in their households.

The authors decided to omit the question about the income of the household, as respondents are usually reluctant to answer this and so such questions discourage co-operation.

The authors previously conducted studies on the willingness to purchase organic products [36].

The study revealed that only 15 out of 253 respondents had not heard about regional and traditional products. A majority of those to whom this term was unknown came from the Podhale region in Poland (and one respondent from Trabzon).

The study was conducted on 151 tourists in Trabzon and 102 respondents in Zakopane: in Turkey, 51.0% of the respondents were female and 49.0% were male, while in Poland, 73.5% were female and 6.5% male. The age structure of respondents in the surveyed regions, place of residence and number of persons in a household are shown in Figure 1, Figure 2, and Figure 3.

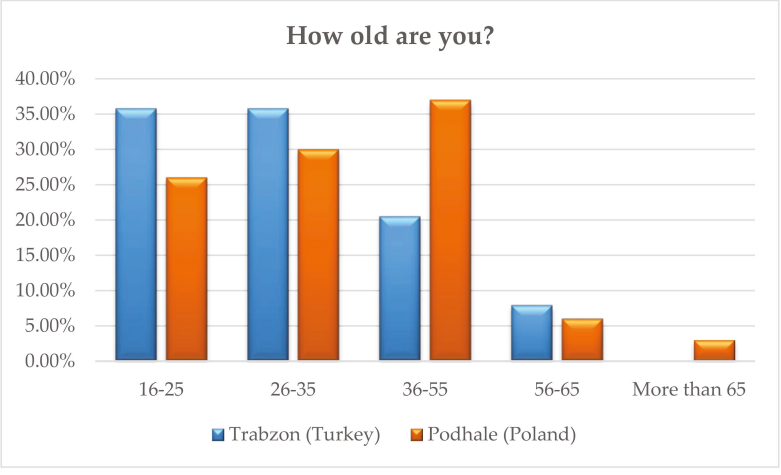

Figure 1. Age of respondents by regions: Trabzon (Turkey) and Podhale (Poland).

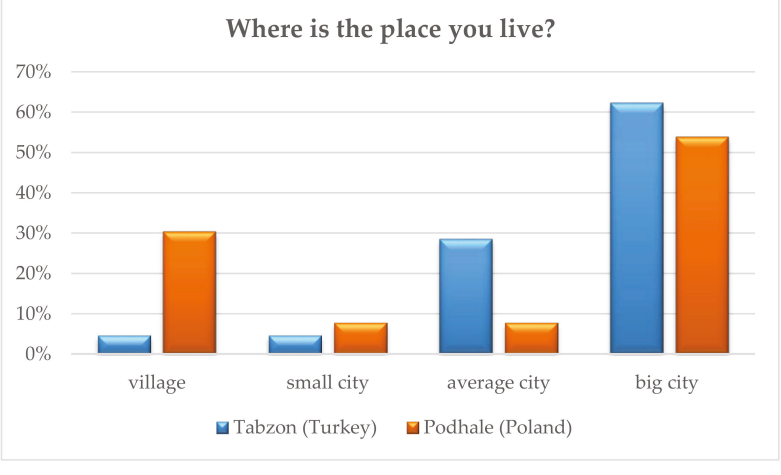

Figure 2. The place of residence of respondents in Podhale and Trabzon regions.

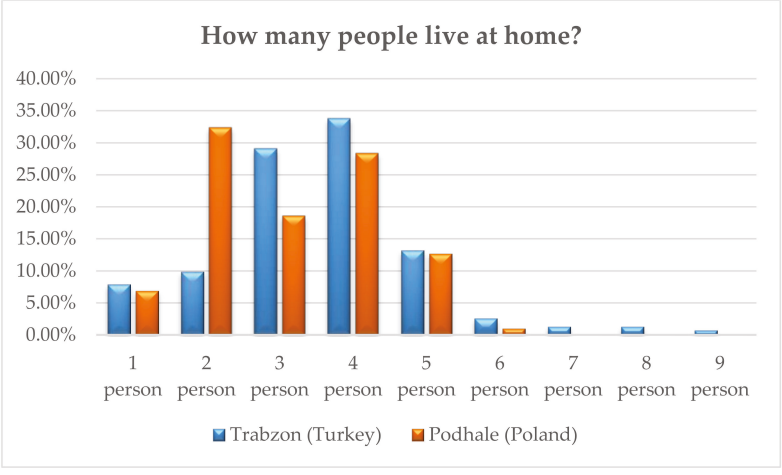

Figure 3. Number of persons in a household of respondents in Podhale and Trabzon regions.

The group of respondents was a certain limitation, as younger tourists were generally more willing to answer the questions than elderly ones.

Most tourists and residents associate the region with traditional cuisine; however, do all of them perceive it in the same way? In order to clarify several doubts, the following research questions were posed:

1. Do people of the same age pay attention to the different markings of regional products in the analyzed regions?
2. Is there a correlation between gender and the way of distinguishing regional products?
3. Do people from different age groups have their own habits concerning the place of purchasing regional products in the analyzed regions of Poland and Turkey?
4. Is the motivation to buy regional products the same in people who live in the country and in cities in the analyzed regions of Poland and Turkey?
5. Is the motivation to buy regional products the same in households with a larger and smaller number of residents?

In order to provide answers to the above research questions, statistical analyses were conducted with use of the IBM SPSS Statistics package, version 16. It was used to perform a series of correlation analyses with the Pearson Chi^2 test. The adopted level of significance was the classical threshold $\alpha = 0.05$, although the probability results of the test ranging from $0.05 < \alpha < 0.1$ were interpreted as significant on the level of statistical tendency.

The Trabzon and Podhale regions, which have a natural urban texture and a local food culture, were chosen as the study area (Figure 4). The Trabzon region (39^0 07′ 43,8′′ and 40^0 30′ 15,5′′ East Longitude, 40^0 31′ 31,3′′ and 41^0 06′ 27,5′′ North Latitude) is located in the north of the Black Sea coast of Turkey and has an area of 4628 km^2. Neighboring provinces of Trabzon are Karadeniz (North), Gümüşhane and Bayburt (South), Rize (East), and Giresun (West). The region has rich natural and cultural beauties, culinary culture and rich tourism potential: culture tourism, urban tourism, health tourism, congress tourism, sports tourism, caravan tourism, youth tourism, and sea tourism are undertaken in the region.

Podhale is a cultural region in southern Poland, at the foot of the Tatra Mountains, in the catchment of upper Dunajec River. It occupies the central part of the Podhale Basin and its southern part enters the Tatra. The borders of the region are quite clear: it is limited by the Gorce Mountains to the north,

the Tatra to the south, the Białka River to the east and the European Watershed (dividing the basins of rivers that flow to the Baltic Sea and the Black Sea) to the west.

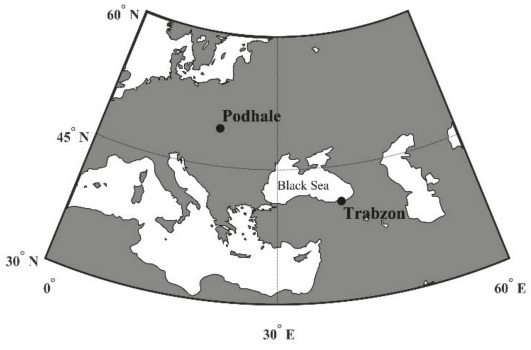

Figure 4. General location of the Podhale and Trabzon regions.

In the scope of the study, literature on gastronomy tourism was searched for, and local and foreign articles, theses, and internet sites were examined [12,15–21,24,25,37]. A questionnaire was conducted with 253 local people, comprising 102 people living in the Podhale region and 151 people living in the Trabzon region for data collection; 15 questions were asked to the local people with their demographic characteristics. The first nine questions of the questionnaire were prepared in order to determine whether traditional and regional products are preferred in Trabzon and Podhale regions, how often they are used and the potential of gastronomy tourism. A statistical program (SPSS 16.0) was used in the evaluation of the questionnaire results.

4. Results and Discussion

4.1. Regional and Traditional Products in the Analysed Regions of Podhale and Trabzon

Traditional Podhale cuisine emerged as a result of difficult natural conditions. Oats, potatoes, cabbage, and spring barley were grown in the mountainous areas, and sheep were grazing on the mountain pastures. Including a product in the list of regional products in Poland assures the consumers that they are purchasing a high-quality product manufactured in the traditional way. The table below (Table 1) presents a list of regional products that were granted the relevant certificates in the Podhale region, divided into categories.

The description of traditional and regional products from the Podhale region constitutes Supplementary Materials to the paper. The descriptions of products were based on information published on the website of the Ministry of Agriculture and Rural Development—a website of the Polish government [37].

Oscypek was the answer that nearly all of the 102 participants gave to the question, "What is the first traditional regional product that comes to your mind when you say in Podhale?" Based on the conducted survey, it was determined that only one tourist in the Podhale region had not heard about regional products. In the Trabzon region, no such persons were found.

These results are confirmed by research conducted in [38]. The Podhale region is mainly associated with cheese—oscypek (smoked sheep milk hard cheese), bundz (sheep milk cheese), and kwaśnica (sauerkraut soup). The results of those tests on the types of products in regional cuisine demonstrate that about 57% of the respondents named at least one dish of that cuisine, including 37% choosing oscypek as a characteristic product, and only individual persons chose roasted mutton, bryndza (sheep milk cheese), and hałuski (thick noodles or dumplings).

Table 1. The list of regional products in the Podhale region divided into categories.

No	Product Category	Product Name	Date of Entry on the List of Traditional Products/Date of Certification
I	Milk products	Bryndza podhalańska	2005-09-28
		Bundz/bunc	2005-10-10
		oscypek	2005-09-28
		redykołka	2005-10-10
		Ser gazdowski – gołka, pucok, kara	2008-10-07
		żentyca	2005-09-28
II	Meat products	Jagnięcina podhalańska	2008-06-26
		Kiełbasa podhalańska ze Skrzypnego	2014-12-09
III	Fisheries prodcts	-	
IV	Vegetables and fruits	-	
V	Bakery and confectionery products	-	
VI	Oils and fats	-	
VII	Honey	-	
VIII	Ready meals and dishes	Mountain-style cabbage	2013-04-24
		Kaszanka – kiszka z kapustą zasmażaną	2013-03-24
		Hauski noodles	2013-03-22
		Moskol	2011-08-25
		Zupa zaproska	2012-03-06
		Tarcioki – scykane noodles	2013-03-22
IX	Beverages	-	
X	Other	-	

Source: Ministry of Agriculture and Rural Development—a website of the Polish government [37].

The popularity of culinary tourism among tourists in Poland was determined in the research carried out in 2013. As many as 85% of active tourists declared that they are interested in tasting the regional cuisine's dishes [39].

Geographical indication-registered regional cuisine has become quite popular in Turkey in recent times. The city of Trabzon also has a registered regional cuisine due to its rich culinary culture. The Trabzon region has rich culinary culture due to its rooted culture level, its historical life, and its rich vegetation cover.

The reason for this diversity has been the influence of different cultures throughout history. Although the dishes that are unique to the region are not known in other regions, the taste, structure and names are different [40–42] (Table 2).

Table 2. The list of regional products in the Trabzon region divided into categories.

No	Product Category	Product Name	Date of Entry on the List of Traditional Products/Date of Certification
I	Milk products	Hamsikoy rice pudding	2017-10-06
		Tonya butter	2017-12-18
		Kulek cheese	2018-06-25
		Kuymak	
II	Meat products	Akcaabat meatballs	2008-07-31
III	Fisheries prodcts	Anchovy	
		Rice with anchovy	
IV	Vegetables and fruits		
V	Bakery and confectionery products	Vakfıkebir bread	2017-11-30
		Surmene pita bread	2017-05-12
VI	Oils and fats	-	
VII	Honey	-	
VIII	Ready meals and dishes	Black bean soup	
IX	Beverages	-	
X	Other	Pickled roast	
		Slippery	

Source: Trabzon Provincial Directorate of Culture and Tourism—a website of Republic of Turkey Ministry of Culture and Tourism [43].

The traditional and regional products that are certified by the European Union in the Trabzon region are Hamsikoy rice pudding, Tonya butter, Kulek cheese, Akcaabat meatballs, Vakfıkebir bread and Surmene pita bread. Other traditional and regional products of Trabzon region are black bean soup, kuymak, anchovy, rice with anchovy, pickled roast, and slippy. These traditional and regional products do not have a certificate determined by the European Union.

The Trabzon region presents the opportunity to taste local delicacies in many different venues throughout the city. The most preferred local food places by locals and tourists are Ayasofya, Cephanelik, Yeşil Vadi, and Sera Lake [43]. The description of traditional and regional products from the Trabzon region constitutes Supplementary Materials to the paper.

According to Guerrero et al. [44], a traditional food may be classified as "a product ... made accurately in a specific way according to the gastronomic heritage, ... and known because of its sensory proprieties and associated with a certain local area, region or country." These goods generally possess positive images due to their superior taste, nostalgia and/or ethnocentrism [45,46]. The studies were compared according to the classification of traditional and local products in both regions (Table 3).

On the other hand, for the question "What is the first traditional regional product that comes to mind when you say Trabzon?," of the 151 participants, 22.6% gave the answer "Tonya butter," 14.6% "Vakfıkebir bread," 12.0% "Kulek cheese," 10.66% "Akçaabat meatballs," 9.33% "Kuymak," 8.0% "Black bean soup," 7.33% "anchovy," 6.66% "hazelnut," 4.0% "cornflour," 2.66% "Hamsikoy rice pudding," and 2.16% answered "tea."

Table 3. Comparison of traditional and regional products in both regions.

No	Product category	Number of Products	
		Podhale Region	Trabzon Region
I	Milk products	6	3
II	Meat products	2	1
III	Fisheries prodcts	0	0
IV	Vegetables and fruits	0	0
V	Bakery and confectionery products	0	2
VI	Oils and fats	0	0
VII	Honey	0	0
VIII	Ready meals and dishes	6	0
IX	Beverages	0	0
X	Other	0	0

Source: own elaboration.

4.2. Main Results of the Survey

In Trabzon, the largest number of participants—i.e., 48.7%—answered the question, "How can you distinguish traditional and regional products from others?" with "Own knowledge," followed by 16.7% who answered with "Advertisement," 14.0% in third place answered "Special designation," then 11.0% "Label," 9.0% "Separate stand," and finally 0.7% gave the answer "Other (packing)." In Zakopane, most of the respondents pointed to "Special designation" (58.8%) and "Label" (51%). '

"Separate stand" and "Own knowledge" also received over 40% of the answers (47% and 42%, respectively). Labeling is a powerful quality signal and a direct aid to consumers in making purchase decisions because it can convey important information on the search, experience and credence attributes of the products [47,48]. The production costs of eco-labelled products are higher than those of conventional ones because eco-labelled products require careful management from the raw materials and subsidiary materials to the packaging (the product is manufactured using an eco-friendly process and production method) [36].

This demonstrates that, in Poland, respondents rely on designation and labelling, while in Turkey, they use mainly their own knowledge. Both in Trabzon and in Zakopane, a vast majority of respondents buy regional products (93.4% in Trabzon and 86.3% in Zakopane). Only a small group of respondents do not purchase such products.

The survey also analysed the frequency of purchasing traditional and regional foods. It was found that, in Trabzon, 37.1% of the total number of 151 participants gave the answer "Once a month," 33.8% "Once a week," 20.5% "Once every six months," 5.3% "I don't buy" and 3.3% answered "Every day" (Figure 5).

In Podhale, 30% of the total number of 102 participants chose the answer "Once a month," 28% "Once a week," 17% "Once every six months," 17% "Rarely," and 6% "Every day."

A question about the obstacles to buying this kind of products was also included in the survey: "What prevents you from buying traditional and regional products?." The answers revealed that, out of the total number of 151 participants in Trabzon, 28.6% gave the answer "Price," 24.5% "Difficult access," 11.6% "Lack of information about product," 10.2% "Quality," 9.5% "Taste," 4.1% "Smell" and 2.7% "Other (distrust, no need)." In Zakopane, 64.7% gave the answer "Difficult access," and 60.8% "Price." These were the most frequently named obstacles.

The research provided an answer to the question: "What are your reasons for buying traditional and regional products?." Both in Trabzon and in Podhale, the most frequent answer was "Taste" (47% of respondents in Turkey and as many as 72.5% in Poland), followed by 29.8% of respondents answering

"Quality," at 17.9% (Trabzon) and 63.7% (Podhale). The price did not play a significant role either in Trabzon or in Zakopane.

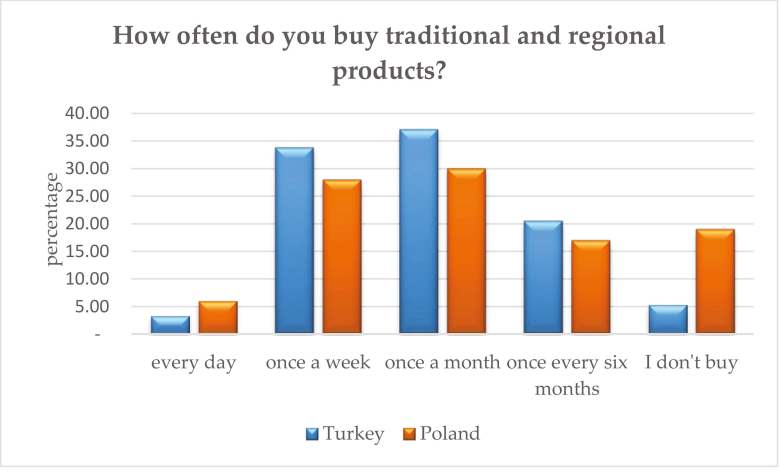

Figure 5. Frequency of buying traditional and regional products in in Podhale and Trabzon regions.

The products most often purchased in Trabzon (question: "What are the traditional products you buy the most?") included "Tonya butter" (27.6% respondents). In total, 23.6% of respondents answered "Kulek cheese," 9.8% "Vakfıkebir bread," 7.89% "Cornflour," 5.92% "Akçaabat meatballs," 5.26% "Hazelnut," 3.94% "Black bean soup," 3.28% "Hamsikoy rice pudding," 2.63% "anchovy" and "milk," 2.2% "Kuymak," 1.97% "yoghurt" and "tea," 1.31% "Surmena pita bread." In the Podhale region, the most popular product is definitely Oscypek.

As for the next question, "Where do you buy traditional local products?," in first place, 62.0% of the participants answered "Local shops," followed by 19.3% in second place with "Markets," 12.0% in third place with "Other (village, manufacturer, relative)," then 4.0% "Restaurant," 2.0% "Regional fairground" and finally 0.7% gave the answer "Stand." In Zakopane, such products are mainly purchased from street market stands.

4.3. The Correlation between Gender and the Way of Distinguishing Regional Products

During the study, the authors verified whether people from different age groups paid attention to different designations of regional products. For this purpose, Pearson Chi^2 analysis was conducted, calculating the Cramer's *V* measure that allowed us to determine the strength of associations. Additionally, Fisher's adjustment was used in the analyses, where an expected value lower than 5 was noted (Table 4).

It was determined that age was not linked in any way to the manner of distinguishing regional products. The correlations between variables proved statistically insignificant. Regardless of their age, respondents pointed to similar factors that enabled them to distinguish regional and traditional products.

Then, the correlation between gender and the way of distinguishing regional products was verified. A series of Pearson's Chi^2 tests were used for calculations, so that the correlation between gender and each way of distinguishing regional products discussed here was analysed. As the size of tables was 2 x 2, an adjustment for continuity was used, and the Phi measure was calculated (Table 5).

The only correlation that reached the level of a statistical trend, although its strength was low, was the link between gender and distinguishing regional products based on "own knowledge." The other correlations were statistically insignificant. The authors decided to prepare a frequency distribution

for the correlations between the variables of gender and distinguishing regional products based on "own knowledge" (Table 6).

Table 4. The correlation between gender and the way of distinguishing regional products.

Possible Answers:	Age		
	χ^2	p	V
Distinguishing regional products based on labels	1.35	0.509	0.12
Distinguishing regional products based on special designations	4.05	0.132	0.21
Distinguishing regional products based on separate stands	2.93	0.231	0.18
Distinguishing regional products based on own knowledge	2.18	0.336	0.15
Distinguishing regional products based on advertising*	0.87	0.648	0.10
Distinguishing regional products based on other methods*	1.53	0.465	0.13

* Analyses performed with Fisher's adjustment.

Table 5. The correlation between gender and the way of distinguishing regional products.

Possible Answers	Gender		
	χ^2	p	φ
Distinguishing regional products based on labels	1.03	0,.09	0.12
Distinguishing regional products based on special designations	1.43	0.233	0.14
Distinguishing regional products based on separate stands	0	1	0.01
Distinguishing regional products based on own knowledge	3.11	0.078	0.2
Distinguishing regional products based on advertising*	0	1	0.01
Distinguishing regional products based on other methods*	0.29	0.592	0.17

Source: own elaboration.

Table 6. Correlation between gender and distinguishing regional products based on own knowledge.

		Not Applicable	Applicable
Female	Population	39	36
	% of the gender group	52	48
	% of the group distinguishing regional products based on own knowledge	66.1	83.7
	% of the total population of respondents	38.2	35.3
Male	Population	20	7
	% of the gender group	74.1	25.9
	% of the group distinguishing regional products based on own knowledge	33.9	16.3
	% of the total population of respondents	19.6	6.9

Source: own elaboration.

The data presented above demonstrated that both men and women significantly more often do not decide to distinguish regional products based on "own knowledge." However, as far as women were concerned, the differences between declarations about not distinguishing regional products based on own knowledge and actually not doing so was smaller than in men. This means that men rely on their own knowledge when choosing regional products less often than women.

4.4. The Link between Age and Place of Residence with the Habits related to the Place of Purchasing Regional Products

The next stage involved conducting several Pearson's Chi^2 analyses again. This enabled us to verify whether there was a difference in the habits concerning the place of purchasing regional products depending on the age of the respondents. Additionally, the Cramer's *V* measure was used to interpret the strength of this effect. The results are presented in Table 7.

Table 7. The link between age and place of residence with the habits related to the place of purchasing regional products.

	Age		
	χ^2	*p*	*V*
Buying traditional and regional products in restaurants*	1.02	0.717	0.1
Buying traditional and regional products in supermarkets	2.41	0.3	0.16
Buying traditional and regional products from special stands	1.33	0.514	0.12
Buying traditional and regional products in local stores	0.62	0.733	0.08
Buying traditional and regional products in regional fairgrounds	5.28	0.071	0.24
Buying traditional and regional products from local manufacturers	0.2	0.905	0.05
Buying traditional and regional products in other places*	1.52	1	0.13

* Analyses performed with Fisher's adjustment. Source: own elaboration.

The correlation between buying regional and traditional products in regional markets and age was on the level of a statistical trend. Cramer's *V* measure demonstrated the existence of a correlation that corresponded to a small effect. In order to prepare more detailed characteristics of the correlation between variables, the frequency analysis presented in Table 9 was conducted. The other correlations proved to be statistically insignificant (Table 8).

Table 8. The correlation between age and buying traditional and regional products in regional fairgrounds.

		Not Applicable	Applicable
16–25	Population	18	8
	% of age	69.2	30.8
	% buying traditional and regional products in regional fairgrounds	38.3	17.4
	% of the total population of respondents	19.4	8.6
26–35	Population	12	18
	% of age	40	60
	% buying traditional and regional products in regional fairgrounds	25.5	39.1
	% of the total population of respondents	12.9	19.4
36–55	Population	17	20
	% of age	45.9	54.1
	% buying traditional and regional products in regional fairgrounds	36.2	43.5
	% of the total population of respondents	18.3	21.5

Source: own elaboration.

Respondents aged 16–25 declared that they bought traditional and regional products in regional fairgrounds much less often that the other respondents. Most of the participants in this age group responded that they did not purchase regional products in these markets.

In the other age groups, a little more than 50% of the respondents chose the answer that they bought traditional and regional products in regional markets.

Pearson's Chi^2 analyses were also performed in order to verify the correlation between the place of residence and the motivation to buy regional products. Due to the size of the table, continuity adjustment was applied to all the analyses, and the effect size was calculated based on Phi (Table 9).

Table 9. The correlation between the place of residence and the motivation to buy regional products.

The Motivation to Buy Regional Products	Place of Residence		
	χ^2	p	φ
Buying regional products because of their price	4.1	0.043	0.26
Buying regional products because of their quality	0.11	0.739	0.06
Buying regional products out of curiosity	0.22	0.640	0.07
Buying regional products because of their taste	0.24	0.626	0.07
Buying regional products because of their smell	0	1	0.01
Buying regional products based on the belief that they are healthier	1.06	0.303	0.12
Buying regional products because of other reasons	0.28	0.600	0.12

Source: own elaboration.

Once again, nearly all correlations turned out to be statistically insignificant. The only exception was the correlation between the place of residence and buying regional products because of their price. This correlation was statistically significant. Both respondents who lived in cities and country dwellers usually declared that they did not buy regional products because of their price.

4.5. The Correlation between the Household Size and the Motivation to Buy Regional Products

At the next stage of research, the authors decided to check whether there was any correlation between the size of the household and the motivation to purchase regional products. The correlations were verified with Pearson's Chi^2 test, and their size was determined based on the sCramer's V measure. The results are presented in Table 10.

Table 10. The correlation between the household size and the motivation to buy regional products.

The Motivation to Buy Regional Products	The Household Size		
	χ^2	p	V
Buying regional products because of their price*	5.21	0.047	0.27
Buying regional products because of their quality	0.59	0.715	0.08
Buying regional products out of curiosity	3.19	0.207	0.18
Buying regional products because of their taste*	1.15	0.487	0.13
Buying regional products because of their smell*	3.21	0.223	0.18
Buying regional products based on the belief that they are healthier	0.25	0.928	0.05
Buying regional products because of other reasons*	0.54	1	0.08

* Analyses performed with Fisher's adjustment Source: own elaborator.

Here, again, only one correlation proved to be statistically significant: the correlation between the household size and buying regional products because of their price. As in the previous examples, the effect of the correlation between variables was small. None of the respondents who lived in households composed of 1–2 persons declared that they bought regional products because of their price. Most of the participants from other groups also declared that they did not purchase these products because of their price. The only exceptions included one person from a household with 3–4 members and two respondents from households larger than five persons.

In spite of the small differences between groups from medium and large households in the frequency distribution, the percentage of respondents from large households who were willing to admit that they purchased regional products because of their price was decidedly higher than in other groups.

5. Discussion

In this study, the potential of gastronomy tourism was evaluated with respect to the certificate issued by the European Union for the traditional and regional products in Trabzon and Podhale regions.

In general, the first traditional and regional product that comes to mind when it comes to Trabzon is "Tonya butter." This answer is followed by "Vakfıkebir bread," "Kulek cheese," "Akçaabat meatballs," and "Kuymak." Other than the traditional regional product "Kuymak," no other products are certified by the European Union. It is thought that the obtained results will contribute to the gastronomic tourism of Trabzon. The research demonstrated that people of the same age pay attention to similar markings of regional products in the analyzed regions of Poland and Turkey. Certain correlations between gender and the way of distinguishing regional products were found. As far as women were concerned, the difference between declarations about not distinguishing regional products based on "own knowledge" and not doing so was smaller than in men. This means that men rely on their own knowledge when choosing regional products less often than women.

The authors analyzed whether people from different age groups had specific habits concerning the place of purchasing regional products in the analyzed regions of Poland and Turkey. It was determined that it was so. The study revealed that respondents aged 16–25 declared that they bought traditional and regional products in regional fairgrounds much less often than the other respondents. Most of the participants in this age group responded that they did not purchase regional products in these markets. This means that offering regional products to young people should use different channels. Unfortunately, it was quite difficult to determine statistically significant motivations to buy regional products in terms of the place of residence of the respondents. Both respondents who lived in cities and country dwellers usually declared that they did not buy regional products because of their price. Only three city inhabitants mentioned price as their motivation to buy such products.

Is the motivation to buy regional products the same in households with a larger and smaller number of residents? It was found that only one correlation proved to be statistically significant: the correlation between the household size and buying regional products because of their price.

As far as regional products are concerned, Podhale is identified with oscypek and bundz (sheep milk cheeses).

The research confirmed hypothesis 1: i.e., that the motivations of tourists to purchase regional products are similar in both analyzed regions in Poland and Turkey. The research results demonstrate that the most frequent motivation for purchasing the analyzed products was taste (46% of the answers in Trabzon and as many as 72% in Poland), followed by quality, in both analysed regions of Turkey and Poland.

In the opinion of the respondents, the price of the product is a significant barrier in purchasing regional products, because it was listed first or second by respondents both in the Trabzon and Podhale regions. In Trabzon, it was the most often selected answer, while difficult access ranked second. In Podhale, the results were similar, although difficult access was first, followed by price. The majority of answers listed price and difficult access as barriers in purchasing regional products, which confirms

hypothesis 2, i.e., that the price and lack of access to regional products are the main barriers preventing tourists from purchasing them, regardless of the analyzed region, both in Poland and Turkey.

6. Conclusions

Preserving local flavors and transferring them to future generations is one of the greatest influences of gastronomic tourism. Gastronomy tourism helps sustainable tourism concepts, preservation and the development of local products.

It has been determined that urban geography, climate, natural charm, and richness are directly reflected in local cuisine. In order to preserve gastronomic values, first, an inventory of Trabzon regional dishes should be prepared, and prescriptions should be prepared and included in the menus of local restaurants and hospitality establishments, thus contributing to the economy of regional cuisine and the transfer to future generations. In this context, the sustainability of these values will be achieved by transferring cultural and natural values to future generations. This will also contribute to the development of the local economy and enhance the attractiveness of the region with the introduction of cultural tastes.

The conducted research confirmed research hypotheses H1, which concerned barriers to purchasing regional products in which the respondents considered to be price and difficult access, and H2 concerned the motivations for purchase, which were taste and quality. The analysis revealed various aspects of the functioning of regional products in trade and identified the barriers, motivations and places of purchasing such products. The results constitute the basis for conclusions and recommendations for local authorities and bodies that are responsible for agricultural policy and the protection of cultural heritage in the analyzed countries. The main conclusions from the conducted research are as follows:

1. The authorities should attempt to order a certification system of regional products in Turkey. A certificate is a kind of confirmation and guarantee of authenticity of the product (ingredients, manufacturing methods).
2. Regional products are recognized by a vast majority of tourists who visit the regions of Podhale and Trabzon. This should be used to create additional tourist attractions (routes, roads, distribution points) addressed to various age groups.
3. The labelling of regional products is a very important element facilitating the recognition of products that have the relevant certificate. Thus, properly designated and standardised markings (labels) are essential.
4. The main barriers in purchasing regional products are their price and difficulty regarding their accessibility. Authorities should develop a strategy to improve the availability for the products in co-operation with local manufacturers and ensure their proper promotion.

Supplementary Materials: Supplementary Materials are available online at http://www.mdpi.com/2071-1050/12/6/2362/s1.

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References

1. Kurt Konakoğlu, S.S.; Kurdoglu, B.C.; Kurdoglu, O. Determination of Potential of Amasya City in Terms of Gastronomy Tourism. In Proceedings of the ICAFOF 2017 International Conference on Agriculture, Forest, Food Sciences and Technologies, Cappadocia, Turkey, 15–17 May 2017. Abstract Proceeding Book of ICAFOF Conference, 462.
2. European Commission. *Towards Quality Urban Tourism, Integrated Quality Management (IQM) of Urban Tourist Destinations*; European Communities Publications: Brussels, Belgium, 2000.
3. Shenoy, S.S. Food Tourism and The Culinary Tourist. Ph.D. Thesis, Clemson University, Clemson, SC, USA, 2005.
4. Cohen, E.; Avieli, N. Food in tourism: Attraction and Impediment. *Ann. Tour. Res.* **2004**, *31*, 755–778. [CrossRef]
5. Capaldi, E.D. *Why We Eat What We Eat: The Psychology of Eating*; American Psychological Association: Washington, DC, USA, 1996; ISBN 978-1-55798-907-9.
6. Long, L.M. Culinary Tourism and the Emergence of an Appalachian Cuisine: Exploring the 'Foodscape' of Asheville, NC. *N. C. Folk. J.* **2010**, *57*, 4–19.
7. Tsai, C.T.S.; Wang, Y.C. Experiential value in branding food tourism. *J. Destin. Mark. Manag.* **2017**, *6*, 56–65. [CrossRef]
8. Okumuş, B.; Köseoğlu, M.A.; Ma, F. Food and gastronomy research in tourism and hospitaly: A bibliometric analysis. *Int. J. Hosp. Manag.* **2018**, *73*, 64–74. [CrossRef]
9. Henderson, J.C. Food tourism reviewed. *Br. Food J.* **2009**, *111*, 317–326. [CrossRef]
10. Horng, J.S.; Tsai, C.T. Constructing indicators of culinary tourism strategy: An application of resource-based theory. *J. Travel Tour. Mark.* **2012**, *29*, 796–816. [CrossRef]
11. Cheng, Q.; Huang, R. Is food tourism important to Chongping (China)? *J. Vacat. Mark.* **2015**, 1–13. [CrossRef]
12. Björk, P.; Kauppinen-Räisänen, H. Local food: A source for destination attraction. *Int. J. Contemp. Hosp. Manag.* **2016**, *28*, 177–194. [CrossRef]
13. Gálvez, J.C.P.; Granda, M.J.; López-Guzmánc, T.; Coronel, J.R. Local gastronomy, culture and tourism sustainable cities: The behavior of the American tourist. *Sustain. Cities Soc.* **2017**, *33*, 604–612. [CrossRef]
14. Smith, S.L.; Xiao, H. Culinary Tourism Supply Chains: A Preliminary Examination. *J. Travel Res.* **2008**, *46*, 289–299. [CrossRef]
15. Hjalager, A.M.; Richards, G. Still undigested: Research issues in tourism and gastronomy. In *Tourism and Gastronomy*; Hjalager, A.M., Richards, G., Eds.; Routedge: London, UK, 2002.
16. MacCannell, D. *The Tourist: A New Theory of Leisure Class*; Schocken: New York, NY, USA, 1976.
17. Rosario, S. Gastronomy as a tourist product: The perspective of gastronomy studies. In *Tourism and Gastronomy*; Hjalagor, A.M., Richards, G., Eds.; Routledge: London, UK, 2002; pp. 51–71.
18. Keskin, E.; Örgün, E.; Akbulut, B.A. Analysis of Gastronomy Concept Throught the Word Association Test. *J. Tour. Gastron. Stud.* **2017**, *5*, 255–267. [CrossRef]
19. Kivela, J.; Crotts, J.C. Tourism and Gastronomy: Gastronomy's Influence on How Tourists Experience a Destination. *J. Hosp. Tour. Res.* **2006**, *30*, 354–377. [CrossRef]
20. Wolf, E. *Culinary Tourism: A Tasty Economic Proposition*; International Culinary Tourism Task Force: Portland, OR, USA, 2002.
21. Pérez Gálvez, J.C.; López-Guzmán, T.; CordovaBuiza, F.; Medina-Viruel, M.J. Gastronomy as an element of attraction in a tourist destination: The case of Lima, Peru. *J. Ethn. Foods* **2017**, *4*, 254–261. [CrossRef]
22. Banasik, W.; Fiszer, D. Culinary touristic products in Poland. In *Trendy Żywieniowe w Turystyce*; Makała, H., Ed.; Tradycje i Dziedzictwo Kulinarne; Wyższa Szkoła Turystyki i Języków Obcych: Warsaw, Poland, 2016; pp. 31–54. (In Polish)
23. Guan, J.; Jones, D.L. The Contribution of Local Cuisine to Destination Attractiveness: An Analysis Involving Chinese Tourists' Heterogeneous Preferences. *Asia Pac. J. Tour. Res.* **2015**, *20*, 416–434. [CrossRef]
24. Wolf, E. *Culinary Tourism: The Hidden Harvest*; Kendall/Hunt Publishing Company: Dubuque, IA, USA, 2006.
25. Çalışkan, O. Gastronomic Identity in Terms of Destination Competitiveness and Travel Motivation. *J. Tour. Gastron. Stud.* **2013**, *1*, 39–51.
26. TPI, 2020/a. Available online: https://www.turkpatent.gov.tr/TURKPATENT/ (accessed on 22 February 2020).

27. TPI, 2020/b. Available online: https://www.turkpatent.gov.tr/TURKPATENT/geographicalRegisteredList/ (accessed on 22 February 2020).
28. Albayrak, M.; Gunes, E. Traditional foods: Interaction between local and global foods in Turkey. *Afr. J. Bus. Manag.* **2010**, *4*, 555–561.
29. Yenipınar, U.; Köşker, H.; Karacaoğlu, S. The Importance of Local Foods in Tourism and Geographical Indication: Van Herbal Cheese. *J. Tour. Gastron. Stud.* **2014**, *2*, 13–23.
30. Karaca, O.B. The Importance of Our Traditional Cheeses in Gastronomy Tourism. *J. Tour. Gastron. Stud.* **2016**, *4*, 17–39. [CrossRef]
31. Sengel, T.; Karagoz, A.; Cetin, G.; Istanbullu Dıncer, F.; Mugan Ertugrul, S.; Balık, M. Tourists' Approach to Local Food. *Procedia Soc. Behav. Sci.* **2015**, *195*, 429–437. [CrossRef]
32. Başaran, B. An Evaluation of Local Tastes of Rize within the Scope of Gastronomic Tourism. *J. Tour. Gastron. Stud.* **2017**, *5*, 135–149. [CrossRef]
33. Du Rand, G.E.; Heath, E.; Alberts, N. The Role of Local and Regional Food in Destination Marketing. *J. Travel Tour. Mark.* **2003**, *14*, 1–16. [CrossRef]
34. Kopeć, B. *Metodyka Badań Ekonomicznych w Gospodarstwach rolnych [Methodology of Economic Research in Agricultural Holdings]*; Students Textbook of University of Agriculture in Wrocław: Wrocław, Poland, 1983; No. 269.
35. Stachak, S. *Metody Nauk Ekonomiczno—Rolniczych w Zarysie [The Outline of Methods in Economic and Agricultural Sciences]*; Students Textbook of University of Agriculture in Szczecin: Szczecin, Poland, 1978.
36. Kucher, A.; Hełdak, M.; Kucher, L.; Raszka, B. Factors Forming the Consumers' Willingness to Pay a Price Premium for Ecological Goods in Ukraine. *Int. J. Environ. Res. Public Health* **2019**, *16*, 859. [CrossRef] [PubMed]
37. Department of Promotion and Food Quality, Office of Geographical Indications of the Ministry of Agriculture and Rural Development, a Website of the Polish Government. Available online: https://www.gov.pl/web/rolnictwo/zentyca (accessed on 30 July 2019).
38. Charzyński, P.; Podgórski, Z.; Dąbkowska, A.; Stawska, M. Assessment of the recognisability and attractiveness of regional kinds of Polish cuisine in the context of culinary tourism. *Geogr. Tour.* **2017**, *5*, 7–18. [CrossRef]
39. Gonera, H. *Program Rozwoju i Promocji Turystyki Gastronomicznej i Szlaków Kulinarnych w Polsce*; Polska Organizacja Turystyczna w Warszawie: Warsaw, Poland, 2014. (In Polish)
40. Samancı, Ö. History of Eating and Drinking in the Ottoman Empire and Modern Turkey. In *Handbook of Eating and Drinking*; Meiselman, H., Ed.; Springer: Berlin/Heidelberg, Germany, 2020. [CrossRef]
41. Bilgin, A. Ottoman palace cuisine in the classical period. In *Turkish Cuisine*; Bilgin, A., Samancı, Ö., Eds.; Republic of Turkey Ministry of Culture and Tourism: Ankara, Turkey, 2008; pp. 71–91.
42. Samancı, Ö. Cuisine. In *Dictionnaire de l'Empire Ottoman*; Georgeon, F., Vatin, N., Veinstein, G., Eds.; Fayard: Paris, France, 2015; pp. 319–322.
43. Trabzon Provincial Directorate of Culture and Tourism, a Website of Republic of Turkey Ministry of Culture and Tourism. 2018. Available online: http://www.trabzonkulturturizm.gov.tr/Eklenti/6792,trabzonkpdf.pdf?0 (accessed on 31 July 2019).
44. Guerrero, L.; Guàrdia, M.D.; Xicola, J.; Verbeke, W.; Vanhonacker, F.; Zakowska-Biemans, S.; Sajdakowska, M.; Sulmont-Rossé, C.; Issanchou, S.; Contel, M.; et al. Consumer-driven definition of traditional food products and innovation in traditional foods. A qualitative cross-cultural study. *Appetite* **2009**, *52*, 345–354. [CrossRef]
45. Balogh, P.; Bekesi, D.; Gorton, M.; Popp, J.; Lengyel, P. Consumer willingness to pay for traditional food products. *Food Policy* **2016**, *61*, 176–184. [CrossRef]
46. Almli, V.L.; Verbeke, W.; Vanhonacker, F.; Næs, T.; Hersleth, M. General image and attribute perceptions of traditional food in six European countries. *Food Qual. Prefer* **2011**, *22*, 129–138. Available online: https://www.scopus.com/record/display.uri?eid=2-s2.0-78649925355&origin=inward&txGid=3f23d2025681264a2024832d1a4286b8 (accessed on 2 November 2019). [CrossRef]

47. Kapoor, S.; Kumar, L.N. Does packaging influence purchase decisions of food products ? A study of young consumers of India. *Acad. Mark. Stud. J.* **2019**, *23*, 1–16. Available online: https://pdfs.semanticscholar.org/6d7b/cc39b39e7b781971cc8894c71b998d386ad7.pdf?_ga=2.264877327.1615097517.1572716669-638981979.1572716669 (accessed on 2 November 2019).
48. Dimra, E.; Skuras, D. Consumer evaluations of product certification, geographic association and traceability in Greece. *Eur. J. Mark.* **2003**, *37*, 690–705. [CrossRef]

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Islamic Finance and Halal Tourism: An Unexplored Bridge for Smart Specialization

Juan Carlos Martín [1,*], Carmen Orden-Cruz [2] and Slimane Zergane [1]

[1] Institute of Tourism and Sustainable Economic Development Universidad de Las Palmas de Gran Canaria, 35011 Las Palmas de Gran Canaria, Spain; slimanezergane@gmail.com

[2] Business Economics Department, Faculty of Legal and Social Sciences, Universidad Rey Juan Carlos, Vicálvaro, 28032 Madrid, Spain; carmen.delaorden@urjc.es

* Correspondence: jcarlos.martin@ulpgc.es; Tel.: +34-928-458189

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Abstract: Since the 1960s, Halal industry and Islamic Finance have grown in parallel without implementing adequate synergies. Halal tourism is a fast-growing sector of Halal industry, and the connection with Islamic Finance has hardly been researched. The aim of this paper is to analyse whether Islamic Finance can play an active role in developing Halal Tourism. This topic has not been empirically researched in the literature. The methodology is based on a fuzzy hybrid multi-criteria method that satisfactorily handles the imprecise nature associated with the information provided by Likert scales. Our results show how culture has a direct moderating effect on the degree of agreement that respondents have over the active role that IF can play, finding that English respondents agree more than Spanish and Arabs respondents. Similarly, our results also show that the knowledge of the Halal concept makes respondents agree more with the active role of Islamic finance. This study provides insights to the main stakeholders, and it can be strategically used to foster adequate synergy between Islamic Finance and the development of Halal tourist products as a way to specialize in a more sustainable tourism.

Keywords: Islamic finance; halal tourism; fuzzy numbers; TOPSIS; cultural mediating effects; halal industry; smart specialization

1. Introduction

Some regions of the European Union, especially Spain, Portugal and Italy, are endowed with heritage jewels of Arab origin. The presence of Muslims in the Iberian Peninsula for almost eight centuries has left an extraordinary heritage legacy with remarkable hallmarks, such as the Mosque–Cathedral in Córdoba; the Alhambra, Generalife and Albayzín in Granada; and the Cathedral and the Alcázar in Seville. All of them have been declared World Heritage sites by the United Nations Educational, Scientific and Cultural Organization (UNESCO). With such remarkable endogenous resources given by the Arab historical footprint, it is still unclear why Spain has not envisaged a more dedicated policy towards developing smart specialization for Halal or Muslim-friendly tourism. We analyse in the paper the role that Islamic Finance can play in such a specialization.

The 2019 Global Muslim Travel Index (GMTI) compiled by Mastercard-CrescentRating [1], which is nowadays one of the entities with more of a reputation for Muslim-friendly halal tourism, positions Spain in the ninth place, jointly with France and Philippines, in the classification of the countries that do not belong to the Organization of Islamic Cooperation (OIC)—non-OIC countries. The Spanish position is much lower than that of other countries such as Singapore, Thailand, the UK, Japan and Taiwan, which are characterized by having fewer Arab cultural endowments. Cuesta-Valiño et al. [2] advise that official entities could first invest in the development of Muslim-friendly smart applications as a way to attract the Muslim market segment. Thus, other stakeholders of the tourism industry,

such as the food, culture, lodging and leisure industries, could see the hidden potential and react by providing Halal tourism products. In this sense, we would like to highlight that the role of Islamic Finances is still under-researched.

The Halal industry and Islamic Finance (IF) have developed in parallel, especially since the 1960s and the 1970s, respectively. The Halal industry moves about 2.2 trillion dollars of a wide range of economic activities, such as: food, fashion, pharmaceuticals, cosmetics, travel, and media and recreation [3]. Halal tourism (HT) is one of the fastest-growing sectors, as reflected by the forecast of Mastercard-CrescentRating [1], which predicts that Muslims will spend about 300 billion dollars by 2026. At the same time, the Islamic Financial Services Board [4] has estimated IF assets to be around 2.19 trillion dollars, representing less than 1% of financial assets worldwide.

The previous figures reflect the increasing demand for Islamic products and services. The main drivers of the potential of these markets are: (1) large, young and fast-growing global Muslim demographics; (2) the importance and growth of global Islamic economies; (3) the significance of the Islamic ethos/values that increasingly drive lifestyle and business practices; (4) the role of the Organization of Islamic Cooperation (OIC) economies as a reference; (5) the participation of global multinationals in the growing Islamic/Halal market development; and (6) the globalization of the economy and technology.

In spite of the importance of the two sectors, there is a low connection between them. According to some professionals in the sector, only 5% of the Halal industry players use IF [5,6]. Rasheed (1 October 2019) [7], Deputy Governor of the Central Bank of Malaysia, points out that only 11.34% of Halal businesses are bank-financed in the form of Islamic solutions. In addition, DinarStandard [3] warns about the risk of unfulfilled potential due to the lack of collaboration between the IF and Halal industries. However, this report shows how more OIC governments are realizing the importance of IF to support the Islamic economy and broader GDP growth. For example, Indonesia, Uzbekistan and Morocco are developing national strategies for using IF as a tool to support national developments.

These figures reveal that there is still a huge margin for growth in the near future in multiple sectors and regions. In this regard, the authorities of Malaysia, the government and the central bank, have implemented a series of grants to boost IF in small and medium-sized enterprises (SMEs) [8]. Malaysia can be considered the country of reference for the support the authorities have made since the inception of the Halal industry [9]. To our knowledge, there are no figures about how much IF is used in HT, and the literature about the positive relationship that exists between IF and HT is very nascent [10,11]. There is no research that measures different stakeholders' opinions on the relationship of IF to other Halal products and services [12].

As the relationship between IF and HT is still under researched, this paper provides more empirical evidence of whether the agreement degree on the active role of IF in the development of HT is affected by multicultural traits and the knowledge of Halal products. The first International Halal Congress, held in Cordoba in 2015, allowed researchers to develop a first exploration pre-test to obtain a sample of 80 professionals, academics and authorities, all well connected to the Halal industry.

Along the course of the paper, we refer to the active role of IF in the development of HT as a better integration between the two sectors, or as a way to exploit their synergies. Therefore, three basic elements are explored in the study: (1) we compute a synthetic indicator of the degree of agreement regarding the role of the IF on the Spanish Halal Tourism development, analyzing a construct scale that measures the potential active role that IF can have on the development of HT; (2) we analyze whether multicultural traits and Halal knowledge have a mediating effect on the obtained agreement degree indicator; and (3) we obtain the critical assessment attributes (CAAs) that need to be reinforced in order to achieve a better integration between the two sectors.

Accordingly, a fuzzy-hybrid method is proposed to calculate the synthetic level of agreement on the role that IF could exert on the development of HT in Spain as a way to contribute to the smarter specialization of some regions, in order to be a more sustainable and Muslim-friendly destination. The index is based on a method that applies jointly the fuzzy set theory (FST) with the technique for

order preference by similarity to ideal solution (TOPSIS). Thus, the synthetic indicator will be used to analyze the degree of agreement of a set of segments which is based in some chosen segmentation variables. The method is applied to a scale of five attributes that contains information about the potential synergies between the IF system and HT.

The study provides insights to the main stakeholders, in order for them to develop adequate synergies that could favor the development of HT through the involvement of IF. HT is not only an important sector that could contribute to the economy, but it can also be a crucial contributor to promote a better understanding among citizens who practice different religions and have differing cultural backgrounds, facilitating a brighter world future.

The remainder of the paper is organized as follows: Section 2 offers some insights from the literature, Section 3 describes the questionnaire and data gathering, Section 4 details the methodology, Section 5 presents and discusses the results, and Section 6 offers some concluding remarks.

2. Literature Review

The factors of the disconnected sectors between Halal product development and IF have been analyzed in some studies. Firstly, one of the most important aspects is the difference between the concept of 'Halal' and 'Islamic'. The Halal industry requires a very strict operational process control that ends in Halal brand recognition [13]. However, these certifications, in general, do not take into account what the financing of the producers of Halal products is [14]. Muhamed et al. [15] conclude that there is an indulgence in the financing of Halal products in Malaysia. Thus, as other authors point out, Halal products and services would not really be totally Halal if their funding is not aligned with the application of the same rules [16,17]. Wilson [17] contends that, in reality, finance and banking qualify as 'Islamic' and not as 'Halal' in the pure sense of fulfilling specific conditions to have that brand. With a more open-mind, IF can be considered Halal, but, in many cases, it is not 100% Halal. In this sense, it can be said that IF is a concept applied to a number of financial products and services that are certified.

On the other hand, Hayat et al. [18] find that Halal products suffer from other common problems whose source is the certification of a brand, such as: (1) the lack of consensus on what is considered Halal; (2) some of the certifying agencies are also supervisors; (3) there are economic incentives in the granting of certificates; and (4) the training of the Shariah scholars to certify complex financial products is not standardized. At the institutional level, Muhamed and Ramli [9] analyze the Islamic banks as entities, and conclude that IF has a better structured governance than the Halal sectors (p. 5). In fact, the Islamic Financial Services Board (IFSB) [19] published the principles of governance for institutions that offer Islamic financial services.

The synergies and integration have also been hampered by obstacles such as: (1) the minority presence of Muslim producers in the Halal industry [20]; (2) the lack of awareness and knowledge about what IF is [21]; (3) the intrinsic characteristics of the sector, as is the case in the food industry, which is very fragmented and where SMEs predominate [5]; (4) the higher cost of financing through Islamic banking [16,20]; and (5) the differing regulation and supervision by different authorities [22], observed even in Malaysia, a reference country in both industries [9].

In any case, there is consensus on the need for both sectors to explore and exploit potential synergies. Muhamed and Ramli [23] point out that the majority of a group of Malaysian academics with backgrounds in Islamic Law and industrial involvement support Halal integration. Wilson [17] asks the Islamic banks to be proactive and redirect their activity towards the Halal industry. In general, a better integration is requested as a way to exploit scale and scope economies [24]. The support of authorities is considered crucial, as well as the development of an adequate regulatory framework and the establishment of regional and global agreements that harmonize the Halal certifications [21].

The studies carried out so far are scarce, and have mainly been focused on each individual sector. Regarding HT, to our knowledge, there is scarce literature about its connection with IF, but the existing studies point to a positive relationship between them. Muslims tourists would prefer a tourism

provider that has IF facilities [11], and the use of Islamic banking gives a positive impression for them [10]. The presence of Islamic financial institutions is one of prerequisite materials that a Halal tourism destination should provide [25]. In addition, IF could address financial constraints and can offer financing solutions for developing a good tourist infrastructure [26], a factor that improves the quality of HT [27].

In the field of finance, FinTech is becoming one of the most widespread terms used for research in technological innovation. The definition of FinTech is based on the use of innovative and disruptive technology for providing financial services [28,29]. The emergence of Fintech has been characterized by the need for more investors' security and better financial services at more adjusted costs. According to Lee and Shin [30], the Global Financial crisis and the consequent loss of confidence in the financial system triggered such an emergence. Hussain et al. [31] contend that Islamic Financial systems could now emerge as the new banking system that could recover again the clients' confidence in the financial system. In fact, the authors show how Islamic Finance has started to grow internationally, with some concentration in few markets. Rabbani et al. [29] categorize the Islamic FinTech spectrum into three areas: (1) Islamic Financial technology opportunities and challenges; (2) Cryptocurrency/Blockchain sharia compliance; and (3) law/regulation.

Fintech companies can naturally be seen as opportunities by the financial institutions instead of competitors, in order to provide new innovative financial and non-financial services. Rabbani et al. [29] analysed the Islamic FinTech opportunities and find that Islamic Fintech companies can: (1) help new startups; (2) provide a wide range of innovative products and services; (3) provide indistinctly traditional financial services, as well as new and innovative services; (4) provide cost-effective solutions to the financial services; (5) facilitate traditional Islamic banks to go digital; (6) gain customer confidence easily by being transparent, accessible and easy to use; (7) be linked to cryptocurrencies and Blockchain in order to facilitate international payments; (8) gain the confidence of Muslim investors, as they are in accordance with the rules prescribed by sharia. Haddah and Hornuf [32] find that FinTech startup formations are more easily created when the economy is well-developed and venture capital is readily available. The authors also find that the number of secure internet servers, mobile telephone subscriptions and the available labour force all act as a catalyst for the development of this new market segment.

3. Questionnaire and Data Gathering

A pilot test of the survey was handed out during the congress 'Halal, a Global Concept', held in Cordoba between 24 and 26 March 2015. The conference was organized by the Instituto Halal, a Spanish Halal certification agency for goods and services apt for consumption by Muslims in Spain and Mexico. They work on three main lines: (1) to certify products and services; (2) to obtain the necessary international accreditations and recognition; and (3) to contribute to the achievement of a Halal Standard in Spain and Europe. The questionnaire was developed through the compilation and adaptation of other previous studies in the field, with the aim of identifying the relevant determinants to develop HT products in Spain [33–35]. The survey was divided into nine sections, with a total of 70 different questions (the number of the question is given in parenthesis): (1a) demographic profile (10); (2a) knowledge of HT (3); (3a) pull and push factors to measure Spanish HT competitiveness (10); (4a) possible handicaps measuring Spanish HT competitiveness (13); (5a) important tourist attractions that could foster Spanish HT(13); (6a) analysis of the organizations involved in the development of HT (9); (7a) classification of HT (5); (8a) IF and the role on the development of Spanish HT (5); (9a) Spanish HT competitiveness in the future (2).

The survey questionnaires were prepared in four languages, English, Spanish, Arabic and French, and were implemented on-line in Google Drive. A list of 300 potential respondents was used to collect the data, based on some additional contacts, in order to complement the set of 80 respondents obtained at the conference. The list was mainly obtained from academics, hoteliers and restaurateurs. In the case of the academics, for convenience reasons, we decided to include those who have published a

paper on HT and, thus, have a certain guarantee that respondents are familiar with Halal products' existence. After five consecutive recalls, we were able to obtain 120 additional completed surveys from 150 participants who started to answer the survey at the end of 2015. Thus, the dataset was finally compiled on 31 March 2016, with 200 valid respondents. Unfortunately, it was not possible to enforce any of the contacted participants to complete the survey. Thus, the sample can be considered as a convenience sample which has a certain degree of familiarity with Halal products.

The main constructs of the survey are based on a four-point Likert scale answer format, in which all the categories are labelled. For example, the answer format for the level of agreement with the sentence is determined as: (1) strongly disagree, (2) disagree, (3) agree and (4) strongly agree. It was decided to use four-point scales in order to mitigate the effect of neutral option biased responses [36].

The study focuses on the eighth block (the IF and the role on the development of Spanish HT), which contained the following sentences about whether IF can act as a catalyst to develop HT in Spain: (1) it is a reliable finance system (Reliable); (2) it is already involved in the development of Halal Tourist Products (Development); (3) it has already financed some halal projects (Finance); (4) it is a financial system adapted to Muslims (Muslims); (5) Spain has a lot of potential to develop HT (Spain). The scale is adapted from previous studies [37,38].

The majority of the respondents were men 146(73%). The age groups of 26–35 years old and 36–45 years old dominate the respondents, with 63 (31.50%) people and 61(30.50%) people, respectively. Most of the respondents were married, 112 (56%), whereas 79 (39.5%) of the respondents were single, and 9 (4.5%) were either divorced or separated. A large group of respondents were academics 113(56.5%), and for that reason, the majority of the respondents also have a Masters/PhD degree; 110 (55%) and 72(36%) respondents hold a university degree. In terms of occupation, there were 40 (20%) students, 32(16%) professors at university, 21 (10.5%) respondents employed in the tourism sector, 13 (6.50%) entrepreneurs in the tourism sector and 94 (47%) entrepreneurs in other sectors. With regard to monthly personal income, most of them, i.e., 94 (47%) of the respondents, had a monthly personal income between 1000 Euros and 3000 Euros, whereas 13 (6.5%) reported an income of 6000 Euros or more.

The non-Muslims questioned represented 57 (29%) respondents, and the other 143 (71%) respondents were Muslim. Regarding the religiosity, the majority of respondents, 121 (60.5%), were moderately religious. The majority of respondents, 87 (43.5%), resided in Spain, followed by 83 (41.5%) residents in North Africa, 11 (5.5%) residents in the countries of the Arab gulf, 10 (5%) residents in other Muslim Countries, 7 (3.5%) residents in the EU and 2 (1%) residing in other countries.

4. Methodology

This section presents the basics of the proposed methodology that is based on a hybrid fuzzy method, which calculates the overall level of agreement on the catalyst role of IF in developing HT in Spain, named Islamic Finances Overall Agreement (IFOAg). The index IFOAg is based on a list of 5 attributes with information about the reliability of the IF system, the degree of involvement in the development of Halal products, whether some Halal products have already been financed by the IF, whether IF is adapted to Muslims and whether Spain has a lot of potential to develop HT. The questionnaire developed to measure IFOAg was based on subjective and very imprecise information, because the semantic scales are not easily converted into precise numerical figures. Transforming the linguistic scale ((1) strongly disagree, (2) disagree, (3) agree, and (4) strongly agree) into a cardinal scale is usually a source of strong criticism, because all the transformations suffer from the researchers' subjectivity. For this reason, Zadeh [39] developed the base of the fuzzy set theory as a way to deal with the subjectivity and fuzziness of human perception, because the theory is better adjusted than crisp numbers to represent the respondents' answers related to the object of the analysis.

The essence of the fuzzy set theory resides in the fact that researchers always find it difficult to represent linguistic semantic scales by sensible crisp values. It is usual to employ an ordinal scale starting from one and ranging to the number of points of the Likert scale. In the case of the

IFOAg scale, the basic crisp information will go from one to four. Afterwards, some econometric model, like cluster analysis, factor analysis, confirmatory factor analysis or structural equation models, is applied in order to obtain some relationship or association between different constructs, or in order to reduce the dimensionality of the list of the attributes [40,41]. These methods prefer to adjust the imprecise information provided by Likert scales employing econometric models that include error terms according to some statistical distribution. On the other hand, other authors prefer the approach of using the fundaments of the fuzzy set theory [42–46]. The authors contend that the use of the fuzzy set theory adjusts much better than other methods the questionable issues mentioned by Dickson and Albaum [47] regarding the use of semantic Likert scales " ... consisting of adjectives and phrases which seem appropriate or relevant to the specific concept being studied without really testing the new scales to insure that they meet the various underlying assumptions which are critical for proper use of semantic differential instruments" (p. 87). In this respect, it can be said that fuzzy logic [48] better deals with the purpose of ranking a group of decision makers in regard to their overall agreement over some concept or idea, as fuzzy logic does not need the crisp and accurate information provided by objective measures [49].

4.1. Triangular Fuzzy Numbers

The use of the fuzzy logic alleviates the need to incorporate objective measures, and can deal very conveniently with imprecise information. The universe of discourse X [50,51] is usually represented as a subset of real numbers. A fuzzy set A in X represents jointly the discourse and the membership function μ_A whose value belongs to the closed interval [0, 1], and gives the probability or strength of belonging that any element of the discourse has. Thus, greater values are associated with more truth regarding the supposition that element x belongs to set A. It can be inferred that the fuzzy set theory encapsulates much better the way human beings feel and think in a number of circumstances, with regard the philosophical idea that everything is relative. In our case, for example, two customers who operate regularly with some of the top Islamic Financial Institutions can answer very differently to the question regarding that IF can act as a catalyst to the development of Halal tourist products in Spain because the IF is reliable. The answer will probably depend on the degree of satisfaction that customers have experienced in their last transactions with the institution.

In this paper, the fuzzy set theory is represented by triangular fuzzy numbers, a triplet of real numbers characterized by the following membership function:

$$\mu_A(x) = \begin{cases} \frac{x - a_1}{a_2 - a_1}, \ a_1 \leq x \leq a_2, \\ \frac{x - a_3}{a_2 - a_3}, \ a_2 \leq x \leq a_3, \\ 0, \ otherwise. \end{cases} \quad (1)$$

Thus, each linguistic answer provided by the respondents ((1) strongly disagree, (2) disagree, (3) agree, and (4) strongly agree) is then transformed into a triangular fuzzy number (TFN) whose discourse is included in the interval 0–100. Thus, the strength of the truth of each statement included in the scale is represented by a set of TFNs that represents the fuzziness associated with the imprecise information obtained from the semantic Likert scale. Table 1 shows the TFNs used in the study to represent the four point semantic Likert scale used in the survey. Equation (1) can be used to give the probability of belonging to the interval that represents each TFN included in the table.

The aggregation of TFNs through different segments, for example English, Spanish, Arab or French, is based on the algebra of TFNs, in which the average fuzzy number of n TFNs can be calculated as follows [52]:

$$\widetilde{A} = (a_1, a_2, a_3) = \left(\frac{1}{n}\right)\bullet\left(\widetilde{A}_1 \oplus \widetilde{A}_2 \oplus \cdots \widetilde{A}_n\right) = \left(\frac{\sum_{i=1}^{n} a_1^{(i)}, \sum_{i=1}^{n} a_2^{(i)}, \sum_{i=1}^{n} a_3^{(i)}}{n}\right) \quad (2)$$

Table 1. Triangular fuzzy numbers. Default values of linguistic terms.

Linguistic Terms	Fuzzy Number
Strongly disagree (1)	(0,0,50)
Disagree (2)	(30,50,70)
Agree (3)	(50,70,100)
Strongly agree (4)	(70,100,100)

4.2. Crisp Information Matrix

The aggregated TFN obtained by Equation (2) represents the imprecise information of the overall agreement that a particular segment has with each of the five attributes included in the scale. This study will focus only on nine different segments: the convenience sample with 200 respondents, the cultural segments obtained by the language used to answer the questionnaire (English, Spanish, Arab and French), and, finally, four additional segments obtained by the level of knowledge that the respondents have of Halal Products. The questionnaire provides information about 135 different segments for each of the five attributes included in the analysis. Thus, a matrix of TFNs with a dimension of 5 times 135 is obtained after applying Equation (2). This matrix provides a lot of information that needs to be summarized with a clarification or defuzzification method [53]. In essence, all the methods are based on a real function that converts the TFNs into real numbers or crisp information, according to rational criteria, which should preserve some consensual order of overlapped TFN.

In this study, the proposal made by Chen [54], which is based on the best-non-fuzzy performance measure, was used as the defuzzification method. The method clarifies the information as a weighted average of the triplet of the TFN that serves to measure the best-non-fuzzy performance of a fuzzy set. The clarification method is very simple, and it is obtained as: $(a_1 + 2a_2 + a_3)/4$. This clarification method does not require any subjective and prior information of any decision maker, and takes into consideration the theoretical properties established by Kaufmann and Gupta [55], giving more importance to neutrality than to any other potential extraction judgement.

4.3. Similarity to Ideal Solution

The synthetic IFOAg index for each of the segments under analysis is based on a joint fuzzy multi-criteria decision-making (F-MCDM) method that applies the technique for order preference by similarity to ideal solution (TOPSIS) [56,57]. TOPSIS is still one of the most popular MCDM methods [58]. The authors reviewed a total of 105 papers using the TOPSIS approach for solving decision making problems, and concluded that "dozens of scholars have applied TOPSIS to solve simple or complex problems in different areas, modified, or extended TOPSIS method to solve exclusive problems. The development trends of TOPSIS method, and more and more of its applications to solve various problems quite vividly reflect general development trends of all MCDM methods to solve simple and complex tasks".

The method is computed as follows:

$$\begin{aligned} A^+ &= \left\{\left(\max V_{ij} \middle| j \in J\right), \left(\min V_{ij} \middle| j \in J'\right), i = 1, 2, \ldots, m\right\} \\ A^- &= \left\{\left(\min V_{ij} \middle| j \in J\right), \left(\max V_{ij} \middle| j \in J'\right), i = 1, 2, \ldots, m\right\} \end{aligned} \quad (3)$$

where J and J' divide the different attributes included in the IFOAg scale according to whether the attribute is answered in an ascending or descending order. In our case, all the five attributes included in the IFOAg scale were answered in an ascending order; that is, all the answers show the extent to which the respondents agree with the statements included in the scale. Nevertheless, the general method is shown for the sake of exposition.

Once the ideal solutions are calculated, the relative IFOAg index for each segment can be calculated, bearing in mind the distances that exist from each observed segment to the positive and negative ideal solutions as follows:

$$\begin{aligned} S_i^+ &= dist(V_i, A^+) = \sqrt{\sum_{j=1}^{n}\left(V_{ij} - A_j^+\right)^2}\ i = 1, 2, \ldots, m \\ S_i^- &= dist(V_i, A^-) = \sqrt{\sum_{j=1}^{n}\left(V_{ij} - A_j^-\right)^2}\ i = 1, 2, \ldots, m \\ IFOAg_i &= \frac{S_i^-}{S_i^+ + S_i^-}\ i = 1, 2, \ldots, m \end{aligned} \tag{4}$$

where Zavadskas et al. [58] contend that, in the majority of applications, researchers prefer to use the Euclidean distance in Equation (4), other distances like, for example, Manhattan (city-block) or Minkowsky distances can also be used. A particular segment i will show a greater degree of agreement than the segment j if and only if $IFOAg_i > IFOAg_j$. Thus, the IFOAg synthetic indicator can be used to rank the overall agreement that all the segments in the sample have about the catalyst role that IF can play in the development of HT products in Spain. The rationale behind the synthetic indicator is clear, as IFOAg is higher when the degree of agreement is greater; that is, when the defuzzified vector for the segment is closer to the virtual positive ideal solution and farther from the virtual negative ideal solution.

Finally, the concept of elasticity will be presented to evaluate the sensitivity of the obtained synthetic indicator to changes of the values of each attribute included in the scale. Thus, main stakeholders can obtain very interesting insights regarding whether the overall agreement is more or less elastic with respect any individual attribute. Thus, different stakeholders—for example, the managers of IF institutions; potential Halal tourist product developers in Spain, like hoteliers or restaurateurs; or even destination management officers and tourist policy makers—can have a better understanding of what attributes have a greater incidence with the role of the IF. Mathematically, the elasticity of IFOAg for each segment i over any attribute j can be calculated as:

$$\eta_{ij} = \frac{\Delta\%IFOAg_i}{\Delta\%atr_{ij}} = \frac{dIFOAg_i}{datr_{ij}} \frac{atr_{ij}}{IFOAg_i} \tag{5}$$

One of the most important features of the calculus of the elasticity values is that the figure is segment and attribute dependent. Thus, it is possible to differentiate the managerial procedures by taking into consideration the binomial segment and attribute.

5. Results

Table 2 shows the TFNs and the crisp values corresponding to the total, and the segments obtained by the language used by respondents. Normally, the TFN matrix is not easily interpreted at first glance, and those readers who are not familiar with the fuzzy set theory do not clearly understand the different triplets. It can be seen that the intervals of the values of the respective TFNs for each of the columns intersect. Thus, it is difficult to extract with a quick glimpse some insight about the answers given by the respondents to the IF module. For that reason, the information matrix needs to be clarified.

The total results of the sample show that the degree of the agreement is larger for the involvement and the finance of the Halal products, and lower for the issue that Spain has a lot of potential to

become an important player in HT. Analyzing the segments by the mother language used to answer the questionnaire, it is observed that English mother-speakers agree, in general, more than other respondents. The only exception is observed in the attribute that IF is well adapted to Muslims. The highest level of agreement is observed by English speakers regarding the IF as a reliable finance system, and the lowest level of agreement is also observed by English speakers regarding the attribute already mentioned of IF being a system well adapted to Muslims. A further analysis of these results permits us to conclude that the English respondents answer this way because they probably consider that IF offers the products and services to other general clients, irrespective of the clients' credo. The literature shows that religious motives in conventional or Islamic bank selection are not the only significant key drivers [59–61]. The selection of conventional and IF banks is mainly affected by the transactional costs [62]. Nevertheless, ethical factors and the economic and social development role of the banks are more developed in the IF banks than in the conventional banks [59], so clients of other religions can also appreciate this factor.

Table 2. TFNs and Crisp values. Total and Cultural segments.

Attributes	Total		Spanish		English		Arab		French	
	TFN	Crip Vale	TFN	Crisp Value	TFN	Crisp Value	TFN	Crisp Value	TFN	Crisp Value
IF is a reliable finance system	(50.50, 72.80, 87.70)	70.95	(47.07, 68.45, 85.17)	67.28	(63.33, 90.00, 96.67)	85.00	(52.00, 74.67, 88.83)	72.54	(46.88, 68.13, 85.00)	67.03
IF is already involved in the development of Halal Tourist Products	(51.75, 74.15, 88.70)	72.19	(50.34, 72.59, 87.41)	70.73	(60.00, 85.00, 95.00)	81.25	(51.75, 73.92, 88.83)	72.10	(53.75, 77.50, 90.00)	74.69
IF has already financed some Halal Projects	(51.55, 73.80, 88.65)	71.95	(48.79, 70.34, 86.38)	68.97	(60.00, 85.00, 95.00)	81.25	(52.17, 74.50, 89.17)	72.58	(53.75, 76.88, 90.63)	74.53
IF is a financial system adapted to Muslims	(50.05, 71.70, 87.65)	70.28	(48.45, 69.48, 86.55)	68.49	(43.33, 61.67, 81.67)	62.08	(51.33, 73.42, 88.58)	71.69	(48.75, 70.63, 86.88)	69.22
Spain has a lot of potential to develop Halal Tourism	(48.80, 70.30, 86.10)	68.88	(55.86, 80.17, 90.86)	76.77	(60.00, 85.00, 95.00)	81.25	(44.50, 64.42, 83.08)	64.10	(51.25, 73.13, 88.13)	71.41

Analyzing now the results for the positive and negative ideal solutions obtained by Equation (3), it can be seen (Table 3) that both solutions are characterized by extreme observations in which the answers are 4 and 1, respectively, for all the respondents of the representative segment, which for the sake of exposition is omitted from the table. This result is not usually obtained, as normally, it is difficult to get this type of total coincidence for some segment of the sample. In this case, it is not possible to determine which attributes are more or less homogenous.

The synthetic IFOAg index for each segment can now be calculated using the fuzzy hybrid MCDM approach proposed in the study. Figures 1 and 2 show the synthetic index for the relevant segments under study, according to three segmentation variables: mother language (Spanish, English, Arab and French), knowledge of Halal (knowledge of Halal (Yes/No)) and having visited a Spanish Halal establishment (Yes/No). The figures show that the English agree more with the role of the IF as a catalyst in the development of Halal Spanish tourism industry than the French, Arab and Spanish; the level of agreement is also mediated by the knowledge of Halal, being more intense in the case that the respondents have already visited a Spanish Halal establishment.

Table 3. IFOAg. Ideal Solutions.

Attributes	Positive	Negative	Perc. Variation
IF is a reliable finance system	92.50	12.50	640%
IF is already involved in the development of Halal Tourist Products	92.50	12.50	640%
IF has already financed some Halal Projects	92.50	12.50	640%
IF is a financial system adapted to Muslims	92.50	12.50	640%
Spain has a lot of potential to develop HT	92.50	12.50	640%

The reason is probably that the UK is the most active European country in Islamic banking and finance. Retail Islamic banking in Europe arrived for the first time to the United Kingdom in 1982. Since then, and especially in 2013, with the support of Prime Minister Cameron, the proactive policy of the British authorities for its pragmatic, realistic and inclusive approach has been the key to the success of the development of Islamic banking [63]. Meanwhile, in France, despite a significant Muslim minority, the French authorities did not take the first steps towards boosting the IF until 2007. Reuters [64] pointed out that, after decades of secular rule, Tunisia's government aids to the development of Islamic banking in the country could hurt conventional banking, and some analysts suspect that the real government's motives are more political than economic, in an attempt to win more voters' support. Lastly, in Spain, banking and tax regulation hindered the use of IF, so the penetration degree has been very limited [65]. In general, it can be concluded that the low level of awareness and knowledge about IF, even in the Muslim countries, is still the main important barrier for its development [66]. The UK has pushed IF, but Spain is developing Halal as a brand, especially for food and cosmetics. Halal certification has been promoted by several organisations, with the Instituto Halal being one of them. Currently, they have almost 500 clients, and their goal is to create a Halal hub in the future (see https://www.institutohalal.com/quienes-somos/).

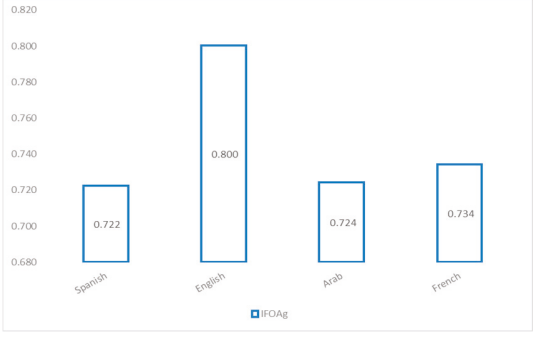

Figure 1. IFOAg Index by mother language

Table 4 shows the elasticity values of the IFOAg index for the segments under analysis. The values show that IFOAg is inelastic with respect to all the attributes and for all the segments under analysis, and that the sensitivity pattern obtained is not very different for each attribute–segment pair. In general, it can be concluded that the synthetic index is more elastic with respect to the issue that Spain can show a lot of potential to develop HT products in the near future, and is less elastic with respect to the role of the IF as a joint developer of Halal tourist products. The Instituto Halal has certificated more than 2000 products, especially food and beverages, but also cosmetics, tourism and health products [67]. Nevertheless, the current HT (including food) on offer in Spain is still limited and scarce, despite the remarkable potential. In 2018, there were only six Spanish tourist food companies with Halal certification.

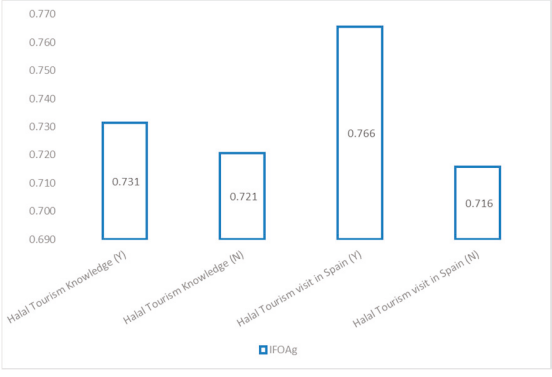

Figure 2. IFOAg Index by HT knowledge

Regarding the analysis for each of the segments, firstly, analyzing the mother language, it can be seen that the English segment is less elastic than the rest for all the attributes, with the exception of the attribute that represents how well IF is adapted to the Muslim market. On the other hand, Spanish, Arab and French speakers are more elastic with respect to the attributes that represent the reliability of the IF system (Spanish and French), as well as the attributes that correspond to the potential capacity of Spain to be an important player in the HT sector (Arabs) and to the adaptation of the IF to the Muslim market (French).

Table 4. Elasticity of IFOAG over each attribute for the total, mother language and Halal knowledge segments.

Attributes	Total	Spanish	English	Arab	French	HTK(Y)	HTK(N)	HTVS(Y)	HTVS(N)
IF is a reliable finance system	0.2441	0.2516	0.1546	0.2359	0.2567	0.2386	0.2526	0.2299	0.2468
IF is already involved in the development of Halal Tourist Products	0.2396	0.2416	0.1892	0.2374	0.2289	0.2358	0.2454	0.2446	0.2390
IF has already financed some Halal Projects	0.2405	0.2470	0.1892	0.2357	0.2296	0.2357	0.2482	0.2446	0.2401
IF is a financial system adapted to Muslims	0.2464	0.2483	0.3052	0.2389	0.2500	0.2489	0.2371	0.2389	0.2477
Spain has a lot of potential to develop Halal Tourism	0.2509	0.2188	0.1892	0.2596	0.2423	0.2555	0.2350	0.2544	0.2499

HTK: Halal Tourism Knowledge; HTVS: Halal Tourism Visit to a Spanish Establishment; Y: Yes; N: No.

Analyzing now the segments are determined by the knowledge of HT, it can be seen that the elasticity values are more homogeneous than in the case discussed above. Thus, it can be concluded that the cultural issues captured by the mother language affect IFOAg more intensely than the knowledge of HT. Nevertheless, the small differences are characterized by the higher elasticity values obtained on the previous knowledge of HT and having visited Halal Spanish establishments in the attribute of the role of Spain in the future development of HT, and by the smaller elasticity values obtained from those respondents who do not have a previous knowledge of Halal, as observed for the attribute of the role of Spain, and for those who have visited a Spanish Halal establishment for the attribute referring to the reliability of the IF system. Thus, it can be concluded that having an experience of a Halal establishment helps to better understand what HT is. The level of knowledge of HT within the industry is not clear because there are different understandings of Halal that depend on existing prejudices and stereotypes about the level of tolerance that Muslim consumers have in relation with standard accommodation services. This concept was created as a form of religious tourism [68], but it is also considered to be a wide concept as a familiar culture deeply rooted in Shariah [69].

6. Conclusions

The paper aimed to analyze empirically whether IF can be seen as a catalyst for the development of HT. Additionally, such an analysis was extended to see whether two segmentation variables, the mother language used to answer the survey and the previous knowledge of HT, had a moderating effect. For this purpose, the paper obtained a synthetic IFOAg indicator using a hybrid-fuzzy multi criteria decision making method, which was based in five different indicators that condense the commented role of IF. Our results show that the ideal solutions obtained are characterized by the extreme values in which all the respondents totally disagree (negative ideal solution) or totally agree (positive ideal solution). Regarding the segments analyzed in the study, it concludes that English mother speakers do agree more than the rest of the speakers of the sample, and that those with a previous knowledge of Halal also agree more than those who are less conscious of the Halal industry. The latter result is even reinforced for those who have a previous experience of a Halal tourist establishment. This is an important issue that needs to be further analyzed in the context of tourism supply, as the perspective of the value that tourism establishments and firms obtain from servicing this niche market is still unknown.

Finally, the obtained elasticities show that the segments determined by the knowledge of HT are more homogeneous than the cultural segments obtained by the mother language. Thus, it was inferred that the cultural issues captured by the mother language affect more intensely the degree of agreement of the catalyst role of the IF on the development of the HT in Spain than the knowledge of HT. To our surprise, the degree of agreement was more elastic with respect to the potential capacity of Spain to be an important player in the HT sector for the mother Arab speakers.

Muhamed and Ramli [9], looking at the current practice worldwide, conclude that the Halal sectors are separated, and that integration should be promoted for any type of goods, commodities and services including IF. Thus, the catalyst role of the IF in the development of the HT is advised as a way of adopting Islamic financing as the source of capital in order to start an integrated Halal business. In this respect, different stakeholders need to become visible in order to participate in HT development as a way to more adequately exploit the cultural Arab endowments of some Spanish regions. This development can also be fostered by FinTech companies that help new startups to provide a wide range of innovative products and services in the growing Halal niche market.

This study contributes to a strand of the literature that is still nascent. Nevertheless, it presents a number of limitations that need to be commented upon. First, the development of HT products goes beyond the role that IF can have as a catalyst because many other factors, like the important Muslim heritage that exists, for example, in Spain, can be even more determinant and decisive. Second, the lack of a theoretical model impedes the use of a better instrument (scale) to analyze the role of the IF, so more empirical scales are needed in order to compare the results obtained in the study. Third, the convenience sample should be enlarged in order to be more representative of the main stakeholders involved in such development, such as hoteliers and restaurateurs. These limitations open new roads for promising venues for future research.

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References

1. Mastercard-CrescentRating. Global Muslim Travel Index 2019. Available online: https://www.crescentrating.com/reports/global-muslim-travel-index-2019.html (accessed on 20 February 2020).
2. Cuesta-Valiño, P.; Bolifa, F.; Núñez-Barriopedro, E. Sustainable, Smart and Muslim-Friendly Tourist Destinations. *Sustainability* **2020**, *12*, 1778. [CrossRef]
3. DinarStandard. Global Islamic Economy Report 2019/20. Available online: https://www.salaamgateway.com/SGIE19-20 (accessed on 20 February 2020).
4. IFSB. *Islamic Financial Services Industry Stability Report 2019*; Islamic Financial Services Board: Kuala Lumpur, Malaysia, 2020. Available online: https://www.ifsb.org/ (accessed on 20 February 2020).
5. Halal Focus Word Halal Summit: Breaking Down the Silos of Halal and Islamic Finance. Available online: http://halalfocus.net/whs-breaking-down-the-silos-of-halal-food-and-islamic-finance/ (accessed on 7 April 2015).
6. Jaffar, M.A.; Musa, R. Determinats of Attitude to Wards Islamic Financing among Halal-Certified Micro and SMEs: A Proposed Conceptual Framework. Universiti Teknologi MARA, Selangor Darul Ehsan, Malaysia. *Int. J. Educ. Res.* **2013**, *1*, 1–10.
7. Rasheed, A. Islamic Finance and Halal Industry—Opportunity, Impact, Synergy. Available online: https://www.bis.org/review/r191001j.htm (accessed on 1 October 2019).
8. Ahmad, K.A.; Sungit, F. Islamic Financing for Halal Business: The Solutions for Entrepreneurs in Malaysia. *J. Pengaj. Islam Fak. Pengaj. Perad. Islam* **2016**, *9*, 45–56.
9. Muhamed, N.A.; Ramli, N.M. Towards Integrated Halal Sectors and Islamic Financing: The Academia Perspectives. In Proceedings of the 3rd International Halal Conference (INHAC 2016), Selangor, Malaysia, 21–22 November 2016; Muhammad Hashim, N., Md Shariff, N., Mahamood, S., Fathullah Harun, H., Shahruddin, M., Bhari, A., Eds.; Springer: Singapore, 2018; pp. 159–168. [CrossRef]
10. Gabdrakhmanov, N.K.; Biktimirov, N.M.; Rozhko, M.V.; Khafizova, L.V. Problems of development of Halal tourism in Russia. *J. Organ. Cult. Commun. Confl.* **2016**, *20*, 88.
11. Rexhepi, G.; Ramadani, N. Ethics and Social Responsibility in Islamic Finance. In *Entrepreneurship and Management in an Islamic Context*; Ramadani, V., Dana, L., Gërguri-Rashiti, S., Ratten, V., Eds.; Springer International Publishing: Basel, Switzerland, 2017; pp. 133–142.
12. Junaidi, J. Halal-friendly tourism and factors influencing halal tourism. *Manag. Sci. Lett.* **2020**, *10*, 1755–1762. [CrossRef]
13. Tieman, M.; van der Vorst, J.G.A.J.; Che Ghazali, M. Principles in Halal supply chain management. *J. Islamic Mark.* **2012**, *3*, 217–243. [CrossRef]
14. Noor, M.A.M.; Moi, M.R. Potential of halal industry for Maghreb countries. *J. Islamic Bank. Financ.* **2015**, *32*, 82–92.
15. Muhamed, N.A.; Ramli, N.M.; Aziz, S.A.; Yaakub, N.A. Integrating islamic financing and halal industry: A survey on current practices of the selected Malaysian authority bodies. *Asian Soc. Sci.* **2014**, *10*, 120–126. [CrossRef]
16. Ismail, A.G.; Mohd Noor, M.A. Halal Finance and Halal Foods: Are They Falling Apart? *Acta Univ. Danub. Œconomica* **2016**, *12*, 113–126.
17. Wilson, J.A. Repositioning Islamic Finance as a Grassroots International Business Catalyst. The Disraeli Room, Respublica Blog Post, 1–4. Available online: http://www.respublica.org.uk/disraeli-room-post/2014/08/22/repositioning-islamic-finance-grassroots-international-business-catalyst/ (accessed on 22 February 2020).
18. Hayat, R.; Den Butter, F.A.G.; Kock, U. *Halal Certification for Financial Products: A Transaction Cost Perspective*; Discussion Paper, No. 11-171; Tinbergen Institute: Amsterdam, The Netherlands, 2011. Available online: http://hdl.handle.net/10419/87364 (accessed on 22 February 2020).
19. IFSB. *Guiding Principles on Shariah Governance Systems for Institutions Offering Islamic Financial Services*; Islamic Financial Services Board: Kuala Lumpur, Malaysia, 2009. Available online: http://www.ifsb.org/standard/IFSB-10%20Shariah%20Governance.pdf (accessed on 22 February 2020).
20. Mohd Ali, M.N. The Axiomatic Approach of Tawhid in Solving Issues in Halal Economy. In Proceedings of the International Symposium of Islam, Civilization and Science: Islam as a Basis for Civilizational Thought and Development, Kyoto University Japan, Tokyo, Japan, 31 May–1 June 2014; pp. 139–154.

21. Nisha, N.; Iqbal, M. Halal Ecosystem: Prospect for growth in Bangladesh. *Int. J. Bus. Soc.* **2017**, *18*, 205–222.
22. Irfan, I.S.; Awang, M.D.; Rahman, S.A. The Concept of Halal Economy: An Initiative to Integrate the Halal Products Industry and Islamic Banking and Finance. In Proceedings of the 5th Islamic Economy System Conference, Kuala Lumpur, Malaysia, 4–5 September 2013; pp. 301–313. Available online: https://doi.org/10.1207/s15326993es1302 (accessed on 20 February 2020).
23. Muhamed, N.A.; Ramli, N.M. *Towards Integrated Halal Sectors and Islamic Financing: The Academia Perspectives. Proceedings of the 3rd International Halal Conference (INHAC 2016)*; Springer: Singapore, 2018; pp. 159–168.
24. Muhamad, N.; Leong, V.S.; Mizerski, D. Consumer knowledge and religious rulings on products. Young Muslim consumer's perspective. *J. Islamic Mark.* **2016**, *7*, 74–94. [CrossRef]
25. Khoiriati, S.D.; Krisnajaya, I.M.; Dinarto, D. Debating halal tourism between values and branding: A case study of Lombok, Indonesia. *KnE Soc. Sci.* **2018**, 494–515. [CrossRef]
26. Muneeza, A.; Mustapha, Z.; Nashwa Badeeu, F.; Reesha Nafiz, A. Need to pioneer Islamic tourism in tourist resorts in Maldives. *J. Islamic Mark.* **2019**, *11*, 895–916. [CrossRef]
27. Bintarti, S.; Fahamsyah, M.H. Improving tourism quality by Islamic finance. *Eur. Res. Stud. J.* **2018**, *21*, 399–401. [CrossRef]
28. Gomber, P.; Kauffman, R.J.; Parker, C.; Weber, B.W. On the fintech revolution: Interpreting the forces of innovation, disruption, and transformation in financial services. *J. Manag. Inf. Syst.* **2018**, *35*, 220–265. [CrossRef]
29. Rabbani, M.R.; Khan, S.; Thalassinos, E.I. FinTech, blockchain and Islamic finance: An extensive literature review. *Int. J. Econ. Bus. Adm.* **2020**, *23*, 65–86.
30. Lee, I.; Shin, Y.J. Fintech: Ecosystem, business models, investment decisions, and challenges. *Bus. Horiz.* **2018**, *61*, 35–46. [CrossRef]
31. Hussain, M.; Shahmoradi, A.; Turk, R. An overview of Islamic finance. *J. Int. Commer. Econ. Policy* **2016**, *7*, 1650003. [CrossRef]
32. Haddad, C.; Hornuf, L. The emergence of the global fintech market: Economic and technological determinants. *Small Bus. Econ.* **2019**, *53*, 81–105. [CrossRef]
33. Battour, M.M.; Ismail, M.N.; Battor, M. Toward a Halal tourism market. *Tour. Anal.* **2010**, *15*, 461–470. [CrossRef]
34. Battour, M.; Battor, M.; Bhatti, M.A. Islamic attributes of destination: Construct development and measurement validation, and their impact on tourist satisfaction. *Int. J. Tour. Res.* **2014**, *16*, 556–564. [CrossRef]
35. Sriprasert, P.; Chainin, O.; Rahman, H.A. Understanding behavior and needs of Halal tourism in Andaman Gulf of Thailand: A case of Asian muslim. *J. Adv. Manag. Sci.* **2014**, *2*, 216–219. [CrossRef]
36. Dolnicar, S.; Grün, B. Question stability in brand image measurement: Comparing alternative answer formats and accounting for heterogeneity in descriptive models. *Australas. Mark. J.* **2007**, *15*, 26–41. [CrossRef]
37. Bravo, R.; Montaner, T.; Pina, J.M. Corporate brand image in retail banking: Development and validation of a scale. *Serv. Ind. J.* **2010**, *30*, 1199–1218. [CrossRef]
38. Menor, L.J.; Roth, A.V. New service development competence in retail banking: Construct development and measurement validation. *J. Oper. Manag.* **2007**, *25*, 825–846. [CrossRef]
39. Zadeh, L.A. Fuzzy sets. *Inf. Control* **1965**, *8*, 338–353. [CrossRef]
40. Ab Talib, M.S.; Ai Chin, T.; Fischer, J. Linking Halal food certification and business performance. *Br. Food J.* **2017**, *119*, 1606–1618. [CrossRef]
41. Eid, R.; El-Gohary, H. The role of Islamic religiosity on the relationship between perceived value and tourist satisfaction. *Tour. Manag.* **2015**, *46*, 477–488. [CrossRef]
42. Lin, H.F. An application of fuzzy AHP for evaluating course website quality. *Comput. Educ.* **2010**, *54*, 877–888. [CrossRef]
43. Saayman, M.; Martín, J.C.; Román, C. There is no fuzziness when it comes to measuring service quality in national parks. *Tour. Econ.* **2016**, *22*, 1207–1224. [CrossRef]
44. Saeida Ardakani, S.; Nejatian, M.; Farhangnejad, M.A.; Nejati, M. A fuzzy approach to service quality diagnosis. *Mark. Intell. Plan.* **2015**, *33*, 103–119. [CrossRef]
45. Tsaur, S.H.; Chang, T.Y.; Yen, C.H. The evaluation of airline service quality by fuzzy MCDM. *Tour. Manag.* **2002**, *2*, 107–115. [CrossRef]

46. Yeh, C.H.; Kuo, Y.-L. Evaluating passenger services of Asia-Pacific international airports. *Transp. Res. Part E Logist. Transp. Rev.* **2003**, *39*, 35–48. [CrossRef]
47. Dickson, J.; Albaum, G. A method for developing tailormade semantic differentials for specific marketing content areas. *J. Mark. Res.* **1977**, *14*, 87–91. [CrossRef]
48. Zadeh, L.A. Making computers think like people. *IEEE Spectr.* **1984**, *21*, 26–32. [CrossRef]
49. Yadav, R.S.; Singh, V.P. Modeling academic performance evaluation using soft computing techniques: A fuzzy logic approach. *Int. J. Comput. Sci. Eng.* **2011**, *3*, 676–686.
50. Mamdani, E.; Assilian, S. An experiment in linguistic synthesis with a fuzzy logic controller. *Int. J. Man Mach. Stud.* **1975**, *7*, 1–13. [CrossRef]
51. Zadeh, L.A. The concept of a linguistic variable and its application to approximate reasoning: II. *Inf. Sci.* **1975**, *8*, 199–249. [CrossRef]
52. Buckley, J.J. Ranking alternatives. Using fuzzy numbers. *Fuzzy Sets Syst.* **1985**, *15*, 21–31. [CrossRef]
53. Kumar, H. Some recent defuzzification methods. In *Theoretical and Practical Advancements for Fuzzy System Integration*; Le, D.-F., Ed.; IGI Global: Hershey, PA, USA, 2017; pp. 31–48.
54. Chen, S.M. Evaluating weapon systems using fuzzy arithmetic operations. *Fuzzy Sets Syst.* **1996**, *77*, 265–276. [CrossRef]
55. Kaufmann, A.; Gupta, M.M. *Fuzzy Mathematical Models in Engineering and Management Science*; Elsevier Science Pub. Co.: Amsterdam, The Netherlands, 1988.
56. Hwang, C.; Yoon, K. *Multiple Attribute Decision Making: Methods and Application*; Springer: New York, NY, USA, 1981.
57. Zeleny, M. *Multiple Criteria Decision Making*; McGraw-Hill: New York, NY, USA, 1982.
58. Zavadskas, E.K.; Mardani, A.; Turskis, Z.; Jusoh, A.; Nor, K.M. Development of TOPSIS method to solve complicated decision-making problems—An overview on developments from 2000 to 2015. *Int. J. Inf. Technol. Decis. Mak.* **2016**, *15*, 645–682. [CrossRef]
59. Erol, C.; El-Bdour, R. Attitudes, behaviour, and patronage factors of bank customers towards Islamic banks. *Int. J. Bank Mark.* **1989**, *7*, 31–37. [CrossRef]
60. Marimuthu, M.; Jing, C.W.; Gie, L.P.; Mun, L.P.; Ping, T.Y. Islamic Banking: Selection Criteria and Implications. *Glob. J. Hum. Soc. Sci.* **2010**, *10*, 52–62.
61. Souiden, N.; Rani, M. Consumer attitudes and purchase intentions toward Islamic banks: The influence of religiosity. *Int. J. Bank Mark.* **2015**, *33*, 143–161. [CrossRef]
62. Al-Ajmi, J.; Abo Hussain, H.; Al-Saleh, N. Clients of conventional and Islamic banks in Bahrain: How they choose which bank to patronize. *Int. J. Soc. Econ.* **2009**, *36*, 1086–1112. [CrossRef]
63. Belouafi, A.; Chachi, A. Islamic finance in the United Kingdom: Factors behind its development and growth. *Islamic Econ. Stud.* **2014**, *22*, 37–78. [CrossRef]
64. Reuters. Tunisia's Islamic Finance Push Has Political Echoes. 2012. Available online: https://www.reuters.com/article/tunisia-islamic-finance/tunisias-islamic-finance-push-has-political-echoes-idUSL6E8L2ESJ20121010 (accessed on 18 December 2019).
65. Iberian Lawyer. Spain: Use of Islamic Finance in Spain Hindered by Banking Laws. Mondaq, 17 August 2018. Available online: http://www.mondaq.com/x/619988/islamic+finance/Madrid+annual+report+2017+Firm+reengineering (accessed on 22 February 2020).
66. Chowdhury, M.N.H.; Arifuzzaman, S.M. Examining awareness regarding Islamic banking among business graduates in Bangladesh. *J. Islamic Econ. Bank. Financ.* **2013**, *113*, 1–12. [CrossRef]
67. El Faro de Ceuta El Ramadán nos Invita a la Reflexión, a la Comprensión del Mundo Que Nos Rodea. El Faro de Ceuta, 5 May 2019. Available online: https://elfarodeceuta.es/directora-instituto-halal-junta-islamica-ramadan-invita-reflexion-comprension-mundo/ (accessed on 22 February 2020).
68. Laderlah, S.A.; Rahman, S.A.; Awang, K.; Man, Y.C. A study on Islamic tourism: A Malaysian experience. *Int. Proc. Econ. Dev. Res.* **2011**, *17*, 184–189.
69. Zamani-Farahani, H.; Henderson, J.C. Islamic tourism and managing tourism development in Islamic societies: The cases of Iran and Saudi Arabia. *Int. J. Tour. Res.* **2010**, *12*, 79–89. [CrossRef]

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The Role of Perceived Smart Tourism Technology Experience for Tourist Satisfaction, Happiness and Revisit Intention

Chen-Kuo Pai [1], Yumeng Liu [1], Sangguk Kang [2,*] and Anna Dai [1]

[1] Faculty of Hospitality and Tourism Management, Macau University of Science and Technology, Aveida Wai Long, Taipa, Macau, China; ckpai@must.edu.mo (C.-K.P.); liuyumeng99@outlook.com (Y.L.); dnanuonuo@163.com (A.D.)

[2] Department of Tourism Management, College of Social Sciences, Gangneung-Wonju National Univesity, Jukheon-gil 7, Gangneung-si, Gangwon-do 25457, Korea

* Correspondence: kriver39@gwnu.ac.kr

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Abstract: The rapid advancement of smart tourism technology brings new opportunities for tourism development. More travel destinations are relying on smart technology to attract more tourists to visit and enrich their travel experience. The main purpose of this study was to explore whether tourists are satisfied with their smart tourism technology experience (i.e., informativeness, accessibility, interactivity, personalization, and security). This study also investigated the impact of smart tourism technology experience on tourists' happiness and revisit intention. This study used a structural equation method to find the relationship among smart tourism technology attributes, travel satisfaction, happiness, and revisit intention. Surveys of a total of 527 participants who traveled to Macau from Mainland China were used for the analysis. The results showed that accessibility is the most important factor affecting the smart tourism technology experience and personalization the least. Smart tourism technology experience is shown to be significantly associated with travel experience satisfaction, and travel experience satisfaction has a positive effect on both tourists' happiness and revisit intention. Finally, tourist happiness is also shown to be positively associated with revisit intention. This study provides theoretical and practical significance for the development of smart tourism in the future.

Keywords: smart tourism technology experience; tourist satisfaction; happiness; revisit intention

1. Introduction

With the rapid development of information and communication technology (ICT), the traditional tourism industry has entered an era of smart tourism and smart technologies are now widely used in the tourism industry. Smart technologies explore innovative ways to create memorable experiences for tourists by extending destination co-creation space [1]. From the perspective of tourists, the position of smart technology in travel has become more important. In the initial stage, tourists mainly used ICT for travel information searching and decision-making [2]. With this trend, many tourism-related businesses have adopted various smart technologies for promoting and marketing their destinations. To develop a smart tourism destination, government and destination marketing organizations (DMOs) often establish an evaluation system according to the policy for smart cities [3]. However, the ultimate goal of smart tourism is to create a more convenient and enjoyable travel experience for tourists.

Nowadays, as an important element of experience, smart technologies play an irreplaceable role in travel. Most tourists use smart technologies such as location queries, local restaurant reviews, or mobile payments through smart phones during their travel. Smart technologies are used throughout the whole travel process,

including DMOs websites, tourism apps, social media, and virtual reality for tourists to arrange and enrich their trips. Researchers have recognized the potential of smart technologies and predicted that the smart technologies used by tourists will become more diversified [4]. Especially with the popularity and development of smart phones, tourists can use travel-related apps to plan their travel anytime and anywhere [5].

Tourism development can improve quality of life and travel as a source of happiness [6–8]. The pursuit of novelty and high-quality tourism has become a new kind of life experience, often considered an important way to pursue happiness. Most studies on happiness and tourism focus on investigating the influence of destination value and tourist interaction on tourists' happiness [9–13]. A few scholars have explored the relationship between smart tourism experience and happiness. Lee, Lee, Chung, and Koo [14] found that tourists in South Korea are likely to place more value on what they perceive from their destination travel experiences than what they perceive from their experiences with smart tourism technology (STT) services when they evaluate their overall happiness. Kim and Hall [15] investigated the hedonic motivation adoption frameworks of virtual reality (VR) tourism and found that perceived enjoyment deeply affects subjective wellbeing.

Despite these findings, little is known about how smart tourism experiences boost happiness. To date, no studies have built a holistic conceptualization about perceived smart tourism experience and happiness in the Chinese population. In order to fill this gap, this paper aims to develop and investigate a conceptually comprehensive model on STT attributes, travel satisfaction, happiness, and revisit intention. Therefore, the main purpose of this paper is to explore tourists' experiences of smart tourism and then, to study whether the smart tourism experience can boost tourists' happiness.

Three aspects were identified as the objectives of this study:

(1) To investigate the main attributes affecting the use of STT by Chinese tourists and the relative importance of these factors to the satisfaction of Chinese tourists' experience;
(2) To examine whether travel satisfaction towards each STT attribute affects Chinese tourists' happiness;
(3) To demonstrate the influence of Chinese tourists' perception of STT on their revisit intention through their satisfaction and happiness with the tourism experience.

2. Literature Review

2.1. Smart Tourism

Smart, as a new concept, often involves practical devices in the context of economic and social development, including smartphones, smart TVs, and smart cars. Smart here means intelligent, eco-friendly, sustainable, integrated, and ubiquitous [16]. The term of smart has been applied to tourism based on the way in which integrated technologies, real-time data, and physical infrastructure have been combined into a single complex environment much like a city, thus, making great achievements. The practical applications of smart tourism develop faster than academic work because they are initiated as marketing strategies and government projects. However, there is a lack of agreement in the literature about the definition of smart tourism; the term can variously refer to a type of management, a trend, or an information service.

Zhang, Li, and Liu [17] defined smart tourism as a systematic and intensive management transformation. They believed that smart tourism could lead to resource optimization and value co-creation between tourists and providers. Thus, they constructed a capabilities–attributes–applications framework to describe the principle of smart tourism. The framework concerns the application background of smart tourism, which provides market strategies for DMOs and private companies to achieve public welfare and profit. According to Gretzel, Sigala, Xiang, and Koo [18], smart tourism is a new trend in the tourism industry with three components and layers: smart destination, smart business ecosystem, and smart experience, all of which are based on data collection, exchange, and processing. Li, Hu, Huang, and Duan [19] intended that the essence of smart tourism is the ubiquitous tour with information service. They emphasized that the information service is everywhere and can exist in any part of the travel process, allowing tourists to access it freely. However, smart tourism is not only a simple application of ICT but

also an ecosystem that enables tourists, DMOs, and other tourism stakeholder interactions, thus, creating more value, especially the co-creation value generated by tourists. It is a mobile information system that is combined with information and physical infrastructure to create a new experience for tourists [20].

2.2. Benefits of Smart Devices in Tourism

With the development of information technology (IT), all industries have inevitably embraced new technologies or experienced their benefits, and tourism is not an exception [21]. The application of smart devices in the context of the tourism industry is becoming increasingly extensive, which maximizes the value of tourism resources and produces enormous social and economic benefits. Examples of smart devices include wearable and portable devices—smartphones, smart glasses, smart watches. In addition, all venues and departments in the tourism industry tap into smart devices, such as self-service check-in kiosks in hotels, flight check-in service machines in airports, self-service ticket machines, and tour guide systems in travel attractions. Tourists benefit from convenient and efficient services by adopting these smart devices.

Due to the innovation and improvement of ICT and portability with practicability, wearable and portable devices are favored by tourists. It is worth mentioning that smartphones play key roles in the leisure experience [22]. Smartphones combined with mobile networks, the internet of things (IoT), and near field communication (NFC) technologies have generated various tourism-related applications, changing the whole industry. With smart devices, more tourists plan travel on their own instead of through third parties such as travel agencies. Smart technologies enable people to book airline tickets, hotels, and other tourism products on the platform of mobile sites [23] and easily obtain information on destination transportation, accommodation, and attractions on their smartphones when they need it. More specifically, tourists use smart phones to browse websites, social networks, and service platforms, which not only supply the updates and real-time information on the destination but also directly communicate with other tourists and tourism marketers to make better travel decisions [24]. Moreover, tourists can connect to WiFi services and make mobile payments (such as for bus tickets) by scanning a QR code at the destination. Smart devices with new technologies bring new development opportunities for tourism.

2.3. Smart Tourism and Perceived STTs

ICT is the key factor, both the carrier and manifestation, of smart tourism. STTs include not only smart devices but also, for instance, social platforms, cloud computing, big data, IoT, artificial intelligence (AI), virtual reality (VR), augmented reality (AR), mixed reality, NFC, and radio-frequency identification (RFID), which are related to tourism activities. Especially, VR and AR are emerging STTs. These technologies have become popular in recent years in the context of tourism. Park and Stangl [25] investigated the AR experience from the perspective of sensation-seeking and identified experience-seeking and boredom-susceptibility as two key elements in the AR experience. STTs rely more on the value created by tourists than on the technology itself. The research on STTs can be divided into two themes: traditional online information channels and other new technologies. Online information is generated by tourists, and social media is one popular platform for seeking travel information. No and Kim [26] identified four types of online tourism information sources: blogs, public websites, company websites, and social media websites. No and Kim [26] also identified five features of online information: accessibility, security, information-trust, interaction, and personalization. Their results showed that security is the dominant attribute for public websites. Huang, Goo, Nam, and Yoo [27] summarized the attributes of STT as informativeness, accessibility, interactivity, and personalization.

2.4. Perceived STTSs

2.4.1. Informativeness

Informativeness represents a combination of the quality, credibility, and accuracy of information received from STTs at tourism destinations [27]. Informativeness is important to STTs and can directly

influence tourists' attitudes toward them. When STTs provide relevant, sufficient, and accurate information on activities, accommodation, and transportation, the time and effort in searching the information is reduced, and tourists are satisfied with their experience. Informativeness stimulates tourists' rational judgement about the destination and helps them make efficient decisions.

2.4.2. Accessibility

Accessibility represents the extent to which travelers can easily access and use the information offered at the destination by using different types of STTs [27]. Accessibility determines the usability of STTs at the destination. Individuals tend to explore more information about the destination when STTs are highly accessible.

2.4.3. Interactivity

Interactivity is defined as a facilitator that promotes travelers' real-time feedback and active communications when using STTs [27]. This affects tourists' responses to STTs. In social media services, when tourists perceive a high level of interactivity, they tend to adopt the service and communicate more with tourism suppliers through purchasing behavior, commenting, and feedback [28].

2.4.4. Personalization

Personalization refers to the ability of a traveler to obtain specific information to suit his or her personal trip planning needs by using various types of STTs [4,26]. According to their previous purchasing behavior, personality, and preference, tourists can receive suitable recommendations through big data or cloud computing.

2.4.5. Security

Security is defined as the safety of personal information while using various types of STTs [27]. Tourists tend to use STTs at the destination when they feel their personal information is safe. Many previous studies consider security as a core attribute of perceived STTs [26,27].

2.5. Happiness and Tourists' Travel Satisfaction

Happiness is usually interpreted as a quality of life or level of hedonic happiness [6,8]. Subjective wellbeing or life satisfaction can be identified as an indicator of happiness. Empirical studies have shown that tourism or travel is a process of seeking hedonic experience, and tourists' happiness varies according to their personality, destination types, and types of travel activities [13,29,30]. Travel prolongs happiness by reducing hedonic adaptation, especially in terms of expectation and serendipity [31]. A positive experience during a trip can increase people's overall happiness, and interaction can be identified as one of the most important factors that enhances happiness [32]. Lee et al. [14] investigated the tourists' value-seeking processes and concluded that tourists' happiness can be increased through travel experience satisfaction and service experience satisfaction.

Smart tourism involves all aspects of tourism, including transportation, accommodation, and attractions. When tourists have positive emotions and attitudes toward STTs, their experience in the destination will be satisfied. As a result, travel satisfaction produces tourist happiness.

This study focuses on perceived STTs in travel satisfaction; therefore, the following hypotheses are proposed:

Hypothesis 1 (H1). *Perceived STTs are positively associated with tourist travel satisfaction.*

Hypothesis 2 (H2). *Tourist travel satisfaction is positively associated with tourist happiness.*

2.6. Tourists' Travel Satisfaction and Revisit Intention

In the field of tourism studies, tourists' satisfaction plays an essential role in predicating behavioral intention. Behavioral intention, also known as loyalty, refers to recommendation intention and revisit intention toward the destination. Tourists' revisit intention reflects the degree of the willingness of tourists to revisit the destination. Tourists' satisfactory experiences produce intention to revisit the destination [33]. Meng and Han [34] found that working-holiday tourism satisfaction with the destination can positively and significantly influence intention to revisit and word-of-mouth intention.

In summary, many scholars have attempted to create constructs that can increase tourists' satisfaction and revisit intention. Previous studies have found that satisfaction has a positive association with revisit intention [35–37]. Therefore, this study proposes the following hypotheses:

Hypothesis 3 (H3). *Tourist travel satisfaction is positively associated with tourist revisit intention.*

Hypothesis 4 (H4). *Tourist happiness is positively associated with revisit intention.*

3. Research Design

3.1. Research Architecture

The main purpose of this study is to understand Chinese tourists' perceived STT experience and how perceived STT affects overall travel experience satisfaction. Therefore, this study investigated how tourists' travel satisfaction affects happiness and revisit intention to the destination, based on five perceived STT attributes. For this purpose, we selected tourists who traveled Macau since Macau local government has announced smart tourism as an official development strategy. In addition, Macau is a popular cultural and leisure destination attracting many tourists from China.

3.2. Research Hypotheses

Tourists' perceived STT was selected and classified according to the literature review, which identified five attributes: informativeness, accessibility, interactivity, personalization, and security. The perceived STT experience of Chinese tourists was assumed to have an impact on tourists' travel satisfaction and tourist happiness from travel experience satisfaction. Finally, revisit intention was posited to identify the relationships between travel experience satisfaction and tourist happiness.

The research hypothesis model is shown in Figure 1.

3.3. Questionnaire Design

The measurement items were adopted from the previous literature and modified for this study. The measures of the eight constructs consist of perceived STT experience, travel satisfaction, happiness, and revisit intention. We reconstructed perceived STT experience for our study based on informativeness, accessibility, interactivity, personalization, and security. The five items related to informativeness were adapted from Luo [38], No and Kim [26], Lee et al. [14], and Yoo et al. [20]. The five items related to accessibility were adapted from No and Kim [26] and Lee et al. [14]. The four items related to interactivity were adapted from No and Kim [26], Yoo et al. [20], and Lee et al. [14]. The four items related to personalization were adapted from No and Kim [26], Huang et al. [27], and Lee et al. [14]. Finally, the five items related to security were adapted from Mills and Morrison [39], No and Kim [26], and Huang et al. [27]. For the construct of overall travel experience satisfaction, six items were adapted from Neal, Sirgy, and Uysal [40], Lee et al. [14], Kim, Woo, and Uysal [41], and Su, Huang, and Chen [42]. The four items related to happiness were adapted from Neal et al. [40], Su et al. [42], and Lee et al. [14], and the four items related to revisit intention were adapted from Kim et al. [41] and Kim, Lee, Uysal, Kim, and Ahn [43].

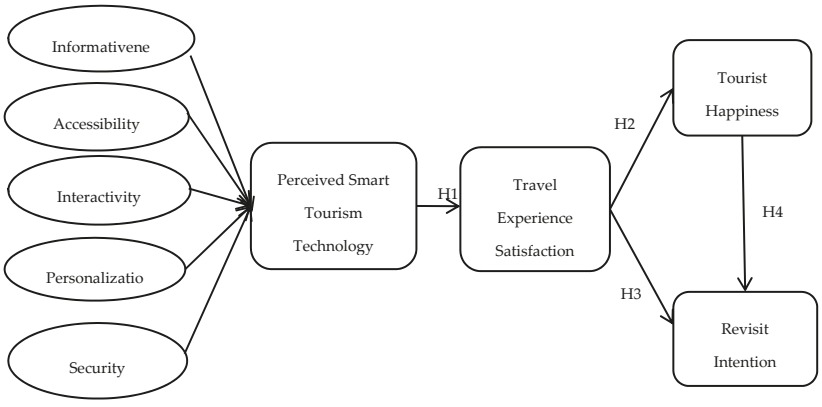


Figure 1. Research Hypotheses.

The multi-measurement items were used to prevent measurement errors. All items in this study were measured on a seven-point Likert scale, ranging from strongly disagree (1) to strongly agree (7). The survey was written in English and translated into Chinese. A pilot test was conducted to check face validity. When the study questionnaires were distributed, respondents were asked to read an introductory paper on STT before filing out the questionnaires.

The questionnaires were divided into two parts, with a seven-point Likert scale used in the first part. All questions were adopted from tourism and technology studies and modified for the context of STT. The second part collected the demographic information of the respondents, including gender, age, educational background, occupational background, income level, city of residence, frequency of travel, and length of time the respondents had been using STTs.

3.4. Sample Collection

To select an appropriate sample, we asked the screening question: "Have you ever used smart tourism technologies in Macau?" Those who answered that they had not used smart tourism technologies in Macau were excluded.

A total of 150 pretest questionnaires were distributed, and 127 valid copies were collected. The statistics indicated that the α value of each item was between 0.802 and 0.92, which was greater than 0.8. Therefore, the questionnaire was considered highly reliable. In addition, after the distribution and communication process of the pretest, the wording of some questions was adjusted to avoid vague sentences before the final questionnaires were officially released. The official distribution sites of the questionnaires were tourist attractions in Macau, and all respondents were Chinese tourists visiting Macau. A total of 587 copies were distributed by a simple random sampling method, and the valid response rate (N = 527) was high, at 89.77%.

4. Data Analysis and Results

4.1. Descriptive Analysis

According to the descriptive analysis of demographic data, 52.8% of the subjects were women aged between 21 and 30 years (47.1%), and 49.7% of the total subjects had a university education background and a monthly salary between 40,001 and 80,000 RMB (34.9%). Among all the respondents, 129 worked in the service industry, and most came from mainland China. A total of 310 (58.8%) had been involved in leisure and travel activities once or twice per year. Regarding their history of smart tourism technologies usage, 43.1% had been using such technologies for three to four years, and 41.1% for more than four years. The demographic information of the sample is presented in Table 1.

Table 1. Demographic information (N = 527).

Variables		*N* (%)	Variables		*N* (%)
Gender			***STT usage time***		
	Male	249 (47.2)		Below 1 year	15 (2.8)
	Female	278 (52.8)		1–2 years	67 (12.7)
				3–4 years	227 (43.1)
Age				Above 4 years	218 (41.4)
	Under 20	35 (6.6)	***Average travel time/year***		
	21–30	248 (47.1)		1–2 times	310 (58.8)
	31–40	179 (34)		3–4 times	145 (27.5)
	41–50	61 (11.6)		Above 4	72 (13.7)
	Above 51	4 (0.8)	***Career***		
				Student	109 (20.7)
Education				Housewife	11 (2.1)
	Junior high school	20 (3.8)		Service industry	129 (24.5)
	High school	41 (7.8)		Civil servant	22 (4.2)
	College	130 (24.7)		Teacher	56 (10.6)
	Undergraduate	262 (49.7)		Business	85 (16.1)
	Postgraduate	74 (14)		Manufacturing	51 (9.7)
				Own business	53 (10.1)
Income/Month (RMB)				Other	11 (2.1)
	Below 4000	91 (17.3)			
	4001–8000	184 (34.9)			
	8001–12,000	132 (25)			
	12,001–16,000	83 (15.7)			
above 16,000	37	37 (7)			

4.2. Reliability Analysis

Reliability is an important factor in testing whether the questionnaire results have internal consistency [44]. According to Koufteros [45], Cronbach's alpha and composite reliability (CR) are two common methods to test the reliability level. Cronbach [46] proposed the reference criteria: when α is less than 0.6, it reflects low reliability; when the α coefficient is between 0.6 and 0.8, it indicates that the reliability is acceptable; when the α coefficient is greater than 0.8, it indicates that the reliability is excellent. Nunnally [47] also suggested that when α is greater than 0.7, reliability is considered high. In addition, the recommended value of composite reliability (CR) should exceed 0.6, and the higher the value, the better the reliability [48,49].

Therefore, this study used Smart PLS 3.0 to calculate Cronbach's alpha and CR. The results showed that the α values of the eight variables in this study were between 0.847 and 0.920, while the CR values were between 0.897 and 0.940. In other words, the α and CR values reached the standard value requirements.

4.3. Validity Test

Fornell and Larcker [48] suggested that the validity test should consist of convergent validity (CV) and discriminant validity (DV) to reflect the authenticity and accuracy of the questionnaire. CV measures the correlation of different measurements of the same variable, while DV measures the non-correlation between items with different variables. According to Anderson and Gerbing [50], to determine convergent validity, the first step is to compute the standardized load on each variable. If the load coefficient is greater than 0.7, this indicates that the validity of each construct is excellent. The second step is to calculate the average variance extracted (AVE). This should generally be greater than 0.5. DV can be measured by comparing the degree of correlation between the square root value of AVE and the latent variables [48]. When the measurement results show that the square root value of AVE of each variable is greater than that of the correlation coefficient and the value at least 0.5, the questionnaires have high DV.

The load coefficients of all the questions in the questionnaires were between 0.751 and 0.904, which is greater than the suggested value of 0.7, and the AVE of each variable was between 0.687 and

0.795, which is greater than the suggested value of 0.5. In conclusion, all variables in this research model featured high CV. Table 2 presents the results of the load factor and AVE.

Table 2. Load factor and average variance extracted (AVE) results.

Items	Factor Loading	AVE	SD
Informativeness			
When traveling in Macau, Smart Tourism Technology provides me with useful information about the travel destination and the trip.	0.793	0.707	5.23
When traveling in Macau, Smart Tourism Technology provides me with useful information about the travel destination and the trip.	0.856		5.11
When traveling in Macau, Smart Tourism Technology provides me with useful information about the travel destination and the trip.	0.874		5.13
When traveling in Macau, Smart Tourism Technology provides me with useful information about the travel destination and the trip.	0.863		5.10
When traveling in Macau, Smart Tourism Technology provides me with useful information about the travel destination and the trip.	0.816		5.17
Accessibility			
When traveling in Macau, I can use Smart Tourism Technology anytime and anywhere.	0.869	0.758	5.01
When traveling in Macau, I can easily use Smart Tourism Technology.	0.863		4.89
When traveling in Macau, I can easily find Smart Tourism Technology.	0.892		4.96
When traveling in Macau, I can search without a complicated sign-up process at tourism website.	0.841		4.87
When traveling in Macau, I can easily access Smart Tourism Technology form a variety of other related websites.	0.888		4.89
Interactivity			
When traveling in Macau, I can find many other travelers' questions and answers on Smart Tourism Technology.	0.843	0.705	4.86
When traveling in Macau, Smart Tourism Technology that I use is highly responsive to me.	0.832		4.72
When traveling in Macau, Smart Tourism Technology that I use is interactive.	0.861		5.00
When traveling in Macau, it is easy to share tourism information content on Smart Tourism Technology.	0.823		4.91
Personalization			
When traveling in Macau, Smart Tourism Technology allows me to receive tailored information.	0.751	0.687	4.9
When traveling in Macau, Smart Tourism Technology provides me with easy-to-follow paths and links.	0.863		4.88
When traveling in Macau, the tourism information provided by Smart Tourism Technology meets my needs.	0.83		5
When traveling in Macau, I can interact with Smart Tourism Technology in order to get information tailored to my specific needs.	0.867		4.93
Security			
When I use Smart Tourism Technology, I don't worry about collecting too much personal information.	0.846	0.717	4.87
When I use Smart Tourism Technology, I believe my privacy is protected.	0.83		4.7
When I use Smart Tourism Technology, I don't worry about the security of sensitive information.	0.866		4.74
My personal information could be subject to misuse and unauthorized access when transacting through Smart Tourism Technology.	0.846		4.73
Smart Tourism Technology Provides adequate security to protect my personal information.	0.845		4.94
Travel Experience Satisfaction			
During Macau tourism experience, I feel that traveling in Macau enriches my life in some ways.	0.842	0.703	5.22
During Macau tourism experience, I can accomplish the purpose of this travel.	0.84		5.22
During Macau tourism experience, it is rewarding to me in many ways.	0.808		5.01
During Macau tourism experience, my overall evaluation destination experience is positive.	0.856		5.25
During Macau tourism experience, my overall evaluation destination experience is favorable.	0.851		5.24
Overall, I was satisfied during my trip to Macau.	0.832		5.33
Tourist Happiness			
During Macau tourism experience, I can consider myself very happy.	0.873	0.739	5.28
During Macau tourism experience, I can think about what a happy life I have compared to the ideal state.	0.841		5.20
During Macau tourism experience, I can think about how I am generally very satisfied with my life.	0.873		5.17
During Macau tourism experience, I can feel good about my life, although I have my ups and downs.	0.851		5.13
Revisit Intention			
I will revisit Macau.	0.904	0.795	5.51
Revisiting Macau would be worthwhile.	0.886		5.53
I would positively recommend this city to other people.	0.875		5.36
I would like to stay more often in Macau.	0.901		5.43

In Table 2, the square root of the AVE value on the diagonal is larger than the correlation coefficient value at the lower left corner of the diagonal. This indicates adequate discriminant validity between

the latent variables. In conclusion, the analytical results of CV and DV confirm that this questionnaire was satisfactory. Table 3 shows analysis of discriminant validity and all diagonal values exceed the inter-construct correlations with acceptable level.

Table 3. Analysis of discriminant validity.

	1	2	3	4	5	6	7	8
1. PER	0.829							
2. INT	0.771	0.84						
3. INF	0.617	0.624	0.841					
4. ACC	0.651	0.69	0.641	0.871				
5. SEC	0.575	0.598	0.539	0.545	0.847			
6. TES	0.575	0.486	0.618	0.666	0.507	0.838		
7. TH	0.571	0.508	0.554	0.598	0.515	0.804	0.86	
8. RI	0.401	0.401	0.53	0.539	0.333	0.737	0.761	0.892

Note. PER—personalization; INT—interactivity; INF—informativeness; AC—accessibility; SEC—security; TES—travel experience satisfaction; TH—tourist happiness; RI—revisit intention.

4.4. Structural Model and Hypotheses Test

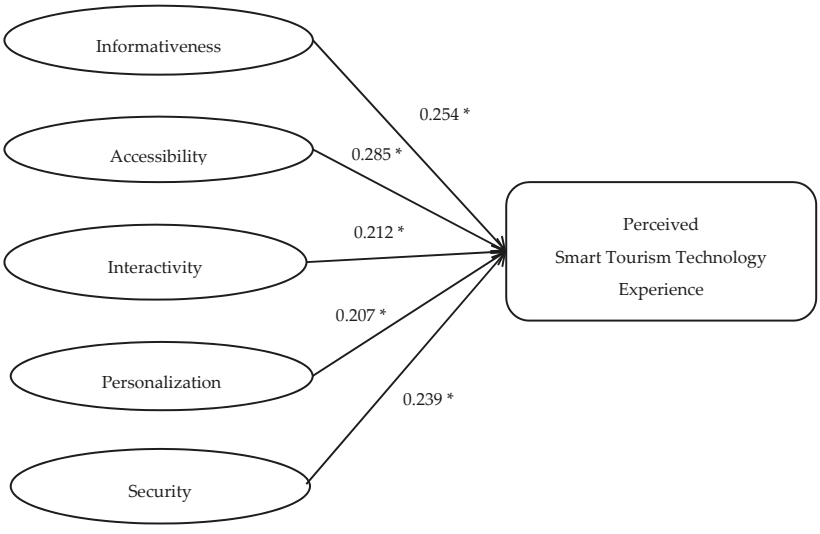
There are eight variables in this study, including five first-order variables used as indicators to create a second-order variable, perceived STT experience. This study first analyzed whether the first-order variables are related to the second-order variable (perceived STT experience) then tested the hypotheses model by using Smart PLS 3.0. First, a bootstrapping technique was used to determine the path estimates and t-statistics for the relative importance of the five first-order variables to perceived STT experience. All five variables were significantly associated with perceived STT experience. Among these five paths, accessibility was the most significant variable (path coefficient is 0.285, *T* value is 35.093), followed by informativeness (path coefficient is 0.254, *T* value is 31.044), security (path coefficient is 0.239, *T* value is 30.062), interactivity (path coefficient is 0.212, *T* value is 36.293), and personalization (path coefficient is 0.207, *T* value is 35.359).

Then, the proposed hypotheses were analyzed with SEM, adapting the bootstrapping technique with a sample size of 5000. In addition, in order to examine the explanatory power and predictive relevance of the variables in the research model, the explanatory variance R^2 value was calculated using the PLS algorithm to measure the explanatory power, and the predictive relevance was calculated using the blindfolding method. When the Q^2 value of the variables is greater than 0, it indicates that the model has predictive relevance [51] (pp. 193–221).

Table 4 and Figure 2 shows that each path coefficient is greater than 0.2, the *T* value is greater than 3.29, and the *P* value is less than 0.001, which means these paths are significant. The results indicate that perceived STTs are positively associated with tourists' travel satisfaction, which supports H1. The study also found that tourists' travel satisfaction was significantly associated with tourist happiness, supporting H2. Regarding the relationship with tourist revisit intention, there was a positive relationship between tourists' travel satisfaction and happiness, which supports H3 and H4 (See Table 5 and Figure 3). Moreover, the total effect (0.737) of tourists' travel satisfaction on revisit intention is greater than the value of path coefficient (0.356), indicating that as an intermediary variable, tourists' happiness weakened the effect of revisit intention. In conclusion, all hypotheses were supported in this research model.

Table 4. First-order path analysis.

Path	Path Coefficient	*T*	*P*
INF-Perceived STT experience	0.254	31.044	0
ACC-Perceived STT experience	0.285	35.093	0
INT-Perceived STT experience	0.212	36.293	0
PER-Perceived STT experience	0.207	35.359	0
SEC-Perceived STT experience	0.239	30.062	0

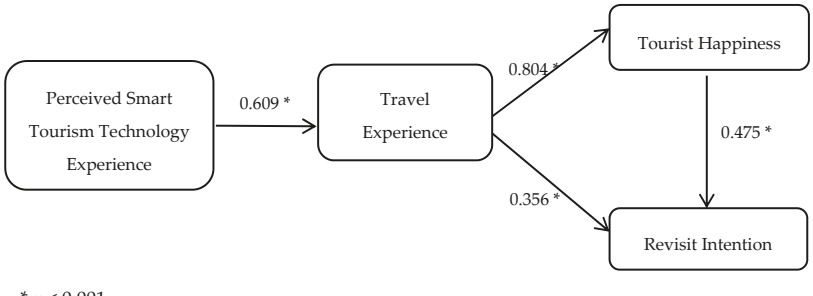


* $p < 0.001$

Figure 2. Structure model analysis of first-order variables.

Table 5. Summary of hypothesis results.

Hypothesis	Total	Path Coefficient	*T*	*P*	Result
H1: Perceived STT Experience→Satisfaction	0.69	0.69	19.682	0	Supported
H2: Satisfaction→Happiness	0.804	0.804	23.697	0	Supported
H3: Satisfaction→Revisit Intention	0.737	0.356	5.607	0	Supported
H4: Happiness→Revisit Intention	0.475	0.475	7.297	0	Supported



* $p < 0.001$

Figure 3. Hypothesis path analysis.

5. Discussion and Conclusions

5.1. Conclusions

The results of this study enriched the theoretical implications of smart tourism. The study adopted the attributes of STT proposed by Huang et al. [27] and added a new attribute, security. In other words, this study transformed smart tourism into a measurable model and identified the importance of these five attributes (informativeness, accessibility, interactivity, personalization, and security). The results showed that accessibility was the most significant contributor to tourists' perceived STT experience. The reasons may be that tourists can easily use STTs at the destination at any time when they are highly accessible. With easy access to STT, tourists spend less time and effort investigating how to use these technologies, which enables them to enjoy technology-based travel experiences at the destination. Informativeness was another highly influential contributor to perceived STT experience followed by accessibility. When embracing STTs at destinations, tourists can find information on food and transportation at the destination. STTs enable tourists to have more opportunities to engage in a wide range of activities and events. Moreover, tourists displayed relatively low satisfaction with personalization in the context of STT experience. Most of the Chinese tourist participants were familiar with STTs and had used them for more than three years. Therefore, for Chinese tourists, the ordinary technology used in tourism might not be affected since they pursued unique and novelty technology-based travel experiences. In this regard, STT may ignore their personal requirements.

5.2. Theoretical Implications

Based on these results, several important theoretical contributions of this research were found. First, the findings of this study provided a deeper understanding of the relationship between two concepts (STT experience and tourist happiness) and developed a research model for the relationship among perceived STT experience, travel experience satisfaction, tourist happiness, and revisit intention. Based on the empirical analysis results, this study revealed that tourists intend to revisit the destination when they are satisfied with the smart tourism experience. Second, this study emphasized the relationship between STT experience and tourist happiness. High satisfaction with STT experience can create high travel experience satisfaction, thus, improving happiness.

5.3. Practical Implications, Limitations, and Future Research

This study offers practical implications for DMOs. It revealed that most tourists have a positive intention to use STTs, and DMOs can create specific activities and experiences for tourists by developing STTs, especially in terms of personalization. For instance, when tourists want to find a restaurant, technology can recommend the nearest restaurant according to their preferences and guide them on a suitable route to the restaurant.

Although the study has many useful theoretical and practical implications, there are also some limitations. First, the sample is limited and may not be representative of the whole population. Although this study did not aim at young adults, targeted samples were mostly under 50 years old. In addition, since many older adults have difficulties with smart technologies, these age groups need to be explored with future research. Second, this study was conducted in Macau, which may have a unique tourist type and city environment. The research framework may not be applicable to other destinations, and the results arising from it may be different. Thus, an extended comparative study of multiple cities is needed. Third, this study added security as an attribute to measure perceived STT experience, and five attributes in total were examined. The applicability of these indicators remains to be investigated. Future studies can investigate whether there are any other factors affecting the STT experience for better understanding of current STT. In addition, to generalize the research, more diverse samples from other cities or countries are needed since this study was only conducted on Chinese tourists who visited Macau.

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References

1. Neuhofer, B.; Buhalis, D.; Ladkin, A. Conceptualising technology enhanced destination experiences. *J. Destin. Mark. Manag.* **2012**, *1*, 36–46. [CrossRef]
2. Gretzel, U. Intelligent systems in tourism: A social science perspective. *Ann. Tour. Res.* **2011**, *38*, 757–779. [CrossRef]
3. Chan, C.S.; Peters, M.; Pikkemaat, B. Investigating visitors' perception of smart city dimensions for city branding in Hong Kong. *Int. J. Tour. Cities* **2019**, *5*, 620–638. [CrossRef]
4. Jeong, M.; Shin, H.H. Tourists' experiences with smart tourism technology at smart destinations and their behavior intentions. *J. Travel Res.* **2019**. [CrossRef]
5. Wang, W. The influence of perceived technological congruence of smartphone application and air travel experience on consumers' attitudes toward price change and adoption. *J. Hosp. Tour. Technol.* **2018**, *10*, 122–135. [CrossRef]
6. Sharpley, R. Host perceptions of tourism: A review of the research. *Tour. Manag.* **2014**, *42*, 37–49. [CrossRef]
7. Woo, E.; Kim, H.; Uysal, M. Life satisfaction and support for tourism development. *Ann. Tour. Res.* **2015**, *50*, 84–97. [CrossRef]
8. Fu, X.; Ridderstaat, J.; Jia, H. Are all tourism markets equal? Linkages between market-based tourism demand, quality of life, and economic development in Hong Kong. *Tour. Manag.* **2020**, *77*, 104015. [CrossRef]
9. Fredrickson, L.M.; Anderson, D.H. A qualitative exploration of the wilderness experience as a source of spiritual inspiration. *J. Environ. Psychol.* **1999**, *19*, 21–39. [CrossRef]
10. Li, Y. Geographical consciousness and tourism experience. *Ann. Tour. Res.* **2000**, *27*, 863–883. [CrossRef]
11. McCabe, S.; Johnson, S. The happiness factor in tourism: Subjective well-being and social tourism. *Ann. Tour. Res.* **2013**, *41*, 42–65. [CrossRef]
12. Ma, P.; Zhang, W. The Relationship among tourists' interaction, experiential value and subjective well-being: An empirical study of B&B travelers. *Consum. Econ.* **2017**, *33*, 83–90.
13. Chen, Y.; Li, X. Does a happy destination bring you happiness? Evidence from swiss inbound tourism. *Tour. Manag.* **2018**, *65*, 256–266. [CrossRef]
14. Lee, H.; Lee, J.; Chung, N.; Koo, C. Tourists' happiness: Are there smart tourism technology effects? *Asia Pac. J. Tour. Res.* **2018**, *23*, 486–501. [CrossRef]
15. Kim, M.J.; Hall, C.M. A hedonic motivation model in virtual reality tourism: Comparing visitors and non-visitors. *Int. J. Inf. Manag.* **2019**, *46*, 236–249. [CrossRef]
16. Um, T.; Chung, N. Does smart tourism technology matter? Lessons from three smart tourism cities in South Korea. *Asia Pac. J. Tour. Res.* **2019**. [CrossRef]
17. Zhang, L.Y.; Li, N.; Liu, M. On the basic concept of smarter tourism and its theoretical system. *Tour. Trib.* **2012**, *27*, 66–73.
18. Gretzel, U.; Sigala, M.; Xiang, Z.; Koo, C. Smart tourism: Foundations and developments. *Electron. Mark.* **2015**, *25*, 179–188. [CrossRef]
19. Li, Y.; Hu, C.; Huang, C.; Duan, L. The concept of smart tourism in the context of tourism information services. *Tour. Manag.* **2017**, *58*, 293–300. [CrossRef]
20. Yoo, C.; Kwon, S.; Na, H.; Chang, B. Factors affecting the adoption of gamified Smart tourism applications: An Integrative Approach. *Sustainability* **2017**, *9*, 2162. [CrossRef]
21. Weaver, D.B.; Moyle, B.D. 'Tourist stupidity' as a basic characteristic of "smart tourism": Challenges for destination planning and management. *Tour. Recreat. Res.* **2019**, *44*, 387–391. [CrossRef]
22. Kirova, V.; Thanh, T.V. Smartphone use during the leisure theme park visit experience: The role of contextual factors. *Inf. Manag.* **2019**, *56*, 742–753. [CrossRef]

23. Hew, J.J.; Leong, L.Y.; Tan, W.H.; Lee, V.H.; Ooi, K.B. Mobile social tourism shopping: A dual-stage analysis of a multi-mediation model. *Tour. Manag.* **2018**, *66*, 121–139. [CrossRef]
24. Chung, N.; Koo, C. The use of social media in travel information search. *Telemat. Inform.* **2015**, *32*, 215–229. [CrossRef]
25. Park, B.; Stangl, B. Augmented reality experiences and sensation seeking. *Tour. Manag.* **2020**, *77*, 104023. [CrossRef]
26. No, E.; Kim, J.K. Comparing the attributes of online tourism information sources. *Comput. Hum. Behav.* **2015**, *50*, 564–575. [CrossRef]
27. Huang, C.D.; Goo, J.; Nam, K.; Yoo, C.W. Smart tourism technologies in travel planning: The role of exploration and exploitation. *Inf. Manag.* **2017**, *54*, 757–770. [CrossRef]
28. Tan, G.; Lee, V.H.; Hew, J.J.; Ooi, K.B.; Wong, K.B. The interactive mobile social media advertising: An imminent approach to advertise tourism products and services? *Telemat. Inform.* **2018**, *35*, 2270–2288. [CrossRef]
29. Filep, S. Moving beyond subjective well-being. *J. Hosp. Tour. Res.* **2014**, *38*, 266–274. [CrossRef]
30. Bimonte, S.; Faralla, V. Happiness and nature-based vacations. *Ann. Tour. Res.* **2014**, *46*, 176–178. [CrossRef]
31. Kwon, J.; Lee, H. Why travel prolongs happiness: Longitudinal analysis using a latent growth model. *Tour. Manag.* **2020**, *76*, 103944. [CrossRef]
32. Chen, S.; Fan, Y.; Cao, Y.; Khattak, A. Assessing the relative importance of factors influencing travel happiness. *Travel Behav. Soc.* **2019**, *16*, 185–191. [CrossRef]
33. Sharma, P.; Nayak, J.K. Testing the role of tourists' emotional experiences in predicting destination image, satisfaction, and behavioral intentions: A case of wellness tourism. *Tour. Manag. Perspect.* **2018**, *28*, 41–58. [CrossRef]
34. Meng, B.; Han, H. Working-holiday tourism attributes and satisfaction in forming word-of-mouth and revisit intentions: Impact of quantity and quality of intergroup contact. *J. Destin. Mark. Manag.* **2018**, *9*, 347–357. [CrossRef]
35. Cong, L.C. A formative model of the relationship between destination quality, tourist satisfaction and intentional loyalty: An empirical test in Vietnam. *J. Hosp. Tour. Manag.* **2016**, *26*, 50–62. [CrossRef]
36. Brown, G.; Smith, A.; Assaker, G. Revisiting the host city: An empirical examination of sport involvement, place attachment, event satisfaction and spectator intentions at the London Olympics. *Tour. Manag.* **2016**, *55*, 160–172. [CrossRef]
37. Konuk, F.A. The influence of perceived food quality, price fairness, perceived value and satisfaction on customers' revisit and word-of-mouth intentions towards organic food restaurants. *J. Retail. Consum. Serv.* **2019**, *50*, 103–110. [CrossRef]
38. Luo, X. Uses and gratifications theory and E-consumer behaviors. *J. Interact. Advert.* **2002**, *2*, 34–41. [CrossRef]
39. Mills, J.E.; Morrison, A.M.; Frew, A.J.; Hitz, M.; O'Connor, P. Measuring customer satisfaction with online travel. In Proceedings of the Information & Communication Technologies in Tourism, Helsinki, Finland, 15 January 2003.
40. Neal, J.D.; Sirgy, M.J.; Uysal, M. The role of satisfaction with leisure travel/tourism services and experience in satisfaction with leisure life and overall life. *J. Bus. Res.* **1999**, *44*, 153–163. [CrossRef]
41. Kim, H.; Woo, E.; Uysal, M. Tourism experience and quality of life among elderly tourists. *Tour. Manag.* **2015**, *46*, 465–476. [CrossRef]
42. Su, L.; Huang, S.; Chen, X. Effects of service fairness and service quality on tourists' behavioral intentions and subjective well-being. *J. Travel Tour. Mark.* **2015**, *32*, 290–307. [CrossRef]
43. Kim, H.; Lee, S.; Uysal, M.; Kim, J.; Ahn, K. Nature-based tourism: Motivation and subjective well-being. *J. Travel Tour. Mark.* **2015**, *32*, S76–S96. [CrossRef]
44. Gadermann, A.M.; Guhn, M.; Zumbo, B.D. Estimating ordinal reliability for Likert-type and ordinal item response data: A conceptual, empirical, and practical guide. Practical Assessment. *Res. Eval.* **2012**, *17*, 1–13.
45. Koufteros, X.A. Testing a model of pull production: A paradigm for manufacturing research using structural equation modeling. *J. Oper. Manag.* **1999**, *17*, 467–488. [CrossRef]
46. Cronbach, L.J. Coefficient alpha and the internal structure of tests. *Psychometrika* **1951**, *16*, 297–334. [CrossRef]
47. Nunnally, J.C. *Psychmetric Theory*; McGraw-Hill: New York, NY, USA, 1978.

48. Fornell, C.; Larcker, D.F. Evaluating structural equation models with unobservable variables and measurement error. *J. Mark. Res.* **1981**, *18*, 39–50. [CrossRef]
49. Baozzi, R.P.; Yi, Y. The degree of intention formation as a moderator of the attitude-behavior relationship. *Soc. Psychol. Q.* **1989**, *52*, 266–279. [CrossRef]
50. Anderson, J.C.; Gerbing, D.W. Structural equation modeling in practice: A review and recommended two-step approach. *Psychol. Bull.* **1988**, *103*, 411–423. [CrossRef]
51. Roldán, J.L.; Sánchez-Franco, M.J. Variance-Based Structural Equation Modeling: Guidelines for Using Partial Least Squares in Information Systems Research. In *Research Methodologies, Innovations and Philosophies in Software Systems Engineering and Information Systems*; IGI Global: Hershey, PA, USA, 2012; pp. 193–221.

sustainability

MDPI

Article

Enhancing the Smart Tourism Experience for People with Visual Impairments by Gamified Application Approach through Needs Analysis in Hong Kong

Lusha Huang [1,2] and Newman Lau [2,*]

[1] Guangzhou Academy of Fine Arts, Guangzhou 510006, China; lusha.huang@connect.polyu.hk
[2] School of Design, The Hong Kong Polytechnic University, Hung Hom, Kowloon, Hong Kong, China
* Correspondence: newman.lau@polyu.edu.hk

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Abstract: Sustainability studies in tourism are increasingly emphasizing social matters, for instance, "Accessible Tourism for All." Research on people with visual impairments with smart tourism has so far been sparse. In order to resonate with the global call for sustainable tourism development, this paper aims to contribute to understanding the aspirations of people with visual impairments in terms of tourism and to explore how smart tourism destinations could potentially enhance the tourism experience they offer. We utilized multisensory participant observations and interviews to empathize with the target users and gain insights into their needs. The results showed that they were generally positive about travel, particularly autonomy, achievement needs, and socializing with other individuals. The findings also shed light on their desire to play games on their phones. Consequently, based on the findings and the theoretical groundings of PERMA model and MDA framework from positive psychology and game design, the study proposed a gamified approach to future tourism app design for people with visual impairments, which could enhance engagement, motivation, and enjoyment in the tourism experience.

Keywords: visual impairment; smart tourism; mobile application; gamification; experience design; social sustainability; disability equality; accessible tourism for all

1. Introduction

Given recent academic studies highlighting the social aspect of sustainable development [1,2], it is apparent that all stakeholders should be considered in the sustainable development of society [3]. As one of the three components of sustainable development, social development, especially in the disability field, has until now been somewhat neglected compared with the investigation on environmental protection and economic development [4–6]. Noteworthy, the United Nations General Assembly (UNGA) established the 17 Sustainable Development Goals (SDGs) for the year 2030. Among these goals, one notably demonstrates to "promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels" [7].

The facilitation of tourism for individuals with disabilities is a crucial dimension in sustainable tourism development, and it advocated the proposal of "Accessible Tourism for All [8]." As Tourism for All [9] reports, "Tourism is important to our lives, we believe that it is the right of disabled people to participate in all areas of community life. Few areas are more important than Tourism and Travel—which restore our energies, broaden our minds, and serve our deepest human instincts to explore new places and enjoy and share new experiences." As determined by the United Nations World Tourism Organization (UNWTO), the benefits of tourism participation by persons with disabilities could boost economic development along with the prosperity of the destination society. UNWTO emphasizes

the availability of support services in destinations for people with special needs and the necessity to offer explicit guidelines on accessible tourism facilities [10]. Accordingly, academic investigations for disabled tourists paid more attention to physical ability and age-related concerns [11,12], while the current literature about the difficulties encountered by travelers with visual impairments seems insufficient to address their desires.

People with visual impairments are often assumed to be not interested in traveling since travel is considered full of visual encounters [13]. Indeed, they hold the same expectations of tourism as other social groups [14]. In her travel adventure memoir, Susan Krieger, a professor with visual impairment at Stanford, described how fantastic the trips she experienced were [13]. Visual impairment has been considered one of the most feared disabilities, often evoking emotional reactions that can cause extreme loss of independence and confidence in individuals facing this disability [15]. Small, Darcy, and Packer [16] (p. 946) stated that "for many sighted tourists, travel is an achievement, for those with vision impairments, this achievement can be profound." As a starting point, the present study targets one specific disabled group in Hong Kong, namely those with visual impairments, to determine their standpoints towards tourism.

Hong Kong has approximately 174,000 people with visual impairments, representing 2.4% of the total population. After people with physical impairments, those with visual impairments comprise the second-largest category [17]. Hong Kong is characterized by its economy and in people's living standards [18]. Increasing importance has been attached to enhancing the quality of life of the visually impaired community [19]. The Hong Kong Government gives special consideration to visually impaired people and has endeavored to build an accessible living environment and promote their full integration into society, such as educating citizens the awareness of inclusiveness, removing the physical barriers, and developing various forms of digital products. Over the past few years, the recurrent expenditure on this matter has increased from HKD 16.6 billion in 2007 to HKD 31.5 billion in 2017 [20].

Among the recurrent expenditure, the Hong Kong government set aside HKD 500 million on funding to address the needs of specific community groups and enhance daily living. In the funded projects, app development and innovative technology solutions were made to be the majority in assisting people with special needs to promote their full integration into society [21]. The apps on smartphones could assist people with visual impairments to access information and blend into society [22,23]. Additionally, the current Hong Kong Budget will promote smart tourism that involves adopting smart technology to improve the tourism experience [24]. Smart tourism defines as the tourism supported by integrated destination efforts to gather data derived from government sources and physical infrastructure by using sophisticated analytics through 5th generation mobile networks (5G) to transform that real-time and real-world data to enrich the on-site tourism destination experiences [25]. The proliferation of smartphones has further expedited this development by merging communication, entertainment, social networking, and information search to assist tourists in their tourist experiences [26]. The smart experience primarily targets for technology-mediated tourism experiences using smartphones during the trip and enhancing real-time monitoring, context awareness, and personalization [27].

There are several advantages for smartphones as an assistive purpose to facilitate the on-site tourism experience for people with visual impairments, including enabling the affordability and accessibility for the target users, offering information access anytime and anywhere [28]. Notably, since the Hong Kong Government aims to foster an inclusive society [20], smartphones for visual impairments embedded into mainstream devices can help individuals feel less labeled or stigmatized [29].

To date, little research has examined the aspiration of travelers with visual impairments, particularly in the realm of smart tourism. Through advanced smart technology, the features in the existing apps, such as navigation and object recognition, can meet their basic travel requirements. Yet, tourism experience involves a series of emotional encounters [30]. Maslow claimed that humans would pursue the next level once the current level is fulfilled [31]. While current apps successfully

meet the basic requirements of visually impaired users (e.g., navigation and object recognition), the higher-order needs (such as their social needs, namely friendship, intimacy, and trust) have not yet been sufficiently fulfilled by such apps. The self-determination theory proposed perceived competence, relatedness, and autonomy as fundamental psychological needs [32]. Based on the higher-level needs mentioned above, the research question is how to propose an approach to design tourism apps that can transcend the fundamental functions but offer higher needs, such as psychological needs related to emotions for people with visual impairments? The objective of this study is to propose a gamified application approach that can enhance the tourism experience for those people at an emotional level.

This paper is structured as follows. In the following section, we reviewed the extensive literature on the encountering issues of persons with visual impairments while traveling, the limitation of existing tourism apps for persons with visual impairments, tourism experience design, and the gamification approach. Section 3 explains the methodology, focused on multisensory observation and interviews, to examine the needs and usage of mobile applications of people with visual impairments while on-site tourism. Section 4 provides the results of these encounters. Here, content analysis is demonstrated in each section interpreting the themes. We concluded with a discussion concerning the on-site tourism needs and proposed a gamified approach with features to the tourism app design, which could enhance engagement, motivation, and enjoyment in the tourism experience.

2. Literature Review

2.1. Background Information on Visual Impairment

Visual impairment, also called vision loss, refers to someone who has decreased ability to see, which is not correctable by usual methods, for example, spectacles, and using specialized assistive tools in the long run. Based on measuring visual acuity and visual field, there are various levels of vision impairment, comprising blindness, severe, moderate, and mild [33]. There are two types of blindness: congenitally blind, is an individual born blind or becomes blind during the first five years of life; and adventitious blind, an individual who becomes blind after five years of age [34].

Before exploring how to improve the travel experience of people with visual impairments, it is critical to discuss the comprehensive knowledge of training in independent living skills. Orientation and mobility (O&M) training is a vital part of teaching for students with visual impairments that aims to assist them to regain their independence through training them to manage tasks of daily life effectively and safely [35]. Regarding independent travel, it also requires the skills of O&M that could compensate for reduced visual information [36]. 'Orientation' pertains to the capacity to perceive where you are and where you want to go, such as moving from one place to another or going to work. 'Mobility' indicates the capacity to move effectively and safely from one location to another, such as moving without falling, and taking public transportation [35].

Previous studies of O&M training focused on assessing the effect of training or assistive technology [37–39]. Additionally, there are only some general guidelines or hints on the O&M provided by organizations that served for visually impaired [40–42]. Very little research has been published on the subject of the training in schools for the visually impaired in Hong Kong. Additionally, O&M training is an ongoing program in different areas [36]. Therefore, more updated qualitative research on O&M training is needed, especially in the actual school setting in Hong Kong.

2.2. Encountering Issues of People with Visual Impairments While Traveling

Studies revealed that many people with visual impairments were keen on traveling for a vacation [14]. Any tourism experience is a collection of subtle, personal, clustered emotional moments that form an embodied perception, and a memory afterward. In the same vein, regarding tourism, people with visual impairments focus on sensation encounters, which involve a series of emotional, embodied, and visual appreciation [30,43]. The perceptual and emotional aspects are evident in those studies that unravel the intimate nature of the travel experience [44]. Consequently, enjoyment is

one of the traditional motivational factors of the tourism experience, including tourists with visual impediments [45].

All of those who had traveled maintained the many pleasures and benefits they derived from holidays and trips away from home. Their experiences had much in common with sighted people, including social interaction, warmer climates, relaxation, and other cultures [30]. However, travel is not always a practical option, and many individuals with special needs have difficulty accessing and using mainstream or even specialist tourism providers. It is, therefore, imperative to assist people with disabilities to overcome barriers to becoming active travelers. Individuals with visual impairments have three main barriers to tourism. These barriers are individual barriers (independence, emotional, psychological), social barriers (decision makers and awareness), environmental barriers (transport, accessible information, physical access) [30]. In this study, as being travel active, these three barriers are related; the goal is to assist them in learning about the environment and interacting more easily with the local people [14]. In this vein, gamification—"the use of game design elements in non-game contexts" [46]—could be a powerful tool for designing engaging and memorable tourism applications.

2.3. Limitation of Existing Tourism Apps for People with Visual Impairments

As introduced, most apps are specially designed for people with visual impairments targeted at assisting in navigation and object recognition. Navigation applications use audible instructions and descriptions to guide users when deciding which ways to follow. Applications OverThere [47] and VoiceMapHK [48] are some of the most popular examples. Object recognition applications, such as DuLight [49] and Aipoly Vision [50], use smartphones' camera function to capture and identify objects, people, and color then describe them to the user using sound and text. Several functional apps exist to assist this target group to explore new places. Scholars developed a collaborative navigation platform to allow people with visual impairments to collaborate by receiving a surrounding description from their peers in an unfamiliar environment [51]. They also proposed that a network of constantly walked routes could regularly extend the urban region where people with visual impairments enable safely and efficiently navigate by integrating gamification technique. The concept of gamification was suggested as the development of combining game techniques to devise solutions to serious concerns, including healthcare and social issues [52]. While gamified tourism experiences are not specifically targeted at people with visual impairments, the findings proved that the gamified collaborative navigation system could assist users with visual impairments navigate independently to enhance motivation and engagement. Consequently, people with visual impairments are willing to go out independently by using the gamified navigation system intensively and thus enhance their self-confidence. The positive reinforcement of gamification ensures that the users are engaged with positive emotions in the system. The positive emotion motivates to player re-engagement. A successful gamification design should be considered carefully based on the above workflow.

Additionally, the tourism experience is about emotion; therefore, applying the gamification approach for designing emotionally engaging and memorable tourism applications is crucial. Such an approach allows a departure from the functional services conventionally provided to people with visual impairments. According to our literature review, no studies concerned explicitly with designing tourism apps to fulfill the psychological needs of people with visual impairments by using gamification tactics.

2.4. Tourism Experience Design

The tourism industry is an experience industry [53]. Tourism is normally described as a form of pleasures and senses, such as sounds, smells, tastes, touches, and sensations. We experience the world by using our sense organs, and research proves that smell and taste are paramount in the tourism experience [54]. Indeed, smells and tastes recollect memories that are usually similar to the locations people have traveled, and the tourist experience could be regarded as a sequence of embodied activities that involve different senses. People with visual impairments have to overcome the broadly held

perception since they cannot see, and they cannot enjoy travel fully [16]. Consequently, it is critical to offer compelling experiences through various senses [55].

Many visually impaired people can compensate for their absent or reduced vision by using their other senses. Thus, they can feel the wind and coldness while on holiday in the mountains, experience the sensations of swimming in the sea, touch the different textures at historical sites, the smell of food vendors, the taste of exotic foodstuffs, the listen to the calls of gulls, and the coolness of the wind on the skin that are all typical memories of holiday moments.

Although significant benefits can be gained from travel, genuine challenges arise, in particular, failure to understand the needs and requirements of individuals with visual impairments. This study is aimed to determine the quality of the tourism experience of people with visual impairments. Most current research and public discussion focus on navigation, yet, tourism is concerned with gaining information. To open new areas for research, our interest lies in 'access to information' on destination through smartphones [16] (p. 941). Information could be provided through a well-designed audio description with the visual, auditory, olfactory, taste, and tactile elements that could truly assist them in deeply understanding the destination and fully engaging with the destination. Additionally, tourism experience is the actual day-to-day matters and feelings of the vacation. The tourists will carry with their associated memories and feelings at the end of a journey.

2.5. Gamification Approach

'Gamification' was one of the most critical user experience design trends in 2017 [56] and became one of the prevalent developments in tourism [57]. In academia, Xu, Tian, Buhalis, Weber, and Zhang [58] predicted an increasing trend of utilizing mobile phones to play games on-site in tourism destinations. In this research, the gamification approach is also structured as a foundation built into mobile tourism apps for people with visual impairments. Integrating gamification into applications could enable the applications attractive for users with visual impairments, and thus to enhance their motivation to go outside and travel autonomously. Consequently, their self-confidence and quality of life will be enhanced.

Gamification contains a motivational and emotional system that entails understanding psychology and experience design [59]. The positive emotions are the leading motivational foundation for a successful gamified tourism experience [60,61]. Therefore, positive emotions are an imperative element for us to consider when designing an experience. Research on positive human emotions typically falls under the field of positive psychology [62], which applies scientific methods to investigate how individuals, communities, and societies can be made to flourish [63]. Seligman [64] links positive psychology to the scientific construct of well-being. Building on Maslow's theory [31], the 'PERMA' model was introduced by using five domains to contribute to well-being, respectively, positive emotions (P), engagement (E), relationships (R), meaning and purpose (M), and accomplishment (A) [64]. The exceptional opportunity for collaboration between the fields of positive psychology and game design adopts the PERMA model [65]. Most of the aspects that contribute to a delightful playing experience are associated with the five domains summarized in the PERMA model [66]. After identifying over 30 emotions involved in gameplay, Lazzaro, an authority on emotion and the player experience outlines four kinds of fun theory, which stands for 'social fun' (player interacts with others), 'altered states fun' (the game switches the way the player feels), 'hard fun' (player pursuits the victory), and 'easy fun' (player attempt to explore the game) [67]. One of the most frequently leveraged frameworks for creating gamification experiences is called MDA—which stands for Mechanics, Dynamics, and Aesthetics, which provides three fundamentals for creating gamification experience [68]. The theoretical framework namely PERMA model [64], 'four kinds of fun' [67], MDA framework [68] as well as the social engagement loop and 12 motivations for gamification design [59] served as the basis for the gamification approach proposal for the app design in the research.

3. Methodology

The study adopted the qualitative research approach that is often applied to study people with visual impairments, particularly in tourism [69]. The goal was to establish a comprehensive understanding of the subjects and derive the corresponding requirements that would allow us to analyze tourism aspirations. Concerning the importance of the multisensory nature of the tourism experience for tourists with visual impairments [16], we applied it as a methodological starting point to study the needs of such groups. The methodology mainly includes expert interviews and the methods derived from the sensory ethnography methodology to uncover the real-life stories and understand the potential needs of people with visual impairments (Figure 1).

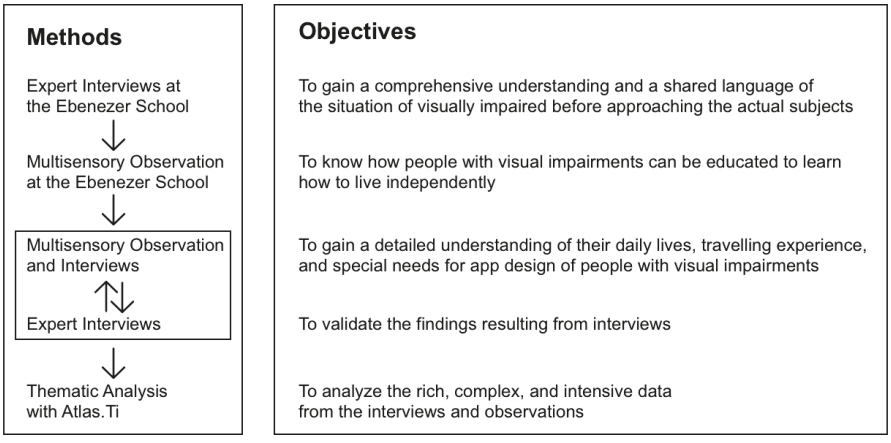

Figure 1. Research design.

There are two rounds of expert interviews. One is gaining the necessary knowledge before researching with target participants. The second round is parallel as an expert validation of findings resulting from interviews. We conducted in-depth expert interviews and multisensory observation at the Ebenezer School, the only school for visually impaired people in Hong Kong, to understand how they are trained to live independently. We can learn their capabilities after fully understanding learning behaviors. Later on, based on their capabilities, we could propose the gamified approach that could empower people with visual impairments.

We spent three days observing how the students with visual impairments work and live at the Ebenezer School by conducting unobtrusive measures and "Fly-on-the-wall" observation. The unobtrusive approach is utilized to gain information without directly interacting with participants, through observations, nonreactive physical traces, and archives [70]. Firstly, we conducted unobtrusive measures that involve walking, observing, taking photos, and taking notes around the entire school. The observation covered different floors, the playground, and vacant classrooms. The social worker accompanied and showed us the tools and other must-know techniques. During the observation, the social worker answered various questions from us. We conducted "Fly-on-the-wall" observation, which involved standing outside the classroom and observing through the window when students were having a class or taking an examination in the classroom. Note-taking and discretion are both keys for a successful "Fly-on-the-wall" method. When conducting this observation, we took hand notes to document what we observe and our reflection. We also marked down questions to follow up with interviewees later. In terms of discretion, hand notes could be less evident than documenting with a mobile phone or camera. "Fly-on-the-wall" observation was chosen because it enables researchers to acquire information unobtrusively by observing and listening without interfering with the individuals or behaviors observed [70].

While conducting the observation at the Ebenezer School, some matters needed to be considered. As the sense of hearing of Ebenezer school students is very sensitive, researchers had to wear shoes that do not make too much noise. When conducting interviews or observation, we should never wear perfume, as the senses of the participants are delicate and sensitive. Additionally, while conducting the studies, the participants were always punctual, even arriving at least 10 minutes before. While asking them why they were so punctual, they mentioned that this was due to their disabilities, and they tried to leave home earlier to make sure they would not be late. Therefore, it is better to keep "being on time" in mind. Then, we conducted multisensory participant observations and interviews from sensory ethnography, reflecting of the ethnographic approach, with a focus on sensory perceptions and experiences [71]. The innovative multisensory observation and interviews refer to walking, eating, and sensing with users.

To ensure that the conversation would run smoothly and naturally, dining and walking with the interviewees was beneficial because it could help the researcher raise the questions and help the participants to recall their memories naturally. We have engaged in sensorial observations through people with visual impairments participating in real environments. Furthermore, we have sought to understand their living environments and everyday activities. This process encompasses the material, digital, social, invisible, and intangible aspects. Multisensory participation, which spans from textures and sounds to unanticipated smells and unexpected sensory experiences, can enhance the researcher's empathy towards the target users of this research [71]. Questions relating to their feelings, opinions, and different ways of using their body and senses were asked to participants.

Additionally, we observed the participants undertaking activities together, such as walking, having dinner, and perceiving five-sense experiences in natural contexts, rather than in controlled settings, taking video in the research procedure that enables researchers to investigate the material and sensory qualities. During the video tour, we encouraged participants to express and show how they explore a new location using their multiple senses and utilizing various materials as props and prompts. Certain participants will actually feel, sense, and engage in a multisensory way with objects in the surroundings as a way of advocating their sensory qualities while engaging in the verbal decision-making procedure as well as explaining their meanings [71]. The video will encourage the participants to utilize their whole bodies to demonstrate their multisensorial experiences via these behaviors. Overall, the multisensory interviews and observation can offer researchers a deep understanding and holistic explanation of everyday life and practice in ways that are impossible to reduce to number [72]. The expert interviews can be regarded as a complementary method in the study. Talking to experts could provide a valuable perspective in a systems-level view of the project area [73].

3.1. Selection of Participants

In the recruiting process, two types of blindness, congenitally blind and adventitious blind, were included. The different levels of visual impairments, comprising blindness, severe, moderate, and mild, were also considered in this study.

This study concentrated on people with visual impairments aged between 18 and 55 in Hong Kong. We chose this age range based on the following considerations: (1) they can afford the travel fee, (2) they are likely to travel, (3) they can travel independently, and (4) utilize mobile phones. The age range and considerations are also based on the suggestions and validations by other expert interviews conducted. Most experts confirmed that "visually impaired people over the age of 55 are relatively weak at traveling alone and their families do not feel comfortable allowing them to travel alone. It is more difficult for them to use smartphones as well while traveling." However, seniors with visual impairments over 55 could be included in future studies. The ethical application was approved by the Departmental Research Committee, the Hong Kong Polytechnic University (reference HSEARS20161006001). Participants were provided with informed consent and all the related information about the purpose and context of the study.

As a downside to the sensory ethnographic approach, recruiting participants, especially visually impaired participants, was arguably the most challenging aspect of the project. The traditional interview is simply conducted in a controlled environment. It is a time-consuming process to identify the right interviewees willing to dine and walk with us. A snowball sampling tactic, a method which refers to the researcher accessing interviewees through other interviewees, applied in this study [74]. Hong Kong Society for the Blind, the biggest blind community, supported by the Government and Hong Kong Blind Union, the first and biggest self-help organization managed by people with visual impairments, assisted us in arranging 10 visually impaired members, consisting of five males and five females, at their community to attend the in-depth interview. Their demographical information is illustrated in Figures 2–5. We also conducted expert interviews (Table 1).

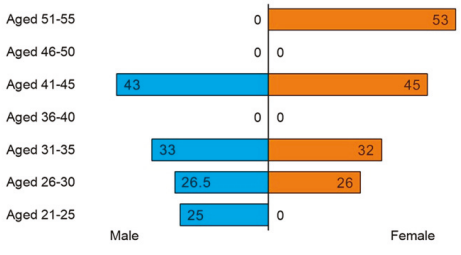

Figure 2. Age of interviewees by gender.

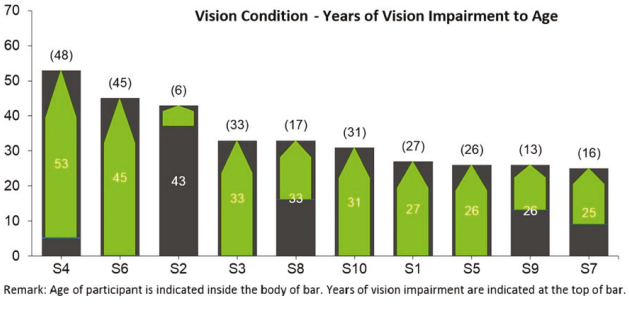

Figure 3. The vision condition of interviewees by the years of vision impairment to age.

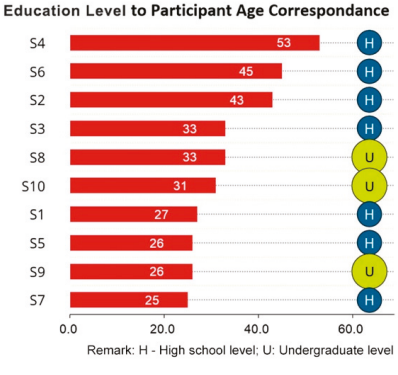

Figure 4. Education level to participant age correspondence.

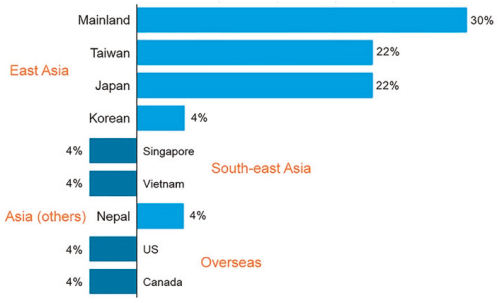

Figure 5. The destinations of interviewees have been traveled.

Table 1. Summary of expert interviewees.

Interviewee	Organization	Occupation	Location
E01	Hong Kong Blind Union	SESAMI Founder	Hong Kong
E02	Ebenezer School	Principal	Hong Kong
E03	Ebenezer School	Social Worker	Hong Kong
E04	Ebenezer School	Vice Principal	Hong Kong
E05	Ebenezer School	IT/Mobility Specialist	Hong Kong
E06	iSEE Mobile App	Founder & CEO	Hong Kong
E07	Beyond Vision Projects	Founder & CEO	Hong Kong
E08	Media + Technology Parsons School of Design	Professor in Game Design	New York City
E09	Helen Keller Services	Assistive Technology Specialist	New York City
E10	Helen Keller Services	Principal IT Consultant	New York City
E11	Hong Kong Blind Union	Chief Executive Officer	Hong Kong
E12	Dialogue in the Dark	Chief Executive Officer	Hong Kong
E13	The Robins Accessibility Travel Agency	Founder	Guangzhou
E14	Factory for the Blind	Manager	Hong Kong
E15	Audio Description Association (Hong Kong)	CEO & Principal Trainer	Hong Kong

3.2. Data Analysis

Subsequently, a thematic analysis approach was implemented in the data analysis section. Thematic analysis offers a useful and flexible approach for analyzing the rich, complex, and intensive data from the interviews and observations to identify overlapping patterns of meaning [75]. We uploaded all the transcripts, notes, photos and videos into ATLAS.ti (ATLAS.ti Scientific Development, Berlin, Germany), the qualitative data analysis computer software. As observational data such as notes, photographs and videos can be incorporated into the interview data as auxiliary or confirmatory research [76], we analyzed all the different kinds of data together. We were open to seeking findings not demonstrated in the past investigation; hence, the method was to conduct coding by following the "bottom-up" inductive in which data are gathered, and theory is established as a result of data analysis adopted in this project [77]. We followed the five steps of coding in the thematic analysis [78]. Through the expert interviews, we gained valuable feedback from experts who offer a holistic view of this study and offer organizations' perspectives, such as NGOs and social enterprises. Based on the findings from the need's analysis, the experts provided a triangulation on the gamification approach to

affirm and endorse the implication for gamified application design. After organizing and analyzing the observations, interview materials, and photographs, they were categorized into eight themes.

4. Results

Actual quotations from the participants generated the following themes of the research. The coding scheme consists of the following eight themes, with subthemes in each category (Figure 6). The figure illustrates design inspiration, training, and love of traveling, which are the three most frequently mentioned themes clustered from the data. Under each theme, the indicated subthemes are also illustrated with percentages to show the importance within. Figure 7 indicates the eight main themes corresponding to each interviewee. The detailed descriptions of the themes, with appropriate citations from the text to describe the meaning of the themes, are presented from Sections 4.1–4.7. All quotes present in quotation marks in the body of the text or, if extensive, in indented blocks for ease of reading. Excerpts from interviews are included to provide an actual voice to the interviewees and have been selected as instances that represent the collective themes.

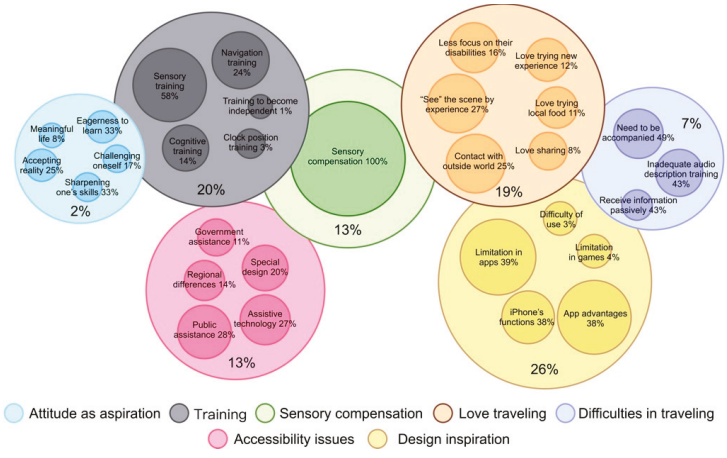

Figure 6. Themes and subthemes frequency.

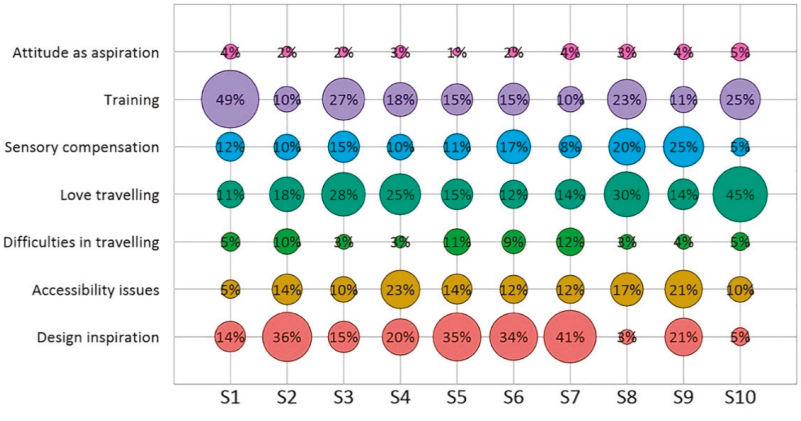

Figure 7. The main themes are corresponding to each interviewee.

4.1. Understanding Their Attitude as Aspiration

Under the theme 'attitude as aspiration', there are five sub-themes (Figure 8). In this context, 'meaningful' means they can participate in activities that seem impossible because they are visual such as watching television, doing artworks, and traveling from their sighted peers' point of view. The interviews highlighted the capacity and ability of people with visual impairments, and one participant emphasized: "What you can do, we can also do."

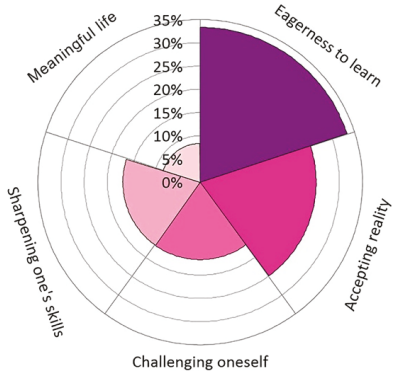

Figure 8. Five sub-themes in the theme 'attitude as aspiration.'.

During the observations, we noted that although people with visual impairments cannot see well, they put effort into learning through their laptops and books (Figure 9).

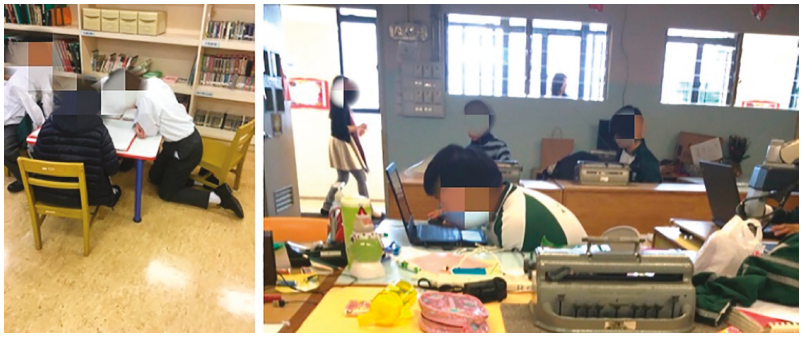

Figure 9. Ebenezer School students are studying from books and using laptops.

When students with visual impairments study at school, they are encouraged to take care of themselves, such as take-off/put on clothes, organize their clothes, and do the housework. If they manage a challenge successfully, they can get two stamps, and if not, they can get one stamp. When they successfully challenge themselves, they can join the peer challenges; the winner can get two stamps. Four stamps can be exchanged for a secret reward. This is another way to use challenges, rewards, and collections to motivate students.

The majority of the interviewees emphasized that they wished to challenge themselves, although they understood how difficult it would be. One interviewee conveyed his wish, saying: "Yes, I wish to travel abroad alone. No matter how hard and what the result is, I wish to have this experience at least once."

The interviews suggested that many people with visual impairments be eager to sharpen their skills instead of staying at home in their comfort zone. While willing to learn and cope, they may be

concerned about other people's attitudes. Human beings have an instinct to adapt to the environment, challenge various difficulties, and develop their abilities. Gamification on the app could fulfill the demand of people with visual impairments for autonomy that willing to finish particular jobs and the aspiration for self-development.

4.2. Understanding How They Had Been Trained

Under the theme 'training,' there are five sub-themes (Figure 10). The premise of designing a meaningful gamified travel app for them is to understand their abilities. We could perceive their capabilities through observation and interviews of how they have been trained to adapt to life without vision. After fully understanding their possible abilities to travel independently, we can better propose the key features of applications that could empower them. The principal at Ebenezer School also stated that when they teach students at school: "Visually impaired students have lost their sight, but their other senses are trained to be greater."

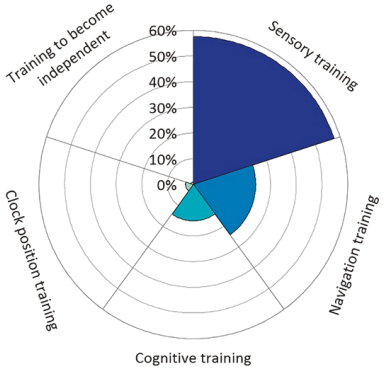

Figure 10. Five sub-themes in the theme 'training'.

The first process of navigation training involves memorization. When students enter a new room, they have to memorize, for example, where the restroom is located by touching the objects in the room. As one participant pointed out, they could not memorize the location of the objects immediately, so they have to practice hard: "We people with visual impairments have to put more effort into memorizing things than normal people." However, when they are outside their home, they also mentioned they cannot always memorize many steps between every two objects: "Many people think we remember the route by counting our steps. However, I cannot memorize all the steps."

Another aspect of navigation training is combining one's memories and senses. One participant expressed how he used his memory and his senses when he went out:

> "I usually will touch and count the telegraph poles or the pillars. I remember there is a bakery where I can smell the bread aroma to recognize the location."

O&M's essential skill is clock positioning, where the relative direction of an item is described using the analogy of a 12-h clock. When showing the direction to people with visual impairments, people are recommended to refer to these clock positions (Figure 11).

Figure 11. Clock position training.

"This way" or "that way" is exceptionally unclear for some interviewees. The method of positioning employing clock position is a metaphor designed for the visually impaired to indicate directions. Another interviewee described how his teacher was training his O&M skills:

> "I remember the positions of immobile things around me as reference points when I go out. They must be immobile things, not temporary things. My teacher told me there are some bus stations next to me when I go out of the building. Moreover, there are handrails and trees to my left. I have to count the handrails before arriving at the fourth tree; then, I must turn to my two o'clock position."

Indeed, people with visual impairments are encouraged to try doing things by themselves. The principal at Ebenezer School stated the importance of being trained to be independent: "We teach our students that you should try to do everything by yourself before you seek other people's help." Cognitive training for visually impaired students includes the use of their other senses, which refers to smell, touch, hearing, memory, and imagination. Interviewees regarded sensory compensation as an essential coping strategy.

4.3. Needs for Sensory Compensation

Totally blind people who have lost their eyesight strive to use their other senses to experience and sense the world around them. Thanks to the multisensory participant observation and interview, we were able to obtain detailed 'sensory compensation' evidence from the interviewees. All participants highlighted the magnitude of sensory compensation, such as adopting auditory, olfactory, taste, and tactile experience.

In school, teachers will teach students cognition in sensory compensation. "Teachers teach us basic cognitive training, such as what we can eat and what we cannot eat by using our noses." There is the sensory park for training students' senses in the Ebenezer School (Figure 12).

Figure 12. Sensory park at the Ebenezer School.

Sensory compensation by people with visual impairments is evident in the following quotations: "When my sight deteriorated, my mind tried to focus on other things such as what I heard rather than what I saw."

Interviewees gave examples to demonstrate how they use their non-visual senses, such as hearing, taste, touch, and smell, to assist themselves in perceiving the world. One interviewee gave an example:

> "As I approach a place slowly, I will always try to hear my footsteps. I can feel the change of the environment around me. If my skin becomes wet or cold, I know there is an entrance of a building since there is always an air conditioner near the entrance."

Another participant touched on the same point:

> "I use my senses a lot. I can recognize different sounds. On the way to the Blind Society, I hear the sound of construction work, and my shoes can feel the uneven wood boards. Above all, I know it is under construction now."
>
> [. . .]
>
> "As I cannot see, I must try hard to find a way to get to know the outside world. I cannot always rely on the sense of touch, so I need to use the sense of hearing."

The sense of hearing is quite significant: "When I use a white cane, I will tap the white cane and use my senses to see whether there is a barrier on the road. I use my sense of hearing to recognize the different sounds, too." When they travel, they perceive unfamiliar environments through different senses: "When I travel, I try to build a sense of space in my mind. In the hotel, I will walk around and try to get to know which place has what."

We were impressed by how perceptive people with visual impairments can be to feel the world by using their other senses. This can be shown in their travel diary. As stated by one informant: "In my travel diary, I describe the whole environment. I describe the whole atmosphere I experience."

She then shared her experience about how she used her other senses to feel the atmosphere when she traveled around Tibet:

> " . . . We arrived early. I could sense the golden sunlight from the sunrise. I can hear the sound of birds and the sound of the river. It is quiet there, with no cars. I can smell the aroma of the flowers and fresh air."

After she wrote her travel experience diary in Tibet, she showed the diary to her friends with sighted peers who also traveled to Tibet. Her friends were surprised by how she focused on describing the sounds and aroma that they usually do not notice. Another interviewee shared his experience of using his senses when he travels to different places:

> "Compared to Beijing, it is humid in Guangzhou. I can smell the dry and cold air while the air in Guangzhou is cold and wet. When I visited the suburban areas, such as the Baiyun Mountain, the refreshing air made me feel invigorated."

The key findings in the sensory compensation section could be fed into app design, such as a feature to provide audio descriptions of different senses that enable people with visual impairments to better understand the destination.

4.4. Passion on Traveling

Under the theme 'love traveling' there are six sub-themes (Figure 13). Despite potential difficulties that people with visual impairments face when venturing into the outside world, the study showed that, in contrast, they expressed a passion for travel.

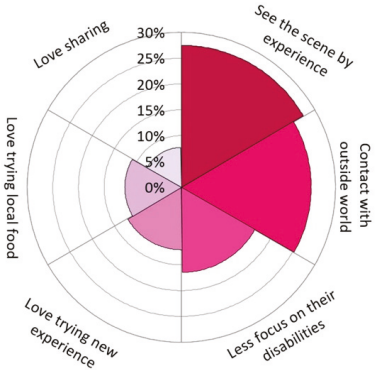

Figure 13. Six sub-themes in the theme 'loving traveling.'.

Regarding traveling, sighted people may think it is pointless for people with visual impairments to travel because they cannot see at all. However, as expressed by one visually impaired respondent: "I can 'see' the scene by experiencing the atmosphere." She shared her experience on 'seeing' students after school when she traveled to Nepal to exemplify this point:

> "In Nepal, I was 'watching' students leaving school. Junior-grade students were first leaving school; they were jumping out from school happily. Then, there were intermediate grade students coming out from school, who tried to act mature and not show how happy they were. Finally, senior-grade students were coming out from school, who behaved like adults, just chatting with each other."

They also love sharing their traveling experience with their peers: "I love to share where I went and what I ate in the 'WeChat Moment' because I want to share my travel experience with my friends."

The majority of respondents maintained that they do not want to always stay in one place, so they like traveling. They can come into contact with the outside world by traveling. Most of the interviewees maintained that the most prominent benefit of travel is that it allows them to focus less on their disabilities temporarily and more on the experience of traveling itself, such as experiencing local customs.

The interviewees also wanted to try new things and experiences. Noteworthy, they can learn about different cultures in different places. Although they cannot see, they still wanted to use another method to experience the locals' culture and customs, supported by another participant who stated the following:

> "As the proverb says' It is better to travel ten thousand miles than to read ten thousand books.' I wished I could travel around."

They also emphasized that they love trying the local food while traveling, and an interviewee stated: "I will use the food app to discover the local food."

4.5. Needs for Understanding the Difficulties in Traveling

Under the theme 'difficulties in traveling', there are three sub-themes (Figure 14). People with visual impairments encounter many difficulties while traveling. Most of the interviewees stated that they need sighted counterparts to go with them. This is because sighted counterparts can describe the scenes for them.

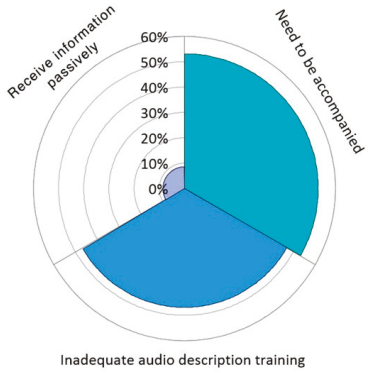

Figure 14. Three sub-themes in the theme 'difficulties in traveling.'.

Although they travel with sighted peers, visually impaired people still face challenges while traveling. They complained about their awful travel experience with sighted people. Given the lack of audio description training, sighted people do not know how to describe the surroundings when accompanying people with visual impairments on outings. One participant expressed his dissatisfaction when his sighted peer accompanied him while traveling: "My friend only told me that there is much grass, how beautiful the sun is today, and there is much garbage on the beach."

Even partially sighted people do not know how to describe the surroundings if they are not trained in audio description. One respondent with a low vision shared her experience when she accompanied three people who are totally blind on their outings.

> "I have been diagnosed with low vision so that I can see a little bit. I once told them there are trees on both sides. However, they complained to me that 'you only tell us there are trees, can you describe them in more detail?' I then learned how to accompany the totally blind people gradually. When I accompanied them when we took a bus, I would tell them what shops appeared outside the windows. Alternatively, I would introduce where we were heading next."

Therefore, the audio description with detailed descriptions in real-time should be provided. Visually impaired people depend on sighted people to describe their surroundings when traveling. However, visually impaired individuals currently have to accept the information passively, although they wish to obtain and control the information by themselves. This is in accordance with the self-determination theory [32] that the following three elements are determined as intrinsic motivators: competence, autonomy, and relatedness. Understanding such obstacles enabled us to design a better experience for the target users.

4.6. Needs for Accessibility

Under the theme 'accessibility issues', there are five sub-themes (Figure 15).

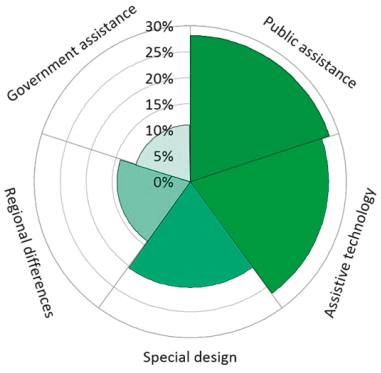

Figure 15. Five sub-themes in the theme 'accessibility issues.'.

Accessibility varies from area to area in different regions as commented by one interviewee:

> "In Hong Kong, it is safe for visually impaired people to walk in the blind track by using a white cane. However, I do not think drivers will let you go first in Mainland China. The blind track is terrible in Mainland China. As such, I think the visually impaired in Hong Kong can walk independently."

Another interviewee compared the accessible pedestrian signals (APS) in Hunan, Beijing, and Hong Kong:

> "The APS in Hunan is not as loud as in Hong Kong and Beijing. Not all the traffic lights support APS, so only the main routes have it. All the traffic lights in Hong Kong have APS. The sound in Hong Kong is loud enough to stand out from the traffic sound. When I cross the road, I usually use my sense of hearing to listen to the volume of sound to make sure I am walking in a straight line."

Another interviewee shared his travel experience of the regional accessibility differences. "The traffic lights in Japan are worse than the traffic lights in Hong Kong owing to the low sound. However, the lifts in Japan are better than the lifts in Hong Kong, because the lifts produce a sound to indicate to the visually impaired the floor information, whether the lift is going up or down, and whether the door is opened or closed."

The Hong Kong government fully supports the community of people with visual impairments. When they move to a new area, they were provided with mentor services to be familiar with the community. The Hong Kong government also trains volunteers with audio description skills that enable people with visual impairments to visit museums and watch films. However, volunteers were limited that cannot provide services at all times.

The interviewees stated that the accessibility features on the iPhone help them to improve their lives significantly. iPhone's 'VoiceOver' function can turn text into speech to enable visually impaired people to receive the information on their iPhone. To support different types of vision challenges, such as color blindness, the iOS system allows users to invert colors, to reduce white points, to enable greyscale, or to select from different color filters. IOS has a built-in screen magnifier called Zoom that allows users to view the magnified area in an independent window while allowing the other part of the screen to remain at its original size.

The interviewees were eager to show how the accessibility works on an iPhone by using the shortcuts they set on their iPhone. We observed that they could immediately turn the accessibility mode on and off. Users can significantly benefit from powerful accessibility features. However, enabling all the accessibility features, especially the VoiceOver function, would lead to much more power consumption. Therefore, another thoughtful design in the iPhone allows users to turn on the

'Curtain' function, which saves power by darkening the screen while retaining functionality. Apple has notably effective accessibility on the iPhone. However, the interviewees emphasized that all the accessibility features work fully only when developers ensure that the coding meets the requirements that enable the app to avail of all the accessibility features.

Most Hong Kong citizens have a positive attitude and are willing to help people with visual impairments. Many interviewees mentioned they would seek help from other citizens if they could not solve something by themselves while on outings. Besides the endeavor on building accessibility in public amenities, the Hong Kong Government also educate citizens to lead awareness of inclusiveness and accessibility (Figure 16). Figure 16 is one example that demonstrates how the Hong Kong Government tries to educate citizens on how to care about the guide dog when they were working with people with visual impairments on the bus. This education has remarkable achievements. While the researchers were conducting the walking together method from sensory ethnography in the street to accompany the people with visual impairments, we could hear some children said the dog was cute and beautiful. Their parents immediately told them that the guide dog was working, so we can only see but not touch them.

Figure 16. Inclusive society promotion on the bus.

4.7. Needs for Design Inspiration

Under the theme 'design inspiration,' there are five sub-themes (Figure 17). All of the interviewees agreed that ensuring the accessibility features on the iPhone is the most fundamental issue. All of them recommended that knowledge and information should be fully provided in the app design. In this vein, the detailed description and the audio description for the destination are vital.

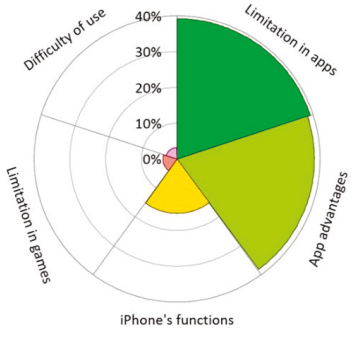

Figure 17. Five sub-themes in the theme 'design inspiration.'

They also suggested that traveling apps should provide various recommendations that users can follow. Another interesting point is that when asking participants for suggestions about the app design, all of them would emphasize some key points, such as the detailed descriptions needed while traveling. However, interviewees were able only to provide some suggestions based on the existing applications they had tried. Additionally, the features of the existing applications were limited. Therefore, the users did not know what the application could be in the future, and they did not fully articulate the exact need. We also tried to offer the features based on literature as prompts to interviewees. Yet, similar to existing applications, most of the features from the literature were based on the computer science and high-tech domain, such as the use of computer vision to enhance object recognition or navigation. The emotional and psychological needs, which seem to be intangible elements, were hard to present. Therefore, the in-depth interviews about their past travel experience (Section 4.5) were useful, which can be added to the app design recommendation.

All interviewees emphasized that mobile apps assist them in different ways. Navigation and object recognition are the two essential app categories that most interviewees mentioned could benefit from in the existing applications. For the navigation function, they use Google Maps frequently. When they go out, they also need to take transportation. Therefore, they use a bus app to gather information. With the bus and navigation app, they can go out more easily compared to before. For example, the KMB app (KMB, Hong Kong, China), a bus information app, allows people with visual impairments to obtain bus information about when the bus will arrive in the station and also tell the users what the next station is, or how long it will be before they get off. When they travel, they prefer to use Uber (Uber Technologies, San Francisco, CA, USA) or DiDi (Didi Chuxing Technology, Beijing, China) apps, an efficient mobility service that can describe where they are, and the driver can pick them up easily and drive them to their destination quickly. Another category is object recognition. Some interviewees mentioned the challenges they face when traveling alone. They used an app called Tap Tap See (Cloudsight, Los Angeles, CA, USA), which utilizes the phone's camera to recognize the station board and objects around them. Although the recognition accuracy of these apps is not 100% accurate, the interviewees maintained that the object recognition helped them considerably, and they were positive about this technology.

Additionally, they mentioned that they use WhatsApp, WeChat, and Facebook, which sighted people use for social purposes. These apps have relatively satisfactory accessibility. The lessons learned from the previous app design are two-fold. The first is the proper design we can learn from; the other is the poor design we should prevent. Indeed, most of the apps with negative reviews did not follow the guidelines from WCAG2.0 or the Hong Kong government's guidelines. The best choice is using the checklist for accessibility checking. Several apps are full of small fonts in the interface, which can be applied in bigger size and bold, such as app OverThere (LABS 301, San Francisco, CA, USA) (Figure 18).

Some interviewees complained that the accessibility function was not fully accessible in some apps because some buttons did not have detailed descriptions. Those buttons should be read clearly in the app, or it will cause repeated actions. The app should be divided into subtitles and sub-buttons so that users can choose from a clear hierarchy.

Even if all buttons were given descriptions, if there were too many buttons on one page, it will also make it hard for people with visual impairments to handle it. This is because they have to go through all the buttons from the left top to right bottom to find the one they need. The participants demonstrated a desire to play games on their iPhone, like the popular game Pokémon Go (Niantic, San Francisco, CA, USA). The playfulness component of exploratory play was emphasized by the interviewees. The participants maintained that there were numerous ways to learn about the destination but playing game-like applications and knowing about the destination is more fun. Compared with other conventional ways of learning about a destination (such as books, the internet, travel agents), playing a game related to a destination is more playful. However, few games or game-like applications are specifically designed for them. This finding draws our attention to the importance of considering

gamification strategy for app design, which enables people with visual impairments to have a travel experience that is more engaging, motivating, and enjoyable. Interviewees also complained that some apps were useful initially but were not updated to solve technical issues and add more content. Therefore, continued app enhancement for people with visual impairments is crucial.

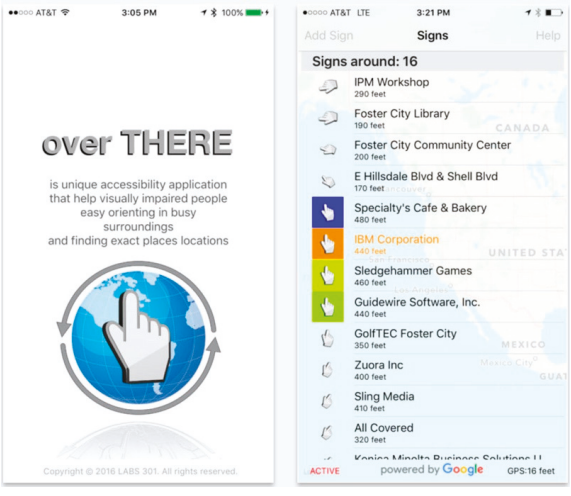

Figure 18. OverThere app screenshot.

5. Discussion

5.1. Findings From Needs Analysis

The interviewees were generally particularly positive about travel and socializing with other people. Although they cannot see the scenes, they can engage with the atmosphere, customs, food, and the locals of the travel location. They also demonstrated a desire to play games on their iPhones. Therefore, we considered adding gamification elements to the app design to enhance engagement, motivation, and enjoyment in the travel experience.

The findings can be approached by Self-Determination Theory [32] and Maslow's Hierarchy of Needs [31]. The results show that the participants want to achieve self-actualization, such as challenging themselves and sharpening their skills once they have satisfied their physiological needs. They all agreed that as a tourist, in an unfamiliar environment, can contribute to their personal development, offer a chance to show one's capabilities, and achieve a feeling of accomplishment. The study resonates with research, which states that the achievement of tourism for those with visual impairments can be profound compared to sighted tourists [16]. The findings demonstrate that knowing one has overcome challenges in an unfamiliar environment can help one to cope with the day-to-day challenges in familiar places and prove that they can do it. The findings provide detailed information about how they are trained to use their other senses to engage with the world. Understanding their training enables researchers to comprehend their unique skills, which can be used for further design. The findings are corroborated by the existing literature from other countries that many visually impaired people can use their remaining vision, supplemented by their other senses and their kinaesthetic skills [30]. Valuable results in the sensory compensation section can also be considered in app design functions, such as the usage of audio description, and how to utilize different senses to enable their travel experience.

During the interviews, all participants emphasized how smartphones have positively changed their lives. The accessibility features in iPhones are powerful and useful so that they should be fully used. In this way, when designers and developers create an app for visually impaired users should always consider the accessibility features in their minds and test the accessibility features of visually

impaired users as early as possible. It is vital to follow the accessibility guidelines and regulations for app design. The participants are interested in challenging themselves to fully benefit from sensory compensation and to gain in-depth descriptions of their environments, which were among the key insights that led to the gamified app implication.

5.2. Gamification Approach

The PERMA model was selected as a framework for designing the app in this study because of its suitability for both tourism experiences and the gamification domain. From a practical gamification design point of view, the researchers also applied Lazzaro's [67] four kinds of fun theory and MDA framework [68]. Mechanics are the instruments adopted to design games, whereas dynamics refers to how players interact with game playing. Aesthetics represent how the game enables the player to feel during the game experience. These aesthetics in MDA refer to eight types of the fun of playing games: narrative, sensation, challenge, fantasy, expression, fellowship, discovery, and submission [79], as detailed in Table 2.

Table 2. Eight aesthetics in MDA.

1. Sensation	**2. Fantasy**	**3. Narrative**	**4. Challenge**
Evoking emotions from player	Game as make-believe	Game as unfolding story	Game as obstacle course
5. Fellowship	**6. Discovery**	**7. Narrative**	**8. Challenge**
Game as social framework	Game as uncharted territory	Game as soap box	Game as mindless pastime

In design practice, the three levels in the MDA model enabled us to start from the emotional points, then set the design goals, and conceptualize the dynamic user behavior in the gamified system. Zichermann and Cunningham [59] assisted in designing the sequence and structure of app features. Additionally, the concept of the engagement loop discussed by renowned game designer and scholar would also be considered. The core engagement loop associated with game mechanics can be merged with positive reinforcement and feedback loops that ensure the user remains engaged in the game. The gamification design loop is based on the workflow: a motivating emotion that contributes the social call to action, which then contributes player re-engagement, and then feedback or reward. Figure 19 represents this concept.

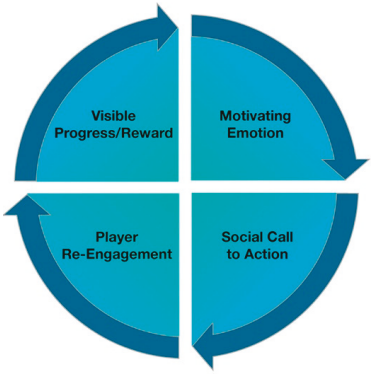

Figure 19. The social engagement loop.

The player's motivation subsequently drives the outcome in any system. Therefore, comprehending player motivation is of paramount importance when developing a successful gamified system. Based on Radoff's [66] general game experience research on game mechanics that entice positive emotions, Zichermann and Cunningham [59] conclude with 12 motivations for gamification

design. We regarded these motivations and related game mechanics as the dominant design theoretical approach of this project.

5.3. The Implication of Gamification of App Design

All the insights and findings provided several crucial design implications for designing a better tourism app for people with visual impairments. The participants admitted that, among numerous ways to learn about the destination, playing game-like applications and knowing about the destination are more enjoyable. Compared with other conventional approaches of learning about a destination (such as online, books, travel agents), playing a game related to a destination is more playful.

Pokémon Go is an app based on exploratory play; however, according to the interviewees, they stated it was challenging to manage the visual clues. The app could provide another opportunity for them to play Pokémon Go, with which users felt satisfied. Hence, adding the gamification strategy in the app design is applicable. Therefore, the challenges of gamification should be less considered. Indeed, for people with visual impairments, traveling is already a challenge to them. The app makes "challenge(s)" more meaningful and exciting, especially for assisting people with visual impairments. These two are the main ideas why games are so addictive to players. For those who like traveling but are hesitant, this app gives them the support and motivation to feel more comfortable. In this light, the notion of challenge, one of the standard gamification concepts, was shifted in the context of this specific audience.

Before adopting the gamification elements, full accessibility should be enabled. Apple has devoted notable efforts to improve the accessibility of the iPhone. Therefore, those who wish to create applications for people with visual impairments must follow the relevant international and local accessibility guides and fully understand all the accessibility features implemented on the iPhones.

The app could provide two travel modes (exploration mode and relaxation mode), that enable users to travel based on their preference. In the exploration mode, users will be given multiple tasks, including discovering hidden virtual items through a vibration pathway, finding hidden voices through narration, and seeking photo-sharing opportunities for locals. Here, the features of challenge, narrative, and discovery are drawn from LeBlanc's eight types of fun [79], and 'missions' from motivations for gamification design [59]. In the chill mode, the app will recommend spots where users can relax or meditate. The feature provides 'easy fun' [67].

Users could automatically receive feedback by listening to the music to check whether they have completed the mission. The reward can be points for a coupon or a part of a song. The user should check all the spots that the app suggests in order to gain the whole song or a coupon. Surprise, gifting, collecting, coupons, and reward system build on concepts presented by Lazzaro [67], Zichermann, and Cunningham [59], while joy and gratitude are associated with positive emotions [56]. This feature stimulates the exploration of the destination space ('easy fun' in Lazzaro [67]).

The app should provide "autonomy" that allows people with visual impairments to obtain and control the information themselves, and not just wait and accept passively for other sighted people to "feed" the information. Information feeding could be provided through an automatic well-designed audio description that consisted of the advice and stories from various senses when users pass by a new site within an attraction. The feature creates a sense of accomplishment by 'unlocking' them and triggers curiosity by providing new knowledge without user prompts [59].

Users can leave messages for other visually impaired users, such as tips, experiences, and feelings. Other users' messages can be liked, with the top 10 popular messages displayed on the leaderboard of the app. Users can also post questions that everyone can answer. Users can explore the wonderful experiences with valuable tips in each destination. Users can make friends with any users on the leaderboard by leaving a message for them. This feature provides users opportunities to make new friends and to expand their circle of friends. Getting attention, sharing, gaining status, competition, fame, leaderboard, and "a social call" to action in line with suggestions offered by Zichermann and

Cunningham [59], while Lazarro's [67] ideas on communication and social aspects of fun serve to build the foundation of positive emotions.

With a growing community, users could contribute to a detailed database of localized information. The information grows with the community, forming an utterly crowd-sourced tourism map of the world. Community, increasing content, community status, collaboration, co-creativity, and feeling of "growing" are particularly inspired by Zichermann and Cunningham [59].

6. Conclusions

As a highly developed region, the Hong Kong Government has given special consideration to removing the physical barriers and educating the general public about disability, but the meaningful experience to ensure a higher quality of life for people with visual impairments should be offered. In order to comply with the sustainability goals from UNGA [7] and the "Accessible Tourism for All" call from UNWTO [10], this study first examined the needs of people with visual impairments and then investigated how gamification features can be implemented to enhance the on-site tourism experiences of people with visual impairments. The study conducted multisensory participant observations and interviews that provided a more comprehensive view of people with visual impairments in Hong Kong and an in-depth analysis of the aspirations of people with visual impairments.

From the research standpoint, this research has shown that the infrastructure in Hong Kong is highly accessible, and the awareness and knowledge of Hong Kong residents about accessibility to this infrastructure for people with visual impairments are relatively positive. This is because the Hong Kong government focuses on creating and promoting an inclusive and sustainable society so that all individuals can enjoy respect and equality in various aspects of life. In view of this inclusive society, there are more opportunities to create meaningful research beyond the basic needs of people with special needs. The finding is consistent with that other scholars stated that people with visual impairments had the same desire to enjoy traveling [14].

All interviewees contended that they benefit significantly from smartphones (Figure 20). The existing apps can meet their basic life requirements. However, few studies have examined whether apps can offer higher needs related to emotions for people with visual impairments. 'Smart tourism' with embedded and state-of-the-art technology, especially 5G, can transform real-time and real-world data to enrich the on-site tourism destination experiences.

Figure 20. People with visual impairments using smartphones.

The insights led to the specific design implications, which suggested that applying gamification could enrich the tourism experience and create an emotional connection with a place. Additionally, gamification could provide meaningful goals, a sense of purpose, achievement and enjoyment, and a feeling of autonomy, while traveling with the use of emerging technology.

This study proposed a gamified approach to future app design for people with visual impairments. As its foremost contribution to knowledge, this investigation advances the understanding of the needs of people with visual impairments, particularly from the mobile device from the tourism perspective. This new knowledge can contribute to filling both the research gap and product gap about people with visual impairments in the field of app design generally and in travel-supporting apps specifically. This project offered empirical notes on the implementation of sensory ethnography methods to understand visually impaired people's needs. A further point is that the visually impaired community will derive a benefit by delivering them with more meaningful tourism experiences in the economic aspect of ensuring digital products are more affordable from this research. The research provides insights into social enterprises, organizations, and government entities, serving people with visual impairments. Ultimately, the findings of the study can contribute to academia in tourism and travel research, gamification research, user experience design research, and disability studies.

Although a diverse range of visually impaired participants were involved in this research, more participants could ideally have been involved. It should be noted that this study included most of the participants from a low-income background only, and they were all mainly linked to two organizations, one is the biggest and the other has the longest history, serving people with visual impairments locally in Hong Kong. Potential target users with a higher income who have more possibilities to travel outside their home city/country may require a more nuanced and customized approach regarding safety and cultural factors. Future studies should include further understanding and needs on the smart app design and prototype testing for people with visual impairments.

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References

1. Dempsey, N.; Bramley, G.; Power, S.; Brown, C. The Social Dimension of Sustainable Development: Defining Urban Social Sustainability. *Sustain. Dev.* **2011**, *19*, 289–300. [CrossRef]
2. Dillard, J. *Understanding the Social Dimension of Sustainability*, 1st ed.; Routledge: London, UK, 2008. [CrossRef]
3. Rebernik, N.; Szajczyk, M.; Bahillo, A.; Marušić, B.G. Measuring Disability Inclusion Performance in Cities Using Disability Inclusion Evaluation Tool (DIETool). *Sustainability* **2020**, *12*, 1378. [CrossRef]
4. Vallance, S.; Perkins, H.C.; Dixon, J.E. What Is Social Sustainability? A Clarification of Concepts. *Geoforum* **2011**, *42*, 342–348. [CrossRef]
5. Wolbring, G.; Mackay, R.; Rybchinski, T.; Noga, J. Disabled People and the Post-2015 Development Goal Agenda through a Disability Studies Lens. *Sustainability* **2013**, *5*, 4152–4182. [CrossRef]
6. Wolbring, G.; Rybchinski, T. Social Sustainability and Its Indicators through a Disability Studies and an Ability Studies Lens. *Sustainability* **2013**, *5*, 4889–4907. [CrossRef]
7. Sustainable Development Goals. Available online: https://sustainabledevelopment.un.org/?menu=1300 (accessed on 23 May 2020).
8. Loi, K.I.; Kong, W.H. Tourism for All: Challenges and Issues Faced by People with Vision Impairment. *Tour. Plan. Dev.* **2017**, *14*, 181–197. [CrossRef]
9. Tourism for All. Available online: https://www.tourismforall.org.uk/about-us (accessed on 23 May 2020).

10. Accessible Tourism. Available online: https://www.unwto.org/accessibility (accessed on 23 May 2020).
11. Darcy, S.A. *Setting a Research Agenda for Accessible Tourism*; Citeseer: Queensland, Australia, 2006.
12. Darcy, S.; Dickson, T.J. A Whole-of-Life Approach to Tourism: The Case for Accessible Tourism Experiences. *J. Hosp. Tour. Manag.* **2009**, *16*, 32–44. [CrossRef]
13. Krieger, S. *Traveling Blind: Adventures in Vision with a Guide Dog by My Side*; New directions in the human-animal bond; Purdue University Press: West Lafayette, IN, USA, 2010.
14. Yau, M.K.; McKercher, B.; Packer, T.L. Traveling with a Disability. *Ann. Tour. Res.* **2004**, *31*, 946–960. [CrossRef]
15. Reina, R.; López, V.; Jiménez, M.; García-Calvo, T.; Hutzler, Y. Effects of Awareness Interventions on Children's Attitudes toward Peers with a Visual Impairment. *Int. J. Rehabil. Res.* **2011**, *34*, 243–248. [CrossRef]
16. Small, J.; Darcy, S.; Packer, T. The Embodied Tourist Experiences of People with Vision Impairment: Management Implications beyond the Visual Gaze. *Tour. Manag.* **2012**, *33*, 941–950. [CrossRef]
17. Report No. 62—Persons with Disabilities and Chronic Diseases. Available online: https://www.statistics.gov.hk/pub/B11301622014XXXXB0100.pdf (accessed on 23 May 2020).
18. Hong Kong Economy. Available online: https://www.hkeconomy.gov.hk/en/home/index.htm (accessed on 30 June 2020).
19. GovHK: Services for Visually Impaired Persons. Available online: https://www.swd.gov.hk/sc/index/site_pubsvc/page_rehab/sub_listofserv/id_servisualim/ (accessed on 30 June 2020).
20. GovHK: Embracing Social Inclusion. Available online: https://www.gov.hk/en/residents/housing/socialservices/youth/SocialInclusion.htm (accessed on 23 May 2020).
21. The Innovation and Technology Fund for Better Living. Available online: https://fbl.itb.gov.hk/ (accessed on 23 May 2020).
22. Scherer, M.J. *Living in the State of Stuck: How Assistive Technology Impacts the Lives of People with Disabilities*; Brookline Books: Boston, MA, USA, 2005.
23. Foley, A.; Ferri, B.A. Technology for People, Not Disabilities: Ensuring Access and Inclusion: Technology for People, Not Disabilities: Ensuring Access and Inclusion. *J. Res. Spec. Educ. Needs* **2012**, *12*, 192–200. [CrossRef]
24. The 2019–2020 Budget. Available online: https://www.budget.gov.hk/2019/eng/budget29.html (accessed on 23 May 2020).
25. Gretzel, U.; Werthner, H.; Koo, C.; Lamsfus, C. Conceptual Foundations for Understanding Smart Tourism Ecosystems. *Comput. Hum. Behav.* **2015**, *50*, 558–563. [CrossRef]
26. Wang, D.; Xiang, Z. The new landscape of travel: A comprehensive analysis of smartphone apps. In *ENTER*; Springer: Berlin, Germany, 2012; pp. 308–319.
27. Harrison, C.; Eckman, B.; Hamilton, R.; Hartswick, P.; Kalagnanam, J.; Paraszczak, J.; Williams, P. Foundations for Smarter Cities. *IBM J. Res. Dev.* **2010**, *54*, 1–16. [CrossRef]
28. Billi, M.; Burzagli, L.; Catarci, T.; Santucci, G.; Bertini, E.; Gabbanini, F.; Palchetti, E. A Unified Methodology for the Evaluation of Accessibility and Usability of Mobile Applications. *Univ. Access Inf. Soc.* **2010**, *9*, 337–356. [CrossRef]
29. Lee, J.; Kim, D.; Ryoo, H.Y.; Shin, B.S. Sustainable Wearables: Wearable Technology for Enhancing the Quality of Human Life. *Sustainability* **2016**, *8*, 466. [CrossRef]
30. Richards, V.; Pritchard, A.; Morgan, N. (Re)Envisioning Tourism and Visual Impairment. *Ann. Tour. Res.* **2010**, *37*, 1097–1116. [CrossRef]
31. Maslow, A.H. A Theory of Human Motivation. *Psychol. Rev.* **1943**, *50*, 370–396. [CrossRef]
32. Ryan, R.M.; Deci, E.L. *Self-Determination Theory: Basic Psychological Needs in Motivation, Development, and Wellness*; Guilford Press: New York, NY, USA, 2017.
33. Blindness and Vision Impairment. Available online: https://www.who.int/news-room/fact-sheets/detail/blindness-and-visual-impairment (accessed on 30 June 2020).
34. Sardegna, J. (Ed.) *The Encyclopedia of Blindness and Vision Impairment*, 2nd ed.; Facts on File library of health and living; Facts on File: New York, NY, USA, 2002.
35. Wiener, W.R.; Welsh, R.L.; Blasch, B.B. (Eds.) *Foundations of Orientation and Mobility*, 3rd ed.; AFB Press: New York, NY, USA, 2010.
36. Virgili, G.; Rubin, G. Orientation and Mobility Training for Adults with Low Vision. *Cochrane Database Syst. Rev.* **2010**. [CrossRef]

37. Roentgen, U.R.; Gelderblom, G.J.; de Witte, L.P. The Development of an Indoor Mobility Course for the Evaluation of Electronic Mobility Aids for Persons Who Are Visually Impaired. *Assist. Technol.* **2012**, *24*, 143–154. [CrossRef]
38. Seki, Y.; Sato, T. A Training System of Orientation and Mobility for Blind People Using Acoustic Virtual Reality. *IEEE Trans. Neural Syst. Rehabil. Eng.* **2011**, *19*, 95–104. [CrossRef]
39. Cmar, J.L. Orientation and Mobility Skills and Outcome Expectations as Predictors of Employment for Young Adults with Visual Impairments. *J. Vis. Impair. Blind.* **2015**, *109*, 95–106. [CrossRef]
40. Fazzi, D.L.; Barlow, J.M.; Hill, E.; Ponder, P. *Orientation and Mobility Techniques: A Guide for the Practitioner*, 2nd ed.; AFB Press, American Foundation for the Blind: New York, NY, USA, 2017.
41. Training and Employment of People with Disabilities: Hong Kong SAR 2002. Available online: https://www.ilo.org/asia/publications/WCMS_113205/lang--en/index.htm (accessed on 26 July 2020).
42. Orientation and Mobility Skills. Available online: https://visionaware.org/everyday-living/essential-skills/an-introduction-to-orientation-and-mobility-skills/ (accessed on 26 July 2020).
43. Bondi, L.; Davidson, J.; Smith, M. Introduction: Geography's emotional turn. In *Emotional Geographies*; Davidson, J., Bondi, L., Smith, M., Eds.; Ashgate: Aldershot, UK, 2007; Volume 3, pp. 1–19.
44. Small, J. The Emergence of the Body in the Holiday Accounts of Women and Girls. In *Tourism and Gender: Embodiment, Sensuality and Experience*; Pritchard, A., Ed.; CABI: Cambridge, UK, 2007; pp. 73–91.
45. Allan, M. Disability Tourism: Why Do Disabled People Engaging in Tourism Activities. *Eur. J. Soc. Sci.* **2013**, *39*, 480–486.
46. Deterding, S.; Sicart, M.; Nacke, L.; O'Hara, K.; Dixon, D. Gamification. Using Game-Design Elements in Non-Gaming Contexts. In Proceedings of the 2011 Annual Conference Extended Abstracts on Human Factors in Computing Systems—CHI EA '11, Vancouver, BC, Canada, 7–12 May 2011; ACM Press: New York, NY, USA; p. 2425. [CrossRef]
47. Overthere. Available online: http://www.labs301.com/overthere (accessed on 23 May 2020).
48. VoiceMapHK Mobile App. Available online: http://www.landsd.gov.hk/mapping/en/VoiceMapHK/index.htm (accessed on 23 May 2020).
49. DuLight. Available online: https://itunes.apple.com/us/app/百度小明/id1113873792?mt=8 (accessed on 23 May 2020).
50. Aipoly Vision: Sight for Blind & Visually Impaired. Available online: https://apps.apple.com/us/app/aipoly-vision-sight-for-blind-visually-impaired/id1069166437 (accessed on 23 May 2020).
51. Balata, J.; Franc, J.; Mikovec, Z.; Slavik, P. Collaborative Navigation of Visually Impaired. *J. Multimodal User Interfaces* **2014**, *8*, 175–185. [CrossRef]
52. Balata, J.; Mikovec, Z.; Slavik, P.; Macik, M. Game Aspects in Collaborative Navigation of Blind Travelers. In *Handbook of Research on Holistic Perspectives in Gamification for Clinical Practice*; IGI Global: Hershey, PA, USA, 2016; pp. 497–523.
53. Pine, B.J.; Gilmore, J.H. *The Experience Economy*; Harvard Business Review Press: Boston, MA, USA, 2011.
54. Dann, G.; Jacobsen, J.K.S. Tourism Smellscapes. *Tour. Geogr.* **2003**, *5*, 3–25. [CrossRef]
55. Figueiredo, E.; Eusébio, C.; Kastenholz, E. How Diverse Are Tourists with Disabilities? A Pilot Study on Accessible Leisure Tourism Experiences in Portugal: How Diverse Are Tourists with Disabilities? *Int. J. Tour. Res.* **2012**, *14*, 531–550. [CrossRef]
56. The Biggest UX Design Trends of 2017. Available online: https://blogs.adobe.com/creativecloud/the-biggest-ux-design-trends-of-2017/ (accessed on 23 May 2020).
57. World Travel Market Global Trends in Association with Report 2011. Available online: http://www.toposophy.com/files/1/files/onsite_global_trends_v3_lo.pdf (accessed on 23 May 2020).
58. Xu, F.; Tian, F.; Buhalis, D.; Weber, J.; Zhang, H. Tourists as Mobile Gamers: Gamification for Tourism Marketing. *J. Travel. Tour. Mark.* **2016**, *33*, 1124–1142. [CrossRef]
59. Zichermann, G.; Cunningham, C. *Gamification by Design: Implementing Game Mechanics in Web and Mobile Apps*, 1st ed.; O'Reilly Media: Sebastopol, CA, USA, 2011.
60. Tung, V.W.S.; Ritchie, J.R.B. Exploring the Essence of Memorable Tourism Experiences. *Ann. Tour. Res.* **2011**, *38*, 1367–1386. [CrossRef]
61. Kim, J.H.; Ritchie, J.R.B.; McCormick, B. Development of a Scale to Measure Memorable Tourism Experiences. *J. Travel. Res.* **2012**, *51*, 12–25. [CrossRef]

62. Fredrickson, B.L. The Role of Positive Emotions in Positive Psychology: The Broaden-and-Build Theory of Positive Emotions. *Am. Psychol.* **2001**, *56*, 218–226. [CrossRef]
63. Seligman, M.E.; Csikszentmihalyi, M. Positive psychology: An introduction. In *Flow and the Foundations of Positive Psychology*; Springer: Dordrecht, The Netherlands, 2014; pp. 279–298.
64. Seligman, M.E.P. *Flourish: A Visionary New Understanding of Happiness and Well-Being*, 1st ed.; Free Press: New York, NY, USA, 2011.
65. McGonigal, J. *Reality Is Broken: Why Games Make Us Better and How They Can Change the World*; Penguin Press: New York, NY, USA, 2011.
66. Radoff, J. *Game on: Energize Your Business with Social Media Games*; Wiley Publishing, Inc.: Indianapolis, IN, USA, 2011.
67. Lazarro, N. Why We Play Games: Four Keys to More Emotion Without Story. In Proceedings of the Game Developer's Conference, San Jose, CA, USA, 22–26 March 2004.
68. Hunicke, R.; LeBlanc, M.; Zubek, R. MDA: A Formal Approach to Game Design and Game Research. In Proceedings of the AAAI Workshop on Challenges in Game AI, San Jose, CA, USA, 25–26 July 2004; p. 1722.
69. Riley, R.W.; Love, L.L. The State of Qualitative Tourism Research. *Ann. Tour. Res.* **2000**, *27*, 164–187. [CrossRef]
70. Martin, B.; Hanington, B.M. *Universal Methods of Design: 100 Ways to Research Complex Problems, Develop Innovative Ideas, and Design Effective Solutions*; Rockport Publishers: Beverly, MA, USA, 2012.
71. Pink, S. *Doing Sensory Ethnography*, 2nd ed.; Sage Publications: London, UK, 2015.
72. Eves, A.; Dervisi, P. Experiences of the Implementation and Operation of Hazard Analysis Critical Control Points in the Food Service Sector. *Int. J. Hosp. Manag.* **2005**, *24*, 3–19. [CrossRef]
73. Spradley, J.P. *The Ethnographic Interview*; Holt, Rinehart and Winston: New York, NY, USA, 1979.
74. Noy, C. Sampling Knowledge: The Hermeneutics of Snowball Sampling in Qualitative Research. *Int. J. Soc. Res. Methodol.* **2008**, *11*, 327–344. [CrossRef]
75. Braun, V.; Clarke, V. Using Thematic Analysis in Psychology. *Qual. Res. Psychol.* **2006**, *3*, 77–101. [CrossRef]
76. Gray, D. *Doing Research in the Real World*, 2nd ed.; SAGE: Los Angeles, CA, USA, 2009.
77. Saunders, M.N.K.; Lewis, P.; Thornhill, A. *Research Methods for Business Students*, 6th ed.; Pearson: Harlow, UK, 2012.
78. Creswell, J.W.; Creswell, J.D. *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*, 5th ed.; SAGE: Los Angeles, CA, USA, 2018.
79. LeBlanc, M. Game Design and Tuning Workshop Materials. In Proceedings of the Presentation at the Game Developers Conference, San Jose, CA, USA, 22–26 March 2004.

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Developing a Competitive and Sustainable Destination of the Future: Clusters and Predictors of Successful National-Level Destination Governance across Destination Life-Cycle

Ivan Paunović [1,*], Marc Dressler [2], Tatjana Mamula Nikolić [3] and Sanja Popović Pantić [4]

[1] Dienstleistungszentrum Ländlicher Raum Rheinpfalz, 67435 Neustadt and der Weinstraße, Germany
[2] Hochschule für Wirtschaft und Gesselschaft Ludwigshafen, 67435 Neustadt and der Weinstraße, Germany; marc.dressler@hwg-lu.de
[3] Metropolitan University, 11000 Belgrade, Serbia; tatjana.mamula@metropolitan.ac.rs
[4] Institute "Mihajlo Pupin", University of Belgrade, 11060 Belgrade, Serbia; sanjap.pantic@pupin.rs
* Correspondence: paun.bg@gmail.com

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Abstract: This study advances the research and methodological approach to measuring and understanding national-level destination competitiveness, sustainability and governance, by creating a model that could be of use for both developing and developed destinations. The study gives a detailed overview of the research field of measuring destination competitiveness and sustainability. It also identifies major predictors of destination competitiveness and sustainability and thereby presents destination researchers and practitioners with a useful list of priority areas, both from a global perspective and from the perspective of other similar destinations. Finally, the study identifies two major types of destination governance with implications for research, policy and practice across the destination life-cycle. The research deals with the analysis of the secondary data from the World Economic Forum Travel and Tourism Index (WEF T&T). Major types of destination governance and predictors of belonging to either one of the types, as well as inside cluster predictors have been extracted through a two-step cluster analysis. The results support the notion that a meaningful model of national-level destination governance needs to take into account different development levels of different destinations. The main limitation of the study is its typology creation approach, as it inevitably leads to simplifications.

Keywords: innovation; indicators; governance; sustainability; competitiveness; destination; life-cycle

1. Introduction

A destination's success depends on its competitiveness in the global market, but also on the need to sustain its competitive position and be resilient in the face of unforeseen events as a prerequisite of long-range success [1,2]. This is a difficult task, because destinations are being produced and reproduced through a complex combination of social, cultural, political and economic relationships, making tourism research a transdisciplinary field of research, which beyond business research includes spatial issues (local, regional, national), thematic issues (mobility, culture, sustainability) and different approaches (advocacy, cautionary, adaptive and knowledge-based platforms) [3–5].

There is a gap in the literature on the most significant factors of destination performance that could be of use for both policy and organizations [6]. This exploratory study therefore seeks to fill this gap by creating a taxonomy model that could provide more flexibility in understanding the types of challenges faced by different destinations, and at the same time acknowledging that a global model of destination excellence needs to take into account a multitude of approaches to destination planning

and development. For creating a taxonomy model, research deploys a two-step cluster analysis of the data from the two Travel and Tourism Competitiveness reports (Crotti and Misrahi [7] and Crotti and Misrahi [8]), thereby answering the call from Dwyer and Kim [9] for further research of data on competitiveness from the World Economic Forum.

Understanding major predictors of destination competitiveness is of essential importance for destination planning and governance arrangements. The importance of specific predictors (both in global terms and in terms of a narrower competitive set) is important for setting the agenda for discussions on the future destination planning and governance, and aligning the destination-level goals with the changes in the competitive set and in the global competitive landscape.

The article identifies major national-level destination competitiveness and governance types, predictors of belonging to either one of the types identified, as well as predictor importance inside each of the two competitiveness and governance types. Before presenting the results, a literature review summarizes previous articles on indicators of destination competitiveness and destination governance, while the discussion positions the results within the two research fields.

2. Literature Review

2.1. Competition, Competitiveness

Destination competitiveness is measured through specific competitiveness factors, especially focusing on specific factor sets that are of relevance in a specific destination competitiveness group and specific destination life-cycle stage [10–13]. Competition in general business terms is about success and about outperforming the others in a particular market by aligning one's firm's activities according to priorities and establishing a profitable and sustainable industry position [14,15]. However, regarding the competition between tourism destinations, it is a more complex phenomenon than inter-organizational competition for a number of reasons: (a) national tourist destinations belong to a specific (and non-changeable) competitive set because of geographic position, previous involvement with the global tourism industry and natural and cultural resources [16,17]; (b) there is a pronounced difference between inherited/endowed resources and created resources [9]; (c) the degree of (potential) tourist product complementarity determines the optimal level of competition or cooperation between regional destinations in the global market [18]; (d) major drivers of competitiveness are often non-economic, e.g., enhancing the well-being of destination residents or preserving natural resources [19,20]. The problem with applying the concept of competitiveness on national-level tourism destinations is that competitiveness is often viewed from the short-term perspective, particularly in times of crisis, to include strong promotional activities on international tourism markets, decreasing costs and identifying synergies between tourism actors [6]. An important distinction should be made at this point regarding comparative advantage (e.g., an abundance of natural resources, low labor costs) and competitive advantage (the ability to add value to the resources in order to sell them on the market) [21–24]. Competitive advantage represents the value that can be produced for the buyers that can exceed the cost of creating this value: value in this sense is what buyers are willing to pay [15]. Benchmarking is a tool often used for analyzing a destination's competitive position [25]. It can be conducted as internal, competitive, functional or generic, and it is an especially good tool for monitoring qualitative aspects of tourism development to systematically analyze performance, processes and strategies [26–30].

2.2. Determinants of Destination Competitiveness and Sustainability along the Destination Life-Cycle

Before making a more nuanced analysis of destination development, it is first important to understand what represents a successful tourism destination and what does not. This paragraph gives a short literature overview for indicators of destination and/or tourism performance. For a full list of major studies in this field please refer to Table 1 at the end of the literature review or consult the a review provided by Medina-Munoz et al. [31]. Assaf and Josiassen [6] identified the ten most negative

and positive indicators of tourism performance. Taking into consideration these identified indicators, the goal for destination development would be to strive towards excellence to become, as Gilbert [32] defines it, "status areas" rather than "commodity areas", and attract high spenders and loyal tourists. The most significant obstacle in achieving this is that too extensive lists of destination competitiveness predictors lead to a need for determining the importance of each one of the predictors, as not each and every one can be of the same importance [10]. This is a major research gap identified in the literature that this article seeks to close, by providing a more usable set of most-relevant indicators for both developing and developed destinations.

The destination life-cycle model provides an argument that in developing destinations, demand should firstly exceed the supply, followed by a readjustment period in more mature phases, where high economic, social and environmental tourism impacts need to be managed [13]. However, later studies posit that tourism policy and decision making in developing countries needs to move away from putting a sole emphasis on quantitative measures of economic growth and enable qualitative measuring and destination development through better local stakeholder consultation early on in the destination development process [33–37]. In mature destinations, growth strategies are often connected to new product development that includes the expansion of: (1) networking between the actors, (2) customer value, and (3) competitiveness [38]. This is usually achieved by connecting destination resource space with activity space and experience space. Goffi and Cucculelli [39] single out in their research destinations of excellence (developed destinations) either based on their environmental standards (primarily related to water quality) or based on their built heritage and public services and activities, located within small, usually rural communities. In most rural destinations the emphasis is on creating tourism products related to natural resources, while in urban destinations, such as Dubai, the focus in on building global air accessibility as well as luxurious accommodation facilities [40,41].

Special attention should be given to emerging themes, such as Internet-related technology. In this sense, knowledge and innovation need to be the core value of tourism destination planning and development in order for the destination to survive in the global competitive environment [42,43]. The Internet and social media are one of the major megatrends having an impact on the society as a whole, and especially tourism, as a wide range of data is now available to tourists on the go: landscape descriptions, pricing, accommodation rating and local news [44]. Standing in relation to this aspect is the growing social importance of a digitally affluent generation, namely the millennials (generation Y), as they represent the future of both consumers and the job market, by including their vacation habits, sustainability attitudes, social media usage patterns, increasing participation in luxury markets and workplace preferences [45–47]. As consumers, millennials are often non-traditionalist in their choices even for luxury products [48,49].

Sustainability should play an important role in fostering long-term tourism destination competitiveness in developing destination [50–52], but it is even more important for the competitiveness of the developed destinations. One of the most important obstacles for implementation of sustainable tourism in developing destinations consists of managerial values and social representations of sustainability [53]. Regarding specific indicators, one of the major factors identified in the literature is air quality [54–56], especially in city destinations like Beijing, Dubai or Belgrade [41,57–59]. Other frequent environmental issues in destinations like Egypt, China, India, Montenegro, Croatia and Serbia include water pollution and inappropriate garbage disposal [58,60–62],

2.3. Destination Planning, Development and Governance

Destination governance encompasses both corporate and public governance and can mean both the architecture of relationships between public and private actors and the process of steering the society [63]. Angella, et al. [64] have extracted four types of destination governance: normative, leading firm, entrepreneurial and fragmented (scattered governance function, weak coordination mechanism). Major obstacles of national tourism destination governance include a complex and diffused action field and a limited reach when it comes to private actors at the destination [65]. Other

destination governance problems include: lack of, or inefficient, soft and interdisciplinary planning instruments; an insignificant role of destination residents in decision-making; a dominant role of foreign tour operators; and a power-distant government department and/or destination management organization [53,66,67]. In addition, DMOs (Destination Management Organizations) should be equipped with financial means and political and legislative power in order to be able to manage the interests, benefits and responsibilities of tourists, host population, tourism enterprises, tour operators and the public sector [13].

Successful destination governance needs to include common goals, a balanced power between the actors and co-evolutionary adaptations [68–71]. The phenomena related to poor governance mostly include hierarchical structures, lack of inclusion trust and perceived justice from actors [70,72], while the new and emerging theme in destination governance are public–private partnerships [73,74]. Nadalipour, et al. [75] call for future research on identifying a globally applicable model for investigation of tourist destinations in different contexts and their sustainability and competitiveness, by deploying multidisciplinary indicators of sustainable competitiveness. This research closes this research gap by acknowledging that a globally applicable destination governance model needs to be flexible enough to be used in different types of settings—both in terms of mutual relationships between major tourism actors as well as regarding processes steering tourism development. The reason for this is that different forms of multi-actor, networked collaboration arrangements directly impact the innovation of place-based competitiveness and sustainability policy [76–80]. This approach is becoming even more relevant in light of disruption caused by new technologies in the service industries: from tourism to hospitality and to mobility, new business models are disrupting business-as-usual and challenging the regulatory frameworks and the existing balance of power between the destination actors [81–84].

Sustainability is one of the most important concepts for the future of tourism governance [42,85]. However, as has been demonstrated in the literature, tourism has improved the socioeconomic conditions only in the most developed countries, while developing countries have problems with the implementation of sustainable tourism concepts because of pressurized political contexts: large-scale capital-intensive real estate projects are encouraged without having (or disregarding) an integrated plan to account for environmental and local community impacts [86–90].

Table 1. Overview of major tools, concepts and statistical methods deployed to measure destination competitiveness.

Concept of Observable Variable	Concept of Non-Observable Mediating Variable	Researched Concept	Statistical/Other Method	Author
30 determinants	8 drivers	Tourism performance	Descriptive statistics, regression	[6]
93 indicators	7 factors/determinants (with subcategories)	Tourism competitiveness as a means towards national economic prosperity	Theory building based on literature review	[9]
37 subfactors/attributes	5 factors/determinants	Destination competitiveness and sustainability	AHP (Analytic hierarchy process)	[10]
57 indicators	6 factors	Destination competitiveness as a means towards welfare and socioeconomic prosperity of residents	Descriptive statistics, FE (fixed effect) estimator	[19]
62 attributes	8 macro attributes, dependent variables, tourism outcomes	Destination competitiveness and sustainability	PCA (Principal Component Analysis)	[50]
36 attributes	5 factors	Competitiveness of small- and medium-sized destinations	PCA, partial least square regression	[91]
64 indicators	13 determinants/components	Competitiveness of small destinations	PCA	[39]
51 items/activities	6 categories	Importance–performance analysis of destination competitiveness	IPA (Importance–Performance Analysis)	[52]
83 indicators	12 attributes, factors	PCA of destination competitiveness	PCA, importance-performance analysis	[92]
34 attributes	5 determinants/factors	Difference between destination competitiveness priorities between public and private stakeholders	T-test	[93]
64 indicators/items	13 components	Destination competitiveness	PCA	[94]
45 variables/action items	5 factors	Destination competitiveness in the public and private sectors	EFA (Exploratory Factor Analysis), CFA (Confirmatory Factor Analysis)	[51]
205 variables/indicators	29 elements	Destination competitiveness of mountain destinations through several objective, and an extensive set of subjective (supply and demand side) measures	Descriptive statistics, ANOVA (Analysis of Variance)	[95]
33 global indices	4 quadrants	Country destination competitiveness in the regional (mostly neighboring countries) tourism market	Importance–performance analysis	[16]
34 indicators	2 groups	Country destination competitiveness, as viewed by four types of tourism stakeholders	Descriptive statistics	[17]
23 indicators	2 groups	The impact of tourist destination elements on tourist' satisfaction	Descriptive statistics, ANOVA, eta square values	[60]
115 indicators	5 groups—same as Crouch [10]	Suppliers' perception of destination competitiveness	MANOVA (Multivariate Analysis of Variance)	[96]
90 indicators	14 drivers/pillars	Global travel and tourism competitiveness (World Economic Forum (WEF)), descriptive statistics, mixed method (secondary data and expert questionnaire).	Descriptive statistics	[7,8]

3. Methodology

Although significant criticism of the World Economic Forum Travel and Tourism (WEF T&T) data and their mixed collection method has been presented in the literature, it is considered to be the most complete and relevant global data collection effort regarding destination competitiveness and sustainability, and as such suitable for further discussion of national-level tourism policy [17,39,97]. Therefore, data from the 2015 and 2017 WEF T&T reports [7,8] were used for this analysis. Data from previous reports (2008, 2009, 2011 and 2013) were excluded due to incompatible indicator selection due to considerably different methodology. The latest report (2019) was not yet available at the time of analysis. Firstly, the data from 2015 and 2017 were cleaned to include a consistent set of countries (131) and variables and indicators (86). A total of 10 countries and variables were deleted because they were not present in both reports, as well as two indicators that had missing values. For an additional four out of 86 indicators used, the data were present only in one of the two reports, and thus no average was calculated for these four indicators. For the remaining 82 indicators, the average of the indicator values from both reports (2015 and 2017) was calculated. For this data set, a two-step cluster analysis was calculated using IBM SPSS 23 software.

Regarding cluster quality in terms of their cohesion and separation, the average silhouette value was 0.5, pointing to a good fit both by SPSS green color indication and as confirmed in the literature by Sarstedt and Mooi [98]. This was achieved by choosing a solution with 23 inputs and two clusters. There were four other solutions that reached the 0.5 silhouette value, all including the two-cluster solution, but with a higher number of inputs (25, 28, 31 and 34). The solution with two clusters and 23 inputs was therefore deemed the most compact and useful model in this group. By deploying this procedure, answers to the following research questions were sought:

1. What are the major destination governance types globally?
2. What are major predictors of belonging to the identified destination governance types?
3. How do the two types differ in terms of the importance of specific indicators for destination governance or policy?

4. Results

By deploying a two-step analysis, two major types of destinations were extracted—developed ones (scoring higher on all relevant 23 indicators on average) and less developed ones (scoring lower on all relevant 23 indicators), as presented in Table 2. Firstly, the overall indicator relevance for the clustering solution was shown (in descending order), where indicators are called predictors. In order to further delve into the specificities of both clusters, in Table 3, the 23 indicators were presented according to their inside-cluster importance, in descending order.

The following predictors were used for the two-cluster solution: Wastewater treatment (1.00); Fixed broadband Internet subscriptions (0.81); Ground transport efficiency (0.80); Quality of roads (0.78); Quality of railroad infrastructure (0.75); Reliability of police services (0.72); Ease of finding skilled employees (0.69); Degree of customer orientation (0.68); Internet users (0.67); Quality of air transport infrastructure (0.66); Enforcement of environmental regulations (0.66); Paved road density (0.62); Mobile-broadband subscriptions (0.60); Quality of electricity supply (0.59); Quality of port infrastructure (0.57); Purchasing power parity (0.53); Number of international associations meetings (0.53); Number of operating airlines (0.46); Aircraft departures (0.45); Cultural and entertainment tourism digital demand (0.42); Pay and productivity (0.41); Stringency of environmental regulations (0.39); and Available seat kilometers, international (0.35).

Table 2. Extracted clusters and major predictors in the two-step cluster analysis.

Rank	Predictor Name	Importance	Cluster 1 Value	Cluster 2 Value
1	Wastewater treatment	1.00	15.64	75.76
2	Fixed broadband Internet subscriptions	0.81	7.96	28.96
3	Ground transport efficiency	0.80	3.23	5.05
4	Quality of roads	0.78	3.65	5.44
5	Quality of railroad infrastructure	0.75	3.58	5.22
6	Reliability of police services	0.72	3.91	5.81
7	Ease of finding skilled employees	0.69	3.84	4.85
8	Degree of customer orientation	0.68	4.37	5.40
9	Internet users	0.67	39.77	83.41
10	Quality of air transport infrastructure	0.66	4.04	5.70
11	Enforcement of environmental regulations	0.66	3.61	5.13
12	Paved road density	0.62	3.74	5.54
13	Mobile-broadband subscriptions	0.60	35.58	85.27
14	Quality of electricity supply	0.59	4.10	6.33
15	Quality of port infrastructure	0.57	3.59	5.41
16	Purchasing power parity	0.53	0.47	1.00
17	Number of international associations meetings	0.53	38.25	250.87
18	Number of operating airlines	0.46	33.65	90.61
19	Aircraft departures	0.45	3.98	29.42
20	Cultural and entertainment tourism digital demand	0.42	9.89	35.76
21	Pay and productivity	0.41	3.79	4.60
22	Stringency of environmental regulations	0.39	3.83	5.72
23	Available seat kilometers, international	0.35	269.98	2422.30

Table 3. Cluster size and major inside-cluster predictors extracted in the two-step cluster analysis.

Cluster 1 Size: 74.8% (98)		Cluster 2 Size: 25.2% (33)	
Within-Cluster Importance Rank	**Developing Destinations**	**Within-Cluster Importance Rank**	**Developed Destinations**
1	Available seat kilometers, international	1	Quality of electricity supply
2	Aircraft departures	2	Internet users
3	Purchasing power parity	3	Quality of roads
4	Number of international associations meetings	4	Quality of air transport infrastructure
5	Wastewater treatment	5	Paved road density
6	Stringency of environmental regulations	6	Degree of customer orientation
7	Fixed broadband Internet subscriptions	7	Quality of port infrastructure
8	Ground transport efficiency	8	Ground transport efficiency
9	Quality of railroad infrastructure	9	Ease of finding skilled employees
10	Cultural and entertainment tourism digital demand	10	Reliability of police services
11	Quality of roads	11	Wastewater treatment
12	Number of operating airlines	12	Fixed broadband Internet subscriptions
13	Enforcement of environmental regulations	13	Quality of railroad infrastructure
14	Reliability of police services	14	Enforcement of environmental regulations
15	Ease of finding skilled employees	15	Mobile-broadband subscriptions
16	Mobile-broadband subscriptions	16	Pay and productivity
17	Degree of customer orientation	17	Number of operating airlines
18	Quality of air transport infrastructure	18	Number of international associations meetings
19	Internet users	19	Purchasing power parity
20	Paved road density	20	Cultural and entertainment tourism digital demand
21	Quality of port infrastructure	21	Aircraft departures
22	Quality of electricity supply	22	Stringency of environmental regulations
23	Pay and productivity	23	Available seat kilometers, international

The two created clusters are presented in Table 3 (developed vs. developing), with the accompanying in-cluster importance of specific predictors. These results lay a foundation for differentiated destination governance theories for developing and developed destinations.

5. Discussion, Limitations and Future Research Directions

Tourist destinations are often being compared regarding the number of overnight stays or tourist arrivals, the share of overnight stays or tourist arrivals in a specific market, or corresponding growth rates—an approach based on a classical TALC (Tourism Area Life Cycle) model of destination development [12,99]. However, dealing only with the number of tourist or overnights has its disadvantages, as it does not take into account prices or quality attributes [95,100]. More importantly, recent research has demonstrated the unreliability of official statistics due to manipulation of taxable overnight stays by accommodation providers [101]. This article fills this research gap by contributing to the existing knowledge on destinations competitiveness and sustainability, by providing benchmarking and indicator weighing for both developing and developed destinations. Two major types of destinations (developing and developed) were extracted, as well as one overall and two type-dependent predictor lists that enable better understanding of the global destination competitiveness.

The research results confirm the findings from the literature [19], that different destination competitiveness factors (predictors) have different impacts on the competitiveness of developing and developed destinations, going even further to rank the factors according to their relevance for both types of destinations. Identified predictors of global destination excellence, as well as inside-cluster relevance for both groups, should be further investigated and used for creating weighting schemes for indicator systems in different destinations. In other words, different indicators should be weighed in accordance with their importance (from 1.00 to 0.35), thereby closing to a big extent the research gap on weighing schemes, as identified by Zehrer, Smeral and Hallmann [95].

Having in mind the high relevance of the Internet-related indicators (Numbers 2, 9 and 13), more attention should be given to the Internet, social media, and how the digitally-oriented millennial generation is changing destinations globally—as consumers, as a workforce and as citizens in both developing and developed destinations.

The high importance of sustainability for tourism destination competitiveness on the global level, and especially for developed destinations, has been confirmed in the research. The results should serve as a starting point for tackling attitude–behavior gaps of destination managers and other stakeholders regarding sustainability. The environmental aspects captured by the model are: (1) Wastewater treatment, (11) Enforcement of environmental regulations, and (22) Stringency of environmental regulations. There is also a big difference in the municipal waste management and generally circular economy capabilities between developed and developing countries, which can all negatively affect the tourism industry in developing countries.

The research results emphasize the importance of a stable electricity supply and Internet use in developed destinations, coupled with physical infrastructure development, degree of customer orientation and workforce training and development, as well as reliable police services and wastewater treatment.

The research findings tackle the practical, managerial side, by extending the approach already deployed in the literature [93] and providing an alternative framework to be used on the national, regional or micro scale for accessing and weighing the competitiveness and sustainability of a destination in the global context. The findings also enhance the value of the Travel and Tourism Competitiveness Index, by making it more approachable for destination managers. The results also provide empirical evidence that quantitative growth in developing destinations (in this case of air transport traffic, purchasing power parity and international association meetings) needs to go hand in hand with wastewater treatment improvement and stringent environmental regulation, coupled with further digital and physical infrastructure development, as well as workforce training and development. There are also further considerations to be dealt with in politically unstable destinations (such as the island of Cyprus), where regional visitation is highly dependent on the perceptions of culture and ethnicity [102]. Similarly, post-war destinations face highly specific tourism development problems, such as lack of basic political prerequisites for the functioning of society, while the need for active re-branding and infrastructure re-development seems to be a top priority [103–108].

Considering the St. Gallen Model of Destination Management, being focused on developed destinations, it constantly redefines and updates the definition of a destination, and also discusses the DMO's role in a destination-level network, as well as destination leadership, strategy, resilience and governance arrangements [109,110]. However, the two-step clustering solution presented in the results section confirms the findings of previous studies, that there are significant differences in the process and outcomes of tourism development in the developed and developing countries [90,111]. Therefore, both types of destinations are presented in Figure 1, so as to better visualize the tourism destination governance arrangements and their mutual differences. The model builds on the premise that destinations first need to be in the type 1 destination governance mode in order to advance to the type 2 destination governance mode at a later point in time.

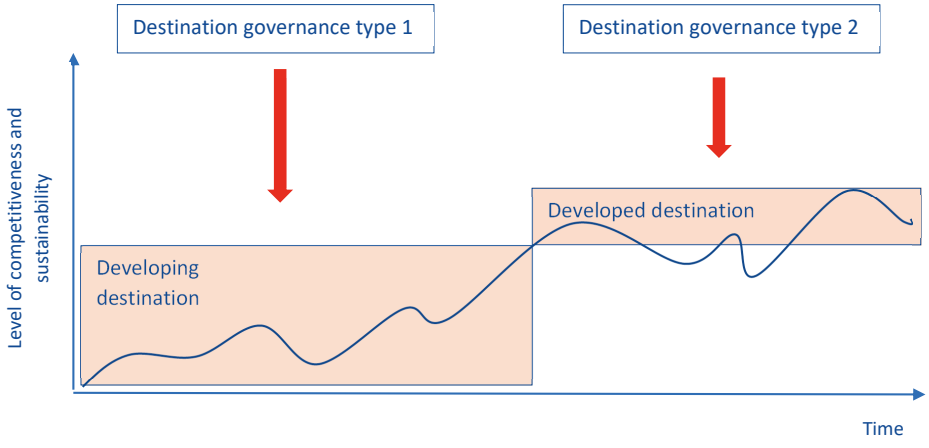

Figure 1. Destination governance typology.

The research results complement and extend quantitative measures of destination competitiveness, related to tourist numbers and GDP, which appear to still be relevant in many developing destinations. However, these quantitative measures need to go hand in hand with social and environmental indicators [112]. Therefore, the optimal way of measuring global destination competitiveness is by deploying a model that makes a distinction between developing and developed destinations, each with their set of destination governance priorities. However, global destination governance priorities (common to both destination governance types) are also being identified, and can be seen as long-term and basic priorities for both types of destinations, while in-cluster priorities have more relevance for each competitive set. Therefore, governance types are mainly understood here as stakeholder importance and the consequent power relationship architecture between different types of actors at the destination. The model does not consider governance arrangements or processes in either developed or developing destinations. Future research can investigate the precise inside cluster weighing of predictors, in order to develop a weighing scheme for both developing and developed destinations.

Identified predictors of global destination excellence should provide stakeholders in both developing and developed destinations with an early discussion basis for anticipating change and making timely destination governance arrangements and adopting a long-term global perspective, regardless of the current level of development. Going a step deeper into the in-cluster predictors, destinations can decide on a set of governance priorities of more direct relevance to competitiveness inside one's own competitive set.

6. Conclusions

The article started by giving an overview of the literature on destination competitiveness, the predictors of destination competitiveness and sustainability and of destination planning, development and governance. It then presented an exhaustive overview of approaches to measuring destination competitiveness and sustainability—from the number of indicators used (observable variables), concepts used to classify the indicators (non-observable mediating variables) and methodology used to the analysis of the data collected. There are both inductive and deductive approaches in this research field, but the main weakness in inductive approaches seems to be the creation of one single model of destination competitiveness to be applied to all destinations, usually by applying PCA (principal component analysis). This statistical method is rather a dimension reduction method than a proper clustering method. In order to fill the research gap and answer the first research question, this research deployed a novel method—a two-step cluster analysis—and identified two major global types of destination competitiveness—one for more developed destinations and the other for less developed destinations. The created model gives a comprehendible list of major predictors for belonging to either one of the two competitive sets, thereby answering the second research question. The model also provides a within-cluster importance rank for both competitive sets, thereby answering the third research question. In this way, a very usable and action-oriented model was created for both academicians and destination managers to be used in further research globally. The identified predictors can provide the most important factors of moving the destination from a lower-level development to a higher-level development. In practice, this would usually mean either development or consolidation for an already developed destination that has experienced a downturn.

The major limitation of this study relates to the methodological problems when attempting to aggregate large amounts of data from different fields of society. The second limitation relates to the induced model with two major types of destination competitiveness and sustainability, as it is inevitably a logical simplification of the reality of global destinations. Although it can be useful for starting a discussion on major types of global destination competitiveness, sustainability and governance arrangements, it is still far from identifying all boundary conditions and outcomes of successful destination development. Another important issue is that some important indicators from the literature (e.g., air quality) are not included in this list, but have been demonstrated to be of great importance in many destinations. This is why contingencies regarding the application of the model in different regional, national or local contexts should be further identified and analyzed with the help of other research methods.

The major goal of the study was to contribute to the literature on destination governance, by deploying a novel method for creating a destination typology based on stakeholder prioritization by extracting major predictors of belonging to each one of the two types: developed and developing destinations. Further research should concentrate on extracting further specific governance types according to specific geographic areas, narrower competitive sets and other aspects of destination governance, beyond stakeholders—power relations, governance structures or processes.

This novel methodological analysis approach to destination competitiveness strengthens the indicator-driven policy analysis by creating a reference model with two different destination types. This is of relevance for both academics as well as practitioners. Furthermore, the results demonstrate the importance of making a distinction between developed and developing destinations when considering different competitiveness and sustainability models. The results also enable the creation of weighing schemes to more precisely measure destination competitiveness and sustainability in different contexts.

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References

1. Pechlaner, H.; Zacher, D.; Eckert, C.; Petersik, L. Joint responsibility and understanding of resilience from a DMO perspective—An analysis of different situations in Bavarian tourism destinations. *Int. J. Tour. Cities* **2018**, *5*, 146–168. [CrossRef]
2. Paunović, I.; Jovanović, V. Implementation of Sustainable Tourism in the German Alps: A Case Study. *Sustainability* **2017**, *9*, 226. [CrossRef]
3. Pechlaner, H.; Volgger, M.; Zehrer, A. Tourismus und Wissenschaft oder Tourismuswissenschaft? Ein weiterer Erklrungsversuch. In *Tourismus und Wissenschaft: Wirtschaftliche, Politische und Gesselschaftliche Perspektiven*; Pechlaner, H., Zehrer, A., Eds.; Erich Schmidt Verlag: Berlin, Germany, 2017.
4. Saarinen, J. The Transformation of a Tourist Destination—Theory and Case Studies on the Production of Local Geographies in Tourism in Finnish Lapland. *Nordia Geographical Publications* **2001**, *30*, 105.
5. Jafari, J. The Scientification of Tourism. In *Hosts and Guests Revisited: Tourism Issues of the 21st Century*; Cognizant: New York, NY, USA, 2001; pp. 28–41.
6. Assaf, A.G.; Josiassen, A. Identifying and Ranking the Determinants of Tourism Performance. *J. Travel Res.* **2011**, *51*, 388–399. [CrossRef]
7. Crotti, R.; Misrahi, T. *The Travel & Tourism Competitiveness Report 2017*; World Economic Forum: Cologny, Switzerland, 2017.
8. Crotti, R.; Misrahi, T. *The Travel & Tourism Competitiveness Report 2015*; World Economic Forum: Cologny, Switzerland, 2015.
9. Dwyer, L.; Kim, C. Destination Competitiveness: Determinants and Indicators. *Curr. Issues Tour.* **2003**, *6*, 369–414. [CrossRef]
10. Crouch, G.I. Destination Competitiveness: An Analysis of Determinant Attributes. *J. Travel Res.* **2010**, *50*, 27–45. [CrossRef]
11. Alebaki, M.; Koutsouris, A. Wine Tourism Destinations Across the Life-Cycle: A Comparison of Northern Greece, Peloponnese and Crete. In *Wine Tourism Destination Management and Marketing*; Palgrave Macmillan: London, UK, 2019; pp. 463–482.
12. Butler, R.W.E. *The Tourism Area Life Cycle, Vol. 1: Applications and Modifications*; Channel View Publications: Clevedon, UK, 2006.
13. Buhalis, D. Marketing the competitive destination of the future. *Tour. Manag.* **2000**, *21*, 97–116. [CrossRef]
14. Dictionary, C. Competition: Meaning in the Cambridge English Dictionary. Available online: https://dictionary.cambridge.org/de/worterbuch/englisch/competition (accessed on 20 February 2020).
15. Porter, M.E. *Competitive Advantage: Creating and Sustaining Superior Performance*; The Free Press: New York, NY, USA, 1985; p. 557.
16. Teodorovic, M.; Popesku, J. Serbia's competitive position in the regional tourism destination market. *Eur. J. Appl. Econ.* **2017**, *14*, 1–12. [CrossRef]
17. Popesku, J.; Pavlović, D. Competitiveness of Serbia as a tourist destination: Analysis of selected key indicators. *Marketing* **2013**, *44*, 199–210. [CrossRef]
18. Sheng, L. Regional Competition and Sustainable Development: A Game Theory Model for Tourism Destinations. *Eur. Plan. Stud.* **2011**, *19*, 669–681. [CrossRef]
19. Knežević Cvelbar, L.; Dwyer, L.; Koman, M.; Mihalič, T. Drivers of Destination Competitiveness in Tourism. *J. Travel Res.* **2016**, *55*, 1041–1050. [CrossRef]
20. Crouch, G.I.; Ritchie, J.R.B. *The Competitive Destination: A Sustainable Tourism Perspective*; Cabi Publishing: Cambridge, UK, 2003.
21. Porter, M.E. *On Competition*; The Harvard Business Review: Boston, MA, USA, 1998.
22. Ritchie, J.R.; Crouch, G.I. Competitiveness in International Tourism: A Framework for Understanding and Analysis. In Proceedings of the 43th Congress of Association Internationale D'Experts Scientique de Tourisme, San Carlos de Bariloche, Argentina, 17–23 October 1993; AIEST: San Carlos de Bariloche, Argentina, 1993.
23. Porter, M.E. Towards a dynamic theory of strategy. *Strateg. Manag. J.* **1991**, *12*, 95–117. [CrossRef]
24. Smith, A. *An Inquiry into the Nature and Causes of the Wealth of Nations*, 5th ed.; Methuen and Co.: London, UK, 1776.
25. Kozak, M. Destination benchmarking. *Ann. Tour. Res.* **2002**, *29*, 497–519. [CrossRef]

26. Fuchs, M.; Weiermair, K. Destination Benchmarking: An Indicator-System's Potential for Exploring Guest Satisfaction. *J. Travel Res.* **2016**, *42*, 212–225. [CrossRef]
27. Zlatkovic, M. Tourism Destination Benchmarking Analysis. *Eur. J. Multidiscip. Stud.* **2016**, *1*, 283–293. [CrossRef]
28. Lusticky, M.; Kincl, T. Tourism Destination Benchmarking: Evaluation and Selection of the Benchmarking Partners. *J. Compet.* **2012**, *4*, 99–116. [CrossRef]
29. Müller, H.; Berger, P. Benchmarking for destination management organizations: The case of Swiss cities and Alpine destination management. *Tour. Rev.* **2012**, *67*, 26–39. [CrossRef]
30. Bogan, C.E.; English, M.J. *Benchmarking for Best Practices: Winning through Innovative Adoption*; McGraw-Hill: New York, NY, USA, 1994.
31. Medina-Munoz, D.; Medina-Munoz, R.; Chim-Miki, A. Tourism competitiveness assessment: The current status of research in Spain and China. *Tour. Econ.* **2013**, *19*, 297–318. [CrossRef]
32. Gilbert, D. Strategic marketing planning for national tourism. *Tour. Rev.* **1990**, *1*, 18–27. [CrossRef]
33. Waligo, V.M.; Clarke, J.; Hawkins, R. Implementing sustainable tourism: A multi-stakeholder involvement management framework. *Tour. Manag.* **2013**, *36*, 342–353. [CrossRef]
34. Hall, C.M. Changing paradigms and global change: From sustainable to steady-state tourism. *Tour. Recreat. Res.* **2010**, *35*, 131–143. [CrossRef]
35. Brida, J.G.; Osti, L.; Barquet, A. Segmenting Resident Perceptions towards Tourism-a Cluster Analysis with a Multinmial Logit Model of a Mountain Community. *Int. J. Tour. Res.* **2010**, *12*, 591–602.
36. Hall, C.M. Degrowing tourism: Decroissance, sustainable consumption and steady-state tourism. *Anatol. Int. J. Tour. Hosp. Res.* **2009**, *20*, 46–61. [CrossRef]
37. Shunnaq, M.; Schwab, W.A.; Reid, M.F. Community Development Using a Sustainable Tourism Strategy: A Case Study of the Jordan River Valley Touristway. *Int. J. Tour. Res.* **2008**, *10*, 1–14. [CrossRef]
38. Pechlaner, H.; Herntrei, M.; Kofink, L. Growth strategies in mature destinations: Linking spatial planning with product development. *Tour. Rev.* **2009**, *57*, 285–307.
39. Goffi, G.; Cucculelli, M. Components of destination competitiveness. The case of small tourism destinations in Italy. *Int. J. Tour. Policy* **2014**, *5*, 296–326. [CrossRef]
40. Podovac, M.; Đorđević, N.; Milićević, S. Rural tourism in the function of life quality improvement of rural population on Goč mountain. *Ekon. Poljopr.* **2019**, *66*, 205–220. [CrossRef]
41. Henderson, J.C. Tourism in Dubai: Overcoming barriers to destination development. *Int. J. Tour. Res.* **2006**, *8*, 87–99. [CrossRef]
42. Prideaux, B. *Resort Destinations-Evolution, Management and Development*; Elsevier: Oxford, UK, 2009.
43. Romao, J.; Nijkamp, P. Impacts of innovation, productivity and specialization on tourism competitiveness—A spatial econometric analysis on European regions. *Curr. Issues Tour.* **2019**, *22*, 1150–1169. [CrossRef]
44. Moutinho, N.; Pritchard, A.; Pride, R. Futurecast: An exploration of key emerging megatrends in the tourism arena. In *Trends in European Tourism Planning and Organisation*; Costa, C., Panyik, E., Buhalis, D., Eds.; Channel View Publications: Bristol, UK, 2013; pp. 313–325.
45. Mamula, T.; Peric, N.; Vujic, N. The Contribution of Innovative Leadership Style as an Answer to Global and Business Changes. *Qual. Acess Success* **2019**, *20*, 9–14.
46. Bonadonna, A.; Giachino, C.; Truant, E. Sustainability and Mountain Tourism: The Millennial's Perspective. *Sustainability* **2017**, *9*, 1219. [CrossRef]
47. Nowak, L.I.; Bruwer, J.; Newton, S. Using winery web sites to launch relationships with Millennials. *Int. J. Wine Bus. Res.* **2008**, *20*, 53–67. [CrossRef]
48. Elliot, S.; Barth, J. Wine label design and personality preferences of millennials. *J. Prod. Brand Manag.* **2012**, *21*, 183–191. [CrossRef]
49. Higgins, L.; Wolf, M.M. Millennials as luxury wine buyers in the United States? *Int. J. Wine Bus. Res.* **2016**, *28*, 190–205. [CrossRef]
50. Goffi, G.; Cucculelli, M.; Masiero, L. Fostering tourism destination competitiveness in developing countries: The role of sustainability. *J. Clean. Prod.* **2019**, *209*, 101–115. [CrossRef]
51. Armenski, T.; Dwyer, L.; Pavluković, V. Destination Competitiveness: Public and Private Sector Tourism Management in Serbia. *J. Travel Res.* **2017**, *57*, 384–398. [CrossRef]

52. Dwyer, L.; Dragićević, V.; Armenski, T.; Mihalic, T.; Knezevic Cvelbar, L. Achieving destination competitiveness: An importance-performance analysis of Serbia. *Curr. Issues Tour.* **2014**, *19*, 1309–1336. [CrossRef]
53. Paunović, I.; Jovanović, V. Sustainable mountain tourism in word and deed: A comparative analysis in the macro regions of the Alps and the Dinarides. *Acta Geogr. Slov.* **2019**, *59*, 59–69. [CrossRef]
54. Middleton, V.T.C. Sustainable tourism: A marketing perspective. In *Tourism Sustainability: Principles to Practice*; CAB International: Wallingford, UK, 1997; pp. 129–142.
55. Mihalič, T. Environmental management of a tourist destination. *Tour. Manag.* **2000**, *21*, 65–78. [CrossRef]
56. Stojanović, M.; Regodić, D.; Jovanović, V. Emisija zagađujućih materija i primena GIS—A. In Proceedings of the Synthesis 2015-International Scientific Conference of IT and Business-Related Research, Belgrade, Serbia, 16 April 2015; pp. 608–614.
57. Łapko, A.; Panasiuk, A.; Strulak-Wójcikiewicz, R.; Landowski, M. The State of Air Pollution as a Factor Determining the Assessment of a City's Tourist Attractiveness—Based on the Opinions of Polish Respondents. *Sustainability* **2020**, *12*, 1466. [CrossRef]
58. Zhang, A.; Zhong, L.; Xu, Y.; Wang, H.; Dang, L. Tourists' Perception of Haze Pollution and the Potential Impacts on Travel: Reshaping the Features of Tourism Seasonality in Beijing, China. *Sustainability* **2015**, *7*, 2397–2414. [CrossRef]
59. Paunović, I. Serbian City Tourism: Benchmarking Indicators of Sustainable Tourism for Competitive and Sustainable Development. *Izv. Volggtu* **2016**, *180*, 56–64.
60. Bulatović, I.; Stranjančević, A. Tourist Satisfaction Montenegro: Destination Management Quality Indicator. *Int. J. Qual. Res.* **2018**, *13*, 33–46. [CrossRef]
61. Ribic, B.; Voca, N.; Ilakovac, B. Concept of sustainable waste management in the city of Zagreb: Towards the implementation of circular economy approach. *J. Air Waste Manag. Assoc.* **2017**, *67*, 241–259. [CrossRef] [PubMed]
62. Ilic, M.; Nikolic, M. Waste Management benchmarking: A case study of Serbia. *Habitat Int.* **2016**, *53*, 453–460. [CrossRef]
63. Dredge, D.; Jamal, T. Mobilities on the Gold Coast, Australia: Implications for destination governance and sustainable tourism. *J. Sustain. Tour.* **2013**, *21*, 557–579. [CrossRef]
64. Angella, F.D.; De Carlo, M.; Sainaghi, R. Archetypes of destination governance: A comparison of international destinations. *Tour. Rev.* **2010**, *65*, 61–73. [CrossRef]
65. Guo, Y.; Jiang, J.; Li, S. A Sustainable Tourism Policy Research Review. *Sustainability* **2019**, *11*, 3187. [CrossRef]
66. Case, P.; Evans, L.S.; Fabinyi, M.; Cohen, P.J.; Hicks, C.C.; Prideaux, M.; Mills, D.J. Rethinking environmental leadership: The social construction of leaders and leadership in discourses of ecological crisis, development, and conservation. *Leadership* **2015**, *11*, 396–423. [CrossRef]
67. Moscardo, G. Exploring social representations of tourism planning: Issues for governance. *J. Sustain. Tour.* **2011**, *19*, 423–436. [CrossRef]
68. Conceição, C.C.; Dos Anjos, F.A.; Gadotti dos Anjos, S.J. Power Relationship in the Governance of Regional Tourism Organizations in Brazil. *Sustainability* **2019**, *11*, 3062. [CrossRef]
69. Cristofaro, M.; Leoni, L.; Baiocco, S. Promoting Co-Evolutionary Adaptations for Sustainable Tourism: The "Alpine Convention" Case. *Tour. Plan. Dev.* **2019**, 1–20. [CrossRef]
70. Siakwah, P.; Musavengane, R.; Leonard, L. Tourism Governance and Attainment of the Sustainable Development Goals in Africa. *Tour. Plan. Dev.* **2019**, 1–29. [CrossRef]
71. Borin, E.; Paunovic, I. The Case of Louvre-Lens: Regional Regeneration Through Cultural Innovation. In *SITCON 2015*; Singidunum University: Belgrade, Serbia, 2015; pp. 248–251.
72. Hassan, A.; Kennell, J.; Chaperon, S. Rhetoric and reality in Bangladesh: Elite stakeholder perceptions of the implementation of tourism policy. *Tour. Recreat. Res.* **2020**, 1–16. [CrossRef]
73. Chaperon, S. Tourism industry responses to public-private partnership arrangements for destination management organisations in small island economies: A case study of Jersey, Channel Islands. *Int. J. Tour. Policy* **2017**, *7*, 23–41.
74. Borin, E.; Donato, F. Unlocking the potential of IC in Italian cultural ecosystems. *J. Intellect. Cap.* **2015**, *16*, 285–304. [CrossRef]
75. Nadalipour, Z.; Imani Khoshkhoo, M.H.; Eftekhari, A.R. An integrated model of destination sustainable competitiveness. *Compet. Rev. Int. Bus. J.* **2019**, *29*, 314–335. [CrossRef]

76. Arrona, A.; Franco, S.; Wilson, J.R. Public innovation through governance in place-based competitiveness policymaking. *Compet. Rev. Int. Bus. J.* **2020**, *30*, 119–136. [CrossRef]
77. Restrepo, N.; Anton Clavé, S. Institutional Thickness and Regional Tourism Development: Lessons from Antioquia, Colombia. *Sustainability* **2019**, *11*, 2568. [CrossRef]
78. Farinha, F.; Oliveira, M.; Silva, E.; Lança, R.; Pinheiro, M.; Miguel, C. Selection Process of Sustainable Indicators for the Algarve Region—Observe Project. *Sustainability* **2019**, *11*, 444. [CrossRef]
79. Yanes, A.; Zielinski, S.; Diaz Cano, M.; Kim, S.-I. Community-Based Tourism in Developing Countries: A Framework for Policy Evaluation. *Sustainability* **2019**, *11*, 2506. [CrossRef]
80. Dos Anjos, F.A.; Kennell, J. Tourism, Governance and Sustainable Development. *Sustainability* **2019**, *11*, 4257. [CrossRef]
81. Teece, D.J. Business models and dynamic capabilities. *Long Range Plan.* **2018**, *51*, 40–49. [CrossRef]
82. Posen, H.A. Ridesharing in the Sharing Economy: Should Regulators Impose Über Regulations on Uber? *Iowa Law Rev.* **2016**, *101*, 405–433.
83. Labrecque, L.I.; vor dem Esche, J.; Mathwick, C.; Novak, T.P.; Hofacker, C.F. Consumer Power: Evolution in the Digital Age. *J. Interact. Mark.* **2013**, *27*, 257–269. [CrossRef]
84. Guttentag, D. Airbnb: Disruptive innovation and the rise of an informal tourism accommodation sector. *Curr. Issues Tour.* **2013**, *18*, 1192–1217. [CrossRef]
85. Byrd, E.T. Stakeholders in Sustainable Tourism Development and their Roles: Applying Stakeholder Theory to Sustainable Tourism Development. *Tour. Rev.* **2007**, *62*, 6–13. [CrossRef]
86. Mihalic, T. Sustainable-responsible tourism discourse- towards responsble tourism. *J. Clean. Prod.* **2016**, *111*, 461–470. [CrossRef]
87. Cardenas-Garcia, P.J.; Sanchez-Rivero, M.; Pulido-Fernandez, J.I. Does Tourism Growth Influence Economic Development? *J. Travel Res.* **2015**, *54*, 206–221. [CrossRef]
88. Yasarata, M.; Altinay, L.; Burns, P.; Okumus, F. Politics and Sustainable Tourism Development-Can They Co-Exist? Voices from North Cyprus. *Tour. Manag.* **2010**, *31*, 345–356. [CrossRef]
89. Akama, J.S.; Kieti, D. Tourism and Socio-economic Development in Developing Countries: A Case Study of Mombasa Resort in Kenya. *J. Sustain. Tour.* **2007**, *15*, 735–748. [CrossRef]
90. Tosun, C.; Jenkins, C.L. The Evolution of Tourism Planning in Third-World Countries: A Critique. *Prog. Tour. Hosp. Res.* **1998**, *4*, 101–114. [CrossRef]
91. Goffi, G.; Cucculelli, M. Explaining tourism competitiveness in small and medium destinations: The Italian case. *Curr. Issues Tour.* **2018**, *22*, 2109–2139. [CrossRef]
92. Dwyer, L.; Mellor, R.; Livaic, Z.; Edwards, D.; Kim, C. Attributes of Destination Competitiveness: A Factor Analysis. *Tour. Anal.* **2004**, *9*, 91–101. [CrossRef]
93. Drakulić Kovačević, N.; Kovačević, L.; Stankov, U.; Dragićević, V.; Miletić, A. Applying destination competitiveness model to strategic tourism development of small destinations: The case of South Banat district. *J. Destin. Mark. Manag.* **2017**, *8*, 114–124. [CrossRef]
94. Cucculelli, M.; Goffi, G. Does sustainability enhance tourism destination competitiveness? Evidence from Italian Destinations of Excellence. *J. Clean. Prod.* **2016**, *111*, 370–382. [CrossRef]
95. Zehrer, A.; Smeral, E.; Hallmann, K. Destination Competitiveness—A Comparison of Subjective and Objective Indicators for Winter Sports Areas. *J. Travel Res.* **2016**, *56*, 55–66. [CrossRef]
96. Hallmann, K.; Müller, S.; Feiler, S.; Breuer, C.; Roth, R. Suppliers' perception of destination competitiveness in a winter sport resort. *Tour. Rev.* **2012**, *67*, 13–21. [CrossRef]
97. Crouch, G.I. Measuring tourism competitiveness: Research, theory and the WEF index. In Proceedings of the ANZMAC Annual Conference: Australia New Zealand Marketing Academy, University of Otago, Dunedin, New Zealand, 3–5 December 2007.
98. Sarstedt, M.; Mooi, E. *A Concise Guide to Market Research the Process, Data, and Methods Using IBM SPSS Statistics*; Springer: Berlin/Heidelberg, Germany, 2014.
99. Báez-García, A.J.; Flores-Muñoz, F.; Gutiérrez-Barroso, J. Maturity in competing tourism destinations: The case of Tenerife. *Tour. Rev.* **2018**, *73*, 359–373. [CrossRef]
100. Franch, M.; Martini, U.; Buffa, F.; Parisi, G. 4L tourism (landscape, leisure, learning and limit): Responding to new motivations and expectations of tourists to improve the competitiveness of Alpine destinations in a sustainable way. *Tour. Rev.* **2008**, *63*, 4–14. [CrossRef]

101. Sidor, C.; Kršák, B.; Štrba, L. Identification of Distorted Official Hospitality Statistics' and Their Impact on DMOs' Funding's Sustainability: Case Notes from Slovakia. *Sustainability* **2019**, *11*, 1084. [CrossRef]
102. Farmaki, A.; Antoniou, K.; Christou, P. Visiting the "enemy": Visitation in politically unstable destinations. *Tour. Rev.* **2019**, *74*, 293–309. [CrossRef]
103. Paunovic, I. Branding Serbia as a Tourist Destination on the Global Market. *Turizam* **2014**, *18*, 59–71. [CrossRef]
104. Gould, M. Branding a post-conflict destination: Northern Ireland. In *Destination Brands-Managing Place Reputation*; Butterworth-Heinemann (An Imprint of Elsevier): Oxford, UK, 2011; pp. 321–333.
105. Bunja, D. Modernizing the Croatian tourism industry. *Int. J. Contemp. Hosp. Manag.* **2003**, *15*, 126–128. [CrossRef]
106. Sirse, J.; Mihalic, T. Slovenian tourism and tourism policy: A case study. *Tour. Rev.* **1999**, *54*, 34–47. [CrossRef]
107. Pirjevec, B. Creating post-war tourist destination image. *Acta Tour.* **1998**, *10*, 95–109.
108. Wilson, P. *Northern Ireland at the Smithsonian: Report on Participation in the 41st Smithsonian Folklife Festival*; Department for Culture, Arts and Leisure: Northern Ireland, UK, 2008.
109. Reinhold, S.; Laesser, C.; Beritelli, P. 2014 St. Gallen Consensus on destination management. *J. Destin. Mark. Manag.* **2014**, *4*, 137–142. [CrossRef]
110. Reinhold, S.; Laesser, C.; Beritelli, P. The 2016 St. Gallen Consensus on Advances in Destination Management. *J. Destin. Mark. Manag.* **2018**, *8*, 426–431. [CrossRef]
111. Tosun, C. Challenges of Sustainable Tourism Development in the Developing World: The Case of Turkey. *Tour. Manag.* **2001**, *22*, 289–303. [CrossRef]
112. Niñerola, A.; Sánchez-Rebull, M.-V.; Hernández-Lara, A.-B. Tourism Research on Sustainability: A Bibliometric Analysis. *Sustainability* **2019**, *11*, 1377. [CrossRef]

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Structure and Formation Mechanism of China-ASEAN Tourism Cooperation

Jie Yin [1], Yahua Bi [2,*] and Yingchao Ji [1]

[1] College of Tourism, Huaqiao University, Quanzhou 362021, China; yinjie@hqu.edu.cn (J.Y.); JJuly717@163.com (Y.J.)
[2] Department of Tourism and Convention, Pusan National University, Busan 46241, Korea
* Correspondence: yahuabi@pusan.ac.kr; Tel.: +82-10-9584-0831

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Abstract: Tourism cooperation is an essential element for tourism development in China-ASEAN countries and has made a significant economic contribution to destinations. This study investigates the structure of tourism cooperation in China-ASEAN relations and identifies a set of factors that affect tourism cooperation from a network perspective. By employing social network analysis, the results indicate that the scale of cooperation is small, and the efficiency is not high, although the restrictions on cooperation between countries are reduced. The findings also indicate that differences in the political system, security, population density, and language can promote tourism cooperation, while differences in governance, income, and consumption level impede tourism cooperation. The research results may assist China-ASEAN countries to formulate tourism strategies suitable for international cooperation and national differences.

Keywords: tourism cooperation; China-ASEAN; cooperation structure; driving factors; regional tourism

1. Introduction

With the in-depth development of tourism, competition in the tourism market is becoming increasingly fierce [1]. Under the complex and competitive atmosphere, tourism cooperation, as an important element for tourism destinations to obtain competitiveness [2], has become a vital consideration for practitioners and scholars. Morrison et al. [3] pinpointed that various countries utilize partnerships to develop tourism, indicating that tourism cooperation becomes an organization's preference [4,5]. As such, tourism cooperation is regarded as an important approach to promote the sustainable development of tourism [6]. Researchers have examined the issues surrounding tourism cooperation in various industries [7–9], such as sport industries [10] and forest, mining, and tourism industries [11]. In the context of tourism, scholars mentioned that tourism cooperation can be explored through the cooperation network [5].

The cooperation network is identified as a coherent pattern of interactions and interconnections between organizations, as opposed to such organizations being isolated in the system [5,12]. In particular, through the cooperation network, organizations collaborate to obtain mutual benefits and win-win results [9,13]. The network, as a concept, has been widely adopted in international tourism [9,14].

However, although cooperation projects related to international tourism have been launched globally [15,16], international tourism cooperation networks of these projects have been ignored to a certain extent [3]. It is unclear how international tourism cooperation projects interact, especially from a perspective of the network structure. Concerning these successful tourism cooperation projects, it is necessary to interpret the characteristics of tourism cooperation and the factors that influence tourism cooperation.

The Association of Southeast Asian Nations (ASEAN, including Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Vietnam), a well-known cooperation project, is experiencing a boom in both foreign and domestic tourism with tourism becoming one of its foremost industries [17]. Tourism is one of the main priority sectors for ASEAN [18]. Furthermore, the ASEAN National Tourism Organizations (ASEAN NTOs) formulated a plan of action for ASEAN cooperation in tourism. The issues for the tourism cooperation of ASEAN have drawn increasing attention. Issues of tourism demand [19–21], tourism flows [22], cooperation trends and prospects [23], intergovernmental collaboration [24], supranationalist alliances [25] and the preconditions and policy framework [26] of tourism cooperation in ASEAN have been done in the past. Additionally, as an important partner and neighboring country of ASEAN, since 2012, China has become the source of the largest outbound tourism globally [27] and one of the world's major recipients of tourists [28] with the number of inbound visitors expanding enormously. China has conducted cooperation with ASEAN in different fields, such as trade [29,30], security [31], economic [32] education [33] and tourism [18,22,34–36].

What is more, for ASEAN countries, the most important goal is to maintain close and beneficial cooperation with each other [19], especially tourism cooperation that brings huge economic benefits. Beritelli [2] suggested that it is effective to identify the codependent relationship between partners from the network perspective to induce cooperative behaviors. However, given the research on the tourism cooperation of ASEAN, relatively little research has explored how tourism cooperation is formed and what are the characteristics of tourism cooperation. Within this context, strengthening tourism cooperation with China can achieve close cooperation in China-ASEAN relations. Therefore, this research complements previous research on China-ASEAN by exploring the structure of their tourism cooperation with its characteristics and relationships, and investigating the driving factors and formation mechanism while deconstructing the tourism cooperation from the network perspective.

To accomplish it goals, this research adopts social network analysis (SNA) to examine tourism cooperation. First, this study elucidated the cooperation structure while exploring the essential characteristics of China-ASEAN tourism cooperation by taking overall characteristics and individual characteristics into account from 1998 to 2017 (The reason for choosing this period is that various events affect international tourism cooperation during this period. In 1967, ASEAN was formally established. ASEAN membership reached nine countries in 1997 and ten countries in 1999. In 2001, China joined the world trade organization. SARS broke out in 2003, the global financial crisis broke out in 2009, and the Belt and Road Initiative (BRI) was put forward in 2013. To comprehensively analyze the structure, characteristics and formation factors of China-ASEAN tourism cooperation, the years before and after the formation of the 10 countries as well as the years that affect tourism cooperation by international events were included in the research period). Second, this study explained the reasons that such a characteristic cooperative network is formed by investigating what the essential driving factors are affecting the tourism cooperation network (The driving factors affecting tourism cooperation networks would be explored by employing Quadratic Assignment Procedure (QAP) analysis, which was introduced in detail in the following context).

In summary, the China-ASEAN relations in the current study provide an excellent research context for understanding tourism cooperation. This study also provides two important contributions to the tourism literature: (1) This study shows the essential factors that affect tourism cooperation. In detail, differences in terms of income, governance, and consumption level have negative effects on cooperation networks presently, whereas differences in population density, security, and the political system promote cooperation networks. The findings enhance the comprehension of tourism cooperation in the China-ASEAN network. (2) This study clarifies the structure of tourism cooperation in China-ASEAN and provides valuable references for increasing tourism benefits and establishing new strategic plans. Overall, figuring out the structure and examining the influencing factors of tourism cooperation in China-ASEAN countries helps remove cooperation obstacles, optimize cooperation structure, and promote sustainable tourism cooperation among China-ASEAN countries. Therefore,

the findings of this research will contribute to a deeper and more valuable understanding of international tourism cooperation.

2. Literature Review

2.1. Tourism Cooperation Network

Tourism cooperation enhances regional relations and drives regional economic development; as such, tourism cooperation is regarded as an effective way for the sustainable development of tourism [5,37,38]. Considering the vital role of tourism cooperation, past research has investigated tourism cooperation on travel behaviors [39], tourism establishments [5], and tourist movement patterns [40,41].

Tourism development is accompanied by fierce competition [42]; therefore, scholars emphasized that the issues related to tourism cooperation need to be addressed [43–45]. Early research on tourism cooperation mainly focused on cooperation obstacles, opportunities, strategies, and methods [34,35,43,45,46]. Jamal and Getz [43] proposed the principles for urban tourism cooperation from a planning view. Cetinski and Weber [45] explored the possibility of establishing sound cooperation among the multinational tourism markets. Elliott [47] analyzed the measures on cooperative management among administrations. Bramwell and Angela [44] proposed a framework for tourism cooperation decision making.

Additionally, the advancements of transportation and globalization have promoted tourist flows, thus forming a diversified tourism phenomenon. Then, the network theory and network science approaches [48,49] were introduced into tourism to reveal the complex tourism phenomenon. According to network theory and network science, a network describes organizations aligning together to form inter-organizational networks or a type of flexibly designed network structure [50]. In other words, the network refers to a special structure consisting of different actors or organizations and their connections with others. Chung et al. [51] employed the social network analysis approach to reveal that global tourism networks have become highly consolidated. Provenzano and Baggio [52] also found that Sicily has a complex destination structure through inbound tourism. Yi et al. [53] observed that the networks in village tourism committees in China are diffuse. Due to the advantages of revealing connections and structure, the network science approach has been widely employed in tourism cooperation.

The network has been adopted in various tourism studies [9]. Past studies have been interested in tourism destination cooperation [54], tourism enterprise cooperation [55], and tourism geography cooperation [56]. Tourists move on a worldwide scale currently and construct a heterogeneous and complicated network [57]. However, little research focuses on international tourism cooperation, indicating that international tourism cooperation networks are still a relatively neglected area [3]. To bridge the research gap, this study investigates cross-border tourism cooperation from the network perspective.

2.2. Research Context: China-ASEAN

Even though tourism cooperation in the China-ASEAN counties has become close and frequent, academic studies related to intergovernmental collaboration in tourism among China-ASEAN counties seemingly remain few in number [26]. Chirathivant [23] discussed the trends and prospects of ASEAN-India tourism cooperation. Chang, Khamkaew, Tansuchat and McAleer [20] applied a multivariate conditional volatility model to investigate the interdependence of international tourism demand and encouraged regional cooperation in tourism development among ASEAN member countries. In recent years, tourism cooperation among ASEAN countries has made some progress. For Thailand, the number of tourists to Thailand from ASEAN countries and Thailand's foreign exchange earnings saw an average growth rate of more than 10% [58].

Despite ASEAN countries having numerous opportunities for tourism cooperation, they still face various challenges [24,59]. Koh and Kwok [59] assessed the progress undertaken by the ASEAN establishment in terms of tourism development and evaluated the possible challenges of such intra-regional cooperation. To promote tourism cooperation, Wong, Mistilis and Dwyer [24] explored the factors that facilitated and hindered progress for tourism cooperation in ASEAN and identified that the lack of implementation of tourism integration has hindered the promotion of tourism cooperation. Then researchers explained the preconditions that gave rise to ASEAN tourism and the formulation of the policy framework [26]. Based on the promotion factors, obstacles, and prerequisites of tourism cooperation, the mechanism of ASEAN tourism collaboration [60] were displayed.

Given the lack of analysis of tourism cooperation from an empirical perspective, it is crucial to understand the tourism cooperation relationships between China-ASEAN counties. More importantly, China-ASEAN countries need to promote the sustainable growth of tourism [61]. Thus, this paper focuses on the tourism cooperation of China-ASEAN and intends to reveal the characteristics of tourism cooperation.

2.3. Determinants of Tourism Cooperation in China-ASEAN and Hypothesis

Even though the previous studies investigated certain issues on tourism cooperation of China-ASEAN, there seems to be a lack of experimental testing of the determinants of collaboration. Thus, this paper makes efforts to empirically examine the determinants of tourism cooperation. Concerning the factors affecting international tourism cooperation, Czernek [8] proposed some main issues, including exogenous factors (i.e., economic, income, political changes), endogenous factors (i.e., cost, level of tourism development, geographical distance, and political changes), and global factors (i.e., global environment). Wong, Mistilis and Dwyer [26] argued that political, social, and economic development alongside variations may be the preconditions for tourism cooperation of China-ASEAN. Curiosity is one of the main motivations of tourists [62], which means the difference between the source country of tourists and the destination country is an important reason for tourists to form international tourism activities. Additionally, the premise of cooperation is that partners can complement each other [32]. Based on the aforementioned discussion, we argue that the difference may be the basis of tourism cooperation. Therefore, according to the influencing factors of tourism cooperation, we aim to investigate and empirically test how these factors affect the tourism cooperation in China-ASEAN from the perspective of differences.

(1) Political system difference (PSD): Numerous studies have pointed out that political factors can influence the development of tourism [63–66]. For ASEAN countries, political factors have greatly affected the development of tourism [67–69]. The political system is the comprehensive embodiment of political factors and the cohesion of a country's political factors. Differences in the political system could lead to great differences in policies and development directions, which may make cooperation between the two countries difficult to occur. Based on the above analysis, the hypothesis was posited below:

Hypothesis 1. *The difference in the political system negatively affects tourism cooperation in China-ASEAN.*

(2) Governance difference (GD): Governance is a key concept in politics and public policy [70], which reflects the government's comprehensive measures on a series of issues including industry, society, and livelihood. For tourism, governance capacity is an important guarantee for tourism development [71,72]. If the governance of a country is high, there is a positive environmental benefit for its tourism industry. Therefore, we argue that the great difference in governance between the two countries may result in a huge difference in the environment for the tourism industry. The difference in the tourism industry development may restrict the complementary advantages of limiting tourism cooperation. Accordingly, the relationship between governance difference and tourism cooperation is postulated as follows:

Hypothesis 2. *The difference in governance negatively affects tourism cooperation in China-ASEAN.*

(3) Income difference (ID): Tourism activities need the support of discretionary income [35]. Moreover, income represents a country's economic development level to some extent. As for international tourism activities, tourist flows are affected by numerous economic factors, such as price, income, and exchange rate [36,73–76]. In general, most countries may be reluctant to cooperate with countries with weak economies. Hence, in this situation, tourism cooperation between the two countries may be weak. If there is a big income difference between countries, tourist flows between them are difficult. Thus, we propose that:

Hypothesis 3. *Income difference negatively affects tourism cooperation in China-ASEAN.*

(4) Consumption level difference (CLD): In essence, tourism is a consumption activity, which is largely influenced by the consumption level of destination [77]. The higher the consumption level in the destination country is, the higher the cost for foreign tourists to travel in the country. However, the travel cost would affect the demand for travel [78]. Therefore, we claim that the difference in consumption level may restrict tourists' demand, which is negative for tourism cooperation. Based on the above discussion, it is hypothesized that:

Hypothesis 4. *Consumption level difference negatively affects tourism cooperation in China-ASEAN.*

(5) Security difference (SD): A safe destination environment is an important basis for tourists to travel to that destination [79]. Generally, tourists would not go to unsafe destinations. For tourism cooperation, crime rates are important problems that ASEAN countries currently face in the tourism industry [19]. Therefore, it is suggested that tourists travel to countries with low crime rates. This means that the greater the security difference, the more likely tourists travel, which leads to the following hypothesis:

Hypothesis 5. *Security difference positively affects tourism cooperation in China-ASEAN.*

(6) Population density difference (PDD): Anser et al. [80] observed that population density substantially decreased inbound tourism and international tourism receipts. Currie and Falconer [81] claimed that low population density benefits tourism development. High population density limits tourism demand. Therefore, tourists from a country with a higher density in the population are likely to travel abroad to hunt for a low-population-density country. Accordingly, we infer that:

Hypothesis 6. *Population density difference positively affects tourism cooperation in China-ASEAN.*

(7) Language difference (LD): Concerning the international tourism, language is treated as the cost for tourists [51] as languages are different among countries and regions. Thus, the difference in language is included in constraining factors for international tourism [82]. As for convenience, tourists would select the destination country speaking the same language. As such, the following hypothesis is proposed:

Hypothesis 7. *Language difference negatively affects tourism cooperation in China-ASEAN.*

3. Research Design

3.1. Measurement for Tourism Cooperation

Through the relationships between social networks, different connections can be understood, such as communication connections and network relationships [83]. In the 1960s, the gravity model was

introduced [84,85] and then was widely employed to measure the relations in the tourism cooperation network [37,53]. Moreover, various studies utilized the gravity approach to explore international tourism dynamics in the tourism network [51], which denotes that the model is well applied to interpret the cooperation network in the global tourism environment [51,86]. Hence, the current research selected the gravity model to explore tourism cooperation connections in China-ASEAN counties. Based on Equation (1) of the gravity model, tourism cooperation connections were examined.

$$F_{ij} = \sqrt{T_i I_i} * \frac{\sqrt{T_j I_j}}{D_{ij} * D_{ij}} \quad (1)$$

where F_{ij} represents the tourism cooperation links between country i and country j; T_i and T_j are the number of tourists in country i and country j, respectively; I_i and I_j are the tourism income of country i and country j, respectively; and D_{ij} is the geographical distance between country i and country j.

However, spatial distance [51], time distance [87], and cultural distance [88], etc., can influence the intensity of tourism cooperation to a certain extent. The aspects that affect tourism cooperation make it necessary to modify the gravity model instead of using a single gravity model. Therefore, researchers recommend using a modified gravity model to interpret the tourism cooperation connection [89,90]. Additionally, tourism cooperation has strong economic characteristics, such as economic distance, affect tourism relations between countries [91]. In the tourism environment, tourism cooperation could be also influenced by the industrial development environment, such as local culture and service quality [16,92–94]. Based on the aforementioned discussion, the current research introduces economic distance and the industrial development environment to modify the gravity model (see Equation (2)).

$$F_{ij} = K_{ij} * \sqrt{T_i I_i} * \frac{\sqrt{T_j I_j}}{GD_{ij} * ED_{ij}} \quad (2)$$

where F_{ij} refers to the tourism cooperation links between country i and country j; K_{ij} represents the industrial development environment, describing the tourism cooperative attraction coefficient of country i and country j. K_{ij} is acquired through Equation (3) [95]. Additionally, GD_{ij} and ED_{ij} represent the geographical distance and economic distance between country i and country j, respectively.

$$K_{ij} = \frac{SI_i}{SI_i + SI_j} \quad (3)$$

where SI_i and SI_j are the ratios of employment in the service industry to the total employment for country i and country j (i.e., the proportion of employment of the service industry in total employment). By taking the economic distance measurement method [15], economic distance was investigated by Equation (4).

$$ED_{ij} = \frac{\left(GDPPC_i - GDPPC_j\right)^2}{GDP_i * GDP_j} \quad (4)$$

where ED_{ij} is economic distance between country i and country j; $GDPPC_i$ and $GDPPC_j$ are the per capita GDP of country i and country j, respectively; and GDP_i and $GDPj$ are the GDPs of country i and country j, respectively.

3.2. Social Network Analysis

Social network analysis interprets social cooperation through the network [96–98] and is applied in various tourism studies [40,99,100]. For example, Leung, Wang, Wu, Bai, Stahura and Xie [40] employed the social network to investigate tourist movement patterns. In the study of Luo and Zhong [100], communication characteristics of word-of-mouth in tourism interaction were explored by adopting the network analysis. The method is well developed to systematically study the social structure by measuring network density, centralization, betweenness, and structural holes [98]. Besides,

the Quadratic Assignment Procedure (QAP) is commonly employed in the social network to investigate the influencing factors of the network [101,102].

Network density reflects the ratio between the actual link and the maximum number of links in the network [39]. A high density indicates a tight network connection.

Centralization contains the degree, betweenness, and closeness of centralization. When the centralization is close to 1, the network is close to concentration [103].

Betweenness is mainly used to measure the ability of individuals in the network to act as "intermediaries" and "mediators", which represent the individual's "control ability" [104]. The high betweenness indicates the importance of master resources and information flow, and the lack of such betweenness can cause communication failure to other connections as well.

Structural holes are explored by effective size, efficiency, and constraints [105]. The effective size measures the control power of a node in the network. The larger the value, the stronger the control power of the node. Efficiency reflects the degree of influence of a node on other nodes in the network. The larger the value is, the stronger the influence. Constraints denote the degree of a node to utilize structural holes. The smaller the value, the higher the degree is.

QAP (Quadratic Assignment Procedure) regression analysis was employed to understand the factors influencing tourism cooperation. The QAP regression analysis can efficiently reduce multicollinearity issues [106,107]. The correlation coefficient can be obtained by the QAP regression analysis using permutation matrix data, and nonparametric tests were then operated on the matrices to discover major aspects that influence tourism cooperation.

3.3. Data Collection

Tourism cooperation in China-ASEAN countries aims to increase the number of tourists and tourism revenue. Hence, this study uses the number of international tourists and international tourism expenses (Equation (2)) to measure cooperative ties between countries. The proportion of the employment of the service industry in total employment (i.e., the proportion of employment of the service industry in total employment) was applied to calculate the industrial development environment [95].

Concerning the determinants of cooperation, if two countries have the same political system, there is no difference in the polity between the two countries, and the political system difference (PSD) is 0; otherwise, it is 1. Six indicators ("voice and accountability, political stability and absence of violence/terrorism, government effectiveness, regulatory quality, rule of law, and control of corruption") [108] were regarded as the worldwide governance indices. The current research applies the average of the above six indicators to test the governance, which has been well utilized in previous studies (e.g., [109,110]). For language difference (LD), when two countries use the same official language, the value is set to 1; otherwise, set the value is set to 0. The income of tourists is measured by gross national income (GNI) and income difference is measured by the gap of GNI of two countries. The consumption level difference (CLD) is measured by the gap in per capita consumption of two countries. Security difference (SD) between the two countries is computed based on the difference in intentional homicide rates obtained from the source of the United Nations Office on Drugs and Crime's International Homicide Statistics (UNODC). Population density difference (PDD) is measured by the gap in population density between the two countries.

To test the indictors' differences among countries including GD, ID, CLD, SD, and PDD, we measured the subtraction of the indictor among China-ASEAN countries year by year and used the average of these subtractions as an index for identifying the indictor's difference. In detail, if the subtraction of the indictor of the two countries is less than the index, we then argue that there is no difference in the indictor between the two countries and set it as 0. If it is greater than the index, we suggest that there is a difference by setting it as 1.

The data (number of international tourists (T), international tourism income (I), GDP, GDP per capita, service industry employment, total employment, GNI, population density, per capita

consumption and governance) calculated in the current research is derived from the World Bank (https://data.worldbank.org). The official language data and spatial distance data (the spatial distance from one capital to another is regarded as the geographical distance between the two countries in China-ASEAN) use the database generated by CEPII (http://www.cepii.fr/CEPII/en/bdd_modele/bdd.asp). In this paper, the data range is from 1998 to 2017.

4. Results

4.1. The Structure of Tourism Cooperation in China-ASEAN

4.1.1. Characteristics of the Tourism Cooperation Network

Based on the revised gravity model, we calculated the tourism cooperation links among China-ASEAN countries from 1998 to 2017. These cooperation links among countries are employed to construct tourism cooperation networks among China-ASEAN countries with the help of social network analysis. In this study, we set the average value of the tourism cooperation links from 1998 to 2017 as the breakpoint value. Then, we set the relationship value as 1 if the value of the tourism cooperation relationship between the two countries was higher than the average value; otherwise, it was set to 0. We construct the tourism cooperation relationship matrix, and then show the visual analysis for the tourism cooperation network based on the closeness of each country for five stages, including 1998, 2002, 2007, 2012, and 2017 (see Figure 1). The closeness of a country means the extent to which it is not controlled by other countries in a cooperative network. Generally, the higher the value of the closeness is, the freer of the country is. As for calculating the number of the relationship value in these five charts, the numbers of cooperation ties in China-ASEAN countries are 39 in 1998, 38 in 2002, 43 in 2007, 50 in 2012 and 56 in 2017, indicating that the linkages of tourism cooperation networks are more intensified over time as revealed by the number of cooperation relations that have increased stably. According to Figure 1, we find that Singapore and Brunei are largely on the periphery of the tourism cooperation network, with few links to other countries.

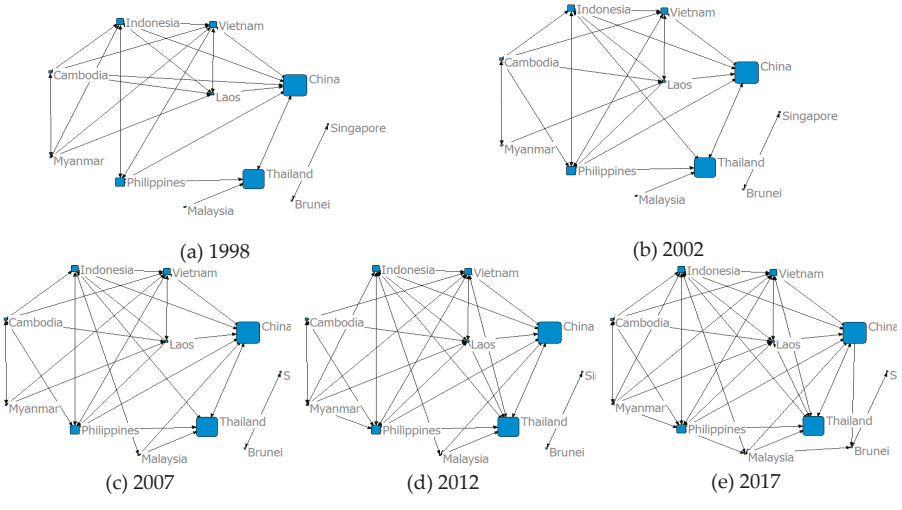

Figure 1. Tourism cooperation networks on China-ASEAN in 1998, 2002, 2007, 2012 and 2017.

Additionally, this study uses the network density centralization to measure the overall characteristics of tourism cooperation networks of China-ASEAN countries. The results are shown in Figure 2.

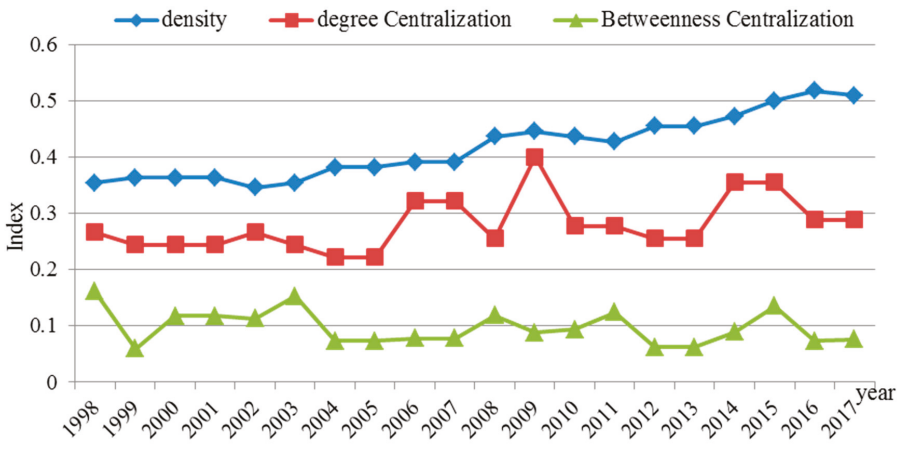

Figure 2. Overall characteristics of the tourism cooperation networks from 1998 to 2017.

Network Density: The density of the tourism cooperation network grew stably from 1998 to 2017, as shown by the density value increases from 0.3545 in 1998 to 0.5091 in 2017. However, we revealed that there was a temporary decline in 2002, 2010, and 2011. In 2001, In 2001, the 9/11 incident occurred, which resulted in a sharp downturn in the international tourism industry [111] by presenting a decline in tourism cooperation in China-ASEAN countries. The international financial crisis in 2009 has had a huge impact on the world economy, which may have resulted in the decline of tourism cooperation in 2010 and 2011.

Centralization: The degree of centralization of the network has a fluctuating growth trend from 1998 to 2017, but it does not exceed 40%, indicating that there is not an obvious leader shown in this network. However, the betweenness centralization shows a fluctuating downward trend over the data period. It represents that the role of "intermediary" might not be as important as before. We argue that this essential finding might result from the role of direct cooperation being enhanced among countries, which might weaken the role of "intermediary" in this network.

4.1.2. Individual Characteristics of the Network

By analyzing the betweenness and structural hole of the tourism cooperation network, we can derive the change of individual characteristics, including betweenness, effective size, efficiency, and constraints for the cooperation network and the results are shown in Table 1.

Concerning the betweenness, before 2013, the degree of betweenness presents a significant decline, which means that the role of "intermediary" for the China-ASEAN tourism cooperation network was weakened, as revealed by the maximum value decrease from 17.778 (China) in 1998 to 6.44 (Indonesia) in 2013 in Table 1. However, after 2013, the betweenness presents an increase. Furthermore, China acted as the middleman for the entire cooperation network. In 2013, the Belt and Road Initiative (BRI) was proposed by China. China has acted as the initiator and main promoter of the BRI, which is probably the main reason why it has become the intermediary for the China-ASEAN tourism cooperation network.

As for the change of effective size,Table 1 shows that the effective size of the country ranking first has not changed significantly (fluctuating around 3). Thus, we argue that the effective size of the China-ASEAN tourism cooperation network is still relatively small, and the scale of tourism cooperation needs to be further expanded presently. Besides, leading countries of effective size are constantly changing, which means that there are no strong leaders in the network.

Table 1. Ranking the first country for diverse individual characteristics from 1998 to 2017.

Year	Betweenness		Effective size		Efficiency		Constraints	
	Country	Value	Country	Value	Country	Value	Country	Value
1998	China	17.778	China	3.182	Thailand	0.778	China	0.509
1999	Philippines	10.392	China/Indonesia	2.955	China/Indonesia	0.563	China/Indonesia	0.534
2000	Thailand	15.556	Indonesia	2.818	Thailand	0.625	Vietnam	0.512
2001	Thailand	15.556	Indonesia	2.833	Thailand	0.625	Indonesia	0.519
2002	Thailand	15.556	Laos	2.944	Thailand	0.625	Indonesia	0.532
2003	Thailand	15.556	Vietnam	3.167	Thailand	0.625	Vietnam	0.506
2004	China	12.407	China	3.100	Thailand	0.563	Vietnam	0.518
2005	China	12.407	China	3.100	Thailand	0.563	Vietnam	0.518
2006	Indonesia	10.500	Indonesia	3.542	Indonesia	0.506	Indonesia	0.483
2007	Indonesia	10.500	Indonesia	3.542	Indonesia	0.506	Indonesia	0.483
2008	Malaysia	10.500	Indonesia	3.125	Malaysia	0.583	Vietnam	0.478
2009	Indonesia	12.593	Philippines	3.857	Indonesia	0.482	Indonesia	0.425
2010	Indonesia	7.654	Philippines	3.286	Philippines	0.469	Philippines	0.460
2011	Indonesia	7.654	Philippines	3.429	Philippines	0.490	Philippines	0.456
2012	Indonesia	6.444	Indonesia	3.077	Indonesia	0.440	Philippines	0.467
2013	Indonesia	6.444	Indonesia	3.077	Indonesia	0.440	Philippines	0.467
2014	Indonesia	8.889	Indonesia	3.600	Indonesia	0.450	Indonesia	0.420
2015	Malaysia	35.556	Indonesia	3.333	Malaysia	0.475	Indonesia	0.426
2016	China	22.593	Philippines	3.375	Philippines	0.422	Philippines	0.418
2017	China	22.593	Indonesia	3.333	China	0.422	Indonesia	0.426

Regarding changes inefficiency, we revealed that the country that plays the most powerful role in the network is often changing since Thailand, China, Indonesia, and the Philippines have taken up this role successively. However, we also found that the overall efficiency of the network is decreasing because some countries do not have as powerful an influence on the cooperation networks of these countries as before, implying that cooperation network is moving towards the direction of equality and balance among these countries.

About the change in constraints, we noticed that the degree of constraints for China-ASEAN countries is gradually decreasing, indicating that cooperation liberalization and facilitation are gradually improving. As a result, we suggest that countries with lower constraints such as China, Indonesia, Vietnam, and the Philippines take the initiative to cooperate with other countries.

4.2. The Formation Mechanism of Tourism Cooperation of China-ASEAN

By employing the QAP regression approach, we explored whether tourism cooperation network would be affected by these factors including political system difference (PSD), governance difference (GD), income difference (ID), consumption level difference (CLD), security difference (SD), population density difference (PDD), and language difference (LD) for China and ASEAN countries. The results are presented in Table 2.

Table 2 reveals that political system difference has a positive effect on tourism cooperation. In particular, it has significant effects on cooperation, especially in 1999, 2003–2008, and 2011. The difference in the political system will directly lead to many differences in various management systems and social development among countries, which may become one of the attractions for tourists. The positive effect of the difference in the political system does not support Hypothesis 1.

Governance difference negatively impacts tourism cooperation. Specifically, it has significant negative effects on tourism cooperation from 1998 to 2011. After 2011, the significantly negative effects disappeared. With the negative effects, Hypothesis 2 is supported. As an important guarantee for the tourism industry [71,72], the governance capacity affects the performance of tourism to a certain extent. The huge governance difference between the two countries is not conducive to tourism cooperation between the two countries.

Table 2. Quadratic Assignment Procedure (QAP) regression analysis.

Year	PSD	GD	ID	CLD	SD	PDD	LD	R^2	Adi-R^2
1998	0.017	−0.494 ***	−0.666 *	0.345	0.057	0.150	−0.019	0.408	0.374
1999	0.137 *	−0.367 **	−0.532	0.158	0.042	0.132	−0.003	0.348	0.310
2000	0.126	−0.436 **	−0.759 **	0.496	0.050	0.080	0.035	0.375	0.338
2001	0.071	−0.643 ***	−0.814 **	0.648 *	−0.040	0.083	0.062	0.514	0.485
2002	0.118	−0.549 ***	−0.773 **	0.505 *	−0.009	0.127	0.039	0.450	0.418
2003	0.137 *	−0.589 ***	−0.827 **	0.631 *	0.071	0.062	0.047	0.494	0.465
2004	0.224 **	−0.568 ***	−0.068	0.243	0.013	0.149	−0.021	0.506	0.477
2005	0.148 *	−0.651 ***	−0.981 **	0.690 *	−0.051	0.156 *	0.074	0.597	0.574
2006	0.243 ***	−0.598 ***	−0.314	0.051	−0.091	0.153	0.026	0.499	0.470
2007	0.214 **	−0.460 **	−0.254 *	−0.106	−0.136	0.146	0.017	0.433	0.400
2008	0.196 **	−0.365 **	−0.125	−0.300 *	−0.049	0.126	−0.020	0.437	0.404
2009	0.110	−0.242 *	−0.188	−0.353 *	−0.001	0.107	0.046	0.438	0.406
2010	0.110	−0.285 *	−0.340 **	−0.238 *	0.025	0.158	0.064	0.448	0.415
2011	0.125 *	−0.295 *	−0.223	−0.304 *	0.098	0.148	0.049	0.453	0.421
2012	0.096	−0.036	−0.340 **	−0.404 **	0.149 *	0.113	0.042	0.478	0.447
2013	0.083	−0.166	−0.302 *	−0.345 **	0.117	0.136	0.052	0.483	0.453
2014	0.100	−0.081	−0.346 **	−0.426 **	0.095	0.149	0.060	0.516	0.488
2015	0.032	−0.085	−0.450 **	−0.301 **	0.167 *	0.112	0.012	0.531	0.503
2016	0.040	−0.162	−0.451 ***	−0.304 **	0.178 **	0.163	0.020	0.546	0.519
2017	0.027	−0.179	−0.386 **	−0.346 **	0.142*	0.155 *	0.015	0.538	0.511

*** Statistically significant at 0.001 level; ** statistically significant at 0.01 level; * statistically significant at 0.05.

Regarding the income difference factor, we observed that income difference has negative effects on tourism cooperation with a significant negative impact on tourism cooperation in most years (1998, 2000–2003, 2005, 2007, 2010, and 2012–2017). Hypothesis 3 is supported. Income is still a major part restricting the generation of tourism activities.

According to Table 2, the difference in consumption level has a complicated influence on tourism cooperation. The difference in consumption level presents a positive effect on tourism cooperation before 2006, especially having a significantly positive effect in 2001, 2002, 2003, and 2005. Additionally, it has a significant negative influence on tourism cooperation after 2008. Based on this complex phenomenon, Hypothesis 4 is not supported.

Regarding the influence of security difference, the positive effects on tourism cooperation were presented in 2012 and 2015–2017, supporting Hypothesis 5. A safe environment is a necessary condition for tourism activities. Tourists tend to choose safe destinations. As a result, security difference moderately promotes tourism cooperation.

Population density difference has a positive effect on tourism cooperation, especially in 2005 and 2017. According to the positive effect, Hypothesis 6 is supported. The difference in population density between the two countries means the difference in the tourism environment, which is also an important thrust for tourism cooperation.

Language difference has a positive effect on tourism cooperation, although these effects are not significant. Therefore, Hypothesis 7 is not supported. The positive effect reveals that language difference is no longer an obstacle for international tourism. In the international tourism environment, language difference represents the cultural difference, which becomes one of the attractions for tourists.

Based on the above analysis, the current study constructed the formation mechanism of tourism cooperation in China-ASEAN countries (Figure 3). We observed that political system difference, security difference, population density difference, and language difference jointly promote tourism cooperation. However, governance difference, income difference, and consumption level difference are obstacles for tourism cooperation presently.

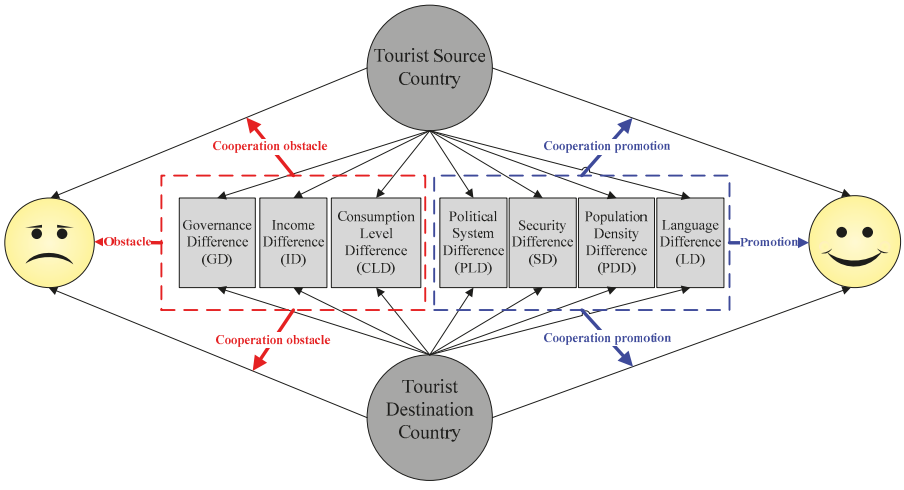

Figure 3. Formation mechanism of China-ASEAN tourism cooperation.

5. Discussion and Implications

5.1. Conclusion

To summarize, this study measured the tourism cooperation ties of China-ASEAN countries using the modified gravity model, examined the structure of tourism cooperation through the social network analysis method, and identified the factors affecting tourism cooperation networks by employing the QAP analysis method. The results of this study contribute to tourism cooperation with several implications.

On the one hand, this study found that tourism cooperation in China-ASEAN countries has obvious structural characteristics. The scale of tourism cooperation is still small, even though the relationships in tourism cooperation for China-ASEAN are getting closer. The rapid growth of tourism in ASEAN countries can reflect the close relationship in tourism cooperation. Considering the cooperation model, the role of intermediaries has been gradually reduced since the autonomy of the network is gradually strengthening. Direct cooperation becomes a popular cooperation type that can support tourists and improve cooperation effects. As for the cooperation efficiency, the overall efficiency of the network is decreasing due to some countries not having as powerful as an influence on cooperative networks as before.

On the other hand, this study investigated the factors for tourism cooperation by using the QAP analysis. The differences in governance and income have negative effects on tourism cooperation. In detail, before 2011, governance difference has a significantly negative effect on tourism cooperation. Furthermore, the significant negative effect disappeared after 2011. Income difference has a negative effect on tourism cooperation; however, this negative effect is significant only in certain years. However, differences in the political system, security, population density, and language positively affect tourism cooperation. Besides, consumption level difference has a positive effect before 2006 and a negative effect after 2006. In detail, we analyzed and discussed these conclusions separately.

5.2. Discussion

Concerning the positive effects, political system difference promotes tourism cooperation. In line with previous studies, this study verified the influence of the political system on tourism development [67–69]. The difference in the political system can directly lead to many differences in various management systems and social development among countries, which may become one of

the attractions for tourists. For tourists, it is the essence of tourism to seek the environment different from the residential area. Therefore, political system difference becomes one of the determinants for tourists to select a destination. Additionally, increased crime rates are the problem that ASEAN countries currently face concerning tourism [19]. A safe environment has become an important basis for tourists from ASEAN countries to select their destinations. Thus, the security difference positively affects tourism cooperation. Peng et al. [112] stated that population size has a positive effect on tourism demand, which supports the positive effect of population density difference on cooperation. The higher the population density in a region, the higher the arrivals from that region [113]. Thus, tourist flows are more likely to occur. Even though language difference does not have a significant impact on tourism cooperation, we observed the potential positive effect of the language difference. Basala and Klenosky [114] noted tourists prefer to choose countries and destinations that speak the same language, which is more convenient for them. However, language difference not only represents a different official language but also represents deep cultural differences, which positively promotes international tourism activities [115–117]. Therefore, how to explore cultural differences, attract tourists, and promote tourism cooperation has become an important issue of China-ASEAN tourism cooperation.

Regarding the negative effects, governance difference negatively affects tourism cooperation. Governance is regarded as an essential factor for a country to develop tourism [118] because strengthening governance ability has become a prerequisite in terms of promoting tourism development [119]. However, governance difference may cause differences in the government system, lifestyle, and social rules, which may lead to discomfort and inconvenience for tourists from other countries. It is difficult for tourists to visit countries with many differences. Therefore, governance difference negatively affects tourism cooperation. As a supportive factor for tourism activities, the income directly determines whether tourism activities can be realized. As for the international tourism market, tourist flows are affected by economic factors such as price, income, and exchange rate [36,73–76]. It is difficult for tourists from the two countries to visit each other if the income difference of tourists in the two countries is huge. Additionally, most countries may expect to cooperate with countries with strong economies. Therefore, it is reasonable to find that income difference may inhibit tourism cooperation.

This research discussed the complex effects of consumption level difference. First, consumption level difference appears to have a positive impact on tourism cooperation, because the difference in consumption level mainly means the difference in tourism cost. Tourism activities belong to consumption activities, and the cost is an important factor in restricting tourism activities. Differences in consumption levels express differences in travel costs. Consequently, tourists may travel to countries with lower consumption levels, which contributes to tourism cooperation. With the development of tourism and the increase in tourists' income, tourists are more concerned about quality than cost. For tourists, low tourism costs may connote low tourism quality, which would reduce tourism demand [120]. Thus, consumption level difference negatively impacts tourism cooperation presently.

5.3. Implications

According to the findings of this study, this paper found that tourism cooperation in China-ASEAN countries can be strengthened from the following aspects.

On the one hand, we need to adjust the structure of cooperation and strengthen cooperation links. First, we need to expand the tourism cooperation size in responding to its small scale. At present, China-ASEAN tourism cooperation needs to be expanded. Therefore, we can promote cooperation in the tourism market, passenger flow, information, culture, and marketing to expand the scale of tourism cooperation. Second, we need to adjust the cooperation model. Direct dialogue and cooperation between governments need to be encouraged, and tourism cooperation between countries should be strengthened through the signing of memoranda and cooperation agreements between governments. Additionally, tourism enterprises of the countries also need to actively cooperate. Enterprises and governments can jointly promote tourism cooperation. Third, cooperation efficiency needs to be

improved. For the entire network, we need strong leadership to promote the development of the network. To overcome the dilemma, it is important to cultivate the network leaders while improving their network cooperation efficiency. It is encouraged to present the demonstrative and leading role to promote close cooperation between the entire network in China-ASEAN countries.

On the other hand, we need to identify the promotion factors and promote cooperation. We can improve the promoting effect of positive factors such as political system difference and security difference. First, we should reinforce the attractions of political system difference. We can regard a series of differences formed by the regime differences as tourist attractions to induce tourists by developing corresponding tourism products and routes. Second, we must create a safe environment for tourists and strengthen the security of tourists. Third, we should emphasize the role of cultural attractions by using exemplary culture as an important way to attract international tourists. Additionally, we should suppress the negative effects of negative factors. The difference in governance is an important factor hindering tourism cooperation. Therefore, countries should focus on strengthening their governance capacity to create a convenient tourism environment for tourists.

Even though this study revealed the structure of tourism cooperation in China-ASEAN countries and empirically tested the influencing factors of the network, it has certain limitations. First, this study only explored the characteristics of tourism cooperation after the basic formation of ASEAN's ten member countries. However, ASEAN was formally established in 1967. It is of great significance to explore the historical experience and evolution of tourism cooperation among ASEAN countries for adjusting the cooperation structure in the future. Second, additional important driving factors for cooperation networks exist and are worth exploring in the future. It is acknowledged that this study attempted to explore the important impact of the political system on tourism cooperation [121]. Other political influences are issues we leave for future research. It is necessary to consider the direction of tourism cooperation through the direction of tourist flow to reveal cooperation characteristics in future research.

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References

1. Bornhorst, T.; Ritchie, J.R.B.; Sheehan, L. Determinants of tourism success for DMOs & destinations: An empirical examination of stakeholders' perspectives. *Tour. Manag.* **2010**, *31*, 572–589.
2. Beritelli, P. Cooperation among prominent actors in a tourist destination. *Ann. Tour. Res.* **2010**, *38*, 607–629. [CrossRef]
3. Morrison, A.; Lynch, P.; Johns, N. International Tourism Network. *Int. J. Contemp. Hosp. Manag.* **2004**, *16*, 197–202. [CrossRef]
4. McSweeney-Feld, M.H.; Discenza, S.; Feis, G.L.D. Strategic Alliances & Customer Impact: A Case Study of Community Hospitals. *J. Bus. Econ. Res.* **2010**, *8*, 13–22.
5. Jesus, C.; Franco, M. Cooperation networks in tourism: A study of hotels and rural tourism establishments in an inland region of Portugal. *J. Hosp. Tour. Manag.* **2016**, *29*, 165–175. [CrossRef]
6. Tosun, C.; Timothy, D.J.; Parpairis, A.; Macdonald, D. Cross-Border Cooperation in Tourism Marketing Growth Strategies. *J. Travel Tour. Mark.* **2005**, *18*, 5–23. [CrossRef]
7. Baggio, R. Collaboration and cooperation in a tourism destination: A network science approach. *Curr. Issues Tour.* **2011**, *14*, 183–189. [CrossRef]
8. Czernek, K. Determinants of Cooperation in a Tourist Region. *Ann. Tour. Res.* **2013**, *40*, 83–104. [CrossRef]
9. Yin, J.; Zheng, X.; Li, S. Cooperation Situation and Power Role:Deconstruction of Tourism Cooperation Network of Countries along the Belt and Road Initiative. *Econ. Geogr.* **2019**, *39*, 216–224.

10. Wäsche, H. Interorganizational cooperation in sport tourism: A social network analysis. *Sport Manag. Rev.* **2015**, *18*, 542–554. [CrossRef]
11. Makkonen, T.; Hokkanen, T.J.; Morozova, T.; Suharev, M. A social network analysis of cooperation in forest, mining and tourism industries in the Finnish–Russian cross-border region: Connectivity, hubs and robustness. *Eurasian Geogr. Econ.* **2019**, *59*, 685–707. [CrossRef]
12. Timur, S.; Getz, D. A network perspective on managing stakeholders for sustainable urban tourism. *Int. J. Contemp. Hosp. Manag.* **2008**, *20*, 445–461. [CrossRef]
13. Czernek-Marszałek, K. Cooperation evaluation with the use of network analysis. *Ann. Tour. Res.* **2018**, *72*, 126–139. [CrossRef]
14. Studzieniecki, T.; Soares, J.R. International Tourism Cooperation: A Europe Case Study. *Holos* **2017**, *33*, 135–158. [CrossRef]
15. Li, W.Y.; Liu, H.Z. The Construction of "One Belt One Road" from the Perspective of Multi-dimension: Space, Economy, Culture and Institution. *Int. Econ. Trade Res.* **2016**, *32*, 99–112.
16. Ye, L.; Chen, X. Analysis on Interaction of Tourism Trade between China and ASEAN Countries Based on Evaluation on Tourism Competitiveness. *Econ. Geogr.* **2013**, *33*, 177–181.
17. Ariff, M.R.M.; Selvaraju, M.; Tusop, M.E.B.M. Commonalities Inintra-ASEAN Tourism: Harnessing the power of 10. *Jati-J. Soutneast Asian Stud.* **2005**, *10*, 91–107.
18. Yousu, A.; Lal, R. The impact of ASEAN on tourism. *Int. J. Netw. Parallel Comput.* **2013**, *2*, 38–44.
19. Wakimin, N.F.; Azlinaa, A.A.; Hazman, S. Tourism demand in Asean-5 countries: Evidence from panel data analysis. *Manag. Sci. Lett.* **2018**, 677–690. [CrossRef]
20. Chang, C.-L.; Khamkaew, T.; Tansuchat, R.; McAleer, M. Interdependence of International Tourism Demand and Volatility in Leading ASEAN Destinations. *Tour. Econ.* **2011**, *17*, 481–507. [CrossRef]
21. Wannapan, S.; Chaiboonsri, C.; Sriboonchitta, S. Identification of the connection between tourism demand and economic growth in ASEAN-3. *Int. J. Trade Glob. Mark.* **2018**, *11*, 12–20. [CrossRef]
22. Yahya, F. Tourism flows between India and Singapore. *Int. J. Tour. Res.* **2003**, *5*, 347–367. [CrossRef]
23. Chirathivant, S. ASEAN-India Cooperation in Trade and Tourism: Trends and Prospects. *J. Asian Econ.* **1996**, *7*, 743–757. [CrossRef]
24. Wong, E.P.Y.; Mistilis, N.; Dwyer, L. A framework for analyzing intergovernmental collaboration—The case of ASEAN tourism. *Tour. Manag.* **2011**, *32*, 367–376. [CrossRef]
25. Timothy, D.J. Supranationalist Alliances and Tourism: Insights from ASEAN and SAARC. *Curr. Issues Tour.* **2003**, *6*, 250–266. [CrossRef]
26. Wong, E.P.Y.; Mistilis, N.; Dwyer, L. Understanding ASEAN tourism collaboration - the preconditions and policy framework formulation. *Int. J. Tour. Res.* **2010**, *12*, 291–302. [CrossRef]
27. Liu, Y.; Li, Y.; Li, L. A panel data-based analysis of factors influencing market demand for Chinese outbound tourism. *Asia Pac. J. Tour. Res.* **2018**, *23*, 667–676. [CrossRef]
28. Wu, M.-Y.; Wall, G.; Tong, Y. Research on China's Inbound Tourism: A Comparative Review. *J. China Tour. Res.* **2019**, *15*, 320–339. [CrossRef]
29. Cheng, J.Y.-s. The ASEAN-China Free Trade Area: Genesis and implications. *Aust. J. Int. Aff.* **2010**, *58*, 257–277. [CrossRef]
30. Roberts, B. A Gravity Study of the Proposed China-Asean Free Trade Area. *Int. Trade J.* **2004**, *18*, 335–353. [CrossRef]
31. Arase, D. Non-Traditional Security in hina-ASEAN Cooperation. *Asian Surv.* **2010**, *50*, 808–833. [CrossRef]
32. Cheng, J.Y.-s. China-ASEAN Economic Co-operation and the Role of Provinces. *J. Contemp. Asia* **2013**, *43*, 314–337. [CrossRef]
33. Zeng, Q.; Adams, J.; Gibbs, A. Are China and the ASEAN ready for a Bologna Process?—Factors affecting the establishment of the China-ASEAN higher education area. *Educ. Rev.* **2013**, *65*, 321–341. [CrossRef]
34. Arroll, J. Tourism cooperation in the Asia-Pacific region. *Tour. Manag.* **1993**, *14*, 390–392. [CrossRef]
35. Fagence, M. Regional tourism cooperation. *Tour. Res.* **1996**, *7*, 177–196. [CrossRef]
36. Tan, A.Y.F.; McCahon, C.; Miller, J. Modeling Tourist Flows to Indonesia and Malaysia. *J. Travel Tour. Mark.* **2002**, *13*, 61–82. [CrossRef]
37. Czernek-Marszałek, K. Applying mixed methods in social network research: The case of cooperation in a Polish tourist destination. *J. Destin. Mark. Manag.* **2019**, *11*, 40–52. [CrossRef]

38. Fu, X.-M.; Chen, H.-X.; Xue, Z.-K. Construction of the Belt and Road Trade Cooperation Network from the Multi-Distances Perspective. *Sustainability* **2018**, *10*, 1439. [CrossRef]
39. Park, D.; Lee, G.; Kim, W.G.; Kim, T.T. Social Network Analysis as a Valuable Tool for Understanding Tourists' Multi-Attraction Travel Behavioral Intention to Revisit and Recommend. *Sustainability* **2019**, *11*, 2497. [CrossRef]
40. Leung, X.Y.; Wang, F.; Wu, B.; Bai, B.; Stahura, K.A.; Xie, Z. A social network analysis of overseas tourist movement patterns in Beijing: The impact of the Olympic Games. *Int. J. Tour. Res.* **2012**, *14*, 469–484. [CrossRef]
41. Lew, A.; McKercher, B. Modeling tourist movements: A local destination analysis. *Ann. Tour. Res.* **2006**, *33*, 403–423. [CrossRef]
42. Long, J. Regional tourism cooperation in triangle zone of liaoning province. *Chin. Geogr. Sci.* **2005**, *15*, 261–367. [CrossRef]
43. Jamal, T.B.; Getz, D. Collaboration theory and community tourism planning. *Ann. Tour. Res.* **1995**, *22*, 186–204. [CrossRef]
44. Bramwell, B.; Angela, S. Collaborations in municipal tourism policy making. *Ann. Tour. Res.* **2001**, *26*, 392–415. [CrossRef]
45. Cetinski, V.; Weber, S. Tourism marketing in CEI countries: Possibilities for cooperation in health tourism. *Tour. Hosp. Manag.* **1996**, *2*, 45–56.
46. Teye, V.B. Prospects for regional tourism cooperation in Africa. *Tour. Manag.* **1988**, *9*, 221–234. [CrossRef]
47. Elliott, J. *Tourism Politics and Public Sector Management*; Routledge: London, UK, 1997.
48. Pestana, M.H.; Sánchez, A.V.; Moutinho, L. The network science approach in determining the intellectual structure, emerging trends and future research opportunities—An application to senior tourism research. *Tour. Manag. Perspect.* **2019**, *31*, 370–382. [CrossRef]
49. Baggio, R. Tourism destinations: A universality conjecture based on network science. *Ann. Tour. Res.* **2020**, *82*, 102929. [CrossRef]
50. Quatman, C.; Chelladurai, P. Social Network Theory and Analysis: A Complementary Lens for Inquiry. *J. Sport Manag.* **2008**, *22*, 338–360. [CrossRef]
51. Chung, M.G.; Herzberger, A.; Frank, K.A.; Liu, J. International Tourism Dynamics in a Globalized World: A Social Network Analysis Approach. *J. Travel Res.* **2020**, *59*, 387–403. [CrossRef]
52. Provenzano, D.; Baggio, R. A complex network analysis of inbound tourism in Sicily. *Int. J. Tour. Res.* **2019**. [CrossRef]
53. Yi, J.; Ryan, C.; Wang, D. China's Village Tourism Committees: A Social Network Analysis. *J. Travel Res.* **2020**. [CrossRef]
54. Raisi, H.; Baggio, R.; Barratt-Pugh, L.; Willson, G. Hyperlink Network Analysis of a Tourism Destination. *J. Travel Res.* **2017**, *57*, 671–686. [CrossRef]
55. Tran, M.T.T.; Jeeva, A.S.; Pourabedin, Z. Social network analysis in tourism services distribution channels. *Tour. Manag. Prospect.* **2016**, *16*, 59–67. [CrossRef]
56. Amblard, F.; Kelman, I.; Luthe, T.; Wyss, R.; Tørnblad, S.H.; Evers, Y.; Curran, M.M.; Williams, R.J.; Berlow, E.L. Social Network Analysis and Qualitative Interviews for Assessing Geographic Characteristics of Tourism Business Networks. *PLoS ONE* **2016**, *11*, e0156028.
57. Miguéns, J.I.L.; Mendes, J.F.F. Travel and tourism: Into a complex network. *Phys. A Stat. Mech. Appl.* **2008**, *387*, 2963–2971. [CrossRef]
58. Liu, Y.; Li, Y.; Parkpian, P. Inbound tourism in Thailand: Market form and scale differentiation in ASEAN source countries. *Tour. Manag.* **2018**, *64*, 22–36. [CrossRef]
59. Koh, S.G.M.; Kwok, A.O.J. ASEAN beyond talk shop: A rejoinder to regional tourism. *Curr. Issues Tour.* **2016**, *21*, 1085–1090. [CrossRef]
60. Wong, E.P.Y.; Mistilis, N.; Dwyer, L. A model of Asean collaboration in tourism. *Ann. Tour. Res.* **2011**, *38*, 882–899. [CrossRef]
61. Novelli, M.; Klatte, N.; Dolezal, C. The ASEAN Community-based Tourism Standards: Looking Beyond Certification. *Tour. Plan. Dev.* **2016**, *14*, 260–281. [CrossRef]
62. Isaac, R.K.; Çakmak, E. Understanding visitor's motivation at sites of death and disaster: The case of former transit camp Westerbork, the Netherlands. *Curr. Issues Tour.* **2013**, *17*, 164–179. [CrossRef]

63. Cothrana, D.; Cothran, C.C. Promise or political risk for Mexican tourism. *Ann. Tour. Res.* **1998**, *25*, 477–497. [CrossRef]
64. Causevic, S.; Lynch, P. Political (in)stability and its influence on tourism development. *Tour. Manag.* **2013**, *34*, 145–157. [CrossRef]
65. Poirier, R.A. Political risk analysis and tourism. *Ann. Tour. Res.* **1997**, *24*, 675–686. [CrossRef]
66. Matthews, H.G.; Richter, L.K. Political science and tourism. *Ann. Tour. Res.* **1991**, *18*, 120–135. [CrossRef]
67. Ingram, H.; Ingram, H.; Tabari, S.; Watthanakhomprathip, W. The impact of political instability on tourism: Case of Thailand. *Worldw. Hosp. Tour. Themes* **2013**, *5*, 92–103. [CrossRef]
68. Henderson, J.C. The Politics of Tourism in Myanmar. *Curr. Issues Tour.* **2003**, *6*, 97–118. [CrossRef]
69. Elliot, J. Politics, power, and tourism in Thailand. *Ann. Tour. Res.* **1983**, *10*, 377–393. [CrossRef]
70. Hall, C.M. A typology of governance and its implications for tourism policy analysis. *J. Sustain. Tour.* **2011**, *19*, 437–457. [CrossRef]
71. Ndivo, R.M.; Okech, R.N. Tourism Governance in Transition Period: Restructuring Kenya's Tourism Administration from Centralized to Devolved System. *Tour. Plan. Dev.* **2019**, *17*, 166–186. [CrossRef]
72. Dos Anjos, F.A.; Kennell, J. Tourism, Governance and Sustainable Development. *Sustainability* **2019**, *11*, 4257. [CrossRef]
73. Crouch, G.I. The Study of International Tourism Demand: A Review of Findings. *J. Travel Res.* **1994**, *33*, 12–23. [CrossRef]
74. Hiemstra, S.; Wong, K.K.F. Factors Affecting Demand for Tourism in Hong Kong. *J. Travel Tour. Mark.* **2002**, *13*, 41–60. [CrossRef]
75. White, K.J. An international travel Demand model US Travel to Western Europe. *Ann. Tour. Res.* **1985**, *12*, 529–545. [CrossRef]
76. Law, R. The impact of the Asian financial crisis on Japanese demand for travel to Hong Kong: A study of various forecasting techniques. *J. Travel Tour. Mark.* **2001**, *10*, 47–65. [CrossRef]
77. Zhang, C.; Weng, S.; Bao, J. The changes in the geographical patterns of China's tourism in 1978–2018: Characteristics and underlying factors. *J. Geogr. Sci.* **2020**, *30*, 487–507. [CrossRef]
78. Zimmerhackel, J.S.; Rogers, A.A.; Meekan, M.G.; Ali, K.; Pannell, D.J.; Kragt, M.E. How shark conservation in the Maldives affects demand for dive tourism. *Tour. Manag.* **2018**, *69*, 263–271. [CrossRef]
79. Simpson, J.J.; Simpson, P.M.; Cruz-Milán, O. Attitude towards immigrants and security: Effects on destination-loyal tourists. *Tour. Manag.* **2016**, *57*, 373–386. [CrossRef]
80. Anser, M.K.; Yousaf, Z.; Awan, U.; Nassani, A.A.; Qazi Abro, M.M.; Zaman, K. Identifying the Carbon Emissions Damage to International Tourism: Turn a Blind Eye. *Sustainability* **2020**, *12*, 1937. [CrossRef]
81. Currie, C.; Falconer, P. Maintaining sustainable island destinations in Scotland: The role of the transport–tourism relationship. *J. Destin. Mark. Manag.* **2014**, *3*, 162–172. [CrossRef]
82. Gu, Q.; Qiu, H.; King, B.E.M.; Huang, S. Understanding the wine tourism experience: The roles of facilitators, constraints, and involvement. *J. Vacat. Mark.* **2019**, *26*, 211–229. [CrossRef]
83. Katz, N.; Lazer, D.; Arrow, H.; Contractor, N. Network Theory and Small Groups. *Small Group Res.* **2004**, *35*, 307–332. [CrossRef]
84. Tinbergen, J. *An Analysis of World Trade Flows in Shaping the World Economy*; The Twentieth Century Fund: New York, NY, USA, 1962.
85. Pöyhönen, P. A Tentative Model for the Volume of Trade between Countries. *Weltwirtschaftliches Arch.* **1963**, *90*, 93–100.
86. Morley, C.; Rosselló, J.; Santana-Gallego, M. Gravity models for tourism demand: Theory and use. *Ann. Tour. Res.* **2014**, *48*, 1–10. [CrossRef]
87. Stoll, T.; Müller, F.; Baumann, M. When cooperation is needed: The effect of spatial and time distance and criticality on willingness to cooperate. *Cogn. Technol. Work* **2018**, *21*, 21–31. [CrossRef]
88. Qiang, M.; Shen, M.; Xie, H. Cultural diffusion and international inbound tourism: Evidence from China. *Tour. Econ.* **2018**, *25*, 884–903. [CrossRef]
89. Hanafiah, M.H.M.; Harun, M.F.M. Tourism demand in Malaysia: A cross-sectional pool time-series analysis. *Int. J. Trade Econ. Financ.* **2010**, *1*, 80–83.
90. Bell, M. The Spatial Distribution of Second Homes: A Modified Gravity Model. *J. Leis. Res.* **1977**, *9*, 225–233. [CrossRef]

91. Timothy, D.J.; Kim, S. Understanding the tourism relationships between South Korea and China: A review of influential factors. *Curr. Issues Tour.* **2015**, *18*, 413–432. [CrossRef]
92. Tian-Cole, S.H.U.; Cromption, J. A conceptualization of the relationships between service quality and visitor satisfaction, and their links to destination selection. *Leis. Stud.* **2003**, *22*, 65–80. [CrossRef]
93. Jeon, S.M.; Magnini, V.P.; Kim, I.; Hyun, S.S. Causal relationships between table game players' perceptions of service quality, perceived winning, and game spending: Moderating effects of demographic factors. *Int. J. Contemp. Hosp. Manag.* **2013**, *25*, 922–944. [CrossRef]
94. Nam, M.; Kim, I.; Hwang, J. Can local people help enhance tourists' destination loyalty? A relational perspective. *J. Travel Tour. Mark.* **2016**, *33*, 702–716. [CrossRef]
95. Yin, J.; Liu, Y.; Yang, D.; Zheng, X. Study on Tourism Openness of European Countries along the BRI. *Econ. Geogr.* **2017**, *37*, 190–197.
96. Scott, J. Social network analysis. *Sociology* **1988**, *22*, 109–127. [CrossRef]
97. Wasserman, S.; Faust, K. *Social Network Analysis*; Cambridge University Press: New York, NY, USA, 1994.
98. Shih, H.-Y. Network characteristics of drive tourism destinations: An application of network analysis in tourism. *Tour. Manag.* **2006**, *27*, 1029–1039. [CrossRef]
99. Racherla, P.; Hu, C. A social network perspective of tourism research collaborations. *Ann. Tour. Res.* **2010**, *37*, 1012–1034. [CrossRef]
100. Luo, Q.; Zhong, D. Using social network analysis to explain communication characteristics of travel-related electronic word-of-mouth on social networking sites. *Tour. Manag.* **2015**, *46*, 274–282. [CrossRef]
101. Buffa, F.; Beritelli, P.; Martini, U. Project networks and the reputation network in a community destination: Proof of the missing link. *J. Destin. Mark. Manag.* **2019**, *11*, 251–259. [CrossRef]
102. Liu, B.; Huang, S.; Fu, H. An application of network analysis on tourist attractions: The case of Xinjiang, China. *Tour. Manag.* **2017**, *58*, 132–141. [CrossRef]
103. Kim, H.; Chung, J.-K.; Lee, M.-H. Social Network Analysis of the Jangwi Urban Regeneration Community. *Sustainability* **2019**, *11*, 4185. [CrossRef]
104. Pan, F.; Lia, Z.; Ge, Y. Analysis of China's surrounding geoenvironment from the perspective of economy and trade–based on social network analysis method. *Geogr. Res.* **2015**, *34*, 775–786.
105. Burt, R.S. Secondhand Brokerage: Evidence on the Importance of Local Structure for Managers, Bankers, and Analysts. *Acad. Manag. J.* **2007**, *50*, 19–148. [CrossRef]
106. He, Q.; Cao, X. Pattern and Influencing Factors of Foreign Direct Investment Networks between Countries along the "Belt and Road" Regions. *Sustainability* **2019**, *11*, 4724. [CrossRef]
107. Krackhardt, D. Predicting with networks: Nonparametric multiple regression analysis of dyadic data. *Soc. Netw.* **1988**, *10*, 359–381. [CrossRef]
108. Kaufmann, D.; Kraay, A.; Mastruzzi, M. *The Worldwide Governance Indicators: Methodology and Analytical Issues (World Bank Policy Research Working Paper No. 5430)*; The World Bank: Washington, DC, USA, 2010.
109. Sebudubudu, D.; Makepe, P.M.; Montsi, K.; Bodilenyane, K. Governance of Land and Natural Resource for Sustainable Development in Botswana: Possible Lessons for the Agricultural and Tourism Sectors. *Int. J. Afr. Dev.* **2014**, *2*, 81–100.
110. Low, S.-W.; Kew, S.-R.; Tee, L.-T. International Evidence on the Link between Quality of Governance and Stock Market Performance. *Glob. Econ. Rev.* **2011**, *40*, 361–384. [CrossRef]
111. Meng, X.; Siriwardana, M.; Dollery, B.; Mounter, S. The Impact of the 2008 World Financial Crisis on Tourism and the Singapore Economy and Policy Responses:A CGE Analysis. *Int. J. Trade Econ. Financ.* **2010**, *1*, 46–53.
112. Katelieva, M.; Muhar, A.; Penker, M. Nature-related knowledge as intangible cultural heritage: Safeguarding and tourism utilisation in Austria. *J. Tour. Cult. Chang.* **2019**, 1–17. [CrossRef]
113. Peng, B.; Song, H.; Crouch, G.I. A meta-analysis of international tourism demand forecasting and implications for practice. *Tour. Manag.* **2014**, *45*, 181–193. [CrossRef]
114. Massidda, C.; Etzo, I. The determinants of Italian domestic tourism: A panel data analysis. *Tour. Manag.* **2012**, *33*, 603–610. [CrossRef]
115. Basala, S.L.; Klenosky, D.B. Travel-Style Preferences for Visiting a Novel Destination: A Conjoint Investigation across the Novelty-Familiarity Continuum. *J. Travel Res.* **2001**, *40*, 172–182. [CrossRef]
116. Lien, D.; Yao, F.; Zhang, F. Confucius Institute's effects on international travel to China: Do cultural difference or institutional quality matter? *Appl. Econ.* **2016**, *49*, 3669–3683. [CrossRef]

117. Okafor, L.E.; Khalid, U.; Then, T. Common unofficial language, development and international tourism. *Tour. Manag.* **2018**, *67*, 127–138. [CrossRef]
118. Yu, J.Y.; Ko, T.G. A cross-cultural study of perceptions of medical tourism among Chinese, Japanese and Korean tourists in Korea. *Tour. Manag.* **2012**, *33*, 80–88. [CrossRef]
119. Mihalič, T.; Šegota, T.; Cvelbar, L.K.; Kuščer, K. The influence of the political environment and destination governance on sustainable tourism development: A study of Bled, Slovenia. *J. Sustain. Tour.* **2016**, *24*, 1489–1505. [CrossRef]
120. Ballesteros, J.G.T.; Hernández, M.H. Promoting tourism through the EU LEADER programme: Understanding Local Action Group governance. *Eur. Plan. Stud.* **2018**, *27*, 396–414. [CrossRef]
121. Schneider, C.J. The Domestic Politics of International Cooperation. In *Oxford Research Encyclopedia of Politics*; Oxford University Press: Oxford, UK, 2018.

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