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TRUSTWORTHINESS OF HOSTS IN ACCOMMODATION SHARING: THE EFFECT OF FACIAL TRAITS AND EXPRESSIONS

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ABSTRACT

The purpose of this paper is to reveal the impact of a host's facial traits and expressions on their perceived trustworthiness and preferences among users of accommodation-sharing platforms. The eye movements of 39 participants in the study while responding to the question of how much they would want to stay in each apartment presented on a created platform were recorded using an eye-tracking device in a controlled offline setting. A further online questionnaire was used to collect data about user preferences, to which 226 people responded. The results reveal the human face to be the most significant source of cognizance on accommodation sharing platforms; that hosts with positive profile photos are trusted and preferred more than those with less positive images; and that hosts with high fWHRs are trusted and preferred less than hosts with lower fWHRs. This study introduces a novel and broad approach to the tourism and hospitality field, involving a review and analysis of the relationships of different variables recorded in literature, confirming the universality of facial traits and expressions.

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INTRODUCTION

The growth of sharing economy applications facilitating the exchange of goods and services between individuals has changed the business landscape (Botsman & Rogers, 2010). These so-called peer-to-peer (P2P) systems remove the need for traditional intermediaries between the buyers and sellers of products or services and have become intermediaries themselves. A P2P platform makes it possible for buyers to connect with sellers directly, creating a whole new sharing experience, even between strangers. Accommodation sharing is one of the leading lights in the P2P sharing economy, having gained considerable popularity in recent years (Lauterbach et al., 2009). As is the case with all business transactions, trust is a major pre-condition in accommodation sharing, in which human interaction is a core feature. Sharing among people who do not know each other comes with certain safety concerns for those involved, and is stated to be one of the major reasons why some people avoid such applications (Nowak et al., 2015). Within such new sharing patterns, in which the accommodation sharing options range from an entire home to private rooms, and even shared rooms, building trust between the guests and hosts remains as a considerable challenge (Kim et al., 2011; Ponte et al., 2015).

There have been various studies to date investigating the effects of the information shared on accommodation sharing platforms on trust-building and apartment preferences, including the gender of the host (Wu et al., 2017); non-demographic host quality attributes (Xie & Mao, 2017); the reputation of the host (Zhang et al., 2018); and the hosts' self-definition (i.e. well-traveled) (Tussyadiah & Park, 2018). In particular, the impact of profile photos has been studied, and the effect of the host's attractiveness on apartment rental prices (Jaeger et al., 2018). Furthermore, there have been other studies addressing the effect of profile photos on perceived trustworthiness (Barnes & Kirshner, 2021; Ert et al., 2016; Jaeger et al., 2018), indicating that the profile photo variable affects perceived trustworthiness, user behavior and prices on these platforms.

To the best of our knowledge, however, there have been no studies to date in the field of tourism and hospitality investigating the individual variables related to such photos and their influence on perceptions of trustworthiness. The present study adopts a multidisciplinary approach to investigate how perceptions in this regard affect consumer choices, drawing upon studies in the field of cognitive sciences with focus on the human face and its influence on human perception (Todorov, 2008; Todorov et al., 2009; Valentine et al., 2014). These two fields are brought together in an approach

that focalizes the facial variables in profile photos, and clarifies their effects on guest choice. More specifically, the impact of emotional expressions and facial traits reflected in profile photos on the perceived trustworthiness of the host, and the effect of this perception on the accommodation choices of guests are investigated.

This approach is further augmented with an investigation of the effect of the facial-width-height ratio (fWHR) – a recently studied variable related to the human face (Weston et al., 2007). It was found that this variable also affects perceptions of trustworthiness through the mediation of aggressiveness perception, and so can be deemed appropriate for inclusion in the present study (Carré & McCormick, 2008; Carré et al., 2009, 2010; Haselhuhn et al., 2015; Hehman et al., 2013; Lefevre & Lewis, 2014; Neth & Martinez, 2009).

Accommodation-sharing platforms aid guest choice by providing several different variables, which can be listed as apartment photo, profile photo of the host, rating score and apartment description (Guttentag, 2015). Although there have been various studies analyzing the effects of these variables (Ert et al., 2016; Zhang et al., 2018), to the best of our knowledge there has been no research to date identifying which of these variables carries more weight among the users of such platforms. Studies have revealed the human face to be one of the most significant sources of information (Mondloch et al., 1999), and there are many cognitive resources in the human brain involved in the analysis and study of the human face aimed at extracting as much data as possible (Hassin & Trope, 2000), although face to trait inferences are known to be intuitive (Engell et al., 2007; Todorov et al., 2009). All of these findings suggest that although guests may be presented with many variables, they will tend to focus more on the profile photos. To test this assumption, an eye tracker device is used to identify the points of focus of users on the accommodation selection screen of the application, and the results were recorded for analysis.

The data were collected in three separate stages, the first of which was a preparation stage for the main study during which images of apartments with a similar level of appeal were selected for use in the simulated platform. In the second stage, eye-tracking data was collected from the 39 participants of the study while making selections of apartments to stay. The results revealed the most important and attention-grabbing variable on the accommodation selection screens to be the profile photos of the hosts. In the third stage of the study, online data were collected in the form of responses from a total of 226 participants, revealing that hosts with

profile photos with positive expressions are trusted and preferred more than other expressions, and that hosts with high fWHRs were perceived as less trustworthy, and so were preferred less than those with lower fWHRs.

In the following section we make a brief review of literature related to the sharing economy, after which we present our conceptual framework and discuss the concepts of visual perception, the importance of the human face and its effect on trust-building and trustworthiness perception, the variables that affect this perception in the human face, and the importance of the human face as a source of visual information. In the final sections, we present our study and the main results, and discuss their practical and theoretical implications.

SHARING ECONOMY

Technological developments have led to the creation of new modes of communication, and subsequently, to the establishment of platforms for various sharing practices. Recent literature has addressed the topics of product exchange (Ozanne & Ballantine, 2010), car sharing (Bardhi & Eckhardt, 2012), free and commercial re-distribution (Albinsson & Perera, 2009; Denegri-Knott & Molesworth, 2009), crowdfunding (Belleflamme et al., 2014; Cheung & Chan, 2000), expertise and skill sharing (Bagozzi & Dholakia, 2006; Postigo, 2003), information sharing (Reagle, 2010; Voss, 2005), content sharing and (Hennig-Thurau et al., 2007; Sinclair & Green, 2015) accommodation sharing (Lauterbach et al., 2009; Zervas et al., 2017).

Peer-to-peer (P2P) sharing practices are becoming increasingly common, especially those with focus of accommodation and travel, with Airbnb and Couchsurfing emerging as the two main accommodation-sharing platforms. As of 2019, Airbnb was operating in 220 countries and in 100,000 cities around the globe, and hosts making use of the Airbnb platform for the advertising of their properties have earned more than 80 billion USD to date (2020 Airbnb Update, 2020). Figures show that Airbnb enjoys significant market share in the tourism sector. Although the company makes considerable investments (150 million USD in 2019) into user protection tools, in other words, into building trust among its users, with privacy and safety concerns being still rife among the platform's users (Nowak et al., 2015). Accordingly, there may be considerable benefit in determining how trust is formed among the users of accommodation-sharing platforms.

CONCEPTUAL FRAMEWORK

In daily life, the trust one chooses to place in another person begins at first contact, and is updated with each subsequent contact (Wilson & Eckel, 2006). People tend not to collaborate with new people until the trust between them reaches a certain level, necessitating a certain amount of repeat contacts until the required level of trust has been attained. The transactions entered into accommodation sharing are realized between strangers, and in most cases are not repeated between the same two people. Accordingly, opportunities to create and maintain trust through experience are lacking, increasing the importance of perceived trustworthiness at the point of first contact between the host and the guest.

Previous studies have examined the effects of the safety checks made by accommodation sharing platforms, and found that such host attributes as the time of reservation confirmation, the acceptance rate of renter reservations, the number of listings owned, whether a personal profile page is disclosed, and the gender of the host significantly affect renter reservations (Wu et al., 2017). Non-demographic host quality attributes (i.e., having longer operating experience and a higher response rate), on the other hand, have a positive effects on future reservations of host listings (Xie & Mao, 2017). For instance, reputation plays a key role in the establishment of trust on accommodation-sharing platforms (Zhang et al., 2018), where hosts who portray themselves as well-traveled and eager to meet new people are considered more trustworthy and desirable that those who disclose their profession as their personal identity (Tussyadiah & Park, 2018).

Both Airbnb and Couchsurfing request profile photos, along with verified IDs, from all users showing personal information (Guttentag, 2015; Liu, 2012), and exhibit rating scores and comments on the profile pages (Resnick & Zeckhauser, 2002). Literature shows that in a strategic trust-based economy, stakeholders value information they can draw from faces (Ewing et al., 2015). For example, in business decisions, decision-makers strongly prefer face-to-face meetings, even for the execution of legal contracts (Eckel & Petrie, 2011). Eckel and Petrie (2011) found that the human face provides substantial data in this type of decision-making process. More specifically, faces carry trustworthiness cues (Engell et al., 2007; Todorov et al., 2009). Perceptions of trustworthiness based on the face have proven effects on decisions and behaviors. A positive correlation was identified between the trustworthiness perception drawn from a face and tendency to cooperate, (Van 't Wout & Sanfey, 2008), and to avoid

cooperation in the event of a perception of untrustworthiness drawn from a face (Chang et al., 2010; Rezlescu et al., 2012; Stirrat & Perrett, 2010; Tingley, 2014).

There have also been numerous studies examining directly the relationship between profile photos and perceived trustworthiness on accommodation-sharing platforms. Specifically, studies of accommodation sharing have found that "trustworthy photos" contribute to the establishment of trust (Bente et al., 2012), and influence the selection of accommodation (Ert et al., 2016). Ert et al. (2016) found that the more trustworthy the host was perceived to be from his/her photo, the higher the price of the listing and the likelihood of selection. Jaeger et al. (2019) expanded upon the findings of Ert et al. (2016) by controlling for additional features related to price and the influence of other host features, such as race and facial expression (Jaeger et al., 2019), identifying effects related to racial differences on prices and a positive correlation between the smile intensity of the host and the rental price. Barnes and Kishner (2021) classified profile photos using a deep learning application and found that trust along with attractiveness led to 5 percent higher Airbnb listing prices. Although the level of trustworthiness perceived from profile photos was taken into account in all three of the above studies, no investigation was made of the facial variables linked to perceived trust. The main aim of the present study is to fill a gap in literature by combining the findings of cognitive science studies focused on human face variables with those of studies investigating tourism and hospitality.

The human face: a source of information determining accommodation preferences

Visual processing is one of the leading ways in which survival data is obtained from one's environment (Zebrowitz et al., 1996), which is why humans constantly look around and use their visual inputs to guide their behaviors. One of the major sources of visual information is the human face, which can convey a vast amount of information that is highly relevant to social life, and that is crucial to detect for the production of adaptive responses within different contexts (Zebrowitz et al., 1996). Infants spend more time looking at faces rather than non-facial stimuli (Cassia et al., 2004; Valenza et al., 1996). Faces grab attention, even if presented peripherally and completely irrelevant to the task (Devue & Grimshaw, 2017). A face still pops out when it is presented among non-facial distractor objects (Hershler & Hochstein, 2005; Langton et al., 2008), and it can thus be stated that faces have a unique capacity to attract attention.

The parts of the human brain that interpret and store information on human faces are remarkable (Bahrick et al., 1975), acting in accordance with the desire to extract as much information as possible from the faces of others (Hassin & Trope, 2000), and this desire is instinctual (Mondloch et al., 1999). Even a brief glance at a face allows many inferences to be made, such as physical health, identity, age (Grammer & Thornhill, 1994), attractiveness (Rhodes, 2006), emotions (Ekman, 1993) and personality (Willis & Todorov, 2006). Although humans may seem to make many different and separate inferences, is claimed in the cognitive sciences that people evaluate others from their faces based on two main dimensions: valence and dominance (Todorov et al., 2008). Each of the adjectives that they use to identify others corresponds to a point in this two-dimensional evaluation range. Valence is the dimension through which humans evaluate the intentions of others, while dominance is the dimension through which humans evaluate the capacity of others to follow through with those intentions. Valence dimension evaluations have been found to take priority over those of the dominance dimension, while the trustworthiness evaluation of others takes priority over all other evaluations, and is one of the major sub-dimensions of the valence dimension (Todorov et al., 2008). On the Airbnb main listing screen, four main variables are presented to browsers, being a photo of the host, photos of the apartment, the host's rating score and an apartment description, and visitors to the application base their evaluations on all four of these variables. In parallel with the findings of a brief literature review, the present study assumes that guests will base their trustworthiness evaluations primarily on the photo of host in the profile.

Studies have suggested that a relationship exists between mental processing depth and visual focus, namely fixation position and fixation duration (Henderson et al., 2013). Close or direct fixation on an object or scene region is necessary for the perception of local visual details, for the unambiguous identification of objects, and for the encoding of the object and the scene information into the short- and long-term memory. As such, monitoring eye fixation positions and durations of fixation, namely visual focus, to determine which variable on the screen grabs primary attention (which is subjected to a deeper mental process) can be considered the most appropriate approach to the evaluation of the stated assumption. Accordingly, the following hypothesis is proposed:

H1: *Due to the instinctual desire of guests to evaluate the trustworthiness of hosts, the total gaze duration of users on the profile photo of the apartment owner (host) on the screen will be more than that accorded to the apartment photo, the rating of the host and the apartment description text.*

Facial expressions and traits: impact of expressed emotions and facial width-height ratio on the perceived trustworthiness of hosts

Secord (1958) suggests that people may perceive temporary emotions reflected in the faces of strangers as a permanent personality trait, which Todorov (2008) expanded upon later with the emotion face overgeneralization hypothesis (Secord, 1958). Krumhuber et al. (2007) found that the level of trust placed in a person and their willingness to cooperate are affected by subtle dynamics that are reflected in the face of an individual, as a result of this tendency. Accordingly, happy expressions were found to be perceived as more trustworthy, while angry expression faces were linked to untrustworthiness. In addition to their effect on the perceived trustworthiness, people with happy facial expressions are perceived to be more cooperative (Montepare & Dobish, 2003). Hence, consistent with previous studies:

H2: *On accommodation sharing platforms, guests perceive hosts with happy expression profile photos as more trustworthy than those with neutral expression profile photos, and so the apartments of hosts with happy expression profile photos tend to get more custom.*

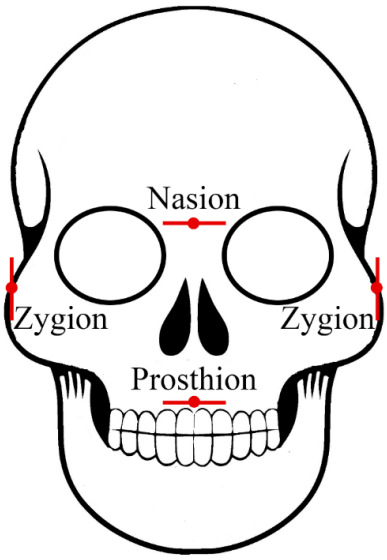

Figure 1. *Cranial landmarks of Nasion, Zygion and Prosthion*

Recently, the human facial width-height ratio (fWHR) has been identified in literature as a variable affecting perceptions of personality (Weston et al., 2007). It has been claimed that the testosterone levels of males during adolescence affect fWHR (Lefevre et al., 2013), with higher

testosterone levels being related to higher fWHRs, meaning broader and shorter faces. fWHR is calculated by dividing the distance between the left and right Zygion points by the distance between the Prosthion (the very top of the upper lip) and Nasion (center of the eye brows), being the four cranial landmarks shown in Figure 1 (Weston et al., 2007).

A significant correlation has been identified between fWHR and perceived aggressiveness (Carré et al., 2010) in both males and females (Lefevre & Lewis, 2014). Neth and Martinez (2009) reported that a person appears to be more aggressive when the fWHR is increased through the manipulation of the distance between the eyes and mouth on an image, and such a manipulation also affects the perceived trustworthiness of the person in the photo (Stirrat & Perrett, 2010). A negative correlation has also been identified between aggressive appearance and perceived trustworthiness. Geniole et al. (2014) found aggressiveness to be a mediating variable between fWHR and perceived trustworthiness, and a positive correlation has been noted between perceived aggressiveness and fWHR in a number of different studies (Haselhuhn et al., 2015; Lefevre & Lewis, 2014). As mentioned previously, trustworthiness evaluations are one of the main sub-dimensions of the valence dimension, relating mainly to the evaluation of the intentions of others. Since an aggressive appearance conveys visual information about the unfavorable intentions of a person, the correlation between an aggressive appearance and perceived trustworthiness is negative (Carré et al., 2009). The more aggressive a person looks, the more untrustworthy they are perceived. This raises the question of whether a relatively higher fWHR in the host corresponds to a decrease in their perceived trustworthiness, regardless of their actual aggressiveness, and this may lead to them being less preferred. Accordingly, the following two hypotheses are proposed.

H3: *Guests perceive hosts with happy expression profile photos to be more trustworthy than those with neutral expression fWHR-increased profile photos, and as a consequence, the accommodation offered by hosts with happy expression profile photos tend to be preferred more.*

H4: *Guests perceive hosts with neutral expression profile photos to be more trustworthy than those with neutral expression fWHR-increased profile photos, and consequently, hosts with neutral expression profile photos tend to be preferred more.*

Figure 2 presents a graphic of the research model.

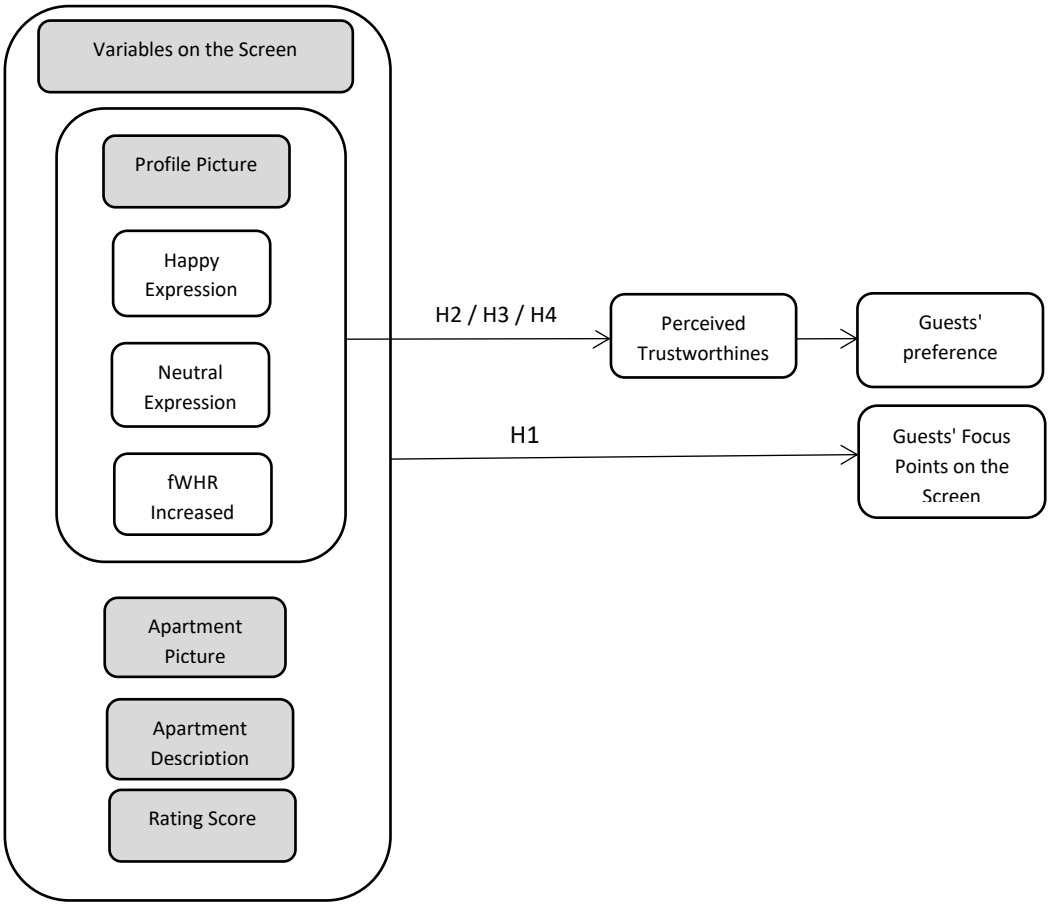

Figure 2. *Research Model*

METHODOLOGY

The hypotheses were tested by three studies (see Table 2), all of which involved data from Turkey. There are two rationales that make Turkey an ideal setting for the study. The first of these is that Turkey has a high average spending on the Sharing Economy when compared to many other countries (Table 1). The average per-user contribution to the sharing economy was €1,031 in 2016 (Beutin, 2017).

Table 1. *Average per-user contribution to the Sharing Economy in one year (Beutin, 2017)*

Country	**Average Spent**
Turkey	1.031 €
Switzerland	939 €
Germany	884 €
Belgium	615 €
Austria	574 €
The Netherlands	506 €

Secondly, trust is a major issue in Turkey, where uncertainty avoidance, defined by Hofstede as "... *the extent to which the members of a culture feel threatened by ambiguous or unknown situations*" is rated rather high at 85 out of 100 (Hofstede, 2018). Some 12 percent of Turkish people agree with the statement "most people can be trusted", (Ortiz-Ospina & Roser, 2018) and Turkish people scored an average of 2 on a 5-point Likert-type scale measuring "trust at first contact", in which 5 indicated the highest level of trust (Konda, 2012). A simulated digital accommodation-sharing platform (www.gezgineyuva.com) resembling commercial accommodation -sharing platforms was created for the study, and was used in all three stages of the study, although different data collection methods were utilized in each stage.

Table 2. *Summary of studies*

Study Number	Purpose	Tested Hypothesis	Data Collection Method	Data Collection Platform
Study 1	Selection of the Apartment Photos for Study 1 and 2	N/A	Online Survey	Online Survey
Study 2	Research of users' points of interests on accommodation selection screens	H1	Offline Eye Tracking Device	www.gezgineyuva.com A simulated accommodation sharing platform
Study 3	Research of user decisions	H2, H3, H4	Online Apartment Preferences Recorded	www.gezgineyuva.com A simulated accommodation sharing platform

Study 1 – Selection of Apartment Photos

Given that the aim of the research was to measure the effect of profile photos on user decisions, the effect of other variables, including apartment photos, should be neutralized. It was considered that especially the appeal of the apartment photos would have a considerable effect on participant choices, which made the selection of apartment photos to be used in the research a critical issue. Rather than using a single standard photo to neutralize the effect of the apartment photo, photos with a similar level of appeal were used in the research to make the platform more authentic. To this end, an initial research was carried out to identify apartment photos with a similar level of appeal.

Data collection

Data were collected from online sources, and the study sample included 228 people who were contacted through a convenience sampling method, and

who participated in the research voluntarily. The mean age of the participants was 39.6 years (SD 10.56), 65 percent were female and 35 percent were male, and all were familiar with accommodation-sharing portals.

Measures

A total of 25 apartment photos were procured from www.shutterstock.com, and an online survey was conducted in which the participants were asked to rate how much they liked each apartment on a 7-point Likert scale, ranging from "did not like at all" (1 point) to "liked very much" (7 points).

Analysis and results

The data recorded for each photo was subjected to a paired samples t-test with all other photos, and six apartment photos were identified as having a similar level of appeal (see Table 3) that were used subsequently in studies 2 and 3.

Table 3. *Apartment Photos Paired Samples t-test Results*

Code	Mean	Code	Mean	
Apartment 1	4.28 (1.673)	Apartment 6	4.30 (1.501)	t= 0.189
Apartment 1	4.28 (1.673)	Apartment 5	4.22 (1.667)	t= -0.586
Apartment 1	4.28 (1.673)	Apartment 4	4.24 (1.474)	t= -0.352
Apartment 1	4.28 (1.673)	Apartment 3	4.21 (1.652)	t= -0.595
Apartment 1	4.28 (1.673)	Apartment 2	4.25 (1.517)	t= -0.305
Apartment 2	4.25 (1.517)	Apartment 6	4.30 (1.501)	t= 0.535
Apartment 2	4.25 (1.517)	Apartment 5	4.22 (1.667)	t= -0.240
Apartment 2	4.25 (1.517)	Apartment 4	4.24 (1.474)	t= -0.085
Apartment 2	4.25 (1.517)	Apartment 3	4.21 (1.652)	t= -0.396
Apartment 3	4.21 (1.652)	Apartment 6	4.30 (1.501)	t= 0.885
Apartment 3	4.21 (1.652)	Apartment 5	4.22 (1.667)	t= 0.114
Apartment 3	4.21 (1.652)	Apartment 4	4.24 (1.474)	t= 0.301
Apartment 4	4.24 (1.474)	Apartment 6	4.30 (1.501)	t= 0.619
Apartment 4	4.24 (1.474)	Apartment 5	4.22 (1.667)	t= -0.152
Apartment 5	4.22 (1.667)	Apartment 6	4.30 (1.501)	t= 0.739
For all t-tests: t(227), p>.05				

Study 2 - Research of Users' Points of Interest On Accommodation Selection Screens

A simulated digital accommodation sharing platform was created for the testing of H1. The placement of profile photos, apartment photos, apartment description texts and rating scores on the screen were laid out to

resemble as much as possible existing accommodation sharing platforms (see Figure 3). The eye movements of the participants were recorded in a controlled environment while responding to the question of how much they would want to stay at each apartment based on the data presented on the platform.

Data collection

The participant group comprised convenient undergraduate university students and scholars, all of whom were informed about the research and participated voluntarily. The data were collected in an offline setting under the supervision of the researchers. The responses of the participants took an average of 19 minutes. A total of 39 participants (69.2% male and 30.8% female; 90% aged 23–41 and 10% aged 42–53; 97.4% with at least a bachelor's degree) responded to the survey. All participants were familiar with accommodation-sharing applications.

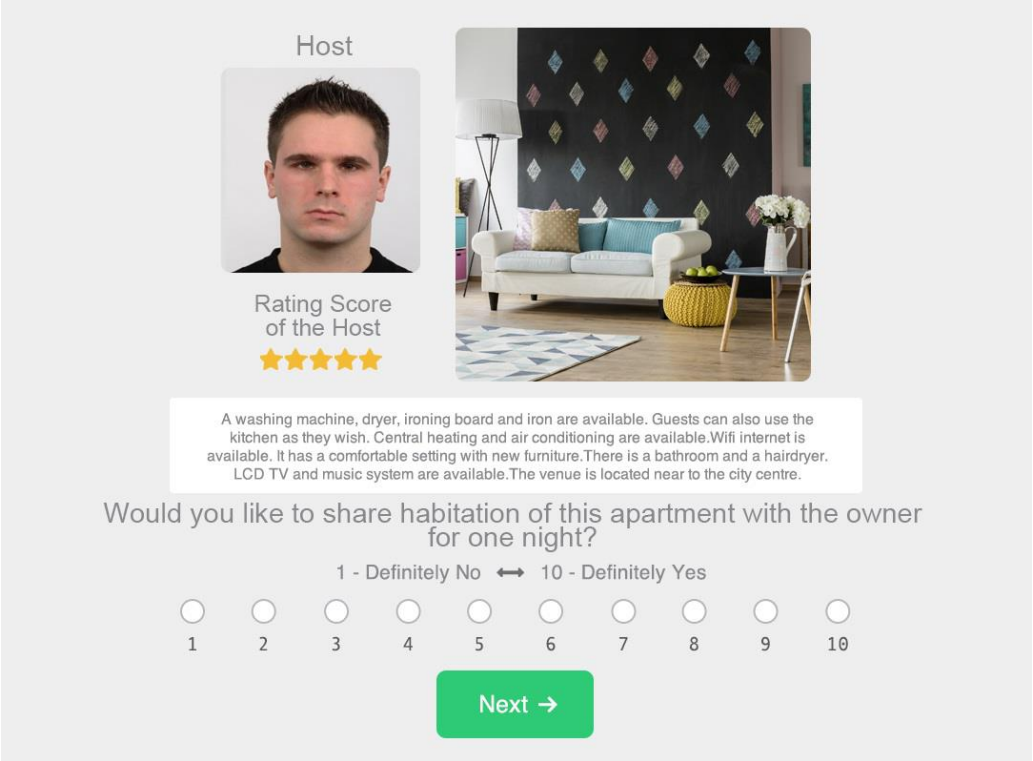

Figure 3. *An example screen*

Stimuli

A total of nine apartment alternatives, using a combination of nine profile photos and six apartment photos, served as stimuli for the study. As is the case with real accommodation-sharing platforms, the postings included

profile photos, apartment photos, host rating scores and written information about the apartment, as the four main variables shown to the users (see Figure 3 for an example screen).

The main variable used in the research was the profile photo, for which nine male profiles from the Radboud Faces Database were selected from among 38 different male profiles using randomization software (Langner et al., 2010). The database contains photographs of people who have undergone training in the Facial Action Coding System (FACS), and gave form to their faces accordingly (Ekman et al., 2002). Only happy and neutral facial expressions, viewed from the front and looking directly into the camera, were used for the research. A tilted head invokes perceptions of dominance, and so the person is perceived to be more dominant when the head is upright (Mignault & Chaudhuri, 2003). Since in the Radboud Faces Database all heads are upright, the effect was the same in all photos.

In addition to the happy and neutral expressions of the nine males selected from the database, a further facial type was created by increasing the fWHR of the neutral photos. fWHR values of all profile photos have been increased between 12% and 13%. The neutral photos were selected for manipulation due to the potential of facial expressions to manipulate the facial width height ratio (Kramer, 2016). After the fWHR of each profile was increased, happy, neutral and fWHR-increased profile photos of the nine male profiles were made ready for use in the research. A sample male profile featuring all three photo types is presented in Figure 4.

Each participant was presented with three randomly selected happy expression (unmanipulated), neutral expression (unmanipulated) and neutral expression (fWHR increased) profile photos (nine photos in total) on apartment selection screen.

Figure 4. *Sample male profile – from left to right: happy expression (unmanipulated), neutral expression (unmanipulated) and neutral expression (fWHR increased).*

Each participant rated how much wanted to share habitation of the apartment with the owner for one night in each of the nine presented apartment alternatives on a 10-point Likert scale, with the two polarized ends of the scale being “definitely no” (1 point) and "definitely yes" (10 points). The screens used in the research were generated using software incorporating an algorithm that presented nine unique screens to each user. As mentioned previously, each screen contains four basic variables. The software carries out the following operation for each user, providing nine unique apartment alternatives to each participant. The program begins by creating nine random male profiles, and then randomly selects one of the three image types (happy, neutral, fWHR increased) for each male profile. While making these random selections, it ensures that three happy, three neutral and three fWHR increased are selected and presented to each respondent, in random order and with random profile values. Since six apartment photos were identified with a similar level of appeal, these six photos were sorted randomly and used for the first six apartment alternatives. For the seventh, eighth and ninth apartment alternatives, the apartment photos used for the first, second and third apartment alternatives were used in the same order again, bringing the number of apartment photos to nine. These randomizations prevented any potential effects of the order of photos and any deviations that may arise from the use of the same profiles with the same type of apartment photo. In all accommodation alternatives, in apartment description texts the order of the sentences was changed randomly to ensure that participants do not realize they are reading the same text. Finally, the rating scores of hosts were fixed at 5 stars in all alternatives. Any potential effect of the apartment description texts and the rating scores of the hosts were thus neutralized through the use of the same texts and the same rating scores for all apartment alternatives.

Apparatus

The participants viewed the screens on a flat-screen monitor with a resolution of 1920x1080 pixels and a refresh rate of 100Hz, controlled by a PC running the Windows 10 OS and iMotions software (iMotions, 2017). Eye movements were recorded using an EyeTribe desk-mounted eye tracker with a 20ms response rate, also controlled by iMotions software. The participants sat approximately 60 cm from the screen, and a standard optical mouse was used to record the survey responses.

Procedure

Before taking part in the survey, the respondents were informed about the purpose of the study and provided written consent for their participation. The eye-tracking involved a standard nine-point calibration procedure. For the system calibration, the eye-tracking software calculates the user's eye gaze coordinates with an average accuracy of around 0.5º to 1º of visual angle. When the user is located approximately 60 cm away from the screen/tracker, this accuracy corresponds to an on-screen average error of 0.5 to 1 cm. Upon the successful completion of the calibration process, the respondents rated their desire to stay in each alternative apartment on a 10-point Likert scale. No time limit was applied during the survey, and the respondents' eye movements were recorded.

Analysis and results

The eye movement data (horizontal and vertical coordinates on the screen) were automatically parsed into saccades and fixations by the iMotions software. An example eye tracking heat map presented in Figure 5.

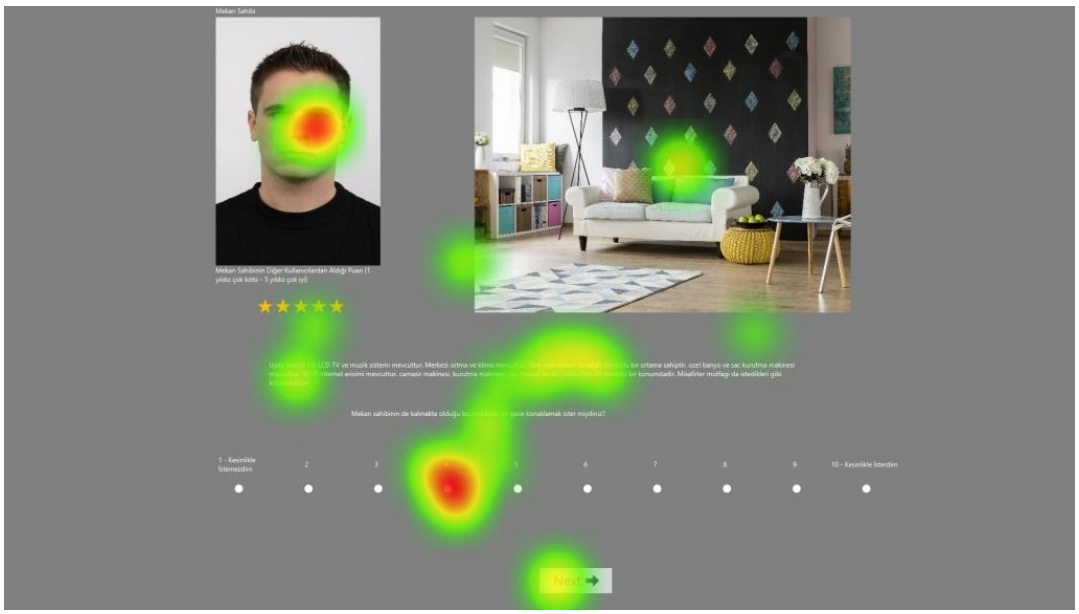

Figure 5. *An eye tracking heat map for a screen*

Earlier studies have suggested a link between depth of processing and fixation duration (Henderson et al., 2013; Nuthmann et al., 2010), and so only the fixation durations were analyzed as meaningful data, as it can be assumed that information extraction takes place only at these points. The iMotions software decomposed the fixation durations according to the areas of interest (AOI). The profile photos, apartment photos, apartment

descriptions and rating scores of the hosts were identified as AOIs. Durations were all in milliseconds, and the dwell times for each AOI were computed as the sum of the fixation durations on that AOI.

A non-parametric Kruskal-Wallis test was used to compare the mean durations of the four AOIs, revealing that the profile photo was the AOI with the highest mean rank score, and that there was a statistically significant difference in the fixation durations on the AOIs, $\chi 2(3) = 155.472$, $p = 0.000$ (see Figure 6 for the mean rank scores).

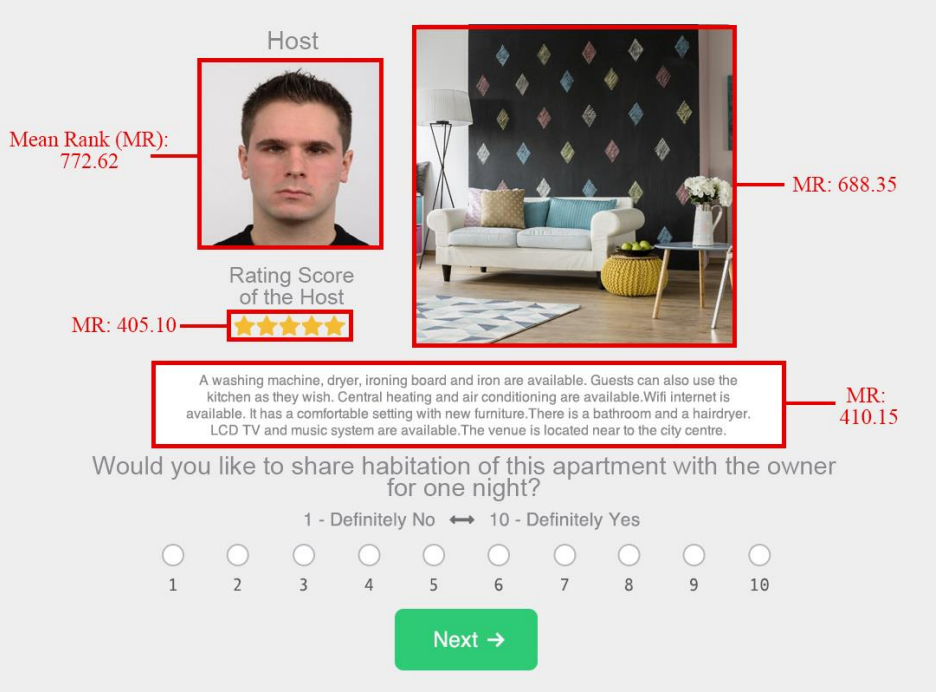

Figure 6. *Mean rank scores of AOIs*

Mann-Whitney U tests were conducted for pairwise comparisons (Table 4). The analysis revealed that the fixation durations on different AOIs differed significantly from each other, aside from those on the apartment descriptions and rating scores, indicating that the variable attracting the most attention on the apartment selection screen was the profile photo of the host. *H1* was thus accepted.

Table 4. *Pairwise comparisons of AOIs*

AOI Pair	Mann Whitney U	p-value
Apartment Description - Apartment Photo	17490.000	0.000
Apartment Description - Profile Photo	18022.500	0.000
Apartment Description - Rating Score	7309.500	0.573
Apartment Photo - Profile Photo	131102.000	0.000
Apartment Photo - Rating Score	17458.500	0.000
Profile Photo - Rating Score	17081.000	0.000

Study 3 - Research of User Decisions

Study 3 was conducted to test hypotheses 2–4, for which an online survey was conducted using an expanded version of the simulated accommodation platform developed in study 2 with the addition of a profile photo trustworthiness evaluation survey module. The platform was designed to be equally viewable on different devices and different screen sizes.

Data collection

Online survey data was garnered from 226 participants (38.9% male; 61.1% female) who were accessed through a convenience sampling method, and who participated in the study voluntarily (Table 5).

Table 5. *Profile of the participants*

Age Group & Generation	**n**	**%**	**Education Level**	**n**	**%**
19-22 / Z generation	70	31	High School	6	3
23-41 /Y generation	109	48	Associate & Bachelor's Degree	130	57
42-53 / X generation	41	18	Master's Degree	63	28
54-66 / Baby boomers	6	3	Doctorate	27	12

According to the PricewaterhouseCoopers Share Economy report (Beutin, 2017), the majority of users of the sharing economy, especially in the accommodation field, are well educated, with 70 percent having obtained a high school diploma or higher. The same report stated that the average age of Turkish users of the sharing economy was 37.8 years (Beutin, 2017), which concurs with the age and education level distribution of the participants in the present study.

Measures

The platform created for study 2 in the present study was further with the addition of a profile photo trustworthiness assessment module. To measure the perceived trustworthiness of the hosts, the respondents were asked directly to evaluate the trustworthiness of the hosts on a 10-point Likert scale after assessing the apartment evaluation screens.

Analysis and results

A paired samples t-test revealed significant differences between the perceived trustworthiness levels of the different profile photo types (Table 6).

Table 6. *Perceived trustworthiness of profile photos*

Pair	Profile Photo	Mean	Profile Photo	Mean	
1	Neutral Expression	5.17 (1.80)	Neutral expression fWHR increased	4.79 (1.81)	t=4.392
2	Neutral Expression	5.17 (1.80)	Happy Expression	6.21 (1.95)	t=10.862
3	Neutral expression fWHR increased	4.79 (1.81)	Happy Expression	6.21 (1.95)	t=13.029
For all t-tests: t(225), p<.01					

These results suggest that profile photos have a significant effect on the perceived trustworthiness of the hosts. Hosts with happy expressions in their profile photos were perceived as the most trustworthy, while neutral expression fWHR-increased profile photos were perceived as the least trustworthy. Furthermore, in a paired samples t-test, significant differences were noted in the average preference scores of the happy expression, neutral expression and neutral expression fWHR-increased profile photos (Table 7).

Table 7. *Paired samples t-test results of participants' apartment preferences*

Pair	Profile Photo	Mean	Profile Photo	Mean	
3	Neutral Expression	5.92 (2.69)	Neutral expression fWHR increased	5.72 (2.71)	t=2.528
1	Neutral Expression	5.92 (2.69)	Happy Expression	6.31 (2.65)	t=5.292
2	Neutral expression fWHR increased	5.72 (2.71)	Happy Expression	6.31 (2.65)	t=6.088
For all t-tests: t(225), p<.02					

These results reveal the effect of profile photos on user preferences. While the postings with happy expression profile photos had the highest rating on average, those with neutral expression fWHR-increased profile photos recorded the lowest average scores. A simple linear regression analysis was carried out to identify any correlation between perceived trustworthiness and user preferences, with the aim being to predict venue preferences based on the perceived trustworthiness of each host's profile photo type. Significant regression equations were found for happy expression profile photos ($R^2 = 0.307$, $F(1,224)=99.325$, $p<0.000$) and for those with neutral expressions ($R^2 = 0.320$, $F(1,224)=105.635$, $p<0.000$). Preferences for the apartments in postings with happy expression profile photos increased by 0.554, and by 0.566 for neutral expression photos. Similar

results were found also for neutral expression fWHR-increased photos (R^2= 0.288, F(1,224)=90.393, p<0.000), while and preference for the apartment increased by 0.536. These results indicate a significant relationship between perceived trustworthiness and preference for the apartment, thus *H2*, *H3*, and *H4* are supported.

CONCLUSIONS

As the accommodation branch of the sharing economy grows, it comes to face new challenges. Accommodation sharing has functional benefits, in terms of access, convenience and cost, but also provides the user with the hedonic experience of plunging into the life aesthetics or the de facto meeting of new people from different parts of the world. Staying in a stranger's home can come with some risks, and so trust is at the very center of the business model of accommodation platforms. The strong need for trust among the users of such platforms leads users to make use of any information that is available to them, but as shown in the present study, this information is not necessarily relevant, and consumers do not use it consciously. Some variables, such as profile photos, can affect the perception of the user, without them even being aware of it, and so users may make their decisions unconsciously (Todorov, 2008; Todorov et al., 2009). Accordingly, sharing economy platforms need to understand what users infer from both the visual and the non-visual information posted on their sites, and should design their sites accordingly to reduce potential biases, for which it is necessary to understand the effect of changes in these variables. While managers must understand each factor of trust-building to ensure the safety of their platforms, users must give weight to the means of engagement when connecting with people who may sometimes be very far away. The findings of the present study indicate the importance of host profile photos on accommodation sharing platforms in increasing the likelihood of attracting customers, and the selection of such photos could be improved with a tool built into platforms to be applied at the accommodation profile-creation stage. The findings of the present study further reveal the points that such a tool should prioritize to in the creation of profile photos. As factors in the global economy, the users of digital accommodation platforms must effectively address the needs of a diversity of traveler types, and must develop the necessary knowledge, skills and attitudes to make this new communication platform instant and effective. Adding specific data about the relationship between trust and facially expressed emotions and traits in different cultures may prevent

misunderstandings during digital communications with world travelers from different social backgrounds who are complete strangers.

Of course, a trustworthy face is just one factor in the establishment of trust. As in any sector, in the provision of accommodation, there will be new incumbents and consumers over time that will bring different opportunities and threats. One such threat could be the deceitful use of profile photos to take advantage of the factors identified in the present study. Accordingly, developing a good basis of knowledge of this communication modality will be beneficial to all stakeholders, and may contribute to their ability to foresee and circumvent such issues.

Theoretical implications

To the best of authors' knowledge, this is the first study in literature to combine a study of human facial variables, as a cognitive science with a study of the tourism and hospitality sector. Although there have been other studies identifying the variables affecting trustworthiness in profile photos (Barnes & Kirshner, 2021; Ert et al., 2016; Jaeger et al., 2018), user behaviors and prices on accommodation-sharing platforms, the present study is the first to determine which variables related to the human face are effective in this regard. It is argued in the present study that during the formation of trust in a host and apartment choice behaviors on accommodation-sharing platforms, the profile photos of the hosts grab the attention of users more than any other factors on profile pages. This is supported by claims in existing literature that (i) visual sensation is important for human conduct, (ii) one of the most important providers of visual sensation is the human face, (iii) the human face is a significant information source in the formation of trust among individuals, and (iv) the human face is interpreted by people from different backgrounds and cultures, universally, in the same way, instinctively and beyond individual control.

Inferences made about a person one has just met is a principal, automatic and immediate response of the human brain, while survival-related assessments are made even faster. Humans constantly collect information from their environment in order to survive, and develop the necessary attitudes to attain their goals. During such processes, they use cognitive filters to select the necessary information, and make inferences accordingly. After meeting a stranger, the perception of trustworthiness is established within 33ms, which is not something the human mind is able to perceive consciously (Todorov et al., 2009), and the unconscious side then completes the evaluation to guide behaviors (Kahneman, 2011).

Thus, contact with others is the first step in the establishment of trust, during which, along with verbal conversations, nonverbal facial signals augment the transmission of meaning. Our dynamic facial expressions and static traits convey volumes of information that have an impact on our perceived trustworthiness.

The present study investigates how the visual-based trust process occurs in real life through the introduction of a simulated accommodation platform, while introducing an extended, multi-disciplinary approach to the field of accommodation-sharing by: (i) integrating data collected using an eye-tracking device, (ii) making use of a scientifically proven face database, and (iii) applying fWHR literature to the accommodation-sharing field.

The findings that (i) happy facial expressions of hosts increase perceived trustworthiness, (ii) the perceived trustworthiness of hosts in their profile photos affects the apartment choices of users, with the apartments of hosts with higher perceived trustworthiness being preferred more by guests, and (iii) a negative correlation exists between increased fWHR and trustworthiness, all support and enrich the findings of existing studies by adding data from Turkey. The findings make further specific contributions to literature on accommodation-sharing platforms, revealing that (i) the profile photos of hosts are the most attention-grabbing variables for users of such platforms, and (ii) fWHR affects the apartment choices of users, with higher fWHRs decreasing the perceived trustworthiness of the hosts, resulting in their apartments being preferred less by guests. The results of the study concur with existing studies citing the importance of facial traits and expressions in the assessments of others. This data from Turkey, focusing solely on happiness as an emotion, contributes to these discussions, and may be expanded upon with researches in different countries.

Limitations

There are some limitations to the present study that should be noted. First, the introduced facial expressions were limited to males. Although Özener's (2012) study of the Turkish population found fWHR not to be dimorphic between genders, the authors of the present study limited their data to a single gender to eliminate the potential distortive impact of stereotypes on perceptions.

Secondly, although the demographics of the participants in the present study fit the general profile of accommodation-sharing platform users, they were mainly university students and professors, and this may be considered a limitation of the study preventing the generalization of the findings to the general user population.

Future research

The results of the present study indicate the importance of profile photos when designing sharing economy platforms. The main variable used in the research is a still, static photo, being a two-dimensional source of stimulus with the ability to affect how emotions and traits are perceived. Further benefit in this regard could be garnered from studies investigating the impact of different dimensions, displays, framing, size and location of profile photos on screens. Considering the advances in 3D transmissions, assessing the impact of videos of faces, animated faces, as well as avatars, will provide further clues to the creators of future platforms in the sharing economy.

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THE EFFECT OF MARKET-ORIENTED AND BRAND-ORIENTED SERVICE IMPROVEMENT ON HOTEL PERFORMANCE

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ABSTRACT

This study tests a holistic model covering the antecedents and consequences of service improvement within the context of the hospitality industry. Market orientation and brand orientation are considered among the antecedents of service improvement. Consequences of service improvement, on the other hand, are the sub-dimensions of hotel performance. Data were collected from 121 hotel managers via online questionnaire technique. The research model was tested with PLS-SEM method. Findings related to the direct effect hypotheses show that customer orientation has positive effects on brand orientation and service improvement. While competitor orientation affects brand orientation positively, it does not have a direct effect on service improvement. There is a positive relationship between brand orientation and service improvement. Service improvement enhances the customer performance of a hospitality enterprise while not having a direct effect on the economic performance of the enterprise. On the other hand, customer performance of a hotel increases the economic performance and economic performance enhances its financial performance. Hypotheses concerning the indirect effect indicate that competitor orientation affects service improvement behavior through brand orientation. Similarly, service improvement and economic performance relationship is mediated by customer performance, and customer orientation and economic performance relationship by brand orientation.

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INTRODUCTION

Operating under the conditions of global competition, hospitality enterprises have to analyze their customers and competitors and renew their services in line with the information they obtain (Tang, 2014). Renewal of the services is usually done by choosing one of the two opposing strategies; service development and service improvement (Martínez-Ros & Orfila-Sintes, 2009; Ottenbacher & Gnoth, 2005; Tang, 2014). This is because either strategy requires different actions from each other in terms of such administrative matters as decision-making, implementation and source management (Tang, 2014). Service renewal is vital for hotel enterprises either through re-development or improvement as renewing services brings a lot benefits for the enterprise in many aspects like understanding changing customer demands, promoting product quality, reducing costs, increasing market share and differentiating from competitors (Chang et al., 2011; Martínez-Ros & Orfila-Sintes, 2009; Orfila-Sintes & Matsson, 2009; Ottenbacher & Gnoth, 2005). However, since the rate of return of the expenses to be made to create new services could remain much below the expectations (Nicolau & Santa-María, 2013), service development strategy is considered riskier in comparison to service improvement in the hospitality industry (Cegarra-Navarro & Martinez, 2010; Tang, 2014). It can be said that service improvement strategy is more commonly preferred by the hospitality industry for renewing services since it requires smaller arrangements instead of radical innovation (Chang et al, 2011; Nicolau & Santa-María, 2013) and is found less risky (Cegarra-Navarro & Martinez, 2010). Therefore, the present study focuses on the service improvement strategy and examines the antecedents and consequences of service improvement.

Service improvement is a renewing strategy which is usually applied in the direction of customer orientation (Lages & Piercy, 2012). Hotel enterprises which try to understand their existing and potential customers' needs and requests, aim to offer better services to them and enhance customer satisfaction improve their services in this respect (Grissemann et al., 2013; Tang, 2014). However, as another component of the market, competitors can also affect the service improvement behavior of an enterprise (Tang, 2014). For instance, a developing hotel brand may decide to improve its services in a competitive oriented manner instead of focusing on customers. The services offered by the competitors could be compared with the existing services of the enterprise and actions to be taken to improve service quality can be decided on accordingly (Hilman & Kailappen, 2014). Hence, service improvement in hospitality enterprises is

theoretically related to the degree of market orientation (customer and competitor) of the enterprise. Moreover, since market-oriented enterprises can turn into brand-oriented ones over time (Reid et al., 2005; Urde 1999; Urde et al., 2013), brand orientation may as well be effective on the service improvement decisions of the enterprise. However, although some studies examine the effects of customer orientation on service improvement, no study has been found to investigate the effects of competitor orientation and brand orientation in a holistic way. In this regard, the primary aim of the present study is to discover how market orientation and brand orientation built upon it (Urde, 1999) affect service improvement in hospitality enterprises. The fact that the effects of these variables on service improvement have not yet been investigated holistically supports the uniqueness of the present study.

The related literature includes many studies concerning the relationship between market orientation and hotel performance (Alnawas & Hemsley-Brown, 2019; Qu, 2014; Sampaio et al., 2019; Tse et al., 2005; Zhou et al., 2009). Similarly, there are studies revealing the effect of brand orientation on enterprise performance as well (Laukkanen et al., 2016; Liow et al., 2019; Tajeddini & Ratten, 2020; Wong & Merrilees, 2007). However, the lack of studies on the relationship between service improvement and enterprise performance is interesting. Although hotel performance is approached from different perspectives (e.g. economic, financial etc.), the effect of service improvement on performance could not be designated comprehensively. Tang (2014), for example, examined the effect of service improvement in hotels on market performance alone. On the other hand, considering that a hotel enterprise is evaluated in terms of such indicators as customer performance (Turner et al., 2017), economic performance (Campo et al., 2014) and financial performance (Turner et al., 2017), it is seen that these limited number of studies investigating the effect of service improvement remain insufficient in terms of content, too. Based on these facts, another aim of the present study is to explain the relationship between service improvement and hotel performance in detail. Thus, the present study will make a unique contribution to the literature with filling this critical gap.

In this respect, the primary aim of the present study is to test a holistic model covering the antecedents (market and brand orientation) and consequences (stages of business performance) within the context of the hospitality industry. In the following sections of the study, variables are defined, research hypotheses revealing the relationships between the variables are established and the theoretical model is developed. The

findings obtained are discussed considering the related literature. Theoretical and practical implications, limitations, and future research ideas are presented in the final section.

THEORETICAL FRAMEWORK

Service improvement is the action of planning and implementing the practices or methods which improve service quality (Peccei & Rosenthal, 1997; Tang, 2014). In this respect, the ability of the enterprise to improve its services in-hand in a planned way is also defined as service improvement (Tang, 2014). During the service improvement process, the information pertaining to the enterprise should be focused on to reorganize service characteristics as well as responding to customers and competitors (Martinez-Ros & Orfila-Sintes, 2009).

Hotel enterprises apply the service improvement approach frequently (Tang, 2014). According to Cegarra-Navarro and Martinez (2010), hotel managers generally choose to improve existing services so as to avoid the risk to be brought by developing a new service (service innovation). The most critical factor that affects service improvement decisions of hotels is customers. Therefore, customers' evaluations of service quality and their level of satisfaction should constantly be analyzed. Information obtained through this analysis is used by managers at the stages of making the decisions to improve existing services and to improve new services (Cheng et al., 2012; Ro & Wong, 2012). Therefore, it can be asserted that there is a relationship between service improvement behaviors of hospitality enterprises and their customer orientation levels. In this context, customer orientation refers to all activities of the enterprise aiming to acquire information about the customer and disseminating this information throughout the business (Narver & Slater, 1990). In other words, it means planning the decisions and practices of the enterprise, staff behavior, products and services offered in a way that would satisfy the customer (Odabaşı, 2017). At this point, it is necessary to state that customer orientation is a strategy that covers not only the existing customers but also potential customers in the market (Dev et al., 2009). Using the information, they acquire through customer feedbacks and market research, businesses can understand the existing potential customers' needs and requests and develop services to meet them (Theoharakis & Hooley, 2008). In this regard, customer orientation is an enterprise's caring the customer and displaying an attitude and behavior that prioritize their interests, tastes, needs, and

requests (Rindfleisch & Moorman, 2003). Within the scope of this theoretical framework, the first hypothesis of the study is as follows:

H_1: *Customer orientation affects service improvement positively.*

The concept of customer orientation is sometimes addressed as market orientation as well (Nwankwo, 1995). However, it is only possible to mention market orientation when enterprises display competitor-oriented behavior along with customer orientation (Hilman & Kailappen, 2014). Therefore, customer orientation and competitor orientation are accepted as sub-components of market orientation (Campo et al., 2014; Hilman & Kailappen, 2014; Narver & Slater, 1990; Zhou et al., 2009). According to Narver and Slater (1990, p. 21-22), competitor orientation is the enterprise's struggle for understanding its existing and potential competitors' strategies, activities, strengths and weaknesses. Dev et al. (2009, p. 19), on the other hand, define competitor orientation as the process of "*observing, managing and triumphing over competitors*". The authors consider competitor orientation as an approach that works well particularly in developing markets. In this regard, exhibiting a competitor oriented business approach instead of a customer-oriented one gives more advantage to hospitality enterprises operating in a developing market (Dev et al., 2009). Zhou et al. (2009), state that in a hotel enterprise which thinks customers are price-responsive, a competitor-oriented approach would be adopted. Thus, some hotels may decide to improve their services by taking their competitors' behaviors into consideration (Tang, 2014). As a matter of fact, service improvement decisions and actions in hospitality enterprises are also affected by competitor orientation, which is another indicator of market orientation as well as customer orientation.

H_2: *Competitor orientation affects service improvement positively.*

While addressing the relationship between market orientation and service improvement, one should also consider how brand-oriented the business is. According to Urde et al. (2013), market orientation and brand orientation are two separate options. Urde (1999) uses the term "*market orientation plus*" to define brand orientation (Urde, 1999, p. 118). According to the author, market orientation is a short-term and basic level action. While enterprises that have only market-oriented activities are still discussing products and markets, brand orientation which is built upon it takes the business to a sophisticated level (Urde, 1999). In this context, brand-oriented enterprises meet the customer's needs and requests within the scope of the limits of the brand's self-identity. In short, the main factor affecting the decisions of the enterprise in the brand identity (Urde et al.,

2013). In this respect, brand orientation is an approach applied by enterprises which take their brands as the main source and core strategy (Baumgarth et al., 2013; Gromark & Melin, 2011; Urde et al., 2013). While market orientation requires conducting market research to understand customer behaviors, brand orientation involves efforts to establish, protect and improve a business-specific brand identity (Tajeddini & Ratten, 2020). Hence, market orientation is positively related to brand orientation (Laukkanen et al., 2016). Similarly, it is also claimed that brand orientation is an approach that can be built upon market orientation (Reid et al., 2005; Urde, 1999; Wong & Merrilees, 2007). Thus, market (customer and competitor) orientation may cause a business to turn into a brand-oriented one over time. Studying the importance of brand orientation in hospitality enterprises, Liow et al. (2019) concluded that brand orientation enhances organizational performance. The study conducted by Liow et al. (2019) and Urde's (1999) assumptions that brand orientation is built upon market orientation reveal that brand orientation, like market orientation, would affect service improvement behavior positively. Since market orientation affects brand orientation positively (Laukkanen et al., 2016), the mediating effect of brand orientation can be observed in the relationship between market orientation and service improvement. In this respect, the following hypotheses can be formulated:

H_3: *Customer orientation affects brand orientation positively.*
H_4: *Competitor orientation affects brand orientation positively.*
H_5: *Brand orientation affects service improvement positively.*
H_6: *Brand orientation mediates the relationship between customer orientation and service improvement.*
H_7: *Brand orientation mediates the relationship between competitor orientation and service improvement.*

Services improved in line with customer, competitor and brand-oriented approaches could have positive effects on business performance. Nevertheless, this proposition needs to be tested empirically. Tang's (2014) study shows that, in hospitality enterprises, customer orientation has positive effects on service improvement behavior and service improvement on the market performance of the hotel. However, business performance should be considered as a multidimensional structure. For example, Turner et al. (2017), divide the performance of a hotel enterprise into two as customer performance and financial performance. Alnawas and Hemsley-Brown (2019), evaluate hotel performance over economic and financial performance. Campo et al. (2014) refer the market performance of an enterprise as the antecedents of economic and financial performance. These

studies show that it is possible to divide hotel performance into three as customer performance, economic performance, and financial performance. In this regard, customer performance of a hotel is approached over service quality, customer retention rate, and customer satisfaction level (Turner et al., 2017). Economic performance is estimated through considering the growth in sales, market share, occupancy rates, online reservation rates and revenues from foreign customers (Alnawas & Hemsley-Brown, 2019; Campo et al., 2014). Financial performance, on the other hand, is an indicator covering the return on hotel investment, rate of return and gross income (Turner et al., 2017). In the circumstances, it appears that a causal relationship can be built among these three indicators because the economic performance of an enterprise depends on its customer performance. And economic performance is the main source that supports financial performance. In this regard, it can be assumed that services improved in a hospitality enterprise can have direct effects on customer performance and economic performance. In addition to this, it also seems possible that service improvement could have indirect effects on economic performance through customer performance. Since these assumptions have not yet been tested in the literature, the present study seeks answers to the following hypotheses as well:

H_8: *Service improvement affects customer performance positively.*
H_9: *Service improvement affects economic performance positively.*
H_{10}: *Customer performance affects economic performance positively.*
H_{11}: *Customer performance mediates the relationship between service improvement and economic performance.*
H_{12}: *Economic performance affects financial performance positively.*

METHOD

The present study responds four main questions. The first one of these is whether the relationship between market orientation and brand orientation is valid for hospitality enterprises. The second is how market orientation and brand orientation affect service improvement approaches in hospitality enterprises. The third question is the effect of service improvement in line with market-oriented and brand-oriented approaches on hotel performance. The fourth question investigates the correlation among the sub-dimensions of hotel performance. To this end, the present study is quantitative research applying the regression model so as to test the hypothesized model given in Figure 1.

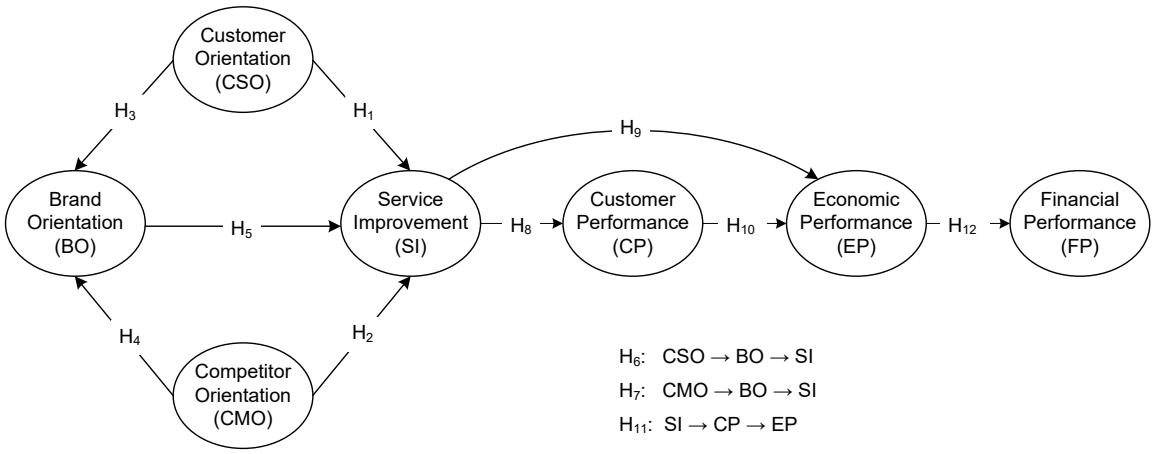

Figure 1. *The Hypothesized Model*

The data collection period of the study was held between 22 October and 18 November 2019 through filling out questionnaires. The reason behind collecting the data at the end of the season is to examine hotel performance variable accurately. It was assumed that the existing season had to close for managers become able to evaluate the performance of the hotels they manage. Variables related to hotel performance were measured with subjective approach (evaluating participant responses) instead of objective approach (using enterprise data) because hotels do not share the data concerning hotel performance indicators with third parties (Tse et al., 2005). Besides, working with such data may sometimes put researchers into a difficult situation against enterprises (i.e., the researcher can be blamed with sharing the private data of the hotel when a competitor somehow finds out any relevant information). In this regard, hotel managers from different regions of Turkey participated in the questionnaires carried out online. Approximately 300 managers selected with convenience sampling were sent an email or a private message through social media platforms and they were invited to the online questionnaire. However, 121 managers responded to the calls in the given period. The managers who participated in the study were distributed by their titles as follows: General manager (n= 22), deputy general manager (n= 7), department manager (n= 46), deputy department manager (n= 16) and chief of department (n= 30). As for departments, the managers were distributed as follows: Front desk (n= 32), food and beverage (n= 30), sales and marketing (n= 10), accounting (n= 10) and other departments (n= 10).

The questionnaire form consisted of seven scales related to the study variables. These, all of which were developed for hospitality enterprises by different researchers, are customer orientation (Zhou et al., 2009),

competitor orientation (Zhou et al., 2009), brand orientation (Laukkanen et al., 2016), service improvement (Tang, 2014), customer performance (Turner et al., 2017), economic performance (Campo et al., 2014) and financial performance (Turner et al., 2017) scales. A total of 27 scale items were adapted into Turkish using the method of translation/back-translation suggested by Brislin (1970) and McGorry (2000). For translation, three experts with good command of English and Turkish were consulted.

Table 1. *Mardia's Multivariate Normality Test Results*

Sample size: 121
Number of observed variables: 27
Univariate Skewness and Kurtosis

	Skewness	*SE_Skew Kurtosis*	*SE_Kurt (B)*	
CSO1	-2.0359387	0.2199858	3.7196790	0.4365851
CSO2	-0.4800712	0.2199858	-0.8215988	0.4365851
CSO3	-1.6194373	0.2199858	2.0240843	0.4365851
CSO4	-1.3254873	0.2199858	1.2683105	0.4365851
CSO5	-1.1397039	0.2199858	0.8186483	0.4365851
CSO6	-1.3117171	0.2199858	1.1809418	0.4365851
CMO1	-0.5531517	0.2199858	-0.7845722	0.4365851
CMO2	-0.3658635	0.2199858	-0.6197720	0.4365851
CMO3	-0.6885631	0.2199858	-0.2578838	0.4365851
BO1	-1.4705716	0.2199858	1.6607396	0.4365851
BO2	-0.9572596	0.2199858	0.2505339	0.4365851
BO3	-1.1276032	0.2199858	0.6878560	0.4365851
BO4	-1.3785239	0.2199858	1.2643980	0.4365851
SI1	-1.4937915	0.2199858	1.7663615	0.4365851
SI2	-1.3940596	0.2199858	1.4697575	0.4365851
SI3	-1.1387644	0.2199858	0.8037848	0.4365851
CP1	-1.1807872	0.2199858	2.1339104	0.4365851
CP2	-1.3816677	0.2199858	2.7528641	0.4365851
CP3	-1.3613340	0.2199858	3.1887622	0.4365851
EP1	-1.0716732	0.2199858	1.3947961	0.4365851
EP2	-0.9238355	0.2199858	1.2089481	0.4365851
EP3	-1.4066682	0.2199858	2.5191450	0.4365851
EP4	-0.7779347	0.2199858	0.9402267	0.4365851
EP5	-1.3364974	0.2199858	0.9890731	0.4365851
FP1	-0.5672247	0.2199858	-0.2911473	0.4365851
FP2	-0.8781190	0.2199858	0.9394878	0.4365851
FP3	-0.9260512	0.2199858	1.1545246	0.4365851

Mardia's Multivariate Skewness and Kurtosis

	β	*z*	*p*
Skewness	302.2756	6095.89119	0
Kurtosis	911.4097	17.84698	0

Before testing the theoretical model of the study, the data were examined for multivariate normal distribution to decide on the analysis technique to be employed. Based on Merli et al.'s (2018) suggestion,

skewness and kurtosis values of the variables were calculated using *Mardia's Multivariate Normality Test*[2]. Multivariate skewness of the data set was found as β= 302.2756 (p<0.01), and kurtosis as β= 911.4097 (p<0.01) (Table 1). It was seen that the data set did not have a multivariate normal distribution.

When the data is not distributed statistically normal it is recommended that the partial least squares method be used to test a structural model (Ali et al., 2018; Hair et al., 2014). Accordingly, it was decided that the theoretical model of the present study would be tested using variance-based partial least squares structural equation modelling (PLS-SEM) instead of covariance-based structural equation modelling. Another factor supporting the use of PLS-SEM method in the study is the relatively small size of the sample [n= 121] (Hair et al., 2014; Sarstedt et al., 2020).

Table 2. *Discriminant Validity Analyses*

		CSO	CMO	BO	SI	CP	EP	FP
Fornell-Larcker Criteria	CSO	0.894						
	CMO	0.651	0.876					
	BO	0.773	0.612	0.932				
	SI	0.843	0.622	0.786	0.938			
	CP	0.620	0.459	0.452	0.561	0.881		
	EP	0.456	0.290	0.384	0.483	0.654	0.897	
	FP	0.367	0.259	0.330	0.381	0.490	0.780	0.898
Heterotrait-Monotrait ratios	CSO	-						
	CMO	0.731	-					
	BO	0.811	0.680	-				
	SI	0.892	0.701	0.834	-			
	CP	0.688	0.533	0.501	0.626	-		
	EP	0.499	0.331	0.418	0.531	0.750	-	
	FP	0.403	0.299	0.360	0.420	0.557	0.885	-

The study used Anderson and Gerbing's (1988) two-step approach. The measurement model was tested accordingly, construct validity and reliability of the variables were examined and the results obtained are presented in Annex A. It is seen that factor loadings (FL) of all the observed variables are greater than 0.7. Cronbach's alpha (CA) and composite reliability (CR) coefficients of the latent variables are much higher than 0.7. Average variances extracted (AVE) are greater than 0.5. These criteria reveal that construct validity was attained in the present study (Fornell & Larcker, 1981; Hair et al., 2014). Discriminant validity of the study was tested using

[2] https://webpower.psychstat.org/models/kurtosis

the Fornell-Larcker Criteria (FLC) and the Heterotrait-Monotrait ratios (HTMT) of the correlations. According to the FLC, square root of the AVE value of each component in the measurement model should be higher than the coefficient of correlation between this component and others (Bagozzi & Yi, 1988; Hair et al., 2014). Additionally, HTMT values between the components in the measurement model should not exceed 0.90 (Henseler et al., 2015; Rodríguez-Victoria et al., 2017). According to Table 2 which shows the results of the FLC and HTMT analyses, the present study contains no discrimination validity issue.

After meeting the reliability and validity criteria, VIF values were calculated between the constructs in the measurement model and the data set was checked for any problems about common method variance (Hair et al., 2014; Kock, 2015). Since VIF values among constructs are lower than 3 [1.000-2.842] (Kock, 2015), it was assumed that the present study has no problems with common method variance. As a result of the analyses conducted on the measurement model, composite reliability, construct validity and common method variance, it was concluded that the necessary criteria were met to test the structural model. Based on these findings, the study moved onto the second step suggested by Anderson and Gerbing (1988) and the theoretical model representing the hypotheses of the study was tested with path analysis.

RESULTS

The theoretical model of the study was tested using the bootstrapping technique through resampling with 5000 iterations. First, the SRMR and NFI values were examined for the goodness of fit (SRMR= 0.05, NFI= 0.819). In addition to these, R^2 values of the exogenous variables, Cohen's effect size coefficient [f^2] (Cohen, 1988) and Stone-Geisser's predictive relevance value [Q^2] were calculated (Henseler et al., 2009). Since R^2 values were in the 0.315-0.757 range, it was concluded that the exogenous variables were explained at an acceptable degree (Hair et al., 2014). f^2 values showing the effects of the variables were found in the 0.010-0.636 range. Q^2 values calculated with *blindfolding* analysis were in the 0.221-0.612 range. These values show that predictive relevance was achieved for the model (Ali et al., 2018; Hair et al., 2014). Finally, the goodness of fit and model quality were decided as sufficient for moving onto the path analysis.

Findings concerning the path analysis of the direct effects are illustrated in Figure 2. All of the results concerning the direct and indirect effect hypotheses are given in Table 3 in a detailed way. Findings obtained

from testing direct effects indicate that customer orientation has positive effects on brand orientation (β=0.650, p<0.05) and service improvement (β=0.554, p<0.05). While competitor orientation affects brand orientation positively (β=0.189, p<0.05), it does not have a direct effect on service improvement (β=0.068, p>0.05). Service improvement enhances the customer performance of a hospitality enterprise (β=0.561, p<0.05), but does not have a direct effect on the economic performance of the business (β=0.170, p>0.05). On the other hand, customer performance of the hotel increases the economic performance of the enterprise (β=0.559, p<0.05) while economic performance strengthens the financial performance of the hotel enterprise (β=0.780, p<0.05).

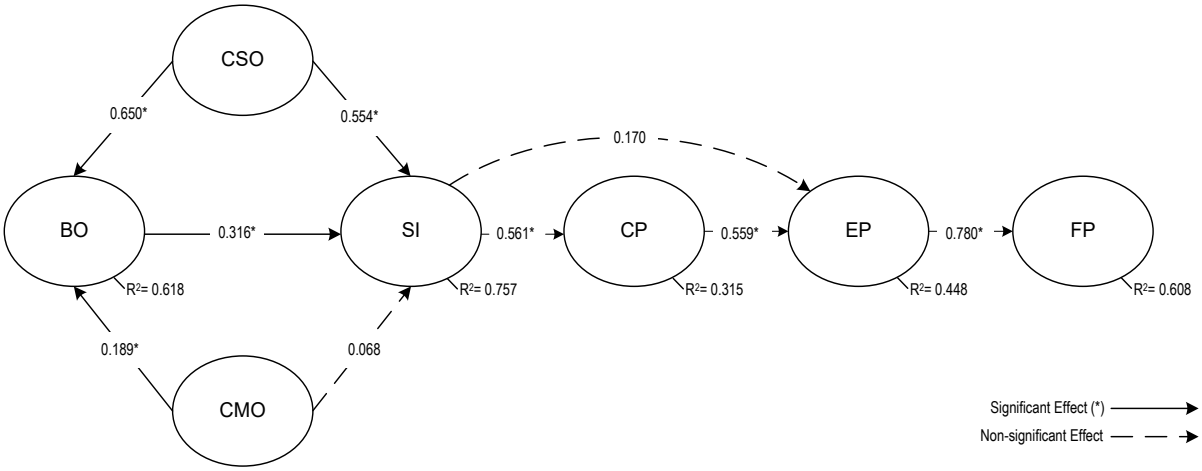

Figure 2. *Path Analysis Results (Direct Effects)*

Hypotheses concerning the indirect effects were analyzed using the bootstrapping technique because p or t values reported when finding the effect of the mediator variable can be misleading, which requires calculating confidence interval instead (MacKinnon et al., 2007; Nitzl et al., 2016). This came out during the decision-making process about H_7. According to the calculations done in the 95% confidence interval via 5000 times bootstrapping, competitor orientation affects service improvement behavior indirectly through brand orientation (β=0.06, CI= [0.004; 0.127]). While the relationship between competitor orientation and service improvement is not significant (H_2: β=0.068, p>0.05), this finding indicates brand orientation has the *indirect-only mediation* role between these two variables (*see.* Zhao et al., 2010). Similarly, customer performance has the effect of *indirect-only mediation* in the relationship between service improvement and economic performance (β=0.314, CI= [0.130; 0.486]). In the relationship between customer orientation and service improvement, brand orientation has a *complementary mediation* effect (β=0.205, CI= [0.020; 0.355]).

Table 3. *Hypothesis Test Results*

Direct Effects		f^2	*β*	*sd*	*t*	*p*	Result
H_1:	CSO → SI	0.446	0.554	0.116	4.771	0.000	Supported
H_2:	CMO → SI	0.010	0.068	0.063	1.081	0.280	Not Supported
H_3:	CSO → BO	0.636	0.650	0.078	8.282	0.000	Supported
H_4:	CMO → BO	0.054	0.189	0.075	2.502	0.012	Supported
H_5:	BO → SI	0.157	0.316	0.135	2.344	0.019	Supported
H_8:	SI → CP	0.459	0.561	0.099	5.669	0.000	Supported
H_9:	SI → EP	0.036	0.170	0.096	1.772	0.076	Not Supported
H_{10}:	CP → EP	0.388	0.559	0.108	5.177	0.000	Supported
H_{12}:	EP → FP	1.551	0.780	0.050	15.482	0.000	Supported
Indirect Effects		BootLLCI	BootULCI	*β*	*sd*	*t*	*p*	Result
H_6:	CSO → BO → SI	0.020	0.355	0.205	0.087	2.370	0.018	Supported
H_7:	CMO → BO → SI	0.004	0.127	0.060	0.032	1.863	0.063	Supported
H_{11}:	SI → CP → EP	0.130	0.486	0.314	0.092	3.423	0.001	Supported

DISCUSSION AND CONCLUSION

Conducted with the participation of hotel managers from different regions of Turkey, the present study aimed at exploring the relationship between market orientation and brand orientation, the effects of market orientation and brand orientation on the service improvement behaviors of hotels, the contribution of service improvement to hotel performance, and the relationships among the indicators of hotel performance. The findings of the study show that customer-oriented approaches of hotels support brand orientation strategy. Hence, a positive correlation exists between customer orientation and brand orientation. Another finding indicates that competitor orientation and brand orientation are significantly correlated. Accordingly, it could be asserted that attempts of hospitality enterprises to observe, manage and triumph over competitors bring about changes in their brand identities. Thus, it is concluded that market (customer and competitor) orientation is an antecedent of brand orientation. This finding supports the definition of brand orientation (*market orientation plus*) introduced by Urde (1999) as well as similar conclusions reported by several other studies (Laukkanen et al., 2016; Reid et al., 2005; Wong & Merrilees, 2007).

Customer orientation was found to have positive effects on service improvement behavior of hospitality enterprises. In other words, while planning practices and method to improve service quality and implementing them systematically, re-defining their existing service

processes and systems (Peccei & Rosenthal, 1997; Tang, 2014), hotel enterprises make use of the needs and requests or the feedbacks of their customers. In short, services which meet the customers' requests and expectations are improved at hotels. This finding indicates why it is important to constantly analyze customers' evaluations about service quality and their satisfaction levels. This is because the information to be acquired from the customer is the main source to be used by managers when making decisions for service improvement and in the process of improving services (Cheng et al., 2012; Ro & Wong, 2012). This finding is similar to the results obtained by Tang (2014). Thus, customer orientation is an antecedent of service improvement. Besides, brand orientation mediates the relationship between customer orientation and service improvement. More clearly, the customer-oriented approach supports the brand-oriented approach in hotels, making it possible to improve services that are appropriate for both customer requests and brand identity. On the other hand, competitor orientation does not affect the decision of improving existing services directly. Thus, it is understood that instead of improving services to respond to competitors' activities directly, services that would appeal to customers' demands are improved at hotel enterprises. However, according to another finding obtained, being competitor oriented could affect the service improvement behavior of a hospitality enterprise indirectly. Here, the mediator role of brand orientation comes out. In other words, although service improvement behavior is not directly competitor oriented at hotel enterprises, branding strategies adopted to respond to competitors shape the hotel's service improvement approach. More clearly, while creating its brand identity, a hospitality enterprise considers its competitors as well and improves its existing services so as to correspond with this identity. Even though Tang (2014) states that existing services are improved according to competitors' behaviors in hotels, the present study does not support this proposition directly. Nevertheless, it contributes to the given study by exploring the mediator role of brand orientation. At this point, the fact that brand orientation has a quite weak mediator effect (β= 0.060) shows that hotels improve their services in a customer-oriented manner rather than competitor orientation.

When the effect of service improvement on hotel performance is questioned in line with customer, competitor and brand-oriented approaches, three findings were obtained. The first finding reveals that service improvement enhances the customer performance of a hospitality enterprise while having no direct effect on the economic performance of the business. Stating that market performance (often customer performance)

can be increased by improving existing services, Tang (2014) also supported this finding partially. However, no study has been found discussing the effect of service improvement behavior on economic performance in the related literature. In this respect, it can be claimed that service quality, repurchase rates and customer satisfaction can be advanced in a positive direction by improving existing services in hotels. However, improving services does not lead to a direct change in the sales, market share and occupancy rates of the hotel. Service improvement affects economic performance indirectly by enhancing the customer performance of the hotel. Hence, it can be said that service improvement activities that do not make any enhancement in customer performance would not affect the hotel's economic performance. Finally, the customer performance of a hotel increases its economic performance and economic performance strengthens the financial performance of a hospitality enterprise. Accordingly, the customer performance of a business will first be enhanced and later its customer performance will turn into the economic performance. An ongoing economic performance, in turn, will strengthen the financial performance of a hospitality enterprise in the long term.

THEORETICAL IMPLICATIONS

Service improvement in hotel enterprises is theoretically related to the level of customer and competitor orientation. Moreover, customer and competitor-oriented enterprises can turn into brand-oriented ones over time (Reid et al., 2005; Urde, 1999; Urde et al., 2013). The current study supports this theoretical framework and claims that brand orientation is developed when hotels are already customer and competitor-oriented because brand-oriented hotels shape their brand identities concerning the knowledge obtained from the market. Therefore, one can claim that Urde's (1999) definition for brand orientation as "market orientation plus" is valid in terms of the hospitality industry.

Discovering the mediating role of brand orientation, this study made a unique contribution to the existing literature. According to the results, customer orientation and competitor orientation affect a hotel's service improvement behavior through the level of its brand orientation. Another theoretical contribution of this study is dividing hotel performance as the customer, economic, and financial performance. Alnawas and Hemsley-Brown (2019), Campo et al. (2014), and Turner et al. (2017) indicate that business performance should be considered as a multidimensional structure. Within this context, this study demonstrated that a hotel's

customer performance will directly influence its economic performance, then the economic performance supports the hotel's financial performance in a long term.

PRACTICAL IMPLICATIONS

This study reveals that the level of brand orientation is mainly affected by how hotels are customer and competitor-oriented. Hence, it could be noted that attempts of hotels to observe, manage and triumph over competitors, and follow their customers' needs and requests will bring about changes in their brand identities. So, hotels reflect their brand identities which have been developed by considering the information from customers and competitors to the services they offered. Services which have been improved by following the market knowledge and the brand identity directly affect customer performance of the hotel. However, managers should not think that improving their services will directly influence the growth in occupancy rates, sales or market share. Instead, this study proposes that a hotel's economic performance will increase when its customer performance has been fulfilled with market and brand-oriented service improvement. It can also be said that service improvement behaviors that do not make any enhancement in customer performance would not affect the hotel's economic performance.

LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH

The present study has some limitations. The first one is that the hotel enterprises from which the data were collected were not categorized. The study was participated by a five-star hotel manager as well as the manager of a boutique hotel. Therefore, while the results obtained from the present study represent the hospitality industry in general, the results may be different for a specific class of hotels (five-star hotels, city hotels, boutique hotels etc.). It is recommended that future studies test the model of the present study on different hotel types. Moreover, service innovation which is closely related to service improvement can also be included in the model. This way, it could be possible to find in a more comprehensive manner in which hotels market and brand orientation cause service improvement and in which hotels they bring about service innovation as well as their effects on hotel performance. Another limitation of the study is that the data collection time was short. Conducting longitudinal studies by collecting data in a few periods in the future can make it possible to reach more effective results. So, the results of the study cannot be generalized due to

the cross-sectional data. Measuring hotel performance subjectively is another important limitation. However, it is not very possible to share economic and financial performance indicators with third parties in the hospitality industry (Tse et al., 2005). Therefore, in the present study, it was assumed that the hotel managers responding to the questionnaires are sincere and realistic.

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Annex A. *Measurement Model Results*

Measures*	FL	CA	rhoA	CR	AVE
Customer Orientation [CSO] *(1: Strongly Disagree – 5: Strongly Agree)*		0.949	0.955	0.960	0.799
CSO1. Our hotel believes in total commitment to the customer.	0.909				
CSO2. Our compensation plan rewards employees and managers who are committed to customer satisfaction.	0.772				
CSO3. We regularly measure customer satisfaction.	0.887				
CSO4. We spend a great deal of effort trying to understand customer needs.	0.940				
CSO5. We do whatever it takes to create value for our customers.	0.928				
CSO6. We continuously monitor our customers' needs.	0.918				
Competitor Orientation [CMO] *(1: Strongly Disagree – 5: Strongly Agree)*		0.847	0.855	0.908	0.768
CMO1. Our sales and marketing people share competitor information with other departments.	0.801				
CMO2. We respond rapidly to our competitors' actions.	0.906				
CMO3. We are constantly looking for opportunities to gain an advantage over our competitors.	0.917				
Brand Orientation [BO] *(1: Strongly Disagree – 5: Strongly Agree)*		0.949	0.950	0.963	0.868
BO1. Branding is essential to our strategy.	0.930				
BO2. Branding flows through all our marketing activities.	0.934				
BO3. Branding is essential in running this company.	0.935				
BO4. The brand is an important asset for us.	0.928				
Service Improvement [SI] *(1: Strongly Disagree – 5: Strongly Agree)*		0.932	0.933	0.957	0.881
SI1. We are always working to improve the service we give to customers.	0.927				
SI2. We have specific ideas about how to improve the service we give to customers.	0.952				
SI3. We often make suggestions about how to improve customer service in the hotel.	0.937				
Customer Performance [CP] *(Compared to the previous year; 1: Much worse – 5: Much better)*		0.855	0.862	0.912	0.775
CP1. Service quality	0.908				
CP2. Customer retention	0.837				
CP3. Customer satisfaction	0.895				
Economic Performance [EP] *(Compared to the previous year; 1: Much worse – 5: Much better)*		0.878	0.885	0.925	0.804
EP1. Sales growth	0.933				
EP2. Market share	0.899				
EP3. Room occupancy rate	0.856				
EP4. Percentage of earnings from on-line reservations	*Dropped*				
EP5. Percentage of earnings from overseas customers	*Dropped*				
Financial Performance [FP] *(Compared to the previous year; 1: Much worse – 5: Much better)*		0.880	0.884	0.926	0.807
FP1. Return on investment	0.869				
FP2. Profitability	0.904				
FP3. Gross operating profit	0.921				

*Scale items are presented in English in parallel with the journal's publication language. Please contact with the author for the items in Turkish.

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THE MEDIATING ROLE OF REAL-TIME INFORMATION BETWEEN LOCATION-BASED USER-GENERATED CONTENT AND TOURIST GIFT PURCHASE INTENTION

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ABSTRACT

The global use of Web 2.0 applications has generated enormous volumes of user content. Drawing on cognitive load theory, this study examines unexplored factors that influence gift purchase intention of tourists. The authors identify localization and real-time information for shaping tourists' gift purchase intention, which is facilitated by reduced cognitive overload. Analyzes of the study relies on a sample of 273 foreign tourists in Malaysia. A cross-sectional quantitative study is conducted using partial least square structural equation modeling. Results showed that location-based user-generated content and real-time information significantly affect gift purchase intention of tourists. Moreover, real-time information partially mediates the relationship between location-based user-generated content and gift purchase intention.

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INTRODUCTION

The accelerated development of digital technologies demands changes in urban lifestyle, and a new management and production order that offers a range of technological services to the ever-elusive customer. In the current business environment, online platforms accelerate the accessibility of information to customers (Lipsman et al., 2012). Consumer-generated content exists as reviews, ratings, and opinions expressed via online platforms. Such content engages customers through increased product awareness, moreover, it is considered a valuable input for purchase decisions (Batra & Keller, 2016; Ciftci et al., 2020). Correspondingly, the digital marketing approach is shifting from business to consumer to peer-to-peer model (Akçura & Altınkemer, 2002; Yılmaz, 2020). In this regard, consumer content sharing provides an extensive understanding of the e-mechanisms designed for spreading online information, which assists firms to promote and expand their business via online platforms. Consumer-to-consumer conversation embodied in reviews and opinions has become an effective marketing practice to influence consumer purchase decisions (Lu et al., 2014).

Nowadays, consumers rely on the internet to find information on products and services. Moreover, consumers also share their feedbacks on products and services through online platforms (Beneke et al., 2015; Kim & Park, 2013). A recent survey reveals that 93% of consumers used the Internet to find a local business (BrightLocal, 2020). The survey also reports that consumers' reliance on online reviews for local business has increased to 87% in 2020, from 81% in 2019, further, 73% of consumers seek latest reviews for decision making (BrightLocal, 2020). In transmitting information, electronic word of mouth (e-WOM) has a stronger impact than conventional word of mouth, regardless of whether the information is a positive or a negative statement about the product or service (Cheong et al., 2020; Sutanto & Aprianingsih, 2016). Hence, businesses with positive reviews and real-time information sharing would gain potential customers searching online (BrightLocal, 2020). Therefore, user-generated content sharing on online platforms emerged as an essential source of product information (Colliander et al., 2015; Elwalda et al., 2016). Further, cloud computing technology enables different computing infrastructures to support information sharing with stakeholders, which could increase customers' interaction and enhance customer trust and purchase behavior (Langmead & Nellore, 2018).

The tourism industry is continuously growing and expanding (Werthner & Ricci, 2004). Similarly, Web 2.0 online social platforms where consumers exchange their experiences of products and services are on the rise (Batra & Keller, 2016; Ciftci et al., 2020). Location-based content and real-time data sharing are among the most prominent tools used by the tourism industry to entice customers (Berger et al., 2002; Xiang et al., 2015). Malhotra (2005) claims that the right information to the right people at the right time in real-time is required to improve performance. Thus, real-time sharing of customer satisfaction with products or services influences other customers' purchase behavior. Further, cloud computing is considered as an effective model to deliver internet services and provides many data-centric network applications (Buyya et al., 2009; Wu et al., 2018). Accordingly, online applications improve business performance with enabling customers to share information (Cibere et al., 2020).

Online applications have twofold importance to business operations. First, they allow customers to interact and share information, and second, these applications grant the business access to its customers (Buyya et al., 2009). Besides, location-based content provides information which subjective to users' profile and check-in location. The modern development of location-based information searching is getting popular to map, improve, and adhere to the processes (Margherita, 2014). Location-based searching provides relevant information to tourists by taking current location into account and offers location-based opportunities for souvenir shopping as an important tourist activity to tourists who are enthusiastic about shopping and gift purchasing (Jiang et al., 2015; Xu & McGehee, 2012). Moreover, cloud-based social networks provide a platform where agents with mutual interests can share social knowledge and information. The integration of location elements transforms social networking as a geosocial network in which geographic location service is used to feed location base content (O'Hara et al., 2007). Accordingly, location-based content provides information for travel planning which makes tourism more enjoyable (East et al., 2017).

Advancement in internet technologies fulfills the information required for the tourism industry and offers internet applications with interactive user interfaces subjective to the location (García-Crespo et al., 2011). Hence, these applications build a bridge between tourists and the tourism industry by offering location-based information to facilitate tourists' purchase decisions. Kaplan and Haenlein (2010) highlight that Web 2.0 applications allow the creation and exchange of user-generated content, which transform word of mouth (WOM) into electronic word of

mouth (eWOM), and potentially spread content beyond traditional audience to geographically dispersed networks (Lo et al., 2011). Furthermore, tourists trust eWOMs (Ladhari & Michaud, 2015) and frequently rely on user-generated content as an authentic source of information (Gretzel, 2006). Additionally, a recent study reveals that 52% of users on social networking sites admitted that online content inspires their travel choices (Maria-Irina & Istudor, 2019). Real-time data sharing captures and provides the latest information that can inform tourists in their purchase decisions. Thus, user-generated content in real-time can influence daily activities, and often guides tourists to perform efficient decisions while traveling.

International tourism continues to grow and the UNWTO forecasts a sustained increase in the future. International tourist arrivals are expected to annually increase by 3.8% in Malaysia (World Tourism Organization, 2018). While tourism in Malaysia is on the rise, studies on specific topics (e.g. location-based information, real-time information, and gift purchase intention) remain limited. Extant studies investigate the role of user-generated content on travelers' behaviors (Tsiakali, 2018), planning (Cox et al., 2009), and brand-related dimensions (Roma & Aloini, 2019). However, there is a scarcity of studies on location-based user-generated content (Martí et al., 2019). Furthermore, previous studies investigate tourist purchase behavior by focusing on purchasing preferences (Azmi et al., 2019), purchasing motives (Wang et al., 2010), spending patterns (Wang & Davidson, 2010), and satisfactory purchase experience (Xu & McGehee, 2012). Still, a limited number of studies have evaluated gift purchase decisions of tourists (Gao et al., 2017), despite it being a common practice among tourists. Tourists tend to purchase gifts from the cultural and popular destination of the host country (Li & Katsumata, 2020). For instance, approximately 70% of tourists purchased gifts for their friends and families during their travels (Litirell et al., 1994). Therefore, it is essential to investigate the likelihood of gift purchasing intention of tourists. Moreover, limited studies have explored location-based user-generated content (Bigne et al., 2021; Lu et al., 2020) and real-time data sharing (Ghouri & Mani, 2019) to improve the likelihood of gift purchase.

Leung et al. (2013) point out that since a growing number of travelers have embraced online platforms as an effective medium for communication, collaboration, and cooperation, it is assumed that consumer-centered studies, which typically concentrate on both the use and effect of user-generated content on online platforms, may have a positive reception within the tourism industry. Considering the lack of theoretical

and empirical findings concerning the factors that influence tourists' gift purchase intention by using online platforms, an integrated model was designed to examine the impact of location-based user-generated content on gift purchase intention of tourists. The model also exemplifies the mediating role of real-time information on the relationship between location-based user-generated content and gift purchase intention. This study did not consider the selection of a product as a gift, but instead, we aimed to investigate the role of location-based user-generated content and real-time information to facilitate the gift purchasing process.

LITERATURE REVIEW

Recently, Web 2.0 and user-generated content has reshaped the way users search, gather, develop, and interpret information. User-generated content has become an important source of information for travelers in their decision-making (Kaosiri et al., 2017; Ye et al., 2011). Goldenberg et al., (2001) suggested that user recommendations strongly influence the decision-making process of other customers. Similarly, traveler-generated content is perceived as more reliable, and authentic by other travelers than the commercial information provided by firms (Gretzel & Yoo, 2008).

Since online platforms have contributed to increasing in user-generated content development, users must take extra cognitive efforts to find information suitable for their task and that extra efforts lead to inferior task performance (Vessey, 1994). Cognitive load theory explains the constraints on the working memory to interpret incoming data (Sweller, 1988, 2020). Recent studies have found that intrusive content has a negative effect on users (Pfiffelmann et al., 2020; Wiese et al., 2020). When users evaluate online content, analysis is interrupted by the increasing cognitive demand that comes from the assessment task. Previous investigations have found that multiple tasks have a detrimental effect on memory only if the amount of cognitive load applied on content processing and the measuring task surpass the cognitive ability of the user (Duff & Sar, 2015). Cognitive load theory postulates that precision in online content reduces the cognitive load of the users, thereby induce purchase decisions (Ghose & Ipeirotis, 2006). On the other hand, cognitive load theory suggests that precise information (e.g. location-based and real-time information) reduces information overload and improves online search performance (Hollender et al., 2010; Wu & Xie, 2018).

Previous studies have employed various information processing theories to understand the importance of user-generated content for

tourism-related consumption. For instance, information processing theory (Liu & Park, 2015), social information processing theory (Lim & Heide, 2015), the elaboration likelihood model (Shin et al., 2017), and the heuristic-systematic model (Sparks et al., 2013) were all applied to gain insights on the effect of user-generated content on tourism-related consumption. There appears to be a lack of consensus on a single theoretical approach regarding the most predictive power in examining purchase likelihood of tourists. Cognitive load theory is dominantly used by researchers to explain the importance of online content to reduce cognitive load and support purchase decisions of tourists (Ghose & Ipeirotis, 2006; Wu & Xie, 2018; Ye et al., 2011). Cognitive load theory focuses on problem-solving in complex conditions (Sweller, 1988) and is rooted in the idea that the working capacity of individuals is limited.

Specifically, cognitive load theory implies that when interpreting new information, working memory has severe capacity and duration limitations (Sweller, 1988). Excessive information hinders the linking of information contained in memory. Information is therefore perceived to be a new input, causing more cognitive resources to be reconciled and limited cognitive capacity. On the other hand, precise information easily connects to working memory. When dealing with stored information, there are no cognitive limits on working memory (Sweller, 2020). Therefore, information processing is promoted under precise and relevant information.

Bigne et al., (2021) adopt cognitive load theory to determine the effectiveness of user-generated content on location-based online platforms i.e. TripAdvisor. Users exposed to online content rely on less effortful, more heuristic, and context-based processing strategies (Bigne et al., 2021). People optimize their capacity to make decisions by avoiding cognitive overload from information sources. Thus, individuals utilize limited and selected information to solve a problem or accomplish a task (Dan & Reiner, 2017; Sweller, 1988). User-generated content stands out with its reliability among potential consumers. Specifically, the majority of tourists, who searching online for information, are goal-oriented (Park & Ryu, 2019). Location-based content and real-time information reduce information overload and improve online search performance (Hollender et al., 2010; Wu & Xie, 2018). Relying on key on cognitive load theory, we argue that the location-based user-generated content (Bigne et al., 2021; Lu et al., 2020) and real-time information (Ghouri & Mani, 2019) could reduce complex and excessive content to enhance the likelihood of tourists' gift purchase (Kavoura et al., 2020; Lu et al., 2020). Hence, when making consumption choices, people are likely to focus on the limited information streams coming from eWOM and

more likely to avoid overload of online information, as irrelevant and excessive information could interrupt users' purchase decisions (Li & Ryan, 2018; Lu et al., 2020). Hence, cognitive load theory provides a theoretical foundation for our study by suggesting that user-generated content and real-time information can facilitate gift purchase intention of tourists.

Location-Based User-Generated Content and Gift Purchase Intention

Web 2.0 applications have contributed to increased user-generated content development and location-based information has become readily popular. Online platforms, one of the features of Web 2.0 technologies, affect and stimulate social change (Sui & Goodchild, 2011). Location-based user-generated content provides local information, which supports planning routines and destination activities (Si et al., 2017; Väätäjä et al., 2013). Location-based user-generated content produces user-generated geospatial data which provides the opportunity for understanding users' interests, opinions, and experiences (Fischer, 2012; Monteiro et al., 2014; Vaittinen & McGookin, 2018). It has been established that online platforms where users generate content in form of reviews, comments, and recommendations have an enormous influence on tourists' planning, traveling, and purchasing decisions (Gretzel et al., 2011). The Internet is instrumental to learning about the nature of destinations and to planning future travel (Gretzel et al., 2011; Xiang & Gretzel, 2010). Internet users trust information provided by fellow users to evaluate products and to make a purchase decision (Lu et al., 2014).

Earlier studies have focused on souvenir purchases, shopping styles, and preferences of tourists (Azmi et al., 2019), though limited attention is paid to gift purchase intention. Gift purchasing accounts for a significant portion of tourism shopping (Anuar et al., 2017). Tourists prefer souvenirs with cultural elements such as examples of local workmanship (Li & Cai, 2008). The most sought after souvenirs are those that represent the cultural heritage of a given destination, alongside having an overall good quality (Wilkins, 2011). User content also provides information related to culture and tourism destinations, one can acquire knowledge about culture and various geographic features (Mkono & Tribe, 2016). Furthermore, multi-dimensional searching is a usual practice involved in gift purchase (Cleveland et al., 2003).

Cox et al. (2009) limit the usage of user-generated content to finding hotel reservations and destination selection. However, it is widely accepted that travelers consult online content to avoid or minimize the risk of wrong decisions (Gretzel et al., 2011; Xiang & Gretzel, 2010). According to Lu et al.

(2018), user-generated content often shares destination-based experiences for tourists regarding their accommodation, food, interesting spots, interaction with locals, their souvenir purchases, and how they handle an emergency. Additionally, location-based networks like TripAdvisor are highly influential in decision-making as travelers access users' content that plays a key role in their travel plans (Bigne et al., 2021; Lee et al., 2011).

Therefore, user-generated content significantly influences the choice and expectation of tourists, whereas the satisfaction level of a purchase decision is indirectly linked with the sources of content (Kaosiri et al., 2017). Additionally, Tsiakali (2018) highlights the significant effect of user-generated content on travelers' purchase decisions. Moreover, Kavoura et al. (2020) assert that consumers rely on online content for gift purchases. Vaittinen and McGookin (2018) also report on the positive influence of online content on users' purchase decisions, however, Lu et al. (2020) warn that complex and excessive content could interrupt users' purchase decisions. Considering all this, we propose that precise location-based user-generated content is important for obtaining information related to a tourism destination, which influences the gift purchase intention of tourists. Thus, we deduce the following hypothesis:

H1: *Location-based user-generated content positively influences the gift purchase intention of tourists.*

Location-Based User-Generated Content and Real-Time Information

Online content is usually categorized by location, interactivity, real-time updates, and integration with websites and computing devices (Kim et al., 2014). The concept of real-time data sharing through user-generated content is integrated to capture the latest content uploaded to the Internet in real-time (Roma & Aloini, 2019). Hence, real-time information provides direct and timely dissemination of information, such as up-to-date information regarding travelers' reviews, opinions, and experiences (Buhalis & Amaranggana, 2014; Yilmaz, 2018). Online platforms allow users to create and share content about their experiences and opinions (Presi et al., 2016; So et al., 2018). Due to the wide range of online networks, tourists increasingly use different online applications for information searches (BrightLocal, 2020; Li et al., 2017; Ma et al., 2017; Shankar et al., 2016), and majority of users seek out the latest reviews for decision making (BrightLocal, 2020). Tourists also share real-time experiences on different online platforms via posting pictures, videos, and reviews about purchase experiences (Shankar et al., 2016). For instance, Coca-Cola launched a

successful campaign "Share a Coke" to encourage consumers to create a post during their purchase (Tarver, 2019). In this way, consumers' purchase experiences transform into more social experiences (Wang & Zhang, 2012). By sharing purchase experience publicly, users build their identity on online networks (So et al., 2018), and influence purchase decisions of other users (Huang & Benyoucef, 2013; Shankar et al., 2016). Additionally, monitoring of online content about shopping experience provides marketers with the opportunity to obtain information related to occasions, frequency, and timing of purchases. On the other hand, marketers can utilize this information in designing marketing strategies to improve both offerings and customer purchase experience (Shankar et al., 2016). Further, real-time information improves understanding of travelers' behavior (Li et al., 2018) and such insights are essential in ensuring strategic policy decisions (Li et al., 2008).

Moreover, online platforms provide unprecedented opportunities for users to quickly and immediately upload and share content (Kaplan, 2012), and other users actively seek that information for their decision-making (Li et al., 2017). Subsequently, tourists have been seeking more sightseeing information, which means that any information that is generated and displayed digitally would need to be most recent (Kudo et al., 2019), location-based, real-time, and contextual information, hence, fully utilize intelligent technology and social innovation (Feng et al., 2019). Thus, we propose the following hypothesis:

H2: *Location-based user-generated content is positively linked with real-time data sharing.*

Real-Time Information and Gift Purchase Intention

The concept of real-time information has been in the limelight due to its ability to improve competitiveness (Reid, 2014), however, the recent emergence of dynamic user-provider interaction enables performance effectiveness and efficiency by dynamically engaging and performing timely actions based on real-time information (Buhalis & Sinarta, 2019). Online platforms provide a medium for communication and thus they can be critical to attracting new customers, as well as reinforcing existing relationships between businesses and customers (Özdemir & Çelebi, 2017; Steward et al., 2018; Yılmaz, 2020). Online platforms enable the maintenance of customers' communication records, which potentially influences other users (Ahsan & Rahman, 2016). Technological advancement provides an opportunity to obtain real-time information of

travelers (Yin & Li, 2021). Prior studies on computer supported cooperative work and human-computer interaction have investigated how user-generated content engages viewers and identified the significance of data sharing in real-time, including experiences (Piccoli, 2016), knowledge sharing (Majchrzak et al., 2013), opinions (Tsiakali, 2018), cultural museums (Özdemir & Çelebi, 2017) and heritage (Garau, 2014). Moreover, information sharing has been considered as an important factor for improving customers' purchase behaviors (Kim & Ko, 2012; Lee & Whang, 2000; Mahmassani & Jayakrishnan, 1991) and real-time interaction with customers significantly improve the motivational affordance of networks (Jung et al., 2010).

The success of information systems depends on information quality, usage, impact, and user satisfaction (DeLone & McLean, 1992). Considering this, information systems and human-computer interaction are essential factors required for a successful web portal. Subsequently, information search is an important tool used in purchase decisions (Peter et al., 1999), and trust has been considered as an antecedent of purchase decisions (Yoon, 2002). During domestic and international travel, purchasing souvenirs whether to serve as gifts or as personal memorabilia, is one of the prominent activities of travelers of different backgrounds (Murphy et al., 2010). Moreover, bringing home souvenirs makes a trip tangible for those who receive the souvenirs as gifts or for tourists themselves by expanding their consumption of the travel experience (Gordon, 1986; Li & Katsumata, 2020).

Subsequently, tourists rely on real-time data sharing because of its perceived transparent nature. Hence, real-time information facilitates tourists in decision-making for a specific destination (Lu et al., 2018). Moreover, customers prefer real-time information for decision-making (Mahmassani & Jayakrishnan, 1991). Fulkerson and Shank (2000) also provide evidence that real-time data sharing can enhance purchase intention. Real-time connections reveal customer preferences and behaviors and the shared behavioral response of customers significantly influences purchase behavior (Fawcett et al., 2007). Real-time information sharing is logically valuable for decision-making, as it provides travelers with recent information and improves decision-making efficiency (Dziekan & Vermeulen, 2006; Han et al., 2020). We extend this stream of research by linking real-time information sharing and gift purchase intention. Further, a mediating role of real-time information between location-based user-generated content and gift purchase intention may reduce excessive and irreverent content that improves users' information acquisition processes

(Lu et al., 2020) and facilitates purchasing of souvenirs as gifts (Li & Ryan, 2018). Thus, we hypothesize:

H3: *Real-time information positively relates to the gift purchase intention of tourists.*

H4: *Real-time information mediates the effect of user-generated content on the gift purchase intention of tourists.*

Hinging upon cognitive load theory, this research presents a model to demonstrate the direct impact of location-based user-generated content on gift purchase intention of tourists and also, depicts indirect effect through real-time information, shown in Figure 1.

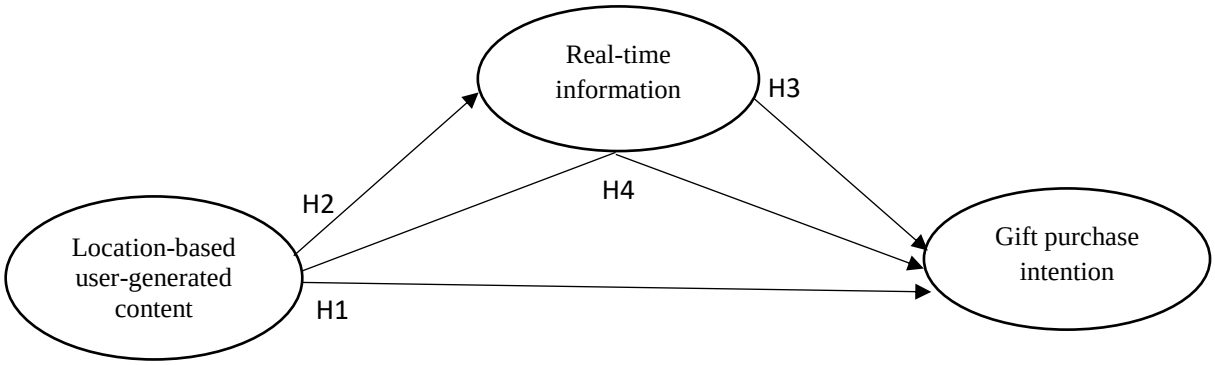

Figure 1. *Research Framework*

METHODOLOGY

Sample

This study benefits from engaging international tourists visiting Penang Island which coincidentally is among the most popular islands in Malaysia. For instance, only during 2019, a total of 4.16 million foreign tourists visited Penang Island (Chern et al., 2020). We applied a simple random sampling technique to select respondents. Furthermore, we collected data during the peak season of foreign tourists to ensure sample availability. We targeted foreign tourists regardless of their country of origin, they all seek information about their travel destination through the Internet. Furthermore, we ensured that our respondents were adults (over 18 years of age), that they have visited other destinations in the past, and that they had knowledge and experience of using online platforms for information search. A detailed summary of the characteristics of our respondents is shown in Table 1.

Further, Gefen et al. (2011) a priori F-test was performed using G*Power v.3.1.9.2 (Faul et al., 2007) to determine the minimum sample size, i.e. 176 respondents, required for empirically validating the proposed model. The data was collected between July and August 2019 by visiting Ferringhi Beach, Penang Hill, Historical Streets of George Town, and Penang Botanic Gardens. Foreign tourists were contacted randomly, they were introduced to the objectives of the study and were asked whether they were willing to participate in the survey. Upon their consent, self-administered questionnaires were handed over to 400 respondents, a procedure that decreases the likelihood of research bias. The response rate was 68.25% which amounted to 273 questionnaire responses.

Table 1. *Foreign Tourists' Characteristics*

Demographic Characteristics	**Frequency**	**Percentage %**
Gender		
Male	172	63%
Female	101	37%
Age		
18-25	113	41.4%
26-30	74	27.1%
31-35	42	15.4%
36-40	18	6.6%
41-45	16	5.9%
46-50	5	1.8%
> 51	5	1.8%
Level of Education		
School	43	15.8%
Bachelor	166	60.8%
Master	60	22%
PhD	4	1.5%
Use of the Internet for Information Access About Destinations		
Always	148	54.2%
Very Frequently	77	28.3%
Occasionally	46	16.8%
Rarely	2	0.7%
Stay in Penang		
< 2 Night	23	8.4%
2-3 Nights	167	61.2%
4-5 Nights	55	20.1%
> 5 Nights	28	10.3%

Assessment of Measurement Model

We used the scale developed by Feng et al. (2016) to measure location-based user-generated content. Location-based content identifies users' geographical position and increases the relevance of content to other users. The scale consists of three items, which are related to the precise value of location-based information to users. The gift purchase intention construct was measured by using the scale developed by Putrevu and Lord (1994) and Taylor and Baker (1994). The scale consists of five items including a reverse question that investigates gift purchase intention of foreign tourists with a stronger agreement with each item. In a recent study, Lu et al. (2014) revalidated the measurement scale for purchase intention in the context of online users. Real-time information sharing is a construct adopted from Ghouri and Mani (2019) and it consists of three items. Respondents were asked about the advantage, usefulness, and significance of real-time information. The questionnaire was based on a five-point Likert scale from 1 = strongly disagree to 5 = strongly agree. The analytical results of measurement model obtained for validity and reliability of each construct fulfill the recommended criteria for all factors, AVE is > 0.50, the value of Jöreskog's rho (ρ_c) and Cronbach's alpha (α) are > 0.70 (Hair et al., 2019; Henseler et al., 2015) reflecting internal consistency and reliability, results shown in Table 2.

Table 2. *Results of Measurement Model*

Construct	Source	Item	Coding	Loading	VIF	ρ_c	α	AVE
Gift Purchase Intention	Lu et al. (2014); Putrevu and Lord (1994); Taylor and Baker (1994)	I would consider buying the user recommended gift.	GPI1	0.843	2.686	0.876	0.874	0.665
		I have no intention to buy the user recommended gift.	GPI2	0.857	2.774			
		It is possible that I would buy users' recommended gifts.	GPI3	0.838	2.785			
		I will purchase the user recommended gift also in next trip.	GPI4	0.783	1.767			
		If I am in need, I would buy the user recommended gift.	GPI5	0.752	2.092			
Location-based User-generated Content	Feng et al. (2016)	Location-based user-generated content provides valuable information, with the help of which I get what I need in a certain situation.	LBC1	0.847	2.061	0.804	0.801	0.717
		I would view user-generated content related to me being in a specific location as useful.	LBC2	0.902	2.407			
		Location-based user-generated content can provide additional information-based on real-time location more quickly and accurately.	LBC3	0.787	1.463			

Real-time Information	Ghouri and Mani (2019)	Real-time information sharing has many advantages.	RTI1	0.848	1.854	0.824	0.824	0.740
		Real-time information sharing is useful for increasing efficiency.	RTI2	0.835	1.766			
		Overall, I consider real-time information to be a useful option for achieving my goals.	RTI3	0.897	2.419			

To determine non-response bias, independent t-tests method was performed by comparing the first and the last 25 responses for all constructs (Armstrong & Overton, 1977; Ghouri & Mani, 2019). The results showed an insignificant difference between the early 25 and late 25 responses, which reveals non-response bias. Besides, a common method bias test was conducted by using the collinearity approach (Kock, 2017; Podsakoff et al., 2003). The results revealed a satisfactory value for the variance inflation factor (VIF) < 3. Thus, we established that there is no common method bias problem. Finally, all variables of the model were tested for discriminant validity. We examine discriminant validity using "Heterotrait-Monotrait" criterion (HTMT), shown in Table 3. The results revealed that the HTMT value is smaller than 0.90, which fulfills the required criteria (Henseler et al., 2015). Thus, the model revealed satisfactory results for discriminant validity.

Table 3. *Heterotrait-Monotrait Criterion*

Construct	GPI	LBC	RIT
Gift Purchase Intention (GPI)			
Location-based User-generated Content (LBC)	0.738		
Real-time Information (RIT)	0.678	0.611	

Assessment of Structural Model

We employed the SmartPLS version 3.3.2 to examine the Structural Equation Modelling (SEM) technique using the Partial Least Squares (PLS) algorithm. The standardized root means squared residual (SRMR) and the normed fit index (NFI) were used for goodness of fit (Henseler et al., 2016). The SRMR value 0.070 was successfully obtained by the model, which fulfills a certain threshold value of < 0.08. Further, the NFI value 0.917 was obtained for the model, which fulfills the required threshold criteria > 0.90 (Henseler et al., 2016), hence empirical data perfectly fit the model. Further, the variance inflation factor (VIF) was calculated for all paths. The obtained VIF values for all paths were below the threshold criteria of 5, thus, found no indication of multicollinearity (Hair et al., 2019). The coefficient of

determination (R^2) has demonstrated moderate explanatory power of the model, obtained R^2 value 0.479 reveals that 47.9 percent of the variance in gift purchase intention is explained by the model. The value of Stone-Geisser's Q^2 is obtained through the blindfolding procedure for the model. The obtained value 0.311 demonstrates that the model consists of predictive relevance as it is higher than 0 (Geisser, 1974; Stone, 1974).

Table 4 demonstrates the results of the structural model. Results reveal the existence of significant positive relationship between location-based user-generated content and gift purchase intention where $\beta = 0.440$, t-value = 6.981, p-value = 0.000 and $f^2 = 0.280$, which is in support of H1. Additionally, finding reports that location-based user-generated content have significant positive relation with real-time information where $\beta = 0.497$, t-value = 8.942, p-value = 0.000 and $f^2 = 0.329$ and real-time information also have significant positive relation with gift purchase intention, where $\beta = 0.358$, t-value = 5.409, and p-value = 0.000 and $f^2 = 0.185$, supporting H2 and H3 respectively. Figure 2 demonstrates the final model and visual summary of results for hypothesis testing.

Table 4. *Structural Model*

Effect	β	CI (5%, 95%)	SE	t-value	p-value	f^2	VIF	R^2	Q^2	SRMR	NFI
LBC -> GPI	0.440	(0.336, 0.539)	0.063	6.981	0.000	0.280	1.329	0.479	0.311	0.070	0.917
LBC-> RTI	0.497	(0.404, 0.587)	0.056	8.942	0.000	0.329	1.000	0.247	0.178		
RTI -> GPI	0.358	(0.252, 0.473)	0.066	5.409	0.000	0.185	1.329				

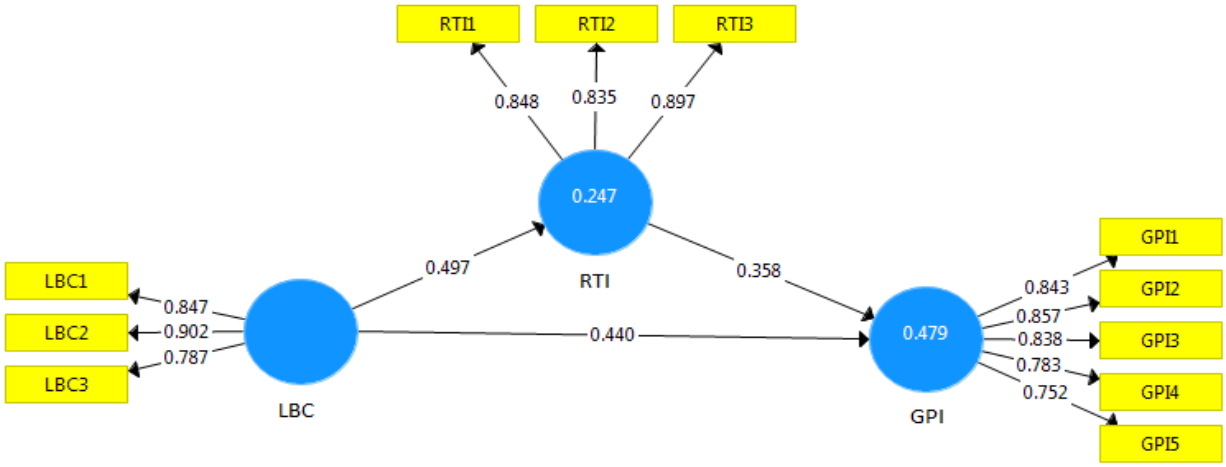

Figure 2. *Results of Research Model*

Mediation Analysis

This study applied Nitzl et al.'s (2016) analytical approach in conducting mediation analysis. Results of mediation analysis revealed that the values of 95% bias-corrected confidence interval (BCCI) did not straddle a 0 in between, which indicates the existence of mediating effect of real-time information, shown in Table 5. Further, to determine the degree of mediation i.e. partial or full, the variance accounted for (VAF) index was used to examine the size of the indirect effect (LBC -> RTI -> GPI) related to the total effect (LBC -> GPI). The results reveal the existence of partial mediation, as the resulting VAF value of 28.8 percent fall within the range of 20-80 percent, which supported H4. Hence, the finding concludes that real-time information partially mediates the relationship between location-based user-generated content and gift purchase intention.

Table 5. *Mediation Analysis*

Total Effect	β	t-value	BCCI (5 %, 95%)	Indirect Effect	β	t-value	BCCI (5 %, 95%)	VAF
LBC -> GPI	0.618*	13.674	(0.534, 0.681)	LBC -> RTI-> GPI	0.178*	4.755	(0.126, 0.245)	28.8%

*Significant at $p \leq 0.001$

DISCUSSION

It is widely accepted that tourists rely on online content as an important source of information (Kaosiri et al., 2017; Ye et al., 2011). Mkono and Tribe (2016) affirm that user-generated content provides information related to culture and features of a given tourism destination. The authors also argue that user-generated content can also popularise locations and tourist memorabilia such as souvenirs of specific locations (Bigne et al., 2021; Lu et al., 2018), which in turn leads to influence gift purchase intention of other tourists (Kavoura et al., 2020; Li & Katsumata, 2020; Tsiakali, 2018).

The results of this study reveal that location-based user-generated content has a significant relationship with gift purchase intention among tourists. In line with cognitive load theory, location-based user-generated content reduce effort of tourists searching online information (BrightLocal, 2020; Li et al., 2017; Ma et al., 2017; Shankar et al., 2016) by providing context-based information (Bigne et al., 2021). Hence, location-based user-generated content reduces the cognitive load of tourists by providing valuable suggestions, thereby influencing gift purchase intention of tourists (Ghose & Ipeirotis, 2006; Wu & Xie, 2018). These results seem logical and

come in line with related studies (Kaosiri et al., 2017; Lee et al., 2011; Tsiakali, 2018) which affirm that user-generated content significantly influences choices, expectations, and purchases of tourists in different tourism destinations. This justifies why travelers initiate planning by online information searches that predate making any decisions (Gretzel et al., 2011; Xiang & Gretzel, 2010). During the data collection process, we observed that the majority of tourists about 82.5% frequently use the Internet for information access about destinations, which is similar to a local consumer review survey that reveals 93% of consumers used the internet to find a local business (BrightLocal, 2020). Additionally, results support that consumers paid attention to online content for gift purchase decisions (Kavoura et al., 2020). Results also support researchers who point out tourists' involvement in multi-dimensional information searching related to product overall quality, destination representation ability, workmanship, and cultural expression for gift purchasing (Cleveland et al., 2003; Li & Cai, 2008).

We report a positive relationship between location-based user-generated content and real-time information. The results show that location-based user-generated content and real-time information not only improve tourists' goal-oriented search performance but also reduce information search time and cognitive effort (Hollender et al., 2010; Park & Ryu, 2019; Wu & Xie, 2018). When tourists are browsing online for information, location-based user-generated content restricts excessive and irrelevant information and real-time information provides latest and updated search outcomes. Additionally, tourists have been seeking more sightseeing information, which means that any information that is generated and displayed digitally would need to be recent (Kudo et al., 2019). On the other hand, the outcome and process of users' information searches can be negatively affected by irrelevant information. Therefore, providing relevant information is crucial to reduce cognitive overload in online environments by utilizing intelligent technology and social innovation (Feng et al., 2019).

The present study also found a positive relationship between real-time information and gift purchase intention. The recent emergence of dynamic user-provider interaction enables performance effectiveness and efficiency by dynamically engaging and performing timely actions based on real-time information (Buhalis & Sinarta, 2019). Technological advancement provides an opportunity to obtain real-time information of travelers (Yin & Li, 2021) to facilitate users with the latest information across online platforms for gift purchase decisions (Kavoura et al., 2020).

Therefore, business managers should engage and encourage customers for positive e-WOM about products and services (Cheong et al., 2020; Sutanto & Aprianingsih, 2016) to improve business positive reviews and real-time information sharing would engage potential customers searching online (BrightLocal, 2020).

Further, the results reveal the significance of real-time information in mediating the relationship between location-based user-generated content and the gift purchase intention of tourists. Real-time information sharing is logically valuable for decision-making, as it provides travelers with recent information and improves decision-making efficiency (Dziekan & Vermeulen, 2006; Han et al., 2020). It has been established that tourists search for online information with a task-directed purpose (Park & Ryu, 2019). Real-time information improves information reception (Lu et al., 2020) by providing up-to-date content (Berger et al., 2002). Hence, real-time information as a mediator reduces excessive content, which in turn improves users' information acquisition processes (Lu et al., 2020) and online search performance (Hollender et al., 2010; Wu & Xie, 2018) thereby facilitating the decision-making process behind gift purchasing (Kavoura et al., 2020; Li & Ryan 2018). In support of our study, a local consumer review survey also highlighted that 73% of users seek latest and real-time information for decision making (BrightLocal, 2020). Whereas, intrusive content negatively affects users (Pfiffelmann et al., 2020; Wiese et al., 2020). Based on cognitive load theory, the study provides evidence that real-time information reduces information overload by providing updated and latest location-based content could significantly influence gift purchase intention of tourists (Dan & Reiner, 2017; Hollender et al., 2010; Wu & Xie, 2018). These findings are in line with previous studies, which highlight the significance of precise content for tourist decision-making in terms of sightseeing information and general itinerary planning (Feng et al., 2019; Kudo et al., 2019; Roma & Aloini, 2019). A similar has been confirmed by researchers, who asserted that travelers need information in real-time to enhance purchase decision efficiency (Dziekan & Vermeulen, 2006; Fulkerson & Shank, 2000).

Therefore, our study contributes to the literature by advancing knowledge about the significance of location-based content and providing evidence of real-time information to facilitate tourists at different travel destinations in the novel context of the gift purchase decision.

Theoretical Implications

This research aims to address the lack of knowledge on the influence of location-based and real-time content on gift purchase intention of tourists. The nature of gift purchasing makes it difficult for tourists to evaluate and purchase gifts with cultural expression or representation of destination (Li & Cai, 2008; Wilkins, 2011). First, the study contributes to knowledge development in tourism by revealing location-based user-generated content as an antecedent of gift purchase intention of tourists. Second, the study opens new avenues for research on this promising topic, especially the application of real-time information to the field of tourism destinations. Previous studies (Feng et al., 2019; Lee et al., 2011; Lu et al., 2014) have examined location-based content, however, no study has attempted to examine the relationship between location-based user-generated content with gift purchase intention of tourists.

Tourists rely on real-time information for making their consumption decisions while abroad (Lu et al., 2018). Previous studies (Kudo et al., 2019; Roma & Aloini, 2019) have examined real-time information however no study has attempted to examine mediation of real-time information between location-based user-generated content and gift purchase intention of tourists.

Hence, our study addresses the lack of knowledge in this area and demonstrates that location-based user-generated content is positively linked with real-time information and significantly influences gift purchase intention of tourists. Perhaps more importantly, real-time information can function to reduce information overload and improve online search performance (Hollender et al., 2010; Wu & Xie, 2018). Therefore, the integration of real-time information in user-generated content provides tourists with the benefit of the latest content shared on the Internet. This in turn reduces cognitive load and improves the efficiency of tourist gift purchase decisions.

Managerial Implications

Currently, the tourism industry is experiencing dramatic growth and destination managers are motivated to better engage potential tourists. In this regard, our findings provide important managerial implications. Tourists prefer gifts that exemplify local culture and represent their travel destination (Gordon, 1986; Li & Katsumata, 2020). Thus, an innovative marketing approach is required for these products to reach tourists.

Developments in digital technologies have presented new and advanced means of marketing to business managers (Yılmaz, 2020). The emergence of Web 2.0 and online platforms influence the intention of tourists and impact marketing models that organizations should transform to expand their business. In presence of intelligent technology and social innovation (Feng et al., 2019), users paid attention to online content for gift purchase decisions (Kavoura et al., 2020) and majority of users seek latest reviews for decision making (BrightLocal, 2020). Hence, managers could benefit from the insight that the gift purchase decisions of many tourists will be strongly influenced by online information. This study reports that user-generated content has a significant impact on the gift purchase intention of tourists, while positive content has the potential to boost sales. This implies that cultural and destination products providers should deliver more resources to improve the valence of their consumer reviews. Further useful strategies would be to stimulate positive content sharing about product/service (Cheong et al., 2020; Sutanto & Aprianingsih, 2016) through customer engaging campaigns such as "Share a Coke" launched by Coca Cola (Tarver, 2019) and provide incentives to encourage consumers to create a post during their purchase. Such campaigns that urge consumers to share real-time information are likely to raise awareness and to increase the sales of cultural workmanship products.

It has been established that tourists share their experiences via different online platforms by way of posting pictures, videos, and reviews about purchases (Buhalis & Sinarta, 2019; Shankar et al., 2016). On the other hand, these online platforms become an important source for international travelers who seek advice, which ultimately influences their gift purchase intention (Kavoura et al., 2020; Park & Ryu, 2019). Online content can pass a strong sense of destinations interesting features to travelers, and, more importantly, contain valuable cultural experiences. User generated content could, therefore, help managers to improve and expand their business. Further, several mediums of online communication are available, such as websites, blogs, information databases, online forums, and virtual communities, which could all be effective ways for customer relationship management. Hence, online platforms serve as a major communication channel between business and consumers, practitioners should set up an effective strategy to make available destination information more quickly and accurately, thereby, avail an opportunity to feed travelers' destination information, which result in additional future businesses. Thus, this study provides support to the tourism industry and local businesses to adopt location-based agile online marketing approaches for creating real-time

value and mechanisms to establish dynamic engagement with customers to gain tourists search online for gift purchasing (BrightLocal, 2020; Kavoura et al., 2020; Park & Ryu, 2019).

CONCLUSION

The present study provides important insights into the underlying mechanisms through which location-specific user content impacts gift purchase intentions of other consumers. We offer empirical evidence of the predicting role user-generated content plays in gift purchasing. Furthermore, this study proposes a model exemplifying tourists' gift purchase intentions and the importance of online information contextualized by location, authorship of other users as well as time. We conclude that location-based user-generated content is an antecedent of tourists' gift purchase intention. Moreover, the sharing of real-time information mediates the relationship between location-based user-generated content and tourists' gift purchase intention. In light of the scarcity of empirical studies on location-based user-generated content (Martí et al., 2019) and gift purchasing of tourists (Gao et al., 2017), current study advances the literature on tourist consumption, online customer engagement, and electronic word of mouth. Thus, we hope that this work will inspire future inquiries in these inter-related fields of scholarship.

Limitations and Future Research Directions

Despite its important theoretical and managerial contributions, this study has several limitations that may offer opportunities for future research. First, survey respondents were foreign tourists visiting Penang Island, Malaysia. Though respondents were online platform users, the findings would be more precise if respondents from several states will include in the sample. Second, this study does not consider variances in respondent backgrounds. Digital technology is becoming a worldwide phenomenon; thus, a cross-cultural study of tourist responses to location-based online content could be a promising new research direction. Third, this study does not account for any specific online platform. Future research should incorporate the role of online platforms (e.g. social media, SaaS, Web 2.0) to provide a comprehensive understanding of tourists' gift purchase intention. Fourth, future studies may use other variables such as tourists' attitudes, trust, and motivation with our research framework to provide new research insight.

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EXPLORING EXPERIENTIAL QUALITY IN SPORT TOURISM EVENTS: THE CASE OF MACAU GRAND PRIX

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ABSTRACT

Understanding tourists' future behavior is significant for local tourism profits. This paper aims to examine the interrelationships among experiential quality, tourist satisfaction, experiential trust, sharing tourism experience on social media, and extension effect. 796 responses were collected in the 66th MGP (Macau Grand Prix) via questionnaires. The results reveal that four dimensions (physical environment quality, access quality, outcome quality, and enjoyment quality) have positive effects on experiential quality. In addition, the results also indicate the following relationships: Experiential quality has a significant effect on tourist satisfaction; experiential quality and tourist satisfaction positively influence experiential trust; tourist satisfaction and experiential trust have significant effects on behavior of sharing tourism experience on social media, and both tourist satisfaction and experiential trust positively influence extension effect. This paper identifies the dimensions of experiential quality in sport tourism events and it plays a leading role in extending literature on tourists' behavioral intentions of sharing behavior on social media and extension effect. The findings assist practitioners to implement marketing strategies of MGP, which enhance the extension effect and the new marketing promotions through social media. They also help various stakeholders such as destination managers and travel agents to trigger and increase local tourism profits.

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INTRODUCTION

Sport tourism has become a prevalent topic in recent decades, garnering great attention in the academic field (Hinch & Higham, 2001) due to the potential of sport events to attract people to travel and increase revenue, and to increase tourists' awareness of the tourism destination (Gibson et al., 2003). When a tourist destination holds sport tourism events, it will not only benefit tourists who travel to the destination intentionally as a result of this sport event, but also those who happen to be visiting at the right time and location to join the event (Deery et al., 2004). The Macau Grand Prix (MGP), which is held annually by local motoring enthusiasts for four days, has evolved into one of today's most well-known and demanding street circuit race events in the world (Han et al., 2018). The 2019 MGP in particular combined long, fast, straight, and sharply-twisting corners that were 6.2 km (3.8 miles) in length and 7 m (22.8 feet) in width. With its 60-year history, MGP has gained a worldwide reputation as a representative sport tourism event (Tang & Wang, 2020). The 2019 MGP was held as a non-champion round of FIA's Formula Three championship and was open to drivers from all Formula Three championships.

Recent studies of such mega-events have garnered significant attention within current tourism fields. In specific, Henderson et al. (2010) performed the case of Singapore Grand Prix to examine the significance of the event within tourism contexts. Similarly, Dávid et al. (2018) identified the importance of the Hungarian Grand Prix, arguing that the event contributes greatly to the tourism industry, thus it is worth holding annually. Although sport tourism events have been widely discussed regarding their importance to tourism industry, a majority of studies have explored the economic impacts on such events (Daniels & Norman, 2003; Duglio & Beltramo, 2017; Kurtzman, 2005) and how to further improve or develop them (Perić et al., 2019; Podoler, 2016). Only a few studies have examined tourists' perception of sport tourism such as Zhang et al.'s (2019) examination of the antecedents of tourist's loyalty toward a sport event and the destination. Therefore, the antecedents, consequences, and mechanisms of tourists' perceptions on sport tourism events are still worth studying at length.

In order to understand tourists' satisfaction and behavioral intentions, the experiential quality was identified and examined in a few recent studies. Different from traditional service quality, experiential quality is regarded as a psychological outcome after the experience of involving tourism activities (Wu et al., 2018). Various studies have already

examined the dimensions of experiential quality in specific types of tourism such as theme parks (Kao et al., 2008), cruises (Wu et al., 2018), or the golf field (Wu & Ai, 2016). However, no existing empirical studies have focused on the social media sharing behavior and extension effect regarding the experiential quality of events or festivals. Different from other tourism contexts, sport tourism events like MGP are normally held for a few days, and tourists are subjected to sport events rather than attractions or dining; because the experiential quality of such events will greatly influence tourists' perceptions and behavior, there is a need to study the experiential quality with sharing behavior.

Many previous studies on experiential quality and tourist perception revisit intention or loyalty as the outcome variables. Although those factors are still valuable to predict tourist behavior, some researchers believed that other consequences were also important and should be addressed. For example, under the concept of brand strategies, some studies argued that a successful brand should consider its brand image and extension effect (Dacin & Smith, 1994). In the setting of green hotel, Wu et al. (2016) demonstrated that experiential quality has significant impacts on hotel green image, which indicates the importance of a brand image on the customer's experiential quality, thus it leads to future behavioral intentions. Also, social media is used increasingly in current years and has become a major part of the tourism industry, directly affecting its practices (Munar & Jacobsen, 2014); studies have shown that sharing tourism experiences on social media will eventually replace some of the traditional channels of promotion and thus needs to be taken seriously (Wong et al., 2020). One of the newest studies on experiential quality in the hospital service setting revealed that a hospital's social media engagement and experiential quality have a positive association (Lee et al., 2020). The purposes of sport tourism events are to encourage tourists' continuous participation and expand destination awareness because Choi and Bum (2020) and Kim (2020) suggested that continuous participatory behavior patterns have important effects on different sport activities, and, in the case of the MGP, destination awareness in the long-term is more important. Therefore, social media is a platform that produces an influential effect and the behavior of sharing tourism experiences on social media is meaningful in this study. As López-Carril et al. (2020) discussed, social media has revolutionized the sport industry and its implications hold significant meaning for sport managers. Also, the promotional activities are important in the context of MGP since their product brands and tourist locations are advertised. These activities that extend beyond MGP provide opportunities to promote products and

increase local economic development. Gu (2006) also discussed how product differentiation is significant for Macau's revenue management. Therefore, these new variables, sharing behavior on social media and extension effect, are meaningful and valuable to measure in this study because of their potential associations with experiential quality in the tourism setting.

The present study aims to develop an understanding of experiential quality in sport tourism events and explore factors that may influence future tourist behavior regarding sharing behavior on social media and extension effect. It devoted to solving the following research questions: (A) What dimensions of experiential quality are significant in the context of sport tourism events?; (B) Does experiential quality in the context of sport tourism events reflect tourist satisfaction and experiential trust?; and (C) Whether the sharing behaviors on social media and extension effects can function or not after tourists' perception in the sport tourism events? The main contributions of this study are twofold. Theoretically, this research addresses sport tourism events by linking experiential quality and tourists' further perceptions and behaviors using a multidimensional and hierarchical approach. It clarifies how experiential quality motivates tourist behavior in sport tourism events, an objective of which is rare in the existing literature. Secondly, this study is one of the first to explore functions of sharing tourism experiences on social media and extension effect in the setting of sport tourism. Practically, the findings of this study will help sport tourism event organizers to evaluate their event design and marketing promotions in order to increase the extension effect and the new style of marketing promotions through social media. It will also assist various practitioners such as destination managers, travel agents, or other stakeholders in designing attractive services or tourism products to trigger and increase tourists' experiential quality.

LITERATURE AND HYPOTHESIS DEVELOPMENT

Mega-events and Sport Tourism Events

A mega-event usually refers to a large-scale cultural, commercial, and sporting event (Roche, 2002, p. 1) that generates economic benefits and has significant social and cultural impacts on tourism destination (Wang et al., 2012). Mega-events have both tangible and intangible effects, attracting visitors to tourism destinations, adding exposure for tourism destinations, and boosting local economies (Arnegger & Herz, 2016); thus, mega-events play an important role in destination' tourism development. Many scholars

have studied mega-events from both resident and tourist perspectives: Gursoy et al. (2017) examined the influence of residents' trust of government and organizers regarding their support of the 2014 FIFA World Cup; Lovegrove and Fairley (2017) compared residents' perception of respect to non-host cities and the corresponding host city of the 2018 Gold Coast Commonwealth Games; and Sox et al. (2020) explored residents' perception toward assisting in the organization of mega-events and advancing knowledge in this area. Other studies emphasize the valuable experience and perception of tourists; for example, Song et al. (2019) examined the relationship between tourists' emotional response and perception in the context of the 2014 Incheon Asian Games, and Risitano et al. (2017) discussed the influence of national cultural value on tourists' experience and perception in the America's Cup World Series (ACWS). These examples of mega-event research all discussed the significant role of experience, which influences perception and behavioral outcomes.

As one of the tourism sectors of mega-events, sport tourism events have direct and indirect economic and social implications and improve the visibility and attractiveness of tourism destinations (Duglio & Beltramo, 2017). A sport tourism event is defined as a smaller-scale sport event than a mega-event that is recognized as a place regeneration mechanism (Ritchie & Adair, 2004). As stated by Chen (2016) in marathon study, a sport tourism event is a newer trendy research segment and experience than sport mega-events that has a positive impact on further behavioral intentions (Sorrentino et al., 2020). As an antecedent of tourist behavior, the use of experience has a significant impact on destination success. Specifically, Cetin (2020) stated that customer experience and service quality could better explain positive customer behavior, and Al-Msallam (2020) discussed that both tourists' negative and positive perceptions have a significant impact on overall behavior. Therefore, the present study attempts to fill the research gap and focus on experiences in sport tourism event contexts to determine tourist perception and future behavioral intentions.

Experiential Quality

An experience is a distinct economic offering, the design of which is a competitive advantage (Chang & Horng, 2010). Yuan and Wu (2008) stated that gaining experience will lead to a difference in product consumption. The concept of experience in the business context has been widely studied from the perspective of the consumer or product. In the tourism setting, many researchers use experiential quality (EXQ) to study tourists' overall experiences and attitudes. In a study on heritage tourism, EXQ refers to a

"perceived judgement about superiority of the tourists' experience" (Wu & Li, 2017, p. 907). In another study, EXQ is defined by Chang and Horng (2010, p. 2403) as "how customers feel emotionally during their service process, including interacting with service surroundings." Following Cole and Scott's (2004) definition of EXQ, it is understood in this study as a psychological experience from suppliers and opportunities brought from visitors. Specifically, all of the aforementioned studies found that the higher level of EXQ generates a more positive level of tourist attitude and behavioral intention; in this study, the following examples will use different dimensions to measure EXQ.

Several studies (Cole & Scott, 2004; Wu & Li, 2017; Wu et al., 2018) already discussed that multidimensional and hierarchical models should be used when studying EXQ. Previous studies have identified several dimensions of EXQ; for example, Otto and Ritchie (1996) were the first to identify scales of EXQ, which hedonics, peace of mind, involvement, and recognition are more applicable in leisure and tourism studies. In a service setting, Chang and Horng (2010) developed the scale of EXQ to the following factors: physical surroundings, customers themselves, service providers, other customers, and customer companies. Wu and colleagues (Wu & Ai, 2016; Wu & Li, 2017; Wu et al., 2018a) further expanded the framework of EXQ, outlining five additional elements: interaction quality (IQ), physical environment quality (PEQ), access quality (AQ), outcome quality (OQ), and enjoyment quality (EQ). Since this framework was utilized in various areas such as cruise field, theme park, and the heritage industry, we can conclude that EXQ has different sub-dimensions in a variety of research settings. As suggested by Wu and Li (2017), the dimensions of EXQ should be examined under different research settings; thus, this study will utilize this framework and attempt to explore the dimensions of sport tourism event's EXQ. What follows is a discussion of each of the five elements of EXQ.

Being the most important components of service quality (Grönroos, 1988), interaction quality (IQ) indicates the customer's perception of how the service is delivered during the consumption experience (Brady & Cronin, 2001; Lemke et al., 2011). Lu et al. (2009) defined physical environment quality (PEQ) as how tangible services are delivered from service providers to customers and how the perception of customers is presented during the experience. This dimension is utilized in several studies (Wu et al., 2017; Wu & Li, 2017) to evaluate EXQ. The definition of third dimension, outcome quality (OQ), is the outcome of what customers left after finishing the service (Gronroos, 1984) and several studies (Choi

and Kim, 2013) revealed that OQ is related to customers' EXQ. The fourth dimension, access quality (AQ), refers to the degree of speed and convenience in which customers receive the service (Shonk & Chelladurai, 2008). In a study of green hotel context, Wu and Ai (2016) identified that AQ is positively related to EXQ. This dimension can be used to explore the convenience level of customers arriving in Macau and reaching the MGP. The last dimension, enjoyment quality (EQ), indicates the degree of positive emotion that customers experience during the event (Lopez, 2011). This dimension in this study refers to customers' levels of pleasure during MGP activities.

Several researchers have previously revealed that IQ, OQ, PEQ, AQ, EQ positively associated with EXQ, but different authors have had differing opinions regarding the importance of each dimension in a particular research setting. For instance, Wu and colleagues (2016) proposed that PEQ, AQ, OQ and administration quality are influential dimensions in green hotel context; Wu et al. (2018) proposed that IQ, OQ, PEQ, AQ all have significant effects on EXQ in cruise setting; and Wu et al. (2017) proposed that PEQ, OQ, IQ, EQ, and AQ are significant in zoo visitors' EXQ. Since EXQ is one of the important factors influencing tourists' behavior in the tourism setting, it is necessary to discuss whether these dimensions have effects on EXQ in sport tourism events. Accordingly, this study formulates following hypotheses examining EXQ in sport tourism events:

H1a: *Interaction quality (IQ) has positive effect on experiential quality (EXQ).*

H1b: *Physical environment quality (PEQ) has positive effect on experiential quality (EXQ).*

H1c: *Outcome quality (OQ) has positive effect on experiential quality (EXQ).*

H1d: *Access quality (AQ) has positive effect on experiential quality (EXQ).*

H1e: *Enjoyment quality (EQ) has positive effect on experiential quality (EXQ).*

Tourist Satisfaction and Experiential Trust

Satisfaction indicates the difference between customers' expectations and perceived performance during service encounters (Oliver, 1980). In the tourism context, tourist satisfaction (TS) is defined by del Bosque and Martín (2008, p. 553) as "tourists' cognitive-affective state derived from overall their tourism experience". A tourist's satisfaction or dissatisfaction of an experience is closely related to their intention of returning to the destination (Alegre & Garau, 2010). Recent studies that refer to the overall satisfaction during the visit experience have found that tourists mostly

compare their experiences to prior ones, which leads to different emotions (Chen & Chen, 2010). Thus, understanding satisfaction as the antecedent of positive customer experience is significant. Specifically, theme park studies by Kao et al. (2008) indicated that EXQ has positive effect on TS; heritage studies by Chen and Chen (2010) indicated that EXQ is positively related to TS; and cruise studies by Wu et al. (2018) also revealed that EXQ has significant and positive effect on TS. From discussion above, this study generates the hypothesis as following:

H2: *Experiential quality (EXQ) has positive effect on tourist satisfaction (TS).*

In addition, Rousseau et al. (1998, p. 395) define perceived trust as "a psychological state to accept vulnerability based on another person's intention or behavior expectation" and perceived trust is the antecedent of customer satisfaction (Swanson et al., 2007). In line with the definition provided by Rose et al. (2012), experiential trust (ET) in this study indicates to tourists' perception of reducing uncertainty and risk while increasing willingness of travel. Lee and Chung (2009) and Loureiro and González (2008) have confirmed that customer satisfaction is positively related to trust and the positive level of trust affects satisfaction. In the context of brand management, this also indicates that the higher level of brand satisfaction generates the higher level of brand trust (Chinomona, 2013). In another study of EXQ, Foster and Cadogan (2000) demonstrated that the perceived quality positively influenced customer trust. As indicated by these studies on the literature of trust, in regard to either customer trust or brand trust, these variables all relate to satisfaction, which indicates one's behavior of willingness to return or recommend. This leads to the following hypotheses:

H3a: *Experiential quality (EXQ) has positive effect on experiential trust (ET).*

H3b: *Tourist satisfaction (TS) has positive effect on experiential trust (ET).*

The Behavior of Sharing Tourism Experience On Social Media

Kaplan and Haenlein (2010, p. 61) define social media as "a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0 and allow the creation and exchange of user-generated content". Many studies have discussed how social media influences tourism destinations. With the adoption and continuous growth of digital technology, recent studies on social media and sharing experiences on similar platforms are being conducted and published all over the world (Sotiriadis, 2017). Chiu et al. (2006) found that having similar

interests and goals and sharing experiences on social media boost online social interactions. Sotiriadis (2017) stated that the development of social media has had a significant impact on consumer behavior, creating a new channel for individuals to share experiences or express desires. In the tourism context, some studies have previously explored the outcomes of sharing tourism experiences. For example, Kang and Schuett (2013) indicated that consumers share experiences in a variety of ways, including text, photos, audio, or video, and concluded that shared information is important, especially in the post-trip stage, for other potential travelers to make decisions. Similarly, Ryu and Feick (2007) found that sharing experiences and recommending consumption experiences significantly boosts post-evaluation satisfaction and increases travelers' overall positive evaluation (Kim & Fesenmaier, 2017). Thus, sharing information on social media (BS) is important for tourist destinations and their tourism development. In the present study, sport tourism events not only create benefits for events, but also promote local tourism development, especially for tourism destinations like Macau that are looking to diversify (Lai & Wong, 2021). The quality of tourists' experiences influences satisfaction, which, in turn, affects sharing behavior on social media platforms. However, a focus on social media platform sharing behavior in the context of sport tourism events is limited. Hence, this study aims to fill the literature, generating the following hypothesis:

H4a: *Tourist satisfaction (TS) has positive effect on behavior of sharing experiences on social media (BS).*

In the context of marketing strategies, consumers who are confident with the products or suppliers are more likely to buy products (Loureiro & González, 2008). Trust is considered one of the most important factors of online platforms (Corritore et al., 2003; Flavián et al., 2006). A study by Wu et al. (2018) found that cruise customers are more willing to trust the cruise company because EXQ and TS are related to behavior intention; their results also showed that behavior intention is positively related to trust. The credibility of sharing experience affects the adoption of information and travel intentions (Bae et al., 2017). The higher level of trust toward the product or brand generates the higher motivation of sharing behavior (Loureiro & Gonzalez, 2008). While these studies focus on quality, satisfaction, and behavioral intention from a marketing perspective, they do not adequately investigate the relationship between trust and sharing behavior on social media. This study aims to explore whether tourists' trust (ET) of the MGP event will influence the behavior of sharing experiences

(BS) on social media. Therefore, this study formulates the following hypothesis:

H4b: *Experiential trust (ET) has positive effect on behavior of sharing experiences on social media (BS).*

Extension Effect

Extension effect (EE) has previously been studied in the context of co-branding, which attitude changes among customers are determined by three factors: extension effect, mutual effect, and reciprocal effect (Lee & Decker, 2009). Specifically, extension effect (EE) is defined as the effect of future behavior that will occur after responsive consumption (Hjalager & Konu, 2011, p. 892). From the perspective of co-branding, a local festival or event plays an important role in building relationships with other brands; in other words, EE is highly relevant to sport tourism events. Song et al. (2017) indicated that an EE had a significant impact on the Osong C&B expo, leading customers to buy products during the festival and remember the brands from the festival after the event ended. Similarly, Song et al. (2017) demonstrated that TS positively influences theme awareness, which positively influences the EE. For example, tourists are more likely to buy a souvenir or choose a brand advertised by the event in the future if they are more satisfied with their experience. Thus, extension is a significant factor for a successful sport tourism event. However, these studies are mostly related to the visitors' awareness of a brand, overlooking the EE on such festivals; therefore, this area needs more attention to determine the long-term success of an event and the destination's tourism development as a whole. With support of the aforementioned studies, we present the following hypothesis:

H5a: *Tourist satisfaction (TS) has positive effect on extension effect (EE).*

Several studies have also explored the relationship between ET and EE. For example, by studying nine service products, Reast (2005) found that brand trust is significantly related to extension acceptance and that highly trusted brands have a positive EE. In addition, Völckner and Sattler (2006) found that a customer's confidence in the parent brand has an important impact on EE; trust in a product or event is the antecedent of satisfaction, which, in turn, influences tourists' ability to remember a brand. Therefore, this study formulates the following hypothesis:

H5b: *Experiential trust (ET) has positive effect on extension effect (EE).*

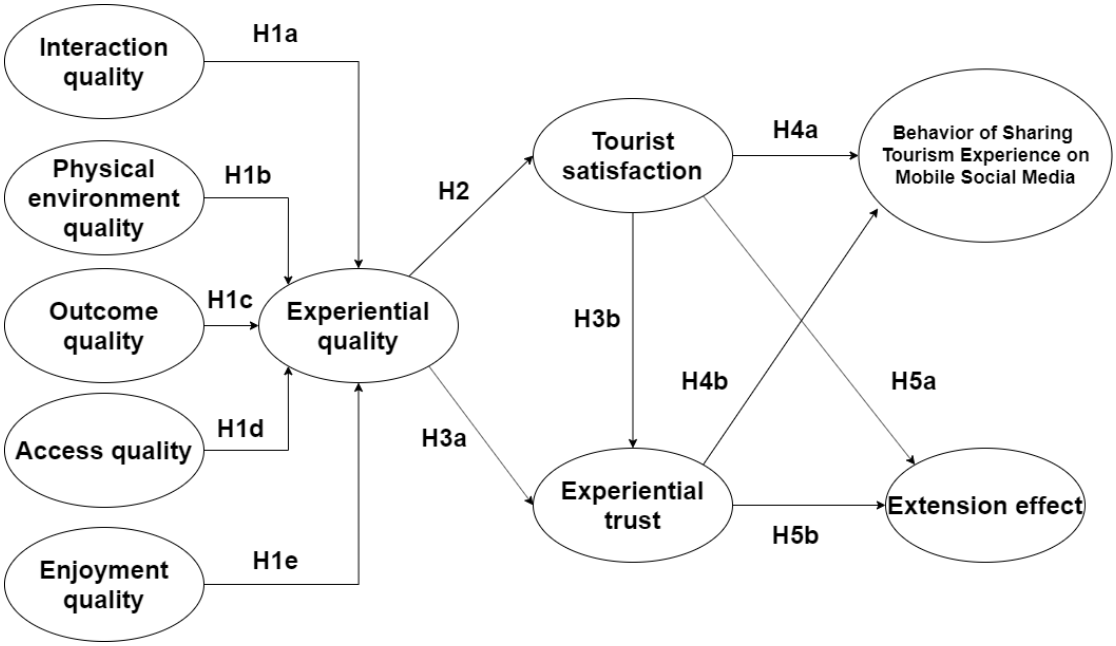

Figure 1. *Research model*

METHODOLOGY

Study Site, Sample and Data Collection

As one of the most well-known and prestigious brands in the international racing arena, the Macau Grand Prix (MGP) has gained a worldwide reputation as an FIA Formula Three World Cup and it has been passed for one of the most challenging racetrack, representative of sport tourism events around the world (Tang & Wang, 2020). The MGP has shown a consistent effort to benefit Macau's tourism. Specifically, MGP organizers have cooperated with other industries such as car servicing and photographic gaming. From a research perspective, Grand Prix has served as one of the most important events for the field of sport tourism. In 2019, the MGP was hosted for four days, from November 14 to 17. Data were collected by distributing questionnaires across three entrance spots of MGP, as well as the nearby bus station where tourists were likely to go when they leave the event. Prior to the distribution, 50 pilot tests were conducted among MGP tourists to test the appropriateness of the measurement items and to receive feedback related to the questionnaire design. Finally, participants confirmed that there were no difficulties in understanding the questions.

Table 1. *Background of respondents (N = 796)*

		Frequency	Percent
Gender	Male	552	69.3
	Female	244	30.7
Age	18-20	82	10.3
	21-25	173	21.7
	26-30	129	16.2
	31-35	135	17.0
	36-40	83	10.4
	41-45	70	8.8
	46-50	48	6.0
	51-55	33	4.1
	Over 55	43	5.4
Marital status	Married without children	95	11.9
	Married with children	295	37.1
	Single	406	51.0
Education level	Secondary school or below	44	5.5
	High school	132	16.6
	College or university	484	60.8
	Vocational/technical school	41	5.2
	Graduate school or above	91	11.4
	Others	4	0.5
Visit with	Alone	142	17.8
	Spouse/couple	108	13.6
	Family/Relative	109	13.7
	Friends	408	51.3
	Travel Group	29	3.7
Times to attend car race	1 time	332	41.7
	2 times	167	21.0
	3 times	92	11.6
	4 times	37	4.6
	5 times or more	168	21.1
Occupation	Management/Administrative staff	135	17.0
	White-collar	88	11.1
	Professional	121	15.2
	Salespeople	61	7.7
	Service staff	46	5.8
	Housewife	9	1.1
	Student	156	19.6
	Self-employed	149	18.7
	Unemployed	9	1.1
	Retired	22	2.8
Travel spending in this Macao (RMB)	500 or less	48	6.0
	501-2000	130	16.3
	2001-4000	153	19.2
	4001-6000	134	16.8
	6001-8000	117	14.7
	8001 or above	214	26.9

Systematic random sampling was performed in this study, in which every tenth participant who visited the MGP was approached to participate. A screening question prior to survey distribution was asked, which was, "Are you a tourist participating in 2019 Macao Grand Prix?" If the respondent answered "no" to the screening question or declined the request, the next tenth participant who visited MGP was subsequently approached. Four well-trained research assistants were charged to distribute the questionnaires at the three entrance spots and the entire process lasted four days, from November 14 to 17, 2019. In the first section of the questionnaire, respondents were reached by their agreement and invited to fill the questionnaire on a 7-point Likert scale, from "1" as strongly disagree to "7" as strongly agree. The second section consisted of general background information, which is shown in Table 1. By the end of the event, 820 surveys were collected, 796 of which were valid for further analysis; 24 were removed because most of the measurement items were given the same rating.

Measurement

This study adopted multiple measurement items to avoid single measurement errors and produce more representative results. To develop each research item, we conducted a comprehensive literature review on research related to EXQ and tourist behavior, including TS, ET, BS, and EE. The measurable items of EXQ include those of IQ (3 items), PEQ (3 items), OQ (3 items), AQ (3 items), and EQ (4 items), respectively. The measurement items of IQ, PEQ, AQ, and OQ are derived from previous measurement scales (Brady & Cronin, 2001; Wu et al., 2017). The measurements of EQ are derived from Wu et al. (2017). TS measurement items are from He et al. (2018). Measurable items of BS are derived from Wong et al. (2020). The measurement scale of ET is derived from Wu et al. (2018) and Jin et al. (2018). Last, the items of EE are derived from Lee and Decker (2009) and Song et al. (2017). Table 2 shows the measurable items of ten constructs.

Table 2. *Descriptive analysis of 24 measurement items*

	Measurement item	Mean	S.D.	Excess Kurtosis	Skewness	Factor loading	Cronbach's Alpha	CR	AVE
	Interaction quality (IQ)						0.948	0.966	0.906
IQ1	The interaction I have with the staff is of a high standard.	5.431	1.346	0.149	-0.66	0.953			
IQ2	I feel good about the interaction I have with the staff.	5.315	1.351	-0.167	-0.516	0.955			
IQ3	Overall., I would say the quality of my interaction with the staff is excellent.	5.389	1.36	0.022	-0.621	0.947			
	Physical environment quality (PEQ)						0.919	0.949	0.861
PEQ1	I believe that the physical environment in this event is excellent.	5.514	1.243	0.39	-0.723	0.925			
PEQ2	The physical environment in this event is of a high standard.	5.46	1.256	-0.094	-0.616	0.941			
PEQ3	I am impressed with the quality of this event's physical environment.	5.506	1.261	-0.005	-0.664	0.917			
	Outcome quality (OQ)						0.91	0.944	0.848
OQ1	I feel good about what the staff provide to their visitors.	5.401	1.29	0.173	-0.64	0.906			
OQ2	I always have an excellent experience while visiting this event.	5.544	1.242	0.635	-0.809	0.924			
OQ3	The quality of service I receive in this event is excellent.	5.456	1.262	0.331	-0.737	0.933			
	Access quality (AQ)						0.744	0.855	0.663
AQ1	I feel free to explore and there are no restrictions to access as tourists.	5.372	1.457	-0.046	-0.729	0.834			
AQ2	The event where I just visited is close to everywhere I want to go.	5.211	1.367	-0.225	-0.518	0.851			
AQ3	Coming to Macau is so easy.	5.666	1.403	0.582	-1.021	0.754			
	Enjoyment quality (EQ)						0.926	0.948	0.819
EQ1	I think taking part in this event would bring me pleasure.	5.913	1.127	0.579	-0.948	0.905			
EQ2	I think taking part in this event would make me feel relaxed.	5.756	1.237	1.15	-1.072	0.882			
EQ3	I think combining this event with visiting procedures would be enjoyable.	5.75	1.109	0.778	-0.795	0.926			
EQ4	I think combining this event with visiting procedures would make me feel fantastic.	5.727	1.161	0.433	-0.786	0.906			

	Experiential quality (EXQ)						0.869	0.919	0.792
EXQ1	I believe that visiting this event is going to provide the visitor with an interestingly educational and instructive experience.	5.472	1.256	-0.033	-0.617	0.87			
EXQ2	The quality of this event could be considered superior when compared to other events.	5.454	1.211	0.356	-0.718	0.9			
EXQ3	Taking part in this event is a pleasant experience.	5.774	1.161	0.758	-0.912	0.9			
	Tourist satisfaction (TS)						0.935	0.958	0.885
TS1	Overall, I am satisfied with my visit to event.	5.794	1.145	1.324	-1.033	0.922			
TS2	Compared to my expectation's situation, I am satisfied with my visit to event.	5.683	1.2	1.352	-1.033	0.953			
TS3	Compared to the ideal situation, I am satisfied with my visit to event.	5.639	1.227	0.875	-0.912	0.946			
	Experiential trust (ET)						0.932	0.956	0.88
ET1	I think this event is reliable.	5.808	1.153	1.347	-1.05	0.928			
ET2	I have confidence in this event.	5.784	1.177	1.267	-1.047	0.954			
ET3	I think this event has high integrity.	5.793	1.14	1.02	-0.917	0.931			
	Behavior of Sharing Tourism Experience on Mobile Social Media (BS)						0.952	0.962	0.807
BS1	I would like to chat with friends about my event experience on mobile social media.	5.621	1.324	1.424	-1.143	0.86			
BS2	I would like to create posts about my experience on mobile social media during this event.	5.554	1.433	1.118	-1.157	0.925			
BS3	I would like to post messages about my tourism experience on mobile social media during this event.	5.523	1.411	0.871	-1.048	0.937			
BS4	I would like to get replies from friends about my posted tourism experience on mobile social media during this event.	5.496	1.422	1.031	-1.103	0.927			
BS5	I would like to receive 'Likes' regarding my tourism experience on mobile social media during this event.	5.569	1.495	1.012	-1.162	0.904			
BS6	I would like to post photos about my tourism experience on mobile social media during this event.	5.435	1.565	0.721	-1.082	0.83			
	Extension effect (EE)						0.808	0.883	0.715
EE1	I will remember the event experience for a long time.	5.67	1.256	0.674	-0.943	0.826			
EE2	I will bring back gifts and souvenirs from the event.	4.732	1.841	-0.647	-0.552	0.861			
EE3	I think the souvenirs here are unique.	4.715	1.746	-0.466	-0.565	0.85			

Note: CR = Composite Reliability; AVE = Average Variance Extracted

FINDINGS

The analysis was conducted using SmartPLS because PLS-SEM has advantages in analyzing small or middle size samples (Black et al., 2010), and can also be used with normal or non-normal data by using bootstrapping techniques with 796 cases and 5000 samples to assess path coefficients (Hair et al., 2016). The respondent background is shown in Table 1, indicating that the majority of the respondents were male (69.3%), between 21 and 35 years of age (54.9%), and had visited MGP less than 4 times (74.3%).

Reliability, Validity and Correlation

The descriptive analysis of 24 measurement items is shown in Table 2. The table demonstrates all important indexes for 24 items. The values of all factor loadings are greater than 0.7 and that of Cronbach's Alphas are all greater than 0.7; the CR of those items is greater than 0.7 and the AVE exceeds 0.5. Table 3 performs the discriminant validity test. The values of correlation between two variables are all significant and range from 0.394 to 0.808. The square root of AVE for each construct, ranging from 0.814 to 0.952, is higher than the correlation values between that construct and other constructs, hence the discriminant validity is also ensured.

Table 3. *Discriminant Validity*

	AQ	BS	EE	EQ	ET	EXQ	IQ	OQ	PEQ	TS
AQ	**0.814**									
BS	0.394	**0.898**								
EE	0.472	0.505	**0.846**							
EQ	0.597	0.556	0.556	**0.905**						
ET	0.586	0.494	0.534	0.735	**0.938**					
EXQ	0.592	0.559	0.564	0.808	0.744	**0.89**				
IQ	0.527	0.427	0.472	0.619	0.592	0.624	**0.952**			
OQ	0.611	0.431	0.524	0.684	0.68	0.701	0.772	**0.921**		
PEQ	0.545	0.428	0.443	0.609	0.583	0.647	0.598	0.664	**0.928**	
TS	0.581	0.519	0.55	0.785	0.744	0.787	0.664	0.733	0.599	**0.941**

Note: Bond font = square-root of the AVE (average variance extracted)

The Results of Hypothesis Testing

Table 4 and Figure 2 shows the results of PLS-SEM. The R-squares of EXQ, TS, ET, EE, and BS are 0.712, 0.619, 0.620, 0.338, and 0.295 respectively, indicating that the overall predictive power is moderate to high. By using SmartPLS, a bootstrapping process with 5000 samples was performed. The

results indicate that PEQ (B = 0.152, t = 4.184), OQ (B = 0.158, t = 3.802), AQ (B = 0.069, t = 2.029), and EQ (B = 0.542, t = 16.140) have significant positive effects on EXQ, but the results of IQ (B = 0.038, t = 1.147) do not show a significant positive effect on EXQ; therefore, H1b, H1c, H1d, and H1e are supported but H1a is not supported.

Table 4. *Results of the hypothesized model using PLS-SEM*

		Path coefficient	t-statistics	VIF	Supported?
	R^2 value for EXQ= 0.712				
H1a	IQ → EXQ	0.038	1.147	2.625	No
H1b	PEQ → EXQ	0.152	4.184	2.027	Yes
H1c	OQ → EXQ	0.158	3.802	3.385	Yes
H1d	AQ → EXQ	0.069	2.029	1.814	Yes
H1e	EQ → EXQ	0.542	16.140	2.237	Yes
	R^2 value for TS = 0.619				
H2	EXQ →TS	0.787	36.951	1.000	Yes
	R^2 value for ET = 0.620				
H3a	EXQ → ET	0.415	8.036	2.623	Yes
H3b	TS → ET	0.418	7.572	2.623	Yes
	R^2 value for BS = 0.295				
H4a	TS → BS	0.338	7.156	2.242	Yes
H4b	ET → BS	0.242	5.166	2.242	Yes
	R^2 value for EE = 0.338				
H5a	TS → EE	0.342	6.287	2.242	Yes
H5b	ET → EE	0.280	5.171	2.242	Yes

Note: VIF = Variance Inflation Factor

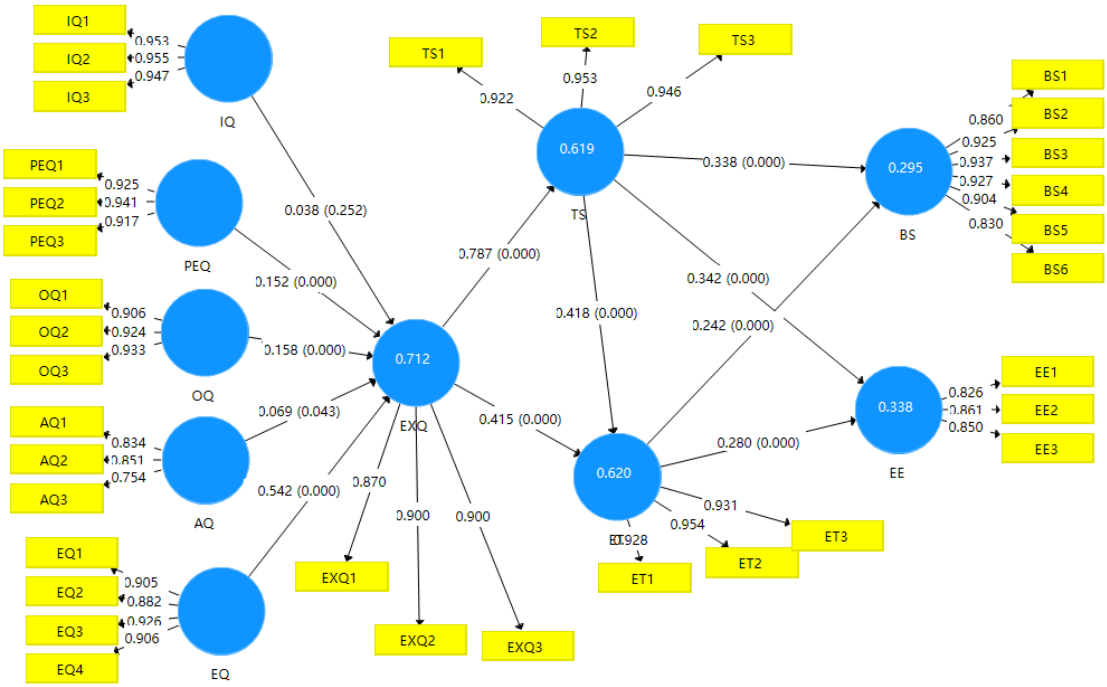

Figure 2. *Results of PLS-SEM analysis*

The results also indicate that EXQ has a significant effect on TS (B = 0.787, t = 36.951) and ET (B = 0.415, t = 8.036); TS has significant effects on ET (B = 0.418, t = 7.572); TS (B = 0.338, t = 7.156) and ET (B = 0.242, t = 5.166) both have significant effects on BS; and TS (B = 0.342, t = 6.287) and ET (B = 0.280, t = 5.171) both have significant effects on EE. Hence, all the hypotheses from H2 to H5 are supported. Besides, all of the variable inflation factors are lower than 5, which indicates that the multicollinearity is not a serious issue in this study (Ringle et al., 2015).

DISCUSSION AND CONCLUSION

Hosting a sport tourism event is an effective way to promote local tourism development and creates profits for related industries. However, the study of experiential quality (EXQ) linked with sharing behavior on social media (BS) and extension effect (EE) is limited and needs stronger recognition in this field. Therefore, the current study empirically tested the relationships among EXQ, TS, ET, BS, and EE. Based on previous related research, this study highlights the outcomes of sharing behavior on social media (BS) and extension effect (EE) on sport tourism events. This critical study indicated that such sport tourism events could be an effective way to reach target markets and encourage tourists' trust (ET) and sharing behavior (BS), which, in turn, influence the extension effect (EE).

There are many findings from this study that are worthy of note. First, it provides a literature review of previous studies and relevant hypotheses that are based on a critical review of literature. The study also examines the five dimensions of EXQ in the MGP, which are PEQ, IQ, AQ, OQ, and EQ. The conceptual model is confirmed via SmartPLS by data collected from 796 participants in 2019. The results of the study showed that the hypotheses related to four dimensions – PEQ (H1b), OQ (H1c), AQ (H1d), and EQ (H1e) – all have significant effects on EXQ, in which EQ is perceived as the most significant dimension and followed by OQ and PEQ, respectively. These results support a previous study (Wu et al., 2017) that also concluded that EQ is perceived as the most important factor because the screaming and excitement of other tourists at the Grand Prix enhance tourists' sense of enjoyment. However, OQ as the second influenced dimension is a result that differs from the study of Wu et al. (2017). The finding of this study reveals that tourists are not satisfied with overall service outcome because interaction between tourists and staffs in MGP is quite weak, which tourists' demand is not fulfilled. This study's results related to physical environment as similar to those of Walter et al. (2010),

both indicating that the surrounding environment (i.e., weather condition, nearby shops, etc.) may not satisfy tourists' demands. The results regarding AQ are also supported by some studies which found that accessibility during events has little impact on EXQ (Wu et al., 2014; Wong et al., 2015), thus, this dimension is listed last. By contrast, different from studies of Brady and Cronin (2001) and Wu et al. (2018a), the results of IQ are not supported. This is likely because, in the case of the Grand Prix, the interaction between workers and tourists is limited since most workers only have a chance to communicate to tourists upon check-in and the objective of most attendants is only to watch the game. These unique circumstances may be the reasons why IQ is not supported.

The second part of the study, hypotheses 2 through 5, is fully supported since each dimension had significant effects on the variables. The results revealed that EXQ (H2) is significantly associated with TS, and EXQ (H3a) and TS (H3b) have significant effects on ET. This result is consistent with a previous study (Wu et al., 2018) concluded that good EXQ improves TS and ET. Accordingly, the results showed that TS is more likely to influence ET than EXQ. Also, TS (H4a) and ET (H4b) were found to have significant effects on BS. This result is consistent with Sotiriadis (2017), indicating that tourists are more likely to share relevant experiences on social media when they are satisfied with their participation in the activity; this is why TS has a stronger effect than ET on BS.

Based on previous related research and the 2020 COVID-19 pandemic, many mega-sport events are currently shutdown to decrease the risk of spreading the virus, which negatively impacts tourism destinations. However, some sport events such as the MGP are still being held as scheduled. This crisis has had a major impact on both events and hotels; as Lai and Wong (2020) discussed, all stakeholders should consider strategies for both the initial and follow-up pandemic stages of COVID-19. Thus, in relation to the current study, the government and organizers should put more attention on destination exposure rather than attracting a lot of visitors. In other words, the unique case of COVID-19 has made social media sharing far more important for destinations. The decreased number of tourists influences destination exposure, so government policies and advertising of such sport tourism events need to depend more on social media sharing. Social media is an important platform to encourage and inspire tourist engagement in live sport activities (Hayes, 2020), expand Macau's destination awareness, and attract more tourists in the future. Thus, sharing behavior on social media will have valuable implications for tourism destinations during the post-COVID-19 tourism recovery.

It was also found that TS (H5a) and ET (H5b) are significantly related to EE. Consistent with the results of Song et al. (2017), TS during the event enhances tourists' awareness and perception of the Grand Prix, thus producing EE. ET has less effect than TS on EE, which indicates that tourists are more likely to lose their sense of trust after the Grand Prix. Instead, TS has a stronger effect, which means that tourists may buy commercial products after the MGP. As Wong and Lai (2019) discussed, online media is a good platform for all stakeholders to seek and share information, which, in turn, creates better interaction and partnerships with other stakeholders. Thus, BS and EE are significantly influential for creating benefits for the local economy.

IMPLICATIONS

Theoretical Implications

First, it should be noted that this study is one of the first to explore the functions of sharing behavior on social media (BS) and extension effect (EE) in the sport tourism event context. Most studies in event settings focus on traditional consequences after perception. Due to the impact of COVID-19, sport activities create a high risk of infection for attendees; therefore, events will be greatly affected by the pandemic and visitors may not be able to be involved in the sport events in person. However, these limited number of participants are crucial for promoting the events via social media; in other words, what these participants share through social media will influence other peoples' perceptions of the events. This study creates a new perspective from which to examine relationships between TS, ET, and BS. On the other hand, previous studies related to EE are mostly in the marketing field and do not provide many insights into tourism, and those that are within the tourism sector focus mostly on how EE is related to customer behavior outcomes. For example, Couto et al. (2017) found that EXQ and EE such as selling tickets and souvenirs are factors that positively influence TS. Extension activities and products significantly help the destination's tourism to grow faster; therefore, further research on EE in the tourism field is necessary to confirm since the topic of EE is a major gap in recent studies on sport tourism events. This study enriches previous literature and expands understandings of EXQ by exploring two new outcome variables.

Second, this study examines five dimensions of EXQ in sport tourism events and identifies comparative importance of each. As mentioned previously, EQ is confirmed as the most notable dimension in EXQ,

followed by OQ, PEQ, and AQ. The results indicate that tourists' overall pleasure has the greatest effect on tourists' perception of EXQ because tourists at sport events are mostly concerned about enjoyment. In contrast, interactions that occur during the MGP have no effect because tourists are seldom concerned about interpersonal interaction. Previous studies on EXQ mostly focus on the heritage tourism field and airline field (Wu & Li, 2017). The reason that data collection for sport events is limited is because of the duration of such events, which usually only last one to three days; this makes it more challenging to collect data in such a short period of time compared to other fields. Thus, the results of this study enrich the limited knowledge of EXQ in the context of sport tourism events. The revised measurement scale of experiential learning and other factors enable other researchers to apply EXQ to other hospitality and tourism sectors and provide researchers with the tools to revise the scales and apply them to other fields.

Third, this study focuses extensively on the relationships among EXQ, TS, ET, BS, and EE by providing a theoretical framework. The results confirmed that EXQ has the positive and significant effect on TS and ET; in other words, this positive relationship demonstrates that the higher EXQ of MGP tourists, the higher TS, and ET. The results also showed the positive relationship between TS, ET, and BS, EE, which means that tourists who are satisfied and trustworthy of the event are more likely to share their experiences on social media and buy extension products. This study applied the theories of EXQ and found that EXQ takes a leading role in driving BS and EE.

Managerial implications

The identified dimensions of EXQ helps practitioners with insight into how sport tourism event tourists in Macau form their perception of EXQ. The complex relationships between EXQ, TS, and behavioral intention provide management with greater insight into developing successful marketing strategies. In specific, sport tourism management should continually improve TS by recognizing the importance of EXQ. When planning an event, organizers and destination management organizations should consider improving TS based on importance of dimensions under different settings of EXQ. Moreover, because EQ was found to be the most important factor in this study, combining this event with visiting procedures is essential for increasing tourists' pleasure. For example, MGP officials usually cooperate with photographic gaming and auto show, whose information is shown on the official website. Tourists may go online to post

their photos for a reward or locals could have the experience of auto show. In sum, the organizers of the event and the government can design more activities together with MGP to create a more pleasurable visitation for its participants. For instance, sport tourism event organizers can promote the motor-racing museum attraction after visiting MGP and hold more photographic activities for families. To enhance tourists' enjoyment perception, destinations should allocate more resources and a variety of activities.

OQ is the second most important factor that managers may consider when improving the overall service. More specifically, organizers should provide professional training for staffs to meet tourists' demands, since employees' performance gives the direct impression to tourists. Also, physical environment is important to improve experiences for tourists during the festival so that their sense of satisfaction is further increased. For example, organizers should understand tourists' preferences, keeping all areas as clean as possible, increasing seating to avoid narrow spaces, offering more self-convenient stations for drinks and food, enhancing the sounds of live music, and setting wide ranges of Wi-Fi. Although AQ was determined to be the least important dimension that influences EXQ in this study, the managers should still consider arranging convenient transportation and choosing accessible locations of the festival in the future. Lastly, since IQ is not supported in this study, the managers can devote less time to improving interaction between tourists and staff. For example, the designers may decide to add an interactive section to improve EXQ instead, or the organizers may design games for tourists to play during intermission to increase communication with staff. Also, they should recognize that IQ might not be important to all festivals. In the tourism field, although employees' interaction with participants seems to provide a significant image at first glance, managers should think critically about whether or not this dimension is necessary to EXQ. Thus, sport tourism event management needs to understand the sequence of EXQ regarding to the specific cultural settings. As Wong et al. (2019) concluded, when promoting a destination to tourists, it is important for destination marketers to address and highlight the appropriate theoretical construct, that being EXQ in this case. This information gives a guideline for management to measure visitor perception in sport tourism events.

In addition, this study helps sport tourism event management better understanding the effects of TS and ET on BS and EE. To increase profits, managers could come up with ways of promoting memorabilia because EE helps increasing brand or destination awareness and create benefits for the

economy. In the case of the MGP, it is well known that the casino industry attracts an increasing number of tourists. EE is not only important in attracting more tourists but may also help increase the destination's image and promote the image of the Grand Prix in other countries. Therefore, the organizers of festivals should cooperate with the government better to create a representative brand image. Furthermore, sport tourism event management should place a strong focus on BS, which is one of the constructs in this study. The greater the exposure of the event on social media, the deeper the impressions that Macau and its events make on its tourists; as Stavrianea and Kavoura (2015) suggested, user-generated content on social media may be more effective in promoting events than traditional media. Sport tourism event management can thus provide promotional tickets of other attractions in Macau after tourists show the posted photos to staff in an effort to increase both destination tourism awareness and local brand awareness.

Limitations and Future Studies

Although this study gives contributions to academics and practitioners, the following limitations should be noted. First, this study does not consider cultural differences since the questionnaires were collected in Macau. Future studies may benefit from data collection in other regions or by examining conceptual research models in other countries and applying them in other tourism sectors. Second, this study mainly targets tourists even though some respondents were local residents. A further study could compare the perspectives of residents and tourists or different population groups such as resident-to-tourist, tourist-to-tourist, or company-to-tourist. Third, this study examines five dimensions of EXQ for tourist perception in sport tourism events. Other sub-dimensions of EXQ that are not included in the study could be developed in further studies. Lastly, this study discusses BS in the settings of sport tourism events during and post-COVID-19. A future study may consider a new pattern of sport tourism events, hybrid participation, which includes both face-to-face and online participation. In conclusion, this study enriches the literature on BS and EE in sport tourism events. Future research can expand the literature on other unexplored outcomes and study them from the residents' or other stakeholders' perspectives.

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COMMUNITY-BASED TOURISM IN PROTECTED AREAS: ELABORATING A MODEL FROM A SOUTH AFRICAN PERSPECTIVE

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ABSTRACT

Community-based ecotourism (CBET) shares many of the values and challenges of community-based tourism (CBT) but must also consider the interaction of local communities and the environment, often in areas of controlled or restricted use. Although CBT and CBET have been part of South Africa's economic strategy, governance, and social structures and hierarchies may constrain opportunities for entry. This article reviews the relevant literature with specific reference to South African CBT and CBET enterprises and uses the iSimangaliso Wetland Park as a case study to build a general framework for CBT around conservation areas. In particular, the framework describes a pathway for CBET ventures to move from an internal partnership model to an external model and ultimately complete self-sufficiency and independence if desired. We show that despite numerous challenges, CBET can be viable in conservation areas, provided all parties involved in the venture make a concerted effort to ensure that the main objectives of poverty alleviation and improved environmental management are met.

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INTRODUCTION

Tourism has grown significantly in South Africa since the dawn of democracy in 1994 and has become a central player in the economy

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(Rogerson, 2017). Recent data show that travel and tourism contributed ZAR402.2 billion (USD27.3 billion) to the country's Gross Domestic Product (GDP) in 2016, representing 9.3%. This was projected to increase by 2.5% in 2017, and by 4.2% per annum to ZAR624.2 billion (USD42.4 billion), representing 11.5% of GDP, by 2027 (WTTC, 2017). The number of jobs directly supported by tourism reached 716,500, comprising 4.6% of total employment in 2017, and was expected to grow to 1,110,000 jobs, comprising 6% of total employment, by 2027. The number of international tourists increased by 12.8% between 2015 and 2016, from 8.9 million to 10 million. This far surpasses the 3.9% increase in global tourist arrivals. South Africa's income from international tourism increased by 10.8%, from USD 4.9 billion in 2015 to USD 5.4 billion in 2016 (South African Tourism, 2017).

Tourism and sustainability are intrinsically linked. Tourism is one of the world's largest economic sectors, creating employment, and generating prosperity across the world (Scowsill, 2017). However, it can also negatively affect local cultures and environments. To avoid these effects, tourism-linked activities must be sustainable (UN, 2013). Such sustainability is contingent on community participation in conservation and tourism (Rasoolimanesh et al., 2017). However, debate continues on the relationship between tourism, conservation and community development (Novelli & Scarth, 2007).

Community-based tourism (CBT) is a relatively new concept, likely derived from an alternative development philosophy that emerged in the 1970s (Giampiccoli, 2015). It has grown over the past three decades as a means to improve the prosperity of local communities in tourist destinations by directly involving them in tourism businesses and activities (Dewi et al., 2017). Community-based tourism is an alternative to mass tourism that facilitates community development, as it is seen as more 'grass-roots' and may empower people, promoting self-esteem, and the development of a more equitable society (Jugmohan & Steyn, 2015). It can be connected to ecotourism as community-based ecotourism (CBET) where CBET "represents the ecology and nature/the environment; while CBT represents the social and economic aspects of community well-being" (Mtapuri & Giampiccoli, 2019, p. 30).

A particular focus of CBT has been community involvement in conserving World Heritage Sites (WHS) and the development of heritage tourism (Rasoolimanesh et al., 2017). This article contributes to contemporary debates by proposing a model that links community development, conservation and tourism development in the context of

national parks / WHS. This is relevant because community involvement "in WHS conservation and tourism development is essential to the sustainable development of future tourism destinations" and local communities play a significant role in the sustainability of WHS (Rasoolimanesh et al., 2017, p. 1). Community involvement is a fundamental element in both developing and developed countries' planning processes (Deegan, 2012, p. 77). Local people's participation in WHS management and tourism development improves the quality of life of local residents and increases the sustainability of heritage site conservation programs (Rasoolimanesh et al., 2017, p. 1). There is growing interest in community involvement in conservation across the world. However, the associated increase in protected areas may increase conflicts over resource use by local people and conservation (He et al., 2020, p .1). It is thus imperative to identify appropriate "approaches to balance the public need for sustaining biodiversity and natural heritage and private need for basic livelihood and culture maintenance" (He et al., 2020, p .1). However, as recently as 2012, Deegan (2012) noted that community participation in heritage management "remains immature in its development and accountability" (p. 77). Further research is thus required to identify strategies to enhance communities' role in, and benefits from WHS and National Parks.

This article is a conceptual work based on a review of academic literature, institutional documents and reports and manuals/handbooks. No primary data was collected. Conceptual articles "do not have data, because their focus is on integration and proposing new relationships among constructs. Thus, the onus is on developing logical and complete arguments for associations rather than testing them empirically" (Green, 2014, p. 35; Gilson & Goldberg, 2015, p. 127). Conceptual works attempt to bridge existing theories forge cross-disciplinary links provide diverse insights, and expand our thinking (Gilson & Goldberg, 2015, p. 128). Conceptual research and empirical research have both advantages and limitations.

Xin et al. (2013) notes that "conceptual research may progress without empirical data, while drawing upon existing concepts that are themselves generated from empirical data" (p. 70). Thus, this article draws on extant literature and documents to propose a new CBT model for community development, conservation and tourism development in the context of national parks / WHS. It aims to contribute to the debate on community participation in WHS and national parks.

This article draws on the concept of CBT to develop a model for community development, conservation and tourism development in the context of national parks / WHS where the community controls, owns, manages, and benefits from tourism development. The aim is to go beyond a 'trickle down' model where communities receive a share of the benefits generated by established ecotourism operations (Snyman, 2012).

The remainder of the article is structured as follows: The following section presents the methodology employed, followed by a review of the literature on sustainability, CBT, CBET and the case study, the iSimangaliso Wetland Park. The proposed CBT model in the context of WHS/National Parks is then presented. The article concludes with a summary.

LITERATURE REVIEW

Sustainable Tourism and Sustainable Development

Sustainable tourism originated, and remains, within the more general context of sustainable development. Emerging theories on conservation and development aim to enhance the capacity of protected areas to complement socio-economic development initiatives and address social inequality, particularly in less developed countries (Kade Sutawa, 2012, p. 414).

The United Nations World Tourism Organization (UNWTO) first adopted a definition of sustainable tourism at the 1992 Rio Summit (Dangi & Jamal, 2016, p. 4; UNWTO, 1994, p. 30). Increased awareness of issues relating to poverty that was evident at the World Summit on Sustainable Development in Johannesburg in 2002 led the UNWTO to propose in 2005 that sustainable tourism is "tourism 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" (Dangi & Jamal, 2016, p. 5; UNEP-UNWTO, 2005, p. 12). This definition can be related to what proposed by the World Commission on Environment and Development viewing sustainable development "as combining two basic notions: economic development and ecological sustainability" (Braat & Steetskamp, 1991, p. 271). Thus, "ecologically sustainable economic development can then be thought of as changes to the economic structure, organisation and activity of an economic-ecological system that are directed towards maximum welfare and can be sustained by available resources" (Braat & Steetskamp, 1991, p. 271). The Beijing Declaration on Sustainable Tourism as a Driver of Development and Peace (UNWTO, 2016, p. 5; see also Dluzewska & Rodzos, 2018, p. 253) is specifically linked to the 2030

Agenda for sustainable development, the sustainable development goals and to sustainable development and poverty reduction.

Thus, over time, the concepts of sustainable tourism and sustainable development have increasingly recognized the host community and the need for inclusiveness and poverty reduction. This acknowledges that "sustainable tourism development relies upon the involvement of the local community" (Rasoolimanesh & Jaafar, 2016, p. 9). The major goals of sustainable tourism development should include increased economic benefits to local communities (Theerapappisit, 2012).

However, while the focus of sustainable tourism is long-term sustainability, CBT focuses on local practices and community involvement in managing tourism (Dangi & Jamal, 2016). Narrowing this conceptual gap would facilitate improved governance, greater equity in access to tourism-related resources, community empowerment and the care of natural, cultural and social goods (Dangi & Jamal, 2016, p. 26). From a tourist / visitor perspective, CBT adds a new dimension to traveling where tourists can also contribute to conservation and poverty alleviation, thus supporting sustainable development of tourism in the area (Giampiccoli & Mtapuri, 2012; RETOSA, n.d.).

Tourism can be useful to conservation and development by, for example, assisting to raise funds to protect natural areas and as a channel to reduce poverty (Borges et al., 2011, p. 7). However, if not properly planned and managed, it can have negative impacts on nature and the local community. It is thus "essential that tourism in protected areas is managed properly according to the tenets of sustainable development" (Borges et al., 2011, p. 7). The overall goal of conservation in a protected area should be retained. The protection and conservation of features of OUV [Outstanding Universal Value] are paramount in World Heritage Sites, in particular (Borges et al., 2011, p. 7).

Sustainable development and community participation are interlinked in WHS because the involvement "of local residents in WHS conservation and tourism development is critical to future sustainable development" (Rasoolimanesh & Jaafar, 2016, p. 9). However, community involvement and control in WHS "is minimal … which contributes to limited socio-cultural, economic and environmental impacts of WHS which affect sustainability" (Lekaota, 2018, p. 4). Nonetheless, carefully conducted tourism development in natural WHS may be beneficial (Farid, 2015, p. 729).

Community-Based Tourism

Tourism can impact the local community in various ways, driving development in some local communities, but having negative effects in others (Nagarjuna, 2015). Community involvement is recognised as fundamental to enhance local benefits and counter tourism's negative effects (Burgos & Mertens, 2017; Nagarjuna, 2015; Rasoolimanesh & Jaafar, 2016; Salleh et al., 2016). It should thus underpin change and development. In this context, it should be emphasized that reference to 'community' members relates to disadvantaged groups. Thus, increased involvement of indigenous communities implies low-income groups in rural and urban areas, who are largely excluded from government structures and processes (Novelli & Gebhardt, 2007).

Various forms of community participation in tourism have been proposed, (e.g. Mtapuri & Giampiccoli, 2016; Novelli & Gebhardt, 2007; Tosun, 2000, 2006), based on previous studies (e.g. Arnstein, 1969; Pretty, 1995) on the conceptualization of types of community participation. This article seeks to go beyond involvement and participation in tourism towards considerations of control and ownership, using the concept of CBT, which centres on local control of tourism development (Forstner, 2004).

Community-based tourism is aimed at disadvantaged sectors of society and considers various issues such as sustainability, social justice, empowerment and self-reliance (Giampiccoli, 2015). It is thus recognized here as a type of tourism development aimed at redistributive measures that is controlled and managed by disadvantaged community members (Dangi & Jamal, 2016; Saayman & Giampoccoli, 2016). Community-based tourism is complex and constitutes a tourism category with its own features, difficulties and potential (Giampiccoli et al., 2014).

Community-based tourism principles indicate that is located within a community, one or more community members together can own and manage the CBT entities (Zapata et al., 2011, p. 727). These criteria allow for a variety of modes of organizing CBT, including rotation of infrastructure and organization or provision of services among families for limited periods of time (Zapata et al., 2011, p. 727). However, the principles of shared infrastructure, equity in receiving benefits and initiatives to protect the environment should be upheld.

Research (Giampiccoli et al., 2015, p. 1211; Saayman & Giampiccoli, 2016, p. 152) identifies several characteristics of CBT including; an indigenous effort but with possible partnerships whenever necessary, being

part of diverse livelihood strategies, and embracing a capacity building strategy that promotes skills/education in tourism with spin-offs in other community development matters. A number of preconditions must be met for CBT to be a feasible form of development in a specific setting. As outlined in the pre-condition evaluation and management model (Jugmohan & Steyn, 2015), these include availability of infrastructure, physical or natural resources, and availability of skilled project leaders and managers.

However, CBT initiatives by various government and non-governmental agencies have been characterised by 'top-down' development models which may be responsible for many of its perceived negative effects (Zapata et al., 2011). It is important that CBT remains a home-grown type of tourism that originates within the community and is not based (or dependent) on voluntarism on the part of conventional tourism (Giampiccoli et al., 2014).

There is no single organisational model for meeting the above conditions that will fit all circumstances or locations and the structure of each entity will govern the level of community control in CBT (Asker et al., 2010). Nonetheless, the type of involvement determines if it is a CBT entity, and a top-down approach based on external control can cause resentment within communities (Sakata & Prideaux, 2013). In "CBT the level of community involvement, awareness, complexities and advantages from the tourism need to be comprehended" (Naik, 2014, p. 42).

Numerous CBT trajectories and models (Hamzah & Khalifah, 2009; Koster, 2007; Mtapuri & Giampiccoli, 2013, 2016; Rocharungsat, 2004) have been proposed, including 'top-down' and 'bottom-up' models (Zapata et al., 2011) and those based on the type and scope of community involvement (and who is involved), type of enterprise and partnership or joint venture, and the role played by government, NGOs or the private sector (see Baktygulov & Raeva, 2010; Calanog et al., 2012; Denman, 2001; Häusler & Strasdas, 2003; Mtapuri & Giampiccoli, 2013).

While the community may own and manage the tourism enterprise, external companies may form joint ventures with local communities; or the company may be privately owned, as long as it benefits the local community (Dewi et al., 2017). Community-based partnerships are one of the main trends in progression towards sustainability (Rocharungsat, 2004). Based on the presence or absence of a partnership, Giampiccoli and Mtapuri (2012) proposed three models of CBT, namely, one where a community entirely holds and manages the venture; community-based partnership

tourism, where there is a community-private sector partnership; and community tourism where community assets are used by private investors.

Partnerships with external entities for marketing and market access (Forstner, 2004) can be very promising. Appropriate assistance is crucial to long-term CBT development as successful CBT generally requires multi-institutional support (Ramsa & Mohd, 2004, p. 584). Community-based tourism ventures can partner with four types of entities, namely, the tourism industry, universities, government agencies, and NGOs (Hamzah & Khalifah, 2009). Although the private and NGO sectors may play important roles, contributing financially or to implementation, the role of government institutions is indispensable, given the amount of informal activity in the tourism and the vulnerability of poor communities (Mtapuri & Giampiccoli, 2013, 2016). The national tourism department or other parastatals facilitate the development of CBT products by providing market information, or facilitating capacity-building (Forstner, 2004; Ramsa & Mohd, 2004). Alternately, governments may support CBT indirectly, through umbrella bodies or other institutions (Forstner, 2004) such as facilitating the establishment of a CBT association/organisation.

While partnerships are particularly useful at the inception of an enterprise, they should be temporary and mainly for technical advice. The partnership model should empower the community so that any extension of the partnership is voluntary. This differs profoundly from a condition where the community is compelled to continue a partnership, although long-term partnerships may be favoured if they can encourage community-wide benefits (Mtapuri & Giampiccoli, 2013). This approach aligns with the notion that professional planners help communities to devise their own plans (Theerapappisit, 2012). This type of partnership, which primarily rests on facilitation can reduce conflict between the partners and prevent unsustainable use of resources (Ramsa & Mohd, 2004). At the same time, relationships between communities and private partners can be strengthened (Denman, 2001). Over time, the community's negotiating power will increase relative to the external partner (Mtapuri & Giampiccoli, 2013).

Partnerships can be external or internal. While external partnerships exclude the CBT venture, they may include other services connected to it, including marketing, quality control and skills development. Internal partnerships occur when the CBT entity itself is part of the partnership outside any specific agreement (Mtapuri & Giampiccoli, 2016). External partnerships should be the guiding rule in CBT. However, none of the

above points related to external facilitation and partnerships should detract from the fundamental issue of control and ownership of CBT.

'Shared management authority' in which responsibility is shared among all stakeholders, remains the preferred CBT management system (Rocharungsat, 2004). However, Rocharungsat's (2004) research established that all stakeholders were of the view that the local community should remain in control of CBT entities. It is thus necessary to develop a model in which owners, managers and controllers of CBT and other stakeholders can play various roles, while ensuring that disadvantaged community members remain the main protagonists.

Community-based tourism associations can assist their members and communities with product development and distribution (Forstner, 2004) and can "play a key role in supporting CBT, sustainable tourism, rural and eco-tourism" (Asker et al., 2010, p. 85). Such a collaborative approach to CBT increases the likelihood of sustainable tourism development (Tolkach & King, 2015). However, CBT associations may face constraints such as a lack of financial resources and stability (Forstner, 2004, p. 506).

Despite the proliferation of CBT development strategies and models, challenges such as a lack of financial resources, infrastructure, marketing and market access, low levels of local capacity and economic viability, and a lack of proper understanding of the term 'community' must be acknowledged (Saayman & Giampiccoli, 2016). Community-based tourism has been described as inefficient and not participative (Mitchell & Muckosy, 2008, p. 1). For example, many CBT initiatives are unsuccessful in "reducing poverty at scale" and they require stronger links with mainstream tourism to increase the positive impact on the poor (Mitchell & Muckosy, 2008, p. 2). Moreover, while CBT is aligned with matters such as social justice and community control, and aims to break structural barriers to community involvement and advance emancipatory strategies through community development, not all promoters of CBT adhere to these principles (Blackstock, 2005). Due to these and other challenges, the type of CBT implementation strategy is fundamental to its success (Giampiccoli & Saayman, 2017). As Sakata and Prideaux (2013, pp. 882) assert, problems faced in the CBT approach are related to the methods and techniques used in its execution strategies. Community-based tourism can bring local benefits, but when not properly implemented can cause problems to communities and environment (Asker et al., 2010, p. 7).

In KwaZulu-Natal Province where the iSimangaliso Wetland Park is located, an overall framework for CBT was proposed as far back as 1999

(Naguran, 1999). It comprised four models: a community-owned venture, a partnership between the community and the state, a lease agreement between a community and a private investor, and a joint venture between the community and a private investor. More recently, the South African National Department of Tourism identified four CBT models: a community-owned tourism venture, a community tourism initiative in partnership with a private sector operator, CBT entrepreneurship, and community enterprise linkages with private sector-owned tourism business (National Department of Tourism, 2016).

In the South African context, the relationship between communities, traditional authorities and government authorities can confound attempts to establish CBT ventures. For example, Ivanovic (2015) concluded that the absolute authority that traditional leaders wield restricts the distribution of benefits to the community at large. The same author (Ivanovic, 2015) thus asserted that development led by such authorities cannot be called pro-poor or community-based, notwithstanding the fact that communities may gain some income from such ventures and may not have to resort to migrant labour. This hierarchical structure may also exacerbate divisions within the community, with those who feel politically marginalised expressing different interests to those in authority, although such divisions are dynamic, and may change over time (Boonzaier & Wilson, 2011). Traditional leaders may also impede the allocation of land for development, especially since their relationship with local government structures is often poor (Dubazane & Nel, 2016; Mnguni, 2014). For these reasons, it is necessary to work with all actors to establish successful CBT ventures in South Africa (Boonzaier & Wilson, 2011). More specifically, it is essential to avoid traditional leaders or other local elites and local or international actors controlling tourism and its benefits. Disadvantaged community members should consistently control tourism and all actors should work together to ensure that CBT works to the benefit of the community, and specifically serves to alleviate poverty and inequality.

Community-Based Ecotourism

A distinction needs to be drawn between CBT and CBET as, while both terms are used here, they are not synonymous. While some of the properties of CBT are inherent in ecotourism, CBT and CBET also have significant differences and there is a specific relationship between them.

A fundamental characteristic of CBET "is that the quality of the natural resources and cultural heritage of an area should not be damaged

and, if possible, should be enhanced by tourism" (Denman, 2001, p. 14). This characteristic of CBET makes it a crucial tool in the management of heritage sites such as WHS. In addition, CBET also has a prominent social dimension (see also Liu et al., 2014) as the local community is involved in and has considerable influence over development and management, and retains a large proportion of the benefits (Denman, 2001, p. 2). Sproule (1995, p. 235) notes that, CBET "refers to ecotourism enterprises that are owned and managed by the community". Tourism managed by the community is called CBT and if that CBT specifically adheres to ecological principles, then it is called CBET (Leksakundilok, 2004; see also Mtapuri & Giampiccoli, 2019, p. 30). The common denominator is community control and management of the tourism sector, whereas in CBET specific attention is paid to environmental issues.

This may be particularly pertinent in Africa, where most upmarket ecotourism camps are in isolated locations, with few prospects of economic development or employment for local community members. Rural livelihoods are also susceptible to climate change, implying an urgent need for alternative income-producing activities that may be supplied by high-end ecotourism (Snyman, 2012, p. 395).

While the benefits of CBET, whether to conservation or to communities are equivocal (Bennett & Deardon, 2014; Kiss, 2004; Mensah, 2017), there have been criticisms of nature based-tourism, including the assertion that recent conservation strategies have resorted to neoliberal, market-based mechanisms (Manyisa Ahebwaa et al., 2012). However, it has been demonstrated that where adequate social capital accrues through CBET, both economic benefits and environmentally favourable behaviour follow it (Liu et al., 2014).

Community involvement "in heritage management can settle conflicts between the needs and interests of residents - between the pursuit of a better quality of life and economic development - and WHS conservation" (Rasoolimanesh & Jaafar, 2016, p. 2). Community participation in wildlife-based tourism in and around protected areas provides a link between biodiversity conservation and expansion of community livelihood opportunities (Stone & Nyaupane, 2018). However, guidelines are not always set for such involvement (Chiutsi & Saarinen, 2017).

iSimangaliso Wetland Park

In WHS, community engagement in tourism "should where appropriate facilitate the involvement of local communities and indigenous peoples in meaningful and beneficial tourism ventures; tourism should respect local community uses of the site; empower communities to make decisions about the conservation and use of their heritage; and promote the development of capacity to ensure effective community participation" (UNESCO, 2012, p. 68). If these conditions are met, tourism in WHS can contribute to community development (Borges et al., 2011). One of the issues to consider in the relationship between WHS and local communities (UNESCO, 2012, p. 31) is that state parties should be conscious of the training local people require to manage and operate the site.

The iSimangaliso Wetland Park in the far northeast of South Africa was declared the country's first World Heritage Site in 1999 in terms of the World Heritage Convention Act which explicitly requires the government to combine conservation with job-creating sustainable economic development (Porter et al., 2003; Scott et al., 2012). This ethos is embodied by the Park, whose mission statement includes "to deliver benefits to communities living in and adjacent to the Park by facilitating optimal tourism and related development…in order to ensure World Heritage values are not compromised, conservation objectives need to be foremost, with the emphasis on 'development for conservation'" (iSimangaliso Wetland Park Authority, n.d., p. 1). The iSimangaliso Wetland Park Authority thus seems very much directed towards a community development approach within its conservation prerogatives. To this end, co-management agreements have been concluded with land claimants, who are represented on the iSimangaliso Board and the park authority participates in municipal planning activities in the area (Scott et al., 2012).

In view of the large size of the park, the variety of habitats and attractions and the wealth of natural resources that led to its declaration as a WHS, iSimangaliso is well suited to eco-tourism. Indeed, a shift from mass tourism to eco-tourism was documented between 1999 and 2013 (Govender, 2013). There is also a strong case to be made for CBET within the park. The right of the former occupiers to be compensated has been recognized and compensation awarded in the form of remuneration or other benefits, which include "revenue sharing, mandatory partner status in tourism developments, access to natural resources, cultural heritage access, education and capacity building, and jobs through land care and infrastructure programmes" (iSimangaliso Wetland Park Authority, n.d., p.

24). The need for accommodation that reflects visitor trends and preferences and the potential to use accommodation development for transformation through inclusion of local communities as equity partners is further noted. As long ago as 2002, the Thonga Beach Lodge and the Mabibi community campsite were established as community run tourism enterprises (Hansen, 2013). Furthermore, tourism licenses are only issued to businesses if a 70% shareholding rests with the community. Training in tourism, hospitality and guiding as well as craft programmes has been undertaken to ensure that communities benefit from the park's WHS status (iSimangaliso Wetland Park Authority, n.d.).

Between 1999 when the iSimangaliso Wetland Park WHS was listed and 2010, 45,000 ha of land was rehabilitated through alien plant removal and a further 12,000 ha of commercial timber was removed. Almost 46,000 temporary jobs were created in the park, 60% of which were taken up by women, greatly improving livelihoods in the area (Scott et al., 2012). More recent achievements listed by the park authority towards social transformation goals include 431 full time job equivalents created, 5,795 training days in a number of fields related to tourism, arts, crafts, and firefighting among others, the increased numbers of bursaries awarded to locals for tertiary studies, more people participating in SMMEs and 45% of resource procurement from local businesses. Stakeholder engagements also increased (iSimangaliso Wetland Park Annual Report, 2019).

However, problems and challenges exist and success is far from guaranteed. Dube (2018) identifies the following challenges in iSimangaliso Wetland Park: the socio-economic environment is among the poorest in South Africa, meaning that many locals depend on natural resources for survival, slow resolution of land claims, and transformation of the tourism sector. In relation to the last issue, Black-owned tourism enterprises only constitute 5% of such businesses in the park. In terms of power relations, most Black residents that are involved in the local tourism sector operate in the informal sector, calling for "the transformation of the tourism sector" (Dube, 2018, p. 10).

Efforts to adopt a developmental and community capital approach to conservation in the Mkuzi area of the park were only partly successful (Dahlberg & Burlando, 2009), with some trade-offs not yielding adequate benefits, resulting in distrust of the programme among local communities. Nonetheless, reciprocal respect between the park and locals for different viewpoints and cultures increased. In the Bhanga Nek area of the park, perceived unequal sharing of benefits has led to illegal tourism enterprises

and gillnetting in the lakes, which in turn has resulted in conflict among communities as well as between communities and the park authority (Hansen, 2013). These conflicts may be exacerbated by the priority given to conservation over development in the park and the need to conform to international standards for world heritage sites (Hansen, 2013). A recent study (Chiutsi & Saarinen, 2017) on local participation in transfrontier tourism in an African transfrontier conservation area emphasizes the need for proper guidelines for CBT enterprises in such areas that clearly indicate partners' duties and obligations towards conservation, tourism development and community participation.

It is against this background that this article proposes a model for community development, tourism, and conservation to coexist and be reciprocally advantageous within a CBT and world heritage site context. In the case of iSimangaliso Wetland Park this model could serve to enhance the success already achieved and work towards advancing new strategies.

POSSIBLE WAY FORWARD FOR CBT DEVELOPMENT IN AND AROUND WORLD HERITAGE SITES

A model is proposed (Figure 1) as a general framework that sets out possible CBT options in and around nature conservation parks. In a context where environmental issues are also central, CBT should be read as CBET where community and environmental needs and benefits are considered concurrently and equally. Figure 1 shows that a wide range of actors / stakeholders may be involved, provides various CBET models, including SMMEs, CBT ventures, community lodges, and community lodges in partnership, and offers options of internal and external partnerships. Various issues such as capacity building and the use of natural resources are also considered. Capacity building is essential and the model (Figure 1) includes it in the general framework, in a context of partnerships with external entities and in relation to the iSimangaliso Wetland Park Authority and the proposed CBET association. Lekaota (2018, p. 3) notes that limited environmental education or awareness negatively affects community participation and benefits and sustainability. Thus, in the model (Figure 1) capacity building is vital and is linked to one of the issues included in the iSimangaliso Wetland Park programme on transformation (social and economic development), namely, "Training and capacity building for people and community-based contractors employed by the Park" (iSimangaliso Wetland Park Annual Report, 2019, p. 24).

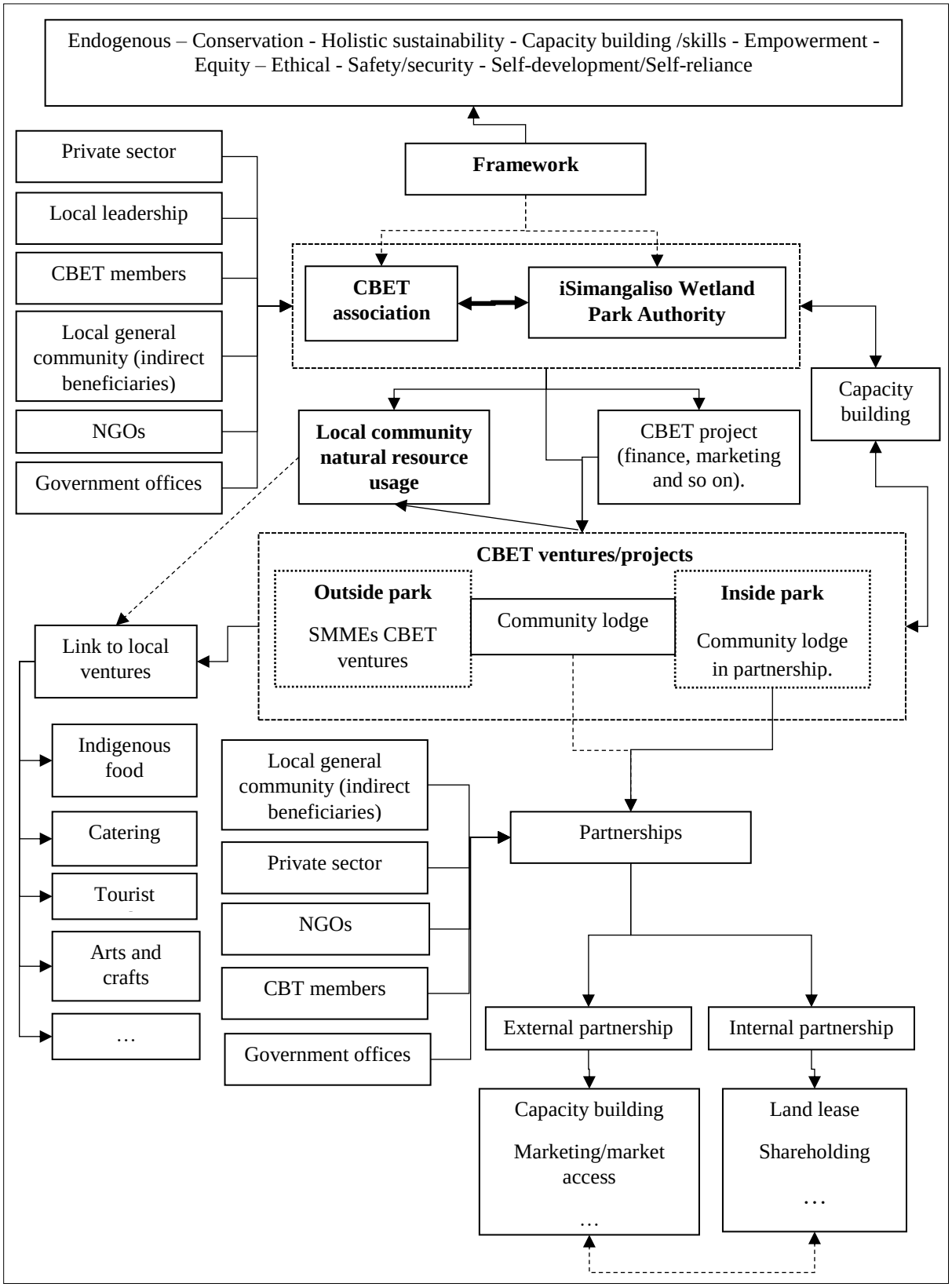

Figure 1. *General framework of CBET development possibilities in and around a natural park*

Most importantly, the model regards the establishment of the CBET association and the role of the iSimangaliso Wetland Park Authority as fundamental. Working in unison, these entities should be the core structures that facilitate, implement and monitor the entire process. As Figure 1 shows, the CBT association will be linked to various entities such as the private sector and government. This is important, because networking and partnerships among various actors such as local communities, NGOs, government, academics and the private sector can serve "to build the knowledge, skills, and self-confidence of community members" (Tasci et al., 2013, p. 22). However, government remains "the key in local governance, which needs organizing and building partnerships within the community and between the community and external agencies with continuous communication" (Tasci et al., 2013, p. 33). Without government support, CBT endeavors can be a waste of resources; government has the responsibility to "provide continuous psychological, financial, technical and educational support in all steps of CBT development" (Tasci et al., 2013, p. 33).

The collaboration of community members in the 'management and tourism planning' of WHS is regarded as essential (Borges et al., 2011, p. 10). The CBT association – which is owned and managed by community members – is regarded as a channel and structure that can enhance community participation, serving to change the current situation in the iSimangaliso WHS where deficiency of local community members' involvement presented dangerous consequences for the sustainability of the locations (Lekaota, 2018, p. 4). However, as Dube (2018) indicates in reference to the iSimangaliso Wetland Park Community Trust, organisations, including local representatives ought to be all-inclusive, and transparent and should strengthen community benefits. The CBT association should have the same characteristics.

The literature (Nugroho & Numata, 2020, p. 12) proposes that the inclusion of community member is strongly connected with the "perceived benefit and support of tourism development." The CBT association could have a major role in this relationship. The expansion of collaborations in tourism management to, for example, village-owned enterprises or other type of existing organizations can assist local community members to be comprehensively involved in development issues (Nugroho & Numata, 2020, p. 12). The iSimangaliso Wetland Park Authority "should attempt to improve the lack of community involvement' in Integrated Management Planning (IMP), for example, through the establishment "IMP-related tourism programmes" (Dube, 2018, p. 15).

Local entrepreneurship is also principal and could be enhanced by the various links and roles of the CBT association. Thus, in WHS, successful community involvement in tourism can be developed at small scale with local entrepreneurs who offer most of the services available to visitors (Borges et al., 2011). In this context, capacity building remains fundamental (Borges et al., 2011, p. 10). Figure 1 also proposes that entrepreneurship should link to local ventures. The iSimangaliso transformation programme points to the need to improve "procurement of goods and services from black owned businesses" (iSimangaliso Wetland Park Annual Report, 2019, p. 24). However, in 2018, it was reported that local people inclusion as service providers is negligible in these conservation areas (Dube, 2018, p. 16). New strategies and models, such as the one proposed, could be investigated and advanced.

Figure 2 presents a proposed model for CBT partnerships to enhance the shift from internal to external partnerships while retaining the possible benefits of the external partners. This should be properly managed to achieve sustainable CBT management by approaches appropriate to each phase of tourism development (Nugroho & Numata, 2020, p. 12). Joint ventures between the private sector and communities can work in various settings. While success depends on context-specific factors, overall principles such as robust community organisations with legal rights over land are generally applicable (Ashley & Jones, 2001, p. 422). The establishment of the CBT association should be seen in this context as a formal community entity for CBT development.

A partnership exploits a 'long-term but temporary' concept where an initial internal partnership – of the CBT venture itself – gradually shifts to an external one, and fully local (prioritizing the disadvantaged) community owned and managed CBT ventures. Specific timeframes should be set and written into the initial partnership agreement between the various stakeholders. Initially, the lodge can partner with the local community through lease/fee/shareholding and over time the shareholding is reversed – including regular and proper capacity building. The now external partner can continue to participate and make its own profit by, for example, acting as a travel agent for the CBT venture. Ideally, in the long term the CBT venture should have the capacity to, if desired, become fully independent in *all* aspects of CBT (tourism) management such as in marketing and market access. Thus, the partnership will become voluntary. While internal partners are likely to be private sector entities, external partners will likely include NGOs and government.

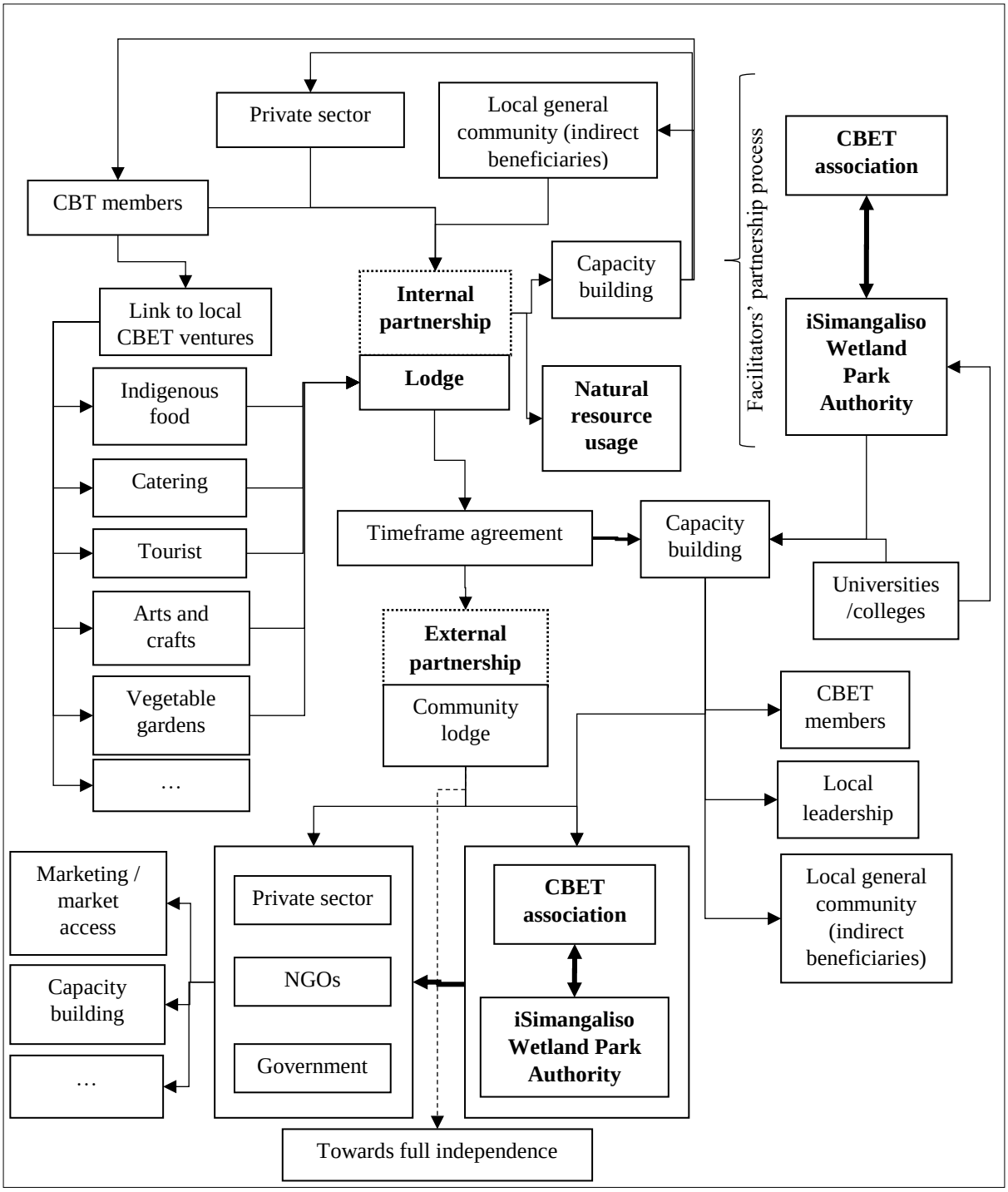

Figure 2. *Proposed partnership model for a lodge inside the park*

The partnership model strongly emphasizes capacity building, which is seen as an elemental precondition for CBT development (Asker et al., 2010; Suansri, 2003). It should not be restricted to CBT matters, but should embrace a more comprehensive approach, going beyond technical skills related to tourism to more generally empowering communities and individuals. In order to operate as a development tool, capacity building

should respect local culture and should consider both indigenous and exogenous knowledge (Giampiccoli et al., 2014). In nature based settings, including the iSimangaliso Wetland Park specific attention should also be directed to conservation.

From a business perspective, capacity building should facilitate the development of capabilities to run commercial enterprises, including in organisation and finance (Jealous, 1998). It should be facilitated by workshops on various topics (Dodds et al., 2016) and should include long-term formal training. This issue is particularly relevant to South Africa where tourism's potential for economic growth and community upliftment is impeded by skill shortages (Giampiccoli et al., 2014). Achieving such capacity building calls for long-term donor funding (Victurine, 2000). Government and higher education institutions with their expertise and local presence should be at the forefront of facilitating capacity buildings in CBT (Giampiccoli et al., 2014; Hamzah & Khalifah, 2009).

Finally, while this is not indicated in Figures 1 or 2, on-going monitoring and evaluation of projects is essential and a monitoring and evaluation system should be in place. This should be coordinated by the CBT association and the iSimangaliso Wetland Park Authority with the possible assistance of *ad hoc* specialists such as university personnel.

It is also crucial that in such a CBET scenario, community enterprises have access to conservation areas or assets to realise the full potential of their tourist enterprises. Community-based ecotourism not only gives local communities control of tourism enterprises, but a stake in conservation and the health of the ecosystem. The usage of natural resources in the park or restricted conservation areas (in bold in Figures 1 and 2) is fundamental. However, in general communities, seldom attain formal authority over land or the resources on it, despite changes in the discourse over land and resource management (Roe et al., 2009, p. VIII). In Africa, sustainable use of natural resources, which is largely governed through collective, local institutions, remains integral to many livelihoods, including through tourism. Conservation thus also depends on local stewardship (Roe et al., 2009). A recent document (World Bank, 2018, p. 26) states that:

> *Communities who live adjacent to protected areas often rely on these regions for forest products, firewood, thatching, and grazing, and they may have customary rights related to the natural resources. Studies have shown that community apathy, disengagement, or hostility can cause tourism initiatives to fail; conversely, where communities are engaged and benefiting, sustainable wildlife tourism can be a win-win.*

The success of the CBET enterprise depends on continued environmental integrity, as this is the main drawcard for this type of tourism. Since some ecotourism enterprises, such as Scuba diving, whale watching or game drives are capital intensive, alternatives must be found and reserved for CBT enterprises.

CONCLUSION

Tourism is a key international economic sector and it is important that it works within a sustainable framework. However, over time the context of sustainable tourism and sustainable development has progressively acknowledged the need for inclusiveness and poverty reduction. Community-based tourism, and its more environmentally attentive 'twin', CBET aim to include local (especially disadvantaged) community members in tourism and community members should control, own and manage the tourism / CBT venture. However, CBET confronts various challenges. Together with its attention to environmental issues, the need to include local people is indispensable.

Using the South African iSimangaliso Wetland Park as an example, this article proposed a general framework for CBT in relation to conservation areas. The model emphasises the need for collaboration between a CBT organisation and the Park Authority and includes various possible types of tourism businesses in which the community can be involved.

Partnerships between a community and other entities such as the private sector remain important. However, the article suggests that there is a need to move from internal to external partnerships to ensure that CBT / tourism businesses are fully controlled, owned and managed by community members. While partnerships with external entities may remain valuable, they should be optional and not an obligatory requirement. The article advances that despite difficulties, such as the frequent need for adequate training, given united action by all parties and compliance with specific rules (such as partnership rules between various actors), CBET can be used to fight inequality and poverty and at the same time enhance environmental conservation.

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HOW DELIGHTFUL IS INDIAN WELLNESS TOURISM? A NETNOGRAPHIC STUDY

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ABSTRACT

The growing number of wellness care facilities in India has raised concern over the service quality that is being provided to the tourists. This research targets to explore the dimensions of wellness tourism service quality based on customers' quality perception. Social media platforms such as Google reviews and hotel review blogs/websites were used to gather 400 public reviews. A Naïve Bayes machine learning Sentiment Analysis approach was used to identify critical areas to improve service delivery, customer relationship, and hospitality management in wellness resorts. Tangibility was identified as the most important dimension followed by empathy, assurance, reliability, and responsiveness. Assurance, empathy, and reliability have the most negative sentiments shared by tourists. Food quality, rooms and accommodation facilities, safety and security, attitude towards customer complaints, the behaviour of the staff, error-free services, and proper training are areas upon which Indian wellness resorts should focus. This study intends to identify additional constructs in future research and build robust models to actively rank the important factors for better customer engagement. Research findings may support managers and policymakers to identify areas of improvement to help them develop the wellness resorts in India.

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INTRODUCTION

The growth in world travel and tourism creates ample opportunities for both developed and developing countries. International tourists help in creating opportunity for development of employment opportunities, foreign exchange earnings, and tourism investment (Csirmaz & Pető, 2015; Neto, 2003). In the last few years, tourism saw a dynamic development in the area of wellness tourism at both national and international levels. Experts say that it is one of the fastest-growing areas of tourism and is forecasted to expand further. A worldwide total of 586 million wellness trips is taken each year, which accounts 15% of the total global travel (Karai, 2019). "Wellness tourism" as a term is often used to describe tourism activities which helps to develop the wellness, body and mind health, and quality of life of an individual (Hall et al., 2011). Wellness tourism is sometimes confused with medical tourism. While medical tourism is travel to treat an illness, wellness tourism is more about improving the wellbeing of the body and mind (Global Wellness Institute, 2017). Our body needs to get away from stress and the weariness of long and monotonous hours of work. Wellness holidays are a great way to gift our body with happiness and rejuvenation. Wellness tourism is for the people who need a break from their regular work for the development of their physical and mental health.

The world's global wellness economy stands at USD 4.5 trillion as of 2019 (Global Wellness Institute, 2019). Of which, wellness tourism is at USD 639 billion. The sector is expected to grow at a CAGR of 7.5% (2017 – 2022) to reach USD 919 billion by 2022 (Global Wellness Institute, 2018). Further, the report states that China and India will take one third of the total growth of the Asia-pacific region alone. India has prospered from capturing a strong tourist base in the name of a wellness retreat. In 2019, India was ranked 23rd in the world with 10.93 million foreign tourist arrivals (annual growth of 3.5%). Of the total arrivals, 6.4% were for medical tourism which includes wellness as a part of it. The medical tourism sector grew by 6.1% from the previous year (Ministry of Tourism, 2019, 2020). India has an edge over its competitors when it comes to wellness-based tourism, with untapped potential and an abundance of natural resources. Its rich culture and indigenous medicines and therapies such as Ayurveda, Yoga, Unani, Sidha, Homeopathy, and Naturopathy make India a haven for wellness tourism. Though India has been efficacious in medical tourism; it is still low when compared to the total share of the total global wellness tourism market. Strategic efforts need to be made for position India on a global stage (Bhowmick, 2018).

Wellness tourism brings many economic benefits, with it arises challenges in providing quality of service and combat to retain the customer. Wellness service providers are fast increasing in India. Ministry of AYUSH has shown concern about the service quality provided by these companies. AYUSH extends to Ayurveda, Yoga, and Naturopathy, Unani, Siddha, and Homoeopathy. Established in 2014, the main vision of this ministry is to develop and educate the public about the indigenous alternative medicine system in India. The ministry focuses on developing the quality of the wellness delivery centres to attract more tourists both from India and abroad. With increasing demand and the untapped potential of wellness tourism, the ministry needs to focus on service quality to retain tourists. Owing to this fact, service quality has been considered as the most crucial factor to form a long-term relationship between customer and service provider (Arasli et al., 2005; Cronin & Taylor, 1992). This study explores the different dimensions by which wellness providers may improve the service experiences of tourists.

This paper investigates the delivery of services by wellness resorts to their customers through social media reviews. Social media has become an essential part of communication. Platforms such as Facebook, Twitter, Instagram, blogs, and other websites do not only help to reach customers but also provide benefits in understanding customer requirements. Increases in the use of social media bring both opportunities and threats for organisations. Increasing customer engagement with the service provider in the virtual world creates an opportunity to better understand customer needs based on their feedback. Social media brings in more transparency in the customer–service provider relationship and displays customer feedback in an open world. The never-ending content created in social media (termed as user-generated content (UGC)) helps in understanding and representing information in a meaningful way to help an organisation win against its competitors (Blackshaw, 2005).

Based on the need to understand customer perceptions of service quality in Indian wellness resorts and the possible effects of service quality practices on customer satisfaction, the study aims to; (1) gain customer insights on the wellness care services provided by the resorts in India through social media reviews; (2) identify the crucial factors which may help to enhance the customer service experience in Indian wellness resorts; (3) understand customer sentiment on the service quality of Indian wellness resorts through sentiment analysis; and (4) develop and implement machine learning algorithms to predict and interpret future customer service encounters and concerns.

The study attempts to identify the critical quality dimensions essential to elevate service performance by analysing customer reviews and opinions shared on tourism platforms, such as Google reviews. Machine learning-based sentiment analysis is used to understand customer opinions about their service experiences and classify text into identified quality dimensions. The majority of the research is survey-based, which takes into account tourist reviews for a particular period of time; and the potential of wellness care as a part of recreational tourism has not been deeply researched. In our research, we have incorporated the social media reviews of the selected resorts. The time frame of the selected reviews is from the day of the first review till December 2019. This research also showcases an alternative to traditional survey-based data collection. Social media input and supervised/unsupervised netnography techniques make the study faster and more cost-effective.

LITERATURE REVIEW

Wellness Tourism

The increasing pace of life, uneven work-life balance, loss of traditional and religious organisation and desire for relaxation and finding a meaning to life are a few of the reasons that have given rise to the wellness industry in the world (Douglas, 2001; Pollock & Williams, 2000; Smith & Puczko, 2008). Demand for a more holistic approach to living a healthy life and the escalating cost of western medicine has helped to increase the demand for wellness care and therapies (Sointu, 2006; Weiermair & Steinhauser, 2003). Wellness tourism accompanies age tourism, volunteer tourism, sports and adventure, yoga and spiritual tourism, and religious tourism (Ali-Knight, 2009; Hall, 1992; Kulczycki & Luck, 2009; Lean, 2009; Smith & Kelly, 2006).

Dimensions of Service Quality in the Hospitality and Tourism Industry

A firm may create a competitive advantage through the quality and value of products and services it is able to provide (Hutchinson et al., 2009; Zeithaml et al., 1996). Since the 1980s, service quality has been differently defined and discussed by many authors (Singh & Khanduja, 2010). Service quality is a group of intangible activities between customers and service employees (Shahin & Chan, 2006). While Santos (2003) defined service quality as a measure of satisfaction of customer experiences, Muturi et al. (2013) observed that the definition of service quality depends on the context of the study and its focus on meeting customer expectations. While

products can be measured and quantified, services are quite difficult to measure because of their intangible nature. Service performance is highly varied and is dependent on the service person who is in direct contact with the customer (Juwaheer, 2004). When it comes to services such as wellness treatments, products and services are inseparable and involve a high amount of customer participation. Customers measure quality in terms of the positive difference between the expectation and the actual delivery of the service. The sole aim of the service provider is to meet or go beyond the expectations of its customers (Parasuraman et al., 1985). Previous studies are discussed in this context to identify the important dimensions in the hospitality and tourism sector.

Sharma (2014) measured customer satisfaction in Indian hotels and concluded that tangibles and responsiveness were the crucial factors followed by reliability, assurance, and empathy. A study in top hotels in Tirana revealed empathy and tangibility as the most crucial dimensions followed by assurance, responsiveness, and reliability (Godolja & Spaho, 2014). Tangibility creates the first impression as it is visible in the first instance. Basic cleanliness and tidiness are expected by every customer; researchers argue that a lack of cleanliness is a prime reason which diverts travellers from a hotel, while exceptional cleanliness does not attract them (Lewis & Nightingale, 1991). The service encounter between the customer and the employee is a significant determinant affecting customer perceptions of service quality. Helpfulness of staff, error-free service, understandability, friendliness, and polite attitude are essential in determining service quality (Oberoi & Hales, 1990). Choi and Chu (2001) identified staff behaviour, service delivery, quality of accommodation, and overall value to be the most critical factors influencing customer satisfaction and retention. In a study on the wellness centres in Croatia, the 'appearance of facilities and employees' was concluded to be an essential factor in improving the service quality in the wellness tourism industry (Markovic et al., 2012). The authors also concluded that empathy and assurance are deciding factors for gaining customer loyalty. Safety and security systems are also identified as a potent tool for a hotel to gain traveller confidence and trust (Marshall, 1993). A good number of studies have proven the importance of service quality and its impact on creating a customer relationship. Much of the research is survey-based. This study is one of the few to take social media as a tool and implement machine learning and text analytics to gain customer insights and to understand the dimensions of service quality which impact the relationship between customers and service providers.

METHODOLOGY

The study investigates online customer opinions shared on online review platforms. Here customer reviews of Indian wellness resorts are taken from online social media platforms such as Google map reviews, hotel booking sites, hotel websites, and expert blogs. The reviews will help us to identify essential elements in customer experience in selected Indian wellness resorts. The opinion mining (sentiment analysis) technique was incorporated to understand consumer behaviour and the importance of such methods in the field of management. Google reviews, hotels.com, and similar travel and tourism websites were used to collect customer opinions. Eight Indian resorts/hotels providing wellness facilities to their customers were identified (Rai, 2018). The resorts selected were Ananda in the Himalayas, Uttrakhand; Isha Yoga Centre, Tamil Nadu; Vana Retreat, Uttrakhand; Souled and Surf, Kerela; SwaSwara, Karnataka; Somatheeram Ayurveda Resort, Kerala; Yab Yum Resort, Goa; and Spa Alila, Goa. The resorts provide wellness services such as Ayurveda, yoga, and traditional massages. They also deal with organic food and indigenous therapy treatments. 400 customer reviews were mined from different blogs and websites for the above-mentioned wellness resorts (all reviews till December 2019). Hindi or Indian regional language reviews were ignored to avoid translational complexities (Thelwall et al., 2011). A customer shares an array of comments relating to each quality dimension identified in our literature. To better analyse and interpret customer intentions, individual sentences were extracted by fragmenting each review. Reviews were fragmented into 4,984 individual sentences each portraying a different dimension.

Manual classification of each sentence was done by connecting it to the attributes identified from the literature. The identified dimensions are part of the SERVQUAL model defined by Parasuraman et al. (1988). This paper explores the research in the area of hospitality and tourism to understand different types of questions asked to respondents in order to measure the different quality dimensions. Annex A (see Appendix) shows the quality dimensions and the attributes derived from various literature (Bhat, 2012; Parasuraman et al., 1991; Ramsaran-Fowdar, 2007). These attributes were taken into consideration to manually classify the reviews according to each dimension shared by consumers.

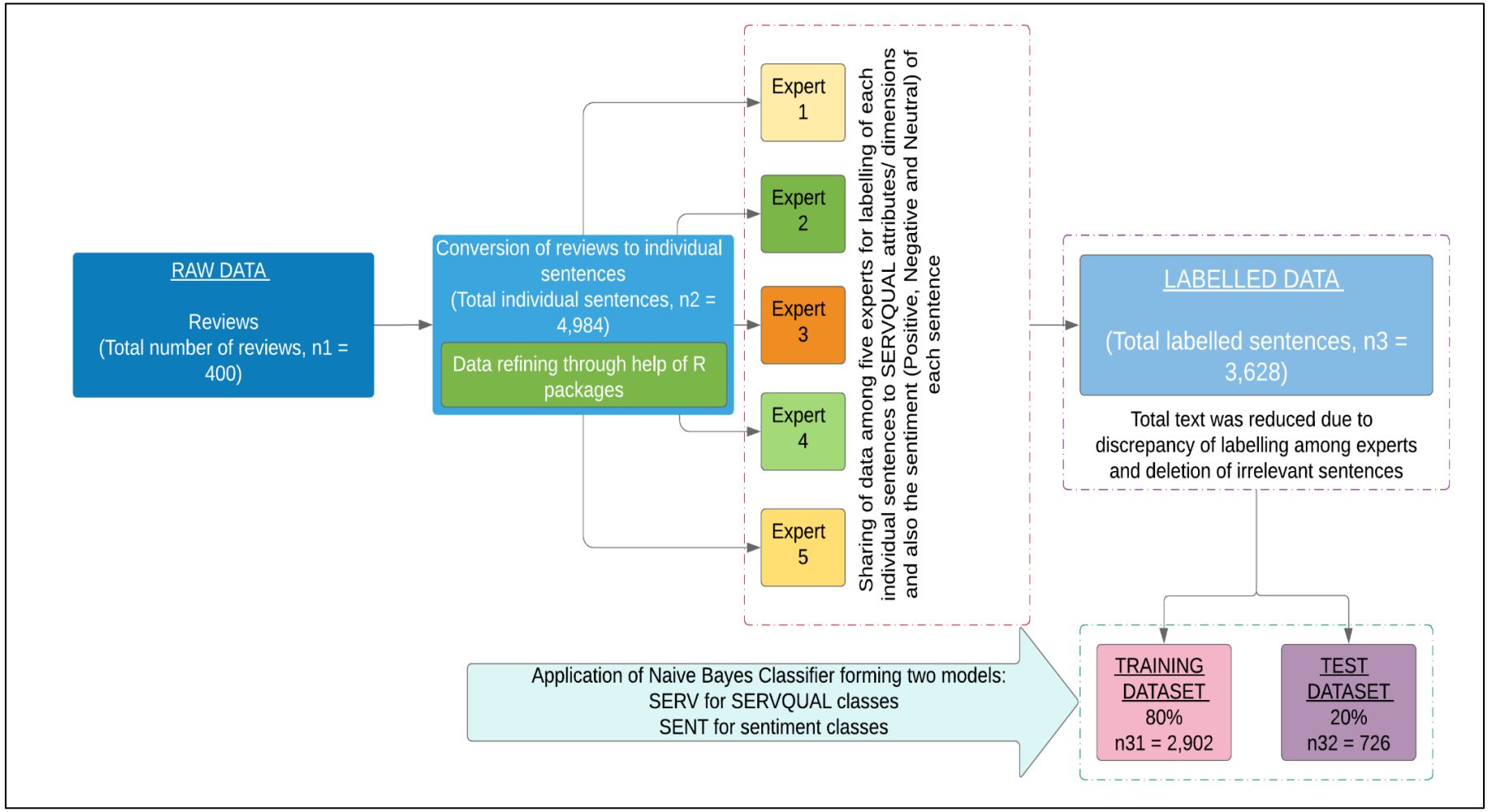


Figure 1. *Flowchart describing the process of data collection to data processing and result*

Five individuals with sound knowledge on the topic of service quality were asked to label each sentence into different dimensions. The labelling was matched for all five responses and was reverified by the authors for any mismatch between the labels. Only 7% of the total dataset had a mismatch which was then relabelled by the authors. Simultaneously, the sentences were also classified into negative, positive, and neutral categories by understating their sentiment. The same verification process was done to check dissimilarities among the labels (9% of the dataset had a mismatch). After classifying all the sentences, only 3,628 sentences were found to be relevant to our study. Annex A shows the quality dimensions and the attributes which were derived from various literature and were taken into consideration to manually classify actual customer reviews shared on social media. Figure 1 portrays a flowchart of the process used to analyse the raw data to result.

Two Naïve Bayes classifier models were formed to classify the sentences into the identified quality dimensions, and the sentiment (positive, negative, and neutral) with this mentioned as SERV and SENT models, respectively. Eighty percent of the data (2,902 comments) was taken to train the model, and the remaining 20% was used (726) to test the accuracy of the model/ algorithm. R Studio platform was used to programme the algorithm for the Naïve Bayes classifier to conduct sentiment analysis.

Sentiment Analysis of Social Media Reviews

Social media was introduced to develop online networking capabilities but soon became the most sought-after medium for customers to share their product and service experiences (Kho, 2010; Misopoulos et al., 2014). Social media comprises online social communities such as Facebook, LinkedIn, Myspace, and Twitter; blogs; content communities such as Flickr and YouTube; online encyclopaedias such as Wikipedia; social bookmarking; and news sites such as Delicious, Digg, and Reddit (Boyd & Ellison, 2007; Constantinides & Fountain, 2008). Studies have shown that consumers are more active on social media in voicing their concerns and experiences with a service or product (Geho et al., 2010; Wei et al., 2008). The growing volume of information on social media has created an opportunity to plough meaningful insight towards consumer perceptions of the service being used (O'Leary, 2011). This study uses sentiment analysis which has shown effectiveness and efficiency in analysing unstructured online content across online platforms such as Twitter, Facebook, TripAdvisor, YouTube, and other prevailing social media platforms (Arnold, 2011; Ku et al., 2009).

According to Deshpande and Sarkar (2010) sentiment analysis helps to process unstructured content into structured information, bringing out critical customer insights in the form of patterns, trends, and events. The hospitality and service industries are brilliant examples of how social media data is used to gain customer insights and experiences (Gretzel & Yoo, 2008). Sentiment analysis is applied in many industries related to hospitality, such as telecommunications, hotels, airlines, and retail stores (Rambocas & Pacheo, 2018). A large number of travellers get involved in social media platforms to provide feedback and recommendations to other travellers and using information from social media has become more crucial (Yang et al., 2018; Ye et al., 2009). Alaei et al. (2019) reviewed various empirical studies which used a lexicon or machine learning-based sentiment analysis approach in the tourism industry. The experts portrayed the importance of a sentiment analysis-based approach as an essential tool for future research in understanding customer experiences. For instance, Philander and Zhong (2016) implemented the dictionary-based (lexicon) method to analyse Twitter data from well-known resorts in Las Vegas. The use of social media helps to gather data from customer's electronic Word of Mouth (eWOM) behaviours. Social media as a tool empowers customers to be more self-expressive; the use of analytical tools, such as sentiment analysis, may help to effectively and rapidly understand customers. Taking advantage of these factors, Xiang et al. (2015) used text mining to identify critical elements associated with customer satisfaction. Sentiment analysis and opinion mining have proved superior in comparison to the traditional survey-based approach which is both time-consuming and costly (Koppel & Schler, 2006).

RESEARCH FINDINGS

Implementation of SERV model

About 45% of the reviews were about tangible aspects and the rest were about other dimensions of service quality. Due to uneven class distribution, it is better to use the F1 score rather than just the accuracy (Joshi, 2016). The F1 score of the model is 78.9%, while the overall accuracy of the SERV model was found to be 85.26%. Laplace smoothing was used to avoid zero probability estimates (Peng & Schuurmans, 2003). The accuracy is more than the no information rate which validates the usefulness of the model. No information rate relates to the largest class percent of data present in the complete dataset. The model shows a good agreement among the classes with Cohen's kappa value of 0.80 (Cohen, 1960). Both the P-value and

Mcnemar's Test P-value have a value less than 0.05 (Confidence Interval of 95%); thus, the model formed is significant. All the formulas used to calculate the confusion matrix are described in Annex B (see appendix).

Table 1. *Naïve Bayes classifier truth table for SERV model*

		Actual Result						
		Assurance (A)	Empathy (E)	Overall **satisfaction** (O)	Reliability (R)	Responsiveness (RE)	Tangibles (T)	Uncategorized (U)
Predicted	Assurance	91	2	1	1	0	1	0
	Empathy	3	75	4	0	0	1	0
	Overall satisfaction	1	1	95	1	0	13	1
	Reliability	2	1	6	36	2	1	0
	Responsiveness	4	0	7	5	21	2	0
	Tangibles	2	1	12	2	1	293	0
	Uncategorized	1	0	8	1	0	19	8
	Total	***104***	***80***	***133***	***46***	***24***	***330***	***9***

Table 2. *Naïve Bayes classifier Performance/Confusion Matrix for SERV model*

Overall Statistics							
F1 Score	78.90%						
Accuracy	85.26%						
No Information Rate (NIR)	45.45% (Largest Class: Tangibles)						
P-Value (Acc > NIR)	< 2.2e-16						
Kappa	0.8005						
Mcnemar's Test P-Value	< 2.2e-16						
Statistics by Class							
	A	***E***	***O***	***R***	***RE***	***T***	***U***
Sensitivity	87.50%	93.75%	71.43%	78.26%	87.50%	88.79%	88.89%
Specificity	99.20%	98.76%	97.13%	98.24%	97.44%	95.45%	95.96%
Prevalence	14.33%	11.02%	18.32%	6.34%	3.31%	45.45%	1.24%
1 - Prevalence	85.67%	88.98%	81.68%	93.66%	96.69%	54.55%	98.76%
Positive Predicted Value (Precision)	94.79%	90.36%	84.82%	75.00%	53.85%	94.21%	21.62%
Negatively Predicted Value	97.94%	99.22%	93.81%	98.53%	99.56%	91.08%	99.85%

Table 1 and Table 2 depict the truth table and the overall performance (Confusion Matrix) of the SERV model. Sensitivity in the confusion matrix defines the actual number of correctly identified real positives. Specificity measures the correctly identified actual negatives. The higher the percentage of sensitivity/specificity, the better is the identification (better accuracy of the model). Positive Predicted Value (Precision value, PPV) is higher than the corresponding prevalence value; this states that our model may add useful information while predicting the result. Prevalence talks about what proportion of data in our model is relevant. Prevalence shows the real positives in the dataset. Similarly, the

Negative Predicted Value (NPV) is also higher than 1- Prevalence. Higher PPV and NPV values create a chance of the instance being present within the subset of the entire dataset.

Implementation of SENT model

Table 3 and Table 4 depict the truth table and the overall performance of the SENT model. The F1 score of the model is 86.3%. The overall accuracy of the SERV model was found to be 89.53%. The model shows a good agreement among the classes with Cohen's kappa value of 0.80. Both the P-value and Mcnemar's Test P-value have a value less than 0.05 (Confidence Interval of 95%); thus, the model formed is significant. The PPV is higher than the corresponding prevalence value; this states that our model may add useful information while predicting the result. Similarly, NPV is also higher than 1 – Prevalence. The need for our research is to find negative reviews and help managers to take action to solve those issues. Therefore, our model must have better accuracy in Specificity and NPV; our model has a good accuracy rate of more than 90% for the specificity and NPV in almost all of the classes.

Table 3. *Naïve Bayes classifier truth table for SENT model*

		Actual Result		
		Negative	***Neutral***	***Positive***
Predicted	***Negative***	238	12	32
	Neutral	4	56	12
	Positive	11	5	356
	Total	***253***	***73***	***400***

Table 4. *Naïve Bayes classifier Performance/Confusion Matrix for SENT model*

Overall Statistics			
F1 Score		86.30%	
Accuracy		89.53%	
No Information Rate (NIR)		55.10% (Largest Class: Positive)	
P-Value (Acc > NIR)		< 2.2e-16	
Kappa		0.8171	
Mcnemar's Test P-Value		< 2.2e-16	
Statistics by Class			
	Negative	***Neutral***	***Positive***
Sensitivity	94.07%	76.71%	89.00%
Specificity	90.70%	97.55%	95.09%
Prevalence	34.85%	10.06%	55.10%
1 - Prevalence	65.15%	89.94%	44.90%
Positive Predicted Value (Precision)	84.40%	77.78%	95.70%
Negatively Predicted Value	96.62%	97.40%	87.57%

Table 5 illustrates the total number of comments in each dimension and the sentiment shared by customers across each dimension while Figure 2 shows the sentiments shared by the customer about the selected wellness resorts. It is visually apparent that most of the sentiments shared were positive. However, the primary objective is to understand the areas which have more negative comments; this may help the resorts to improve their overall service and hospitality towards their customers.

Table 5. *Total comments under each dimension and their sentiment*

	Dimensions	*Total Comments*	*Positive (P)*	*Neutral (Ne)*	*Negative (N)*	*Ratio (P:Ne: N)*
1	Assurance	544	288	11	245	53:02:45
2	Empathy	472	184	38	250	39:08:53
3	Overall satisfaction	399	311	20	68	78:05:17
4	Reliability	435	222	4	209	51:01:48
5	Responsiveness	363	228	15	120	63:04:33
6	Tangibles	1378	896	69	413	65:05:30
7	Uncategorized	37	30	4	3	81:11:08
	Overall	***3628***	***2159***	***161***	***1308***	***60:04:36***

Note: The result includes predicted result and not the manually coded result for the 20% of the test comments.

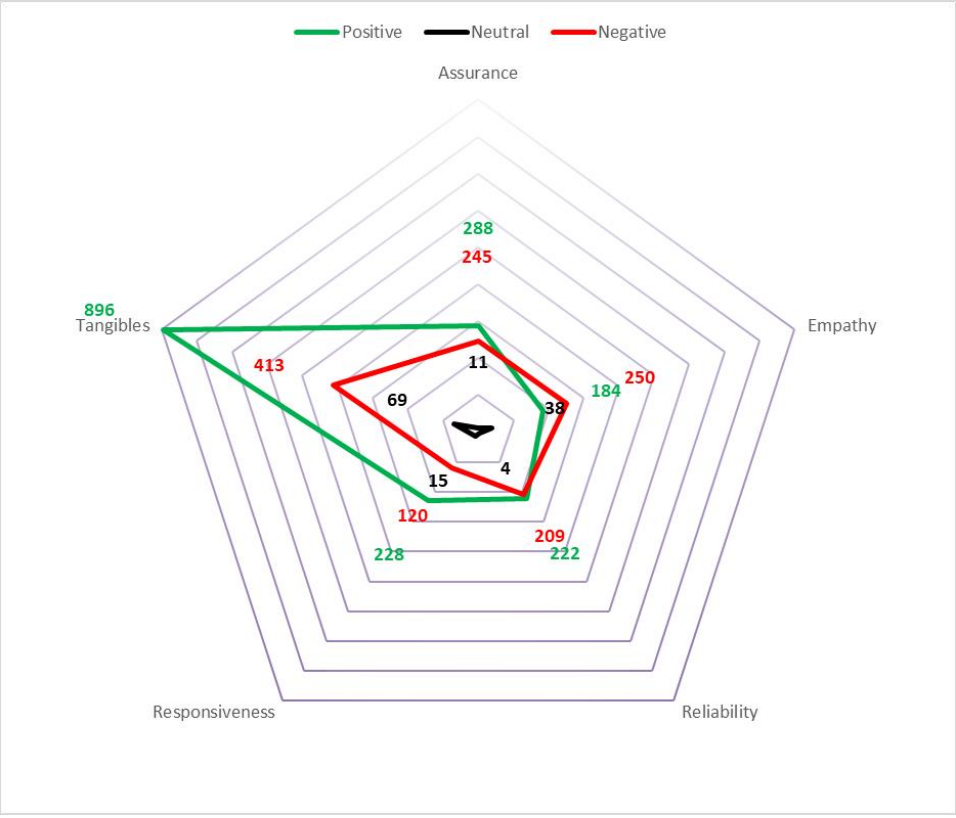


Figure 2. *Sentiment shared across SERVQUAL dimensions*

Note: The overall satisfaction and uncategorised category have not been shown in the graph as they are not part of the SERVQUAL model.

As derived from the results, customers shared more views on **Tangibles** as compared to other dimensions. Customers have more preferences towards the aesthetics and facilities provided by the resorts as compared to the services delivered by staff. Almost 65% of the comments shared a positive sentiment for the facilities provided by the selected wellness care. On the other hand, negative sentiments were comprised of food quality, lousy Internet connections, and unsatisfactory aesthetics and living conditions, as illustrated by the following comments:

> *"While the place looks charming at first and the people who work here are very kind, the dome rooms smell, leak when it rains, and we learned on our last night here have rats living in the walls of the thatched domes."*
>
> *"We came back from dinner and the cottage smells so heavily of cigarette smoke that I'm not sure my kids can actually sleep here."*

Empathy is the most negatively perceived factor. Empathy talks about the individual care and personal attention to the customer; for instance, calling the customer by name, room service, listening to complaints, and meeting any customised needs. Fifty-three percent of the comments categorised under Empathy had a negative sentiment. The majority of the negative comments came from the attitude towards unsolved complaints raised by customers. Resorts should investigate to increase their service quality in the area of empathy. Some examples of negative sentiments shared by customers are:

> *"On realising the error they blamed me and said I'd have to pay a very large cancellation fee."*
>
> *"However, having reported this directly with the owners with no response it leaves a bitter taste in the mouth."*

The **Assurance** and **Reliability** categories had a mixed review of an almost equal number of positive and negative sentiments. Customers in a few of the selected hotels were not satisfied with the behaviour of the staff, lack of friendliness, unwelcoming behaviour, errors in services, and lack of proper training. A few of the negative sentiments shared are:

> *"although everything was done efficiently at reception, like check in/out and organising taxis, I felt that the staff were not welcoming or friendly."*
>
> *"We never felt welcomed when we checked in and throughout our stay, this was consistent with the staff (apart from the cleaners) not appearing very happy or overly friendly."*

With 63% of positive comments, staff and wellness experts had proper **Responsiveness** and were willing to help and needed little prompting to solve customer issues. There were few negative comments which were due to late food service, unresponsive reception, and sluggish staff. For example:

> *"There is a beach boy sitting in a hut whose job is obviously to look at his phone all day since he doesn't straighten any beds sweep the mats or pull them straight and make it all look tidy and inviting."*

Figure 3 illustrates the importance of each quality dimension. Tangibles have been ranked to be the most influencing factor followed by Empathy, Assurance, Reliability, and Responsiveness as per their importance in customer delivery quality of a wellness resort. The ranking has been done by descending order of the values calculated using TEARR Score, given by the formula:

$$Weight\ of\ each\ SERVQUAL\ Dimension\ (\boldsymbol{a}) = \left(\frac{Total\ reviews\ of\ each\ dimension}{Total\ Reviews\ of\ all\ dimensions}\right)$$

$$Weight\ of\ Negativity\ of\ each\ SERVQUAL\ Dimension\ (\boldsymbol{b}) = \left(\frac{Negative\ Percentage\ of\ each\ Dimension}{Total\ Negative\ Percentage}\right)$$

$$\boldsymbol{TEARR\ Score}\ (\boldsymbol{c}) = (\boldsymbol{a})\ X\ (\boldsymbol{b})$$

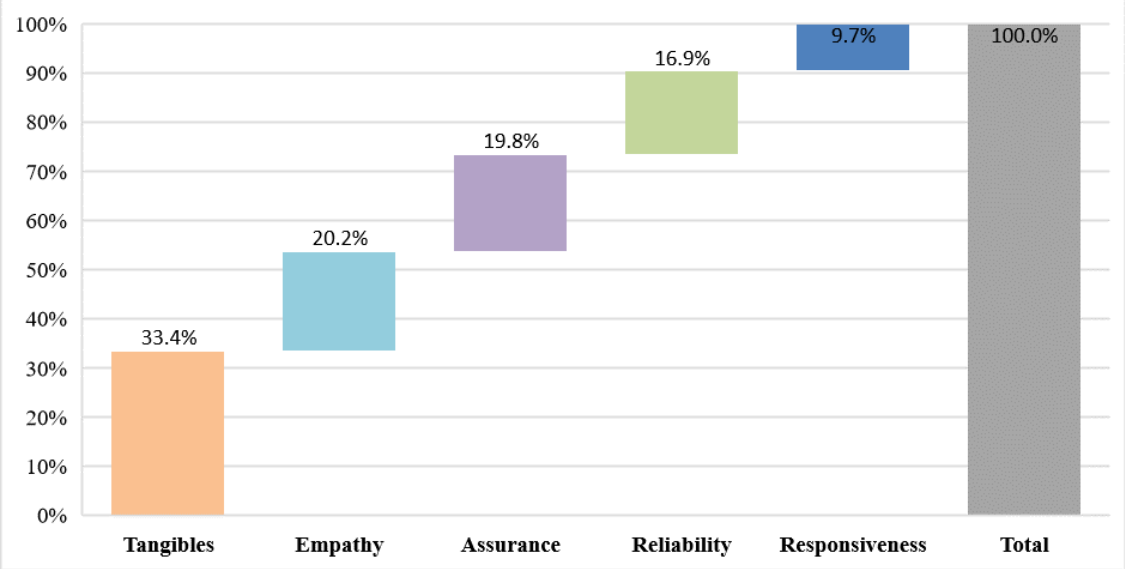


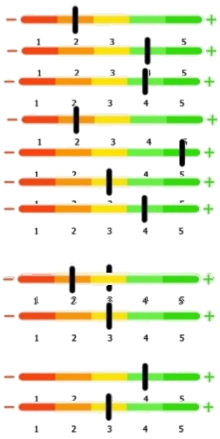
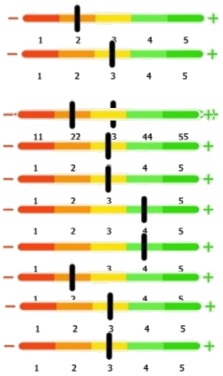
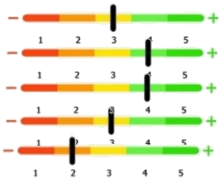
Figure 3. *Importance of each dimension as calculated using TEARR Score formula*

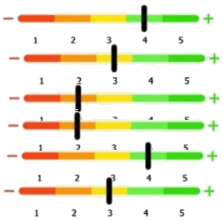
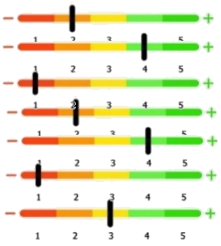
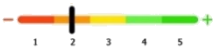
Table 6 cyberpunk codex shows a detailed analysis of each attribute under each dimension. The sentiment shared for each attribute has been converted to a 5-point Likert scale in which 1 is highly dissatisfied and 5 is

highly satisfied. The formula implemented for the scale conversion is given by:

$$Likert\ Rating = \frac{(No.of\ Positive\ sentences\ X\ 1 + \ No.of\ Negative\ sentences\ X\ 0 + No.of\ Neutral\ sentences\ X\ 0.5)}{Total\ sentences}\ X\ 5$$

Table 6. *Customer satisfaction rating for each attribute in the form of Likert scale*

SERVQUAL Dimensions	Code	Attributes	Likert Scale Rating (1- Highly Dissatisfied to 5-Highly Satisfied)
Tangibles (T)	T1	The resort has excellent modern facilities	
	T2	The resort has good interior designs	
	T3	The resort has good exterior designs	
	T4	The employees are neat and look good	
	T5	The resort has a good aesthetic feel	
	T6	The resort provides good food	
	T7	The resort is kept clean and tidy	
	T8	The resort has good accommodation facility	
	T9	The resort feels safe and secure	
	T10	The resort room is very good	
	T11	The wellness centre has excellent modern facilities	
	T12	The wellness centre has good aesthetics	
		Overall:	
Reliability (R)	R1	Services are obtained in time	
	R2	The resort staff provides prompt service	
	R3	Service is done perfectly in the first instance	
	R4	Service is delivered without any mistakes	
	R5	Staff have good communication skills	
	R6	Staff are well-knowledgeable	
	R7	Staff are well-trained	
	R8	Staff are well-experienced	
	R9	Services are provided at a convenient time	
	R10	Staff can fulfil promises	
	R11	Staff have a solving attitude	
		Overall:	
Responsiveness (RE)	RE1	Staff provides prompt service	
	RE2	Complaints are quickly resolved	
	RE3	Staff are always willing to help	
	RE4	Staff are available when required	
	RE5	Customer suggestions are well-addressed	
		Overall:	

SERVQUAL Dimensions	Code	Attributes	Likert Scale Rating (1- Highly Dissatisfied to 5-Highly Satisfied)
Assurance (A)	A1	Customers feel safe with the delivery of service	
	A2	Practitioners are knowledgeable	
	A3	Staff reinforces trust and confidence	
	A4	Staff are polite and courteous	
	A5	Practitioners are skilled	
	A6	Staff behave friendly and sociable	
		Overall: 	
Empathy (E)	E1	Staff provides individual attention	
	E2	Practitioners provide good care	
	E3	Staff understands specific needs	
	E4	Staff attains interest in customer needs	
	E5	The resort provides loyalty programme	
	E6	Room service is available when required	
	E7	Staff patiently listens to complaints	
		Overall: 	

DISCUSSION, CONCLUSIONS, AND IMPLICATIONS

Wellness resorts are innovative and adaptive service providers in the tourism and travel industry. For example, in the context of service quality, many resorts and hotels are providing customer-oriented wellness treatments for meeting the expectations of customers. This study focuses on the importance of service quality, the identification of dimensions and parameters of service quality in Indian wellness resorts.

The results of sentiment analysis are very valuable since they show the importance of being able to quickly and effectively understand customer sentiments from hotel reviews. Wellness tourists in India share different sentiments across different identified dimensions. This helps identify the areas in which the wellness industry can improve to better serve customers. As shown in this study, we were able to gather a large amount of data with good information from the online platforms. This helped us to analyse customer intentions towards wellness resorts in India. The process took less time than a survey and was effective. Questionnaire-based studies are generally closed-ended and restricted, but online reviews help to gain additional information. The findings of this study, which were obtained through text analysis of 400 customer reviews, suggest that the most critical

service quality dimension is tangibles, followed by empathy, assurance, reliability, and responsiveness.

This study finds the crucial factors which may help to enhance the customer experience in Indian wellness resorts and supports the findings of similar studies. From the present study and analysis, tangibility was concluded to be the most important factor and responsiveness to be the least important. Previous studies have suggested both tangibility and responsiveness be critical as compared to other dimensions (Lewis & Nightingale, 1991). Our study is in line with those of Choi and Chu (2001) in which they identified staff behaviour, service delivery, quality of accommodation, and overall value to be the most critical factors influencing customer satisfaction and retention. The latter study also concluded that empathy and assurance are deciding factors for gaining customer loyalty, which were ranked the second and third most important factors after tangibility. The present study also finds that staff was least empathetic with customers and slowly progressive in solving their issues. Empathy plays a defending role in the customer and service provider relationship. Presentation of empathetic behaviour by service employees during interpersonal interactions with customers positively affects commitment, perceived quality of service, and satisfaction (Jones & Shandiz, 2015; Richard et al., 2016). Staff empathetic behaviour is crucial for leveraging trust and loyalty among visitors (Meneses & Larkin, 2012; Wieseke et al., 2012).

Our paper also develops a Naïve Bayes machine learning model customised for service measurement for wellness resorts in India. This model may be used by marketers and practitioners to understand recent customer reviews and predict and interpret future customer service and concerns. Figure 4 exhibits the rank from the most important factor to the least important on which to focus on developing wellness resort service quality in India. The following formula was developed to rank each attribute of each dimension:

$$Priority\ Score = (5 - \ Likert\ Scale\ Rating) * \left(\frac{Total\ reviews\ under\ each\ attribute}{Total\ Reviews}\right)$$

After prioritising each attribute individually with the help of the priority score (the more the magnitude, the more important the factor). It can be interpreted that the **four** most important attributes that these resorts should focus on are 1) understanding customers' specific needs, 2) improving the room quality and food quality, 3) developing overall

accommodation facility, and 4) creating trust and confidence among the customers.

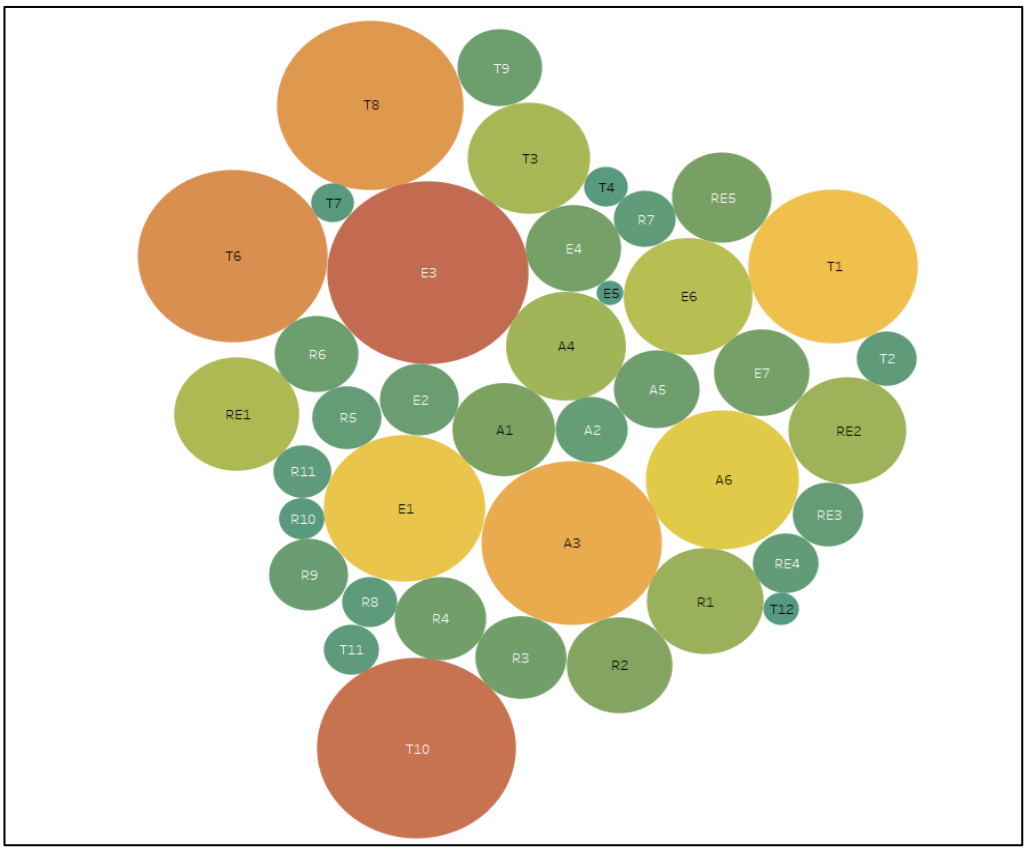


Figure 4. *SERVQUAL attributes sorted in order of most important (Biggest Circle) to the least important (Smallest Circle)*

Note: T: Tangibles, R: Reliability, RE: Responsiveness, E: Empathy, A: Assurance, for detailed coding see Annex A.

Implications

For managers and policymakers, this study unravels the knowledge of the potential of social media as a tool to understand the customer experience. One of the most important practical implications of the study is to recommend that hoteliers create proper training methodologies for employees to improve service delivery. From many service dimensions, current study helps Indian wellness resorts to focus on dimensions that need more priority. The suggestions will help to adopt a quality-oriented approach to continually improve the ability to understand the specific needs and expectations of customers.

This study highlights the use of innovate methods and data extraction tools or techniques which help to acquire customer feedbacks

from social media platform, helping academic and industry researchers in developing online data retrieval process. The machine learning-based methods help for the faster interpretation of customer feedback. This may help marketing managers to decrease the possibilities of negative impact on their brand image by quick response to the problems. Evaluating customer reviews also helps in acquiring new insights as well as prospective customer requirements. This may not be possible in traditional close-ended questionnaire-based approaches. Machine learning approaches predict real-time customer experiences without much manual intervention, thus reducing business costs and valuable time.

Limitations

Despite the noteworthy academic and managerial achievements from this study, there are few limitations. First, the research was conducted in a restricted timeframe which limited the horizon to find additional issues that customers would have been facing. Second, due to frequent changes in rules and regulations in social media law, it is always a challenge to legitimately access online data. Third, the study only considered the top wellness resorts; this minimises the probability of negative services happening in other wellness resorts existing in India. A broader sample of wellness care-related resorts may improve the understanding of current wellness service quality in India. In addition, the training set was created manually to get a more accurate result. Manual creation of a dataset may increase the accuracy but adds to the cost and time required. A combination of LEXICON and machine learning-based sentiment analysis approaches may contribute to the advantage by minimising the time and cost involved in these types of methodologies and processes. Alternatively, a machine learning technique other than Naïve Bayes, such as neural networks and different deep learning algorithms, may improve model accuracy.

Conclusions

The paper contributes to the existing literature on wellness care service facilities. With the growth in technological know-how and social media content, this study helps to understand how technology-based research may help wellness care centres/resorts and similar service providers in the tourism industry. This study showcases a more cost-effective and robust methodology in gaining accurate customer insights. A machine learning-based sentiment analysis approach for evaluating customer experience may help organisations understand tourist needs and issues from information that already exists on social media in an unstructured format. Furthermore,

this paper contributes to the theoretical level by introducing machine learning, opinion mining, and text analytics into the field of management studies. This study also contributes to the existing literature on the SERVQUAL model. Ordinary facilities, poor food quality, unmaintained amenities, late service and delayed response to complaints, improper training, and sluggish behaviour are the real issues behind negative sentiments. At an overall level, the empathetic behaviour of hotel staff was not up to the mark. On the positive side, customers were satisfied with the wellness care service provided by practitioners. The findings were supported by some studies (Meneses & Larkin, 2012; Wieseke et al., 2012) while they deviated from others (Voss et al., 2004). The main reason for the variance in findings on customer perceptions is due to different geography and cultural differences. Prior research on culture indicates that customer behaviour is not necessarily constant across countries. Culture is essential to service management because customer behaviour is affected by the environment, including national culture (Roth, 1995). Service quality is defined by the extent of the gap between customer expectations for and perceptions of the service (Zeithaml et al., 1990). Customer sentiment was examined as the basis of the measurement of the gap between expectations and perceptions. Moreover, the present research uncovered additional reasons behind negative sentiments.

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APPENDIX

Annex A. *The SERVQUAL dimensions and attributes used in our study*

SERVQUAL Dimensions	Code	Attributes
Tangibles (T)	T1	The resort has excellent modern facilities
	T2	The resort has good interior designs
	T3	The resort has good exterior designs
	T4	The employees are neat and look good
	T5	The resort has a good aesthetic feel
	T6	The resort provides good food
	T7	The resort is kept clean and tidy
	T8	The resort has good accommodation facility
	T9	The resort feels safe and secure
	T10	The resort room is perfect
	T11	The wellness centre has excellent modern facilities
	T12	The wellness centre has good aesthetics
Reliability (R)	R1	Services are obtained in time
	R2	The resort staff provides prompt service
	R3	Service is done perfectly in the first instance
	R4	Service is delivered without any mistakes
	R5	Staff have good communication skills
	R6	Staff are well-knowledgeable
	R7	Staff are well-trained
	R8	Staff are well-experienced
	R9	Services are provided at a convenient time
	R10	Staff can fulfil promises
	R11	Staff have a solving attitude
Responsiveness (RE)	RE1	Staff provide prompt service
	RE2	Complaints are quickly resolved
	RE3	Staff are always willing to help
	RE4	Staff are available when required
	RE5	Customer suggestions are well-addressed

Assurance (A)	A1	Customers feel safe with the delivery of service
	A2	Practitioners are knowledgeable
	A3	Staff reinforces trust and confidence
	A4	Staff are polite and courteous
	A5	Practitioners are skilled
	A6	Staff behave friendly and sociable
Empathy (E)	E1	Staff provides individual attention
	E2	Practitioners provide good care
	E3	Staff understands specific needs
	E4	Staff attains interest in customer needs
	E5	The resort provides loyalty programmes
	E6	Room service is available when required
	E7	Staff patiently listens to complaints

Annex B. *Formulas used to calculate different elements in confusion matrix*

Particulars		**Formula**
F1 Score	=	$2 \times \frac{(Sensitivity \times Precision)}{(Sensitivity + Precision)}$
Accuracy	=	$\frac{Number\ of\ correct\ predictions}{Total\ number\ of\ predictions}$
Cohen's Kappa	=	$\frac{P_{obs} + P_{chance}}{1 - P_{chance}}$ P_{obs} = Probability of relative observed agreement P_{chance} = Probability of agreement based on chance
Sensitivity	=	$\frac{Total\ True\ Positives}{Total\ True\ Positives + Total\ False\ Negatives}$
Specificity	=	$\frac{Total\ True\ Negatives}{Total\ True\ Negatives + Total\ False\ Positives}$
Prevalence	=	$\frac{Total\ False\ Negatives + Total\ True\ Positives}{Total\ Observations}$
Precision Value/ Positive Predicted Value	=	$\frac{Total\ True\ Positives}{Total\ True\ Positives + Total\ False\ Positives}$
Negative Predicted Value	=	$\frac{Total\ True\ Negatives}{Total\ True\ Negatives + Total\ False\ Negatives}$

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BIBLIOMETRIC ANALYSIS OF SLOW TOURISM

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ABSTRACT

This paper aims to review the slow tourism literature using a bibliometric analysis approach. In the current study parameters such as the annual number of publications, the most contributing countries, the most contributing organizations, the most cited studies in Web of Science (WoS), the most productive authors, and the most productive journals were examined. Furthermore, keywords were used to identify the field structure. VOSviewer software was used to find out the leading trends in this slow tourism literature. Thirty-eight studies were found with the help of the WoS database, over the period from 1975- June 2020. Results indicated that: the literature on slow tourism is growing remarkably; four studies accounted for more than 30 citations; Conwey, D and Timms, B.F were the most prolific authors; in terms of documents, the USA was the leading country in the topic of slow tourism; Indiana University (System and Bloomington Campus) was the most productive institution with a total of 5 papers. The journal, Tourism Recreation Research was the top contributor to the related literature. According to a keywords analysis the most recently studied concepts were related to tourist experiences and place attachments (2018-2020), while the older concepts were linked to alternative tourism and leisure (2014-2016).

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INTRODUCTION

Throughout history, mass tourism has been an essential function in the economic growth of many tourist destinations; between the years 1950 and 2000, the number of tourists increased from 25 million to 687 million, especially in Europe (Morey & Manera, 2016). Developments in technology, increase in urbanization, an educated population, and the level of welfare has created much more leisure time for employees around the World (Cioban & Slusariuc, 2014). Additionally, globalization has supported the growth of touristic demand for new, different, and undiscovered destinations (Pellešová, 2020), especially the mass consumption of tourism products. Integration of the tourism industry and distribution channels vertically and horizontally has made package tours more affordable to low income groups of tourists, so mass tourism has become more popular in a short time and the number of international tourist arrivals has increased significantly. As a result, new destinations emerged without a sustainable approach. All these developments have revealed the concept of slow tourism, which is an alternative type of tourism to mass tourism.

Slow tourism aims to address the negative aspects of mass tourism, which mainly focuses on economics without consideration of the environmental and social factors. In tourism literature, there is no clear definition of slow tourism. However, some scholars tried to define slow tourism by approaching the phenomenon from a perspective of multiple principles, ideas, and behavioural patterns (Calzati & de Salvo, 2017). The term of slow tourism can be defined as involving authentic and worthwhile relationships with people, sites, cultures, food, heritage, and environment (Caffyn, 2012).

The concept of slow tourism has attracted the attention of researchers since the 2000s and a lot of research has been conducted on slow tourism. Some researchers have examined slow tourism in terms of an alternative tourism type. For instance, Conway and Timms (2010) stated that slow tourism is a new type of tourism which is a promotional and tactical model and follows up on Poon's advocacy from the early 1990s. Poon (1994) argued that mass tourism from the 1960s and 1970s was challenged with new tourism types caused by advances in technology and more prominent sensations in consumer taste. Moreover, this new approach to tourism offers an opportunity for sustainability, as well as the chance of wealth development in previous vulnerable destinations. Additionally, some studies have examined the motivations of slow tourism. For example, Oh et al. (2016) paid attention on incentives and purposes of slow tourism in their

study. The authors stated that there are six general motivations of slow tourism: relaxation, self-reflection, escape, novelty-seeking, engagement, and discovery.

Although, there are many studies on slow tourism (e.g. Conway & Timms 2010; Timms & Conway, 2012; Oh et al., 2016; Wilson & Hannam, 2017) and several bibliometric studies regarding sustainable tourism-related subjects (e.g. Ruhanen et al., 2015; Mauleon-Mendez et al., 2018; Della Corte et al., 2019; Niñerola et al., 2019; Serrano et al., 2019; Jiménez-García et al., 2020; Moyle et al., 2020), no bibliometric study on slow tourism has been found. In this context, this study aims to examine the slow tourism concept in WoS database from 1975 until 2020[2]. Moreover, this fact makes this particular study more unique and valuable for researchers.

The importance of bibliometric studies has recently started to increase in tourism literature all over the world (Özel & Kozak, 2012), and there have been many bibliometric studies carried out by researchers within the scope of tourism studies. Bibliometric analysis in tourism research is often used for the evaluation of articles (e.g. Kozak, 1998; Evren & Kozak, 2014; Koseoglu et al., 2016; Garrigos-Simon et al., 2019; Johnson & Samakovlis, 2019; Niñerola et al., 2019) and journals (e.g. Mauleon-Mendez et al., 2018; Mulet-Forteza et al., 2018, 2019; Merigó et al., 2019).

Current research gives insight into topics strictly relevant to slow tourism, which requires further academic research. This particular study is beneficial for various reasons. For instance, it can assist tourism related scholars to identify potential organizations, institutions, or governments with the most prospects in terms of development and sharing research findings (Mulet-Forteza et al., 2019). This study can further contribute to a clear understanding of the importance of developing sustainable tourism. Moreover, a review of the topic can lead to slow tourism development support from various subjects related to tourism, which can possibly induce the essential aim of reducing mass production in the tourism industry.

According to the aim of the research, this paper is structured as follows. The first section of the paper explores the literature of slow tourism. The following section describes methods applied for the research. The third section offers results. Finally, the last section includes a conclusion, limitations, and suggestions for further research.

[2] In this study, the search was carried out from 1975 until June 2020 because the WoS search engine has been searching since 1975.

SLOW TOURISM

The term of "slow tourism" is a fairly new concept and is recently gaining attention (Oh et al., 2016). It is an outcome of the social movement, which was started by Carlo Petrini in the 1980s in Italy as a riot against the consumerism of fast food (Petrini & Padovani, 2009). Slow tourism gained importance within the past decade as an alternative to mass tourism (Heitmann et al., 2011). It may be considered as a category of alternative tourism supporting society, economy, and the environment (Conway & Timms, 2010). According to tourism scholars, slow tourism aims to connect tourists with the destination, its people, and local culture (Moira et al., 2017).

Slow tourism encourages independent travel rather than group travel. Therefore, slow tourism destinations offer calmness and silence (Cosar & Kozak, 2014). In additon, slow tourism advocates for the reduction of travel frequency, encouraging tourists to stay longer in the destination rather than travelling more often. This results in tourists favouring local resources and production, and choosing a short-distance travel destination by using sustainable modes of transportation (Caffyn, 2012; Losada & Mota, 2019).

According to Pécsek (2014, 2018), slow tourism has four pillars. Locality, sustainability, social well-being, and focus on experience are the fundamentals of the slow tourism ideology (Pécsek, 2014, 2018). These four components advocate sustainable tourism by encouraging sustainable social, economic, and environmental development, as well as individual travel rather than group travel. At the same time, it discourages mass tourism consumption, while supporting the consumption of local and authentic products.

Oh et al. (2016) stated that the two most frequent intentions of slow tourism are revitalization and self-enrichment. For instance, revitalization assists travellers to get refreshed, reinvigorated, and recharged. Self-enrichment encourages travellers to get inspired, discover oneself, understand the destination more deeply, and restore positive attitudes and mindsets.

The motivation for tourist movements is based on push and pull factors. Both push and pull segments are connected with individual desires, as well as with the destination (Kassean & Gassita, 2013). Push factors define whether tourists feel motivated for the trip or not, while pull factors state the destination attracts people towards themselves according to the

motivation of the tourists (Nikjoo & Ketabi, 2015). That is the reason why destinations try to motivate tourists to travel with their attractions. However, slow tourists first focus on the mode of transportation. For instance, they will not choose the destination which requires the use of an airplane. Aside from the mode of transportation, by wandering about local markets slowly, purchasing from local vendors, enjoying local gastronomy, walking around the countryside, and interacting with local people, a slow tourist is more likely to have an enveloping experience (Rand & Heath, 2009; Losada & Mota, 2019).

Stressing quality over quantity and extension of stay in the destination can attract different tourist profiles, especially those tourists who are oriented toward sustainable development. In addition, longer-stay tourists are more likely to explore the destination and its region, resulting in generating a positive economic, social, and environmental growth of the local community. To that end, slow tourism is an important alternative to mass tourism, which entirely fuels the desires of "new" tourists who are motivated to explore the originality during their travel experience while on the road and during their stay at the destination.

METHODOLOGY

The current study aims to review the slow tourism literature using a bibliometric analysis. The bibliometric analysis guides new researchers in their future studies. Furthermore, it encourages scholars and researchers to pay attention on new and undiscovered topics for more consideration. In general, a bibliometric analysis centers on statistical methods of analyzing articles and other publications. In many instances, the aim of a bibliometric analysis is to summarize research trends and academic networks of prominent publications, popular journals, subject matters, active authors, research institutions, productive countries, and keyword frequencies (Zhang et al., 2019). For this particular bibliometric study, authors collected data in June 2020 from the WoS database.

WoS is known as one of the world's leading databases containing over 15,000 (Merigó et al., 2015) high-impact and quality journals (Yu et al., 2019). For this reason, many tourism researchers carried out bibliometric researches using WoS (e.g. Merigó et al., 2015; Yu et al., 2019). There are many indexes in the WoS database. In this study, we collected data from the WoS database (Science Citation Index Expanded (SCIE), Social Sciences Citation Index (SSCI), Emerging Sources Citation Index (ESCI), Conference Proceedings Citation Index-Social Sciences and Humanities, Book Citation

Index-Social Sciences and Humanities, and Conference Proceedings Citation Index-Science) using "Slow Tourism" as a keyword in the "title" field. While writing the title in the search engine, quotation marks (for example "slow tourism") was used. The reason for that was to reduce the possibility of encountering research with different titles. At the end of this process, we found 38 documents such as articles, conference papers, and books in the WoS database (See figure 1). Since the authors speak Croatian, Turkish, and English, documents published in these languages were taken into consideration. However, documents published in the Turkish and Croatian languages were not found in WoS. Therefore, only English documents were examined.

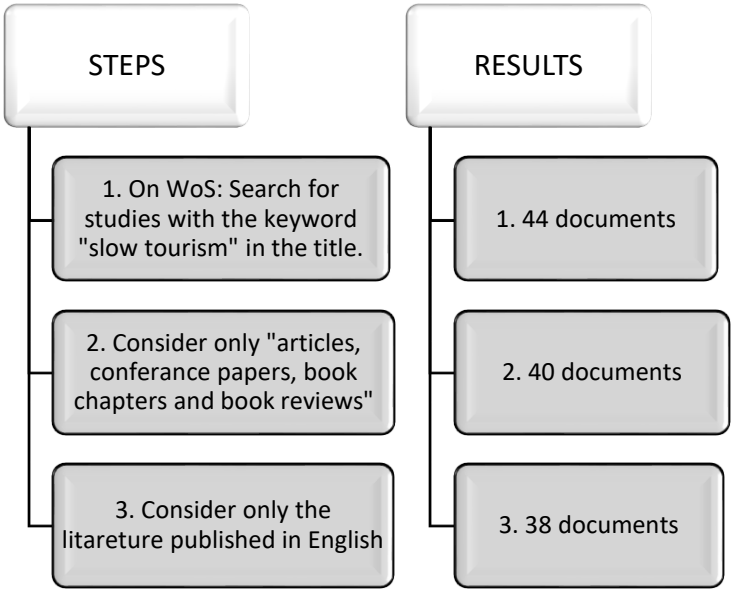

Figure 1. *Research Process*

According to Merigó et al. (2015), bibliometric papers use many methods such as accounting for the number of publications and the number of citations. In this study, we examined "the annual number of publications", "the most cited studies", "the most contributing countries", "the most contributing organizations", "the most productive authors", "the most productive journals" and "the most popular keywords in papers". The VOSviewer software was used to analyze the keywords.

The VOSviewer software was developed by Jan van Eck and Ludo Waltman in order to construct and view bibliometric maps (Van Eck & Waltman, 2010). The software is frequently used in tourism studies (e.g. Mulet-Forteza et al., 2018; Leong et al., 2020) as well as in many disciplines. The VOSviewer is used in both constructing and visualizing bibliometric networks such as in researches, journals or individual publications.

Moreover, the VOSviewer can analyze data provided by WoS, Scopus, Dimensions, and PubMed (VOSviewer, 2020).

RESULTS

Annual Number of Publications

Figure 2 shows the accumulation of the number of studies published about "Slow Tourism". Papers published in the WoS database with the title of "slow tourism" were scanned between 1975 and 2020. However, the first paper scanned in this database under the title of slow tourism was published in 2004. No papers were published in 2005, 2007, and 2008. In 2013, slow tourism started to attract the attention of researchers. It then moved up to thirteen publications in 2018.

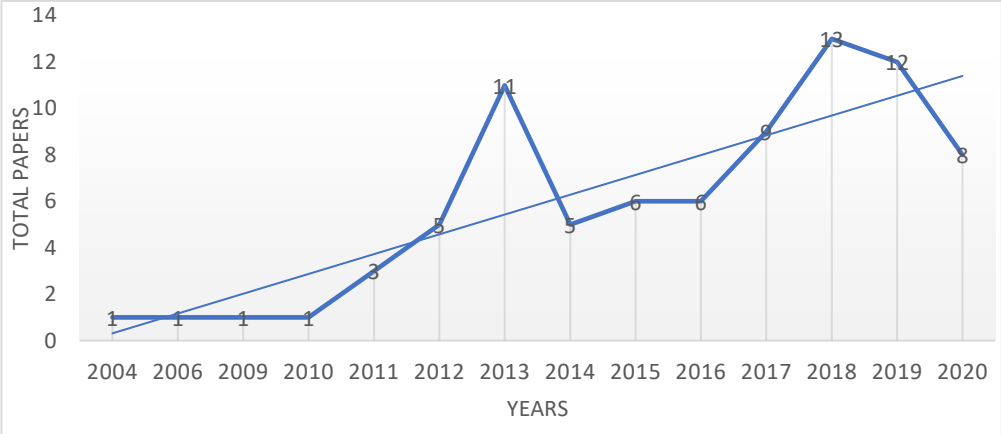

Figure 2. *Annual Number of Publications*

Top 10 Contributing Countries

Figure 3 shows the most productive continents and countries. Considering geographical contribution by continent, Europe takes the lead (15 documents) and it is followed by America (both North and South) (12 documents), and Asia (11 documents).

As mentioned earlier, slow tourism is a type of alternative tourism that supports sustainability. For this reason, we can safely assume that Europe is the leader in publication because of its advocacy towards sustainable tourism development. Additionally, scholars interest in Europe can be related to the sustainable tourism development policy presented by the European Union to develop Europe into a sustainable tourist destination, maximising the industry contribution to economic growth and employment opportunities (Dionysopoulou, 2012).

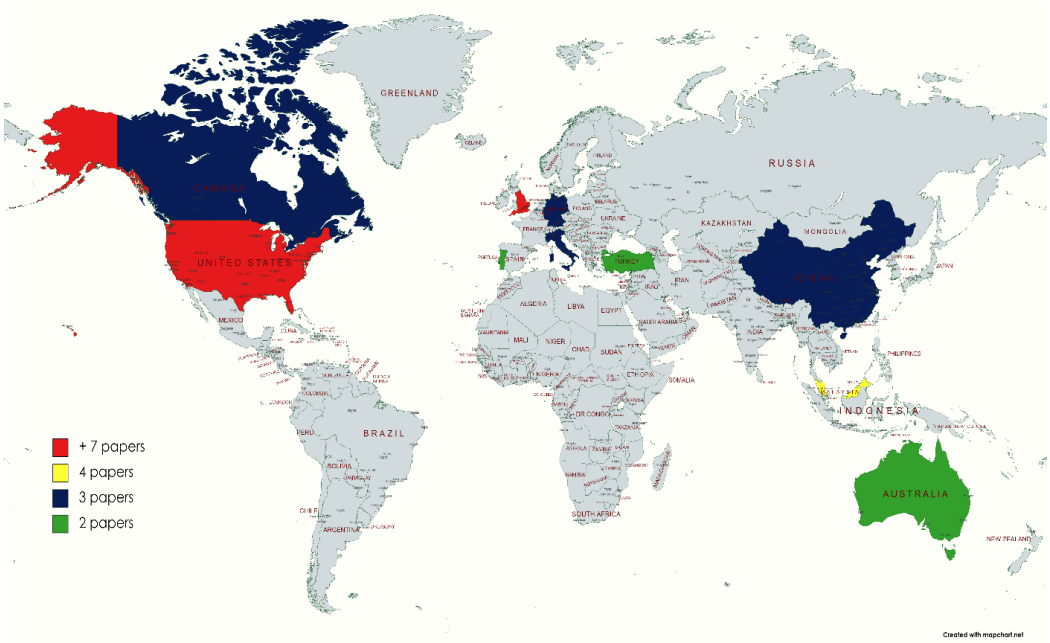

Figure 3. *Top 10 Contributing Countries*
(Source: This map created by the authors via mapchart.net)

In addition, the USA is the most productive country in the highest number of publications (9). After the USA, the UK is the most generative country with seven documents, while Malaysia is the third generative country with four documents. Other productive countries include Canada (3), Germany (3), Italy (3), China (3), Portugal (2), Turkey (2), and Australia (2), indicating global attention to this research topic.

The Most Cited Studies in WoS

Table 1 shows the most cited studies from 1975 to 2020. Among them, the most cited study is "Re-branding alternative tourism in the Caribbean: The case for slow tourism" which was published in Tourism and Hospitality Research in 2010 and had been cited 44 times until June 2020.

In their research, Conway and Timms (2010) advocate that slow tourism outlines the sort of alternative tourism which allows Caribbean islands the opportunity to re-brand their image as an alternative tourist destination, rather than mass destination. Moreover, the authors stated that slow tourism could assist as the promotional identity following quality offerings, community-level and local participatory initiatives, and island-specific alternative tourism can be maintained.

Table 1. *Most Cited Studies During the Period of 1975 to 2020 (WoS)*

Author(s)	Citation (WoS)	Journals/ Books	Title	Method	Type
Conway and Timms (2010)	44	Tourism and Hospitality Research	Re-Branding Alternative Tourism in The Caribbean: The Case For Slow Tourism	Conceptual	Article
Matos (2004)	39	Tourism and Leisure Industry: Shaping The Future	Can Slow Tourism Bring New Life to Alpine Regions?	Conceptual	Proceedings Paper
Oh et al. (2016)	30	Journal of Travel Research	Motivations and Goals of Slow Tourism	Both qualitative and quantitative	Article
Heitmann et al. (2011)	30	Research Themes For Tourism	Slow Food, Slow Cities and Slow Tourism	Conceptual	Book Chapter
Hall (2006)	23	Tourism Review International	Introduction: Culinary Tourism and Regional Development: From Slow Food to Slow Tourism?	Conceptual	Editorial Material
Timms and Conway (2012)	22	Tourism Geographies	Slow Tourism at the Caribbean's Geographical Margins	Conceptual	Article
Conway and Timms (2012)	18	Tourism Recreation Research	Are Slow Travel and Slow Tourism Misfits, Compadres or Different Genres?	Conceptual	Research Probe
Wilson and Hannam (2017)	12	Annals of Tourism Research	The Frictions of Slow Tourism Mobilities: Conceptualizing Campervan Travel	Qualitative	Article
Caffyn (2012)	12	Tourism Recreation Research	Advocating and Implementing Slow Tourism	Conceptual	Research Probe

In their research, Conway and Timms (2010) advocate that slow tourism outlines the sort of alternative tourism which allows Caribbean islands the opportunity to re-brand their image as an alternative tourist destination, rather than mass destination. Moreover, the authors stated that slow tourism could assist as the promotional identity following quality offerings, community-level and local participatory initiatives, and island-specific alternative tourism can be maintained.

The following most cited research is, "Can slow tourism bring new life to Alpine regions?" with 39 citations, published in 2004. The author of the study, Matos (2004) argues that a slow tourist concept can reduce the negative effect of stress and mass tourism in mountain areas. Furthermore, he claims that slow tourism can provide diversification in tourism. The slow

tourism concept offers tourists a more extensive range of the products satisfying their demands, besides preserving the natural environment.

The third most cited study is "Motivations and Goals of Slow Tourism", with 30 citations, it was published in the year 2016 in the Journal of Travel Research. Oh et al. (2016) approached the aspect of slow tourism from the viewpoint of a motivated expenditure process. Moreover, the study offers new insights into that aspect. The study designated that slow tourism might have already been a quintessential part of mass tourism. Furthermore, the authors noted that they did not view mass and slow tourism as a separate entity to synthesise.

The study conducted by Heitmann et al. (2011), "Slow Food, Slow Cities and Slow Tourism", may be noticed in the fourth place of Table 1 with 30 citations. The study was published in the book "Research Themes for Tourism" in 2011. Authors in this study introduced the growing interest in slow activities and offered insight into the origin of the slow food movement and the concept of slow cities (Cittaslow). Furthermore, the study addressed the discussion “if local communities can benefit from adopting slow principles”, as well as criticised slow tourism as a new tool towards sustainable tourism development.

As shown in Table 1, the study of Hall (2006), "Introduction: Culinary Tourism and Regional Development: From Slow Food to Slow Tourism?", with 23 citations, published by the Tourism Review International Journal. The paper offered insights into the culinary tourism and its possibilities towards regional development and depicted slow tourism as highly attractive, describing it as an extended vacation where the tourist can meet the destination closer, purchase authentic local products, as well as support the local economy.

The following most cited study is "Slow Tourism at the Caribbean's Geographical Margins" with 22 citations, published in 2012, in Tourism Geographies (Timms & Conway, 2012). Followed by, "Are Slow Travel and Slow Tourism Misfits, Compadres or Different Genres?" with 18 citations published in 2012 in Tourism Recreation Research (Conway & Timms, 2012). The study "The frictions of slow tourism mobilities: Conceptualising campervan travel" with 12 citations which was published in Annals of Tourism Research in 2017 (Wilson & Hannam, 2017). Followed by the study, "Advocating and Implementing Slow Tourism" from 2012 with 12 citations, published in the Tourism Recreation Research (Caffyn, 2012).

Most Contributing Organizations

In terms of organizations, Figure 4 indicates the most productive universities in slow tourism. From the viewpoint of productivity, the Indiana University System and the Indiana University Bloomington (with five papers) were the most productive institutions, followed by California Polytechnic State University San Luis Obispo (with four papers), California State University System (with four papers), and Taylor's University (with four papers).

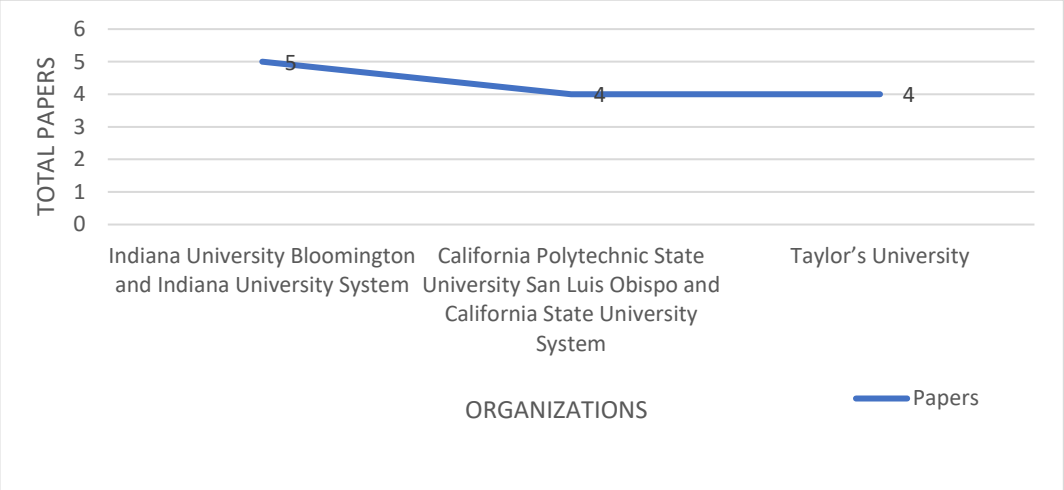

Figure 4. *Most Contributing Organizations*

In a period from 1975 to November 2020, the Indiana University System appeared in 196,620 publications in WoS, counting the highest number of published articles (120,529). Moreover, the number of articles related to the tourism phenomenon and related disciplines such as economics, management, multidisciplinary sciences, and social sciences interdisciplinary reached the number of 7,993. The most productive year was 2017 with 497 published articles. Conversely, the least beneficial years were 1975 - 1978 with only two published articles in a year. The Indiana University Bloomington showed its productivity with 6,268 published articles in the field of economics, social sciences, as well as the social sciences discipline. Therefore, most of the studies were published in 2017 (391). The least productive year was in 1979 with only one published study. Both institutions have a total of five studies published associated with the subject of slow tourism. Moreover, the first study dates from 2010, while the latest study was published in 2013. The most cited study was the Re-branding alternative tourism in the Caribbean: The case for slow tourism with 45 citations, in contrast, the least cited study is Slow Tourism: Experiences and Mobilities, counting only one citation. Noticeably, all five

studies were written by the same authors, Conway D and Timms B (WoS, 2020).

The California Polytechnic State University-San Luis Obispo appeared 8,603 times in WoS publications during the period between 1975 and 2020. Thus, the count of articles in journals is 5,414 publications. Furthermore, 403 articles appeared in tourism relevant studies (management, multidisciplinary sciences, social sciences interdisciplinary, hospitality, leisure, and sport tourism). The most productive year considering the number of publications was the year 2019 with 46 issuing. Moreover, in the years 1980, 1983, 1984, as well as 1999, only one article was published by the California Polytechnic State University-San Luis Obispo. Authors affiliated with this institution published the first article about slow tourism in 2010, with the title, "Re-branding alternative tourism in the Caribbean: The case for slow tourism". Moreover, this is the most cited article regarding the topic associated with slow tourism (See Table 1.). The most productive year for the university was 2012, with two published studies and both of the sestudies are the most cited publications. Interestingly, the same authors Conway D. and Timms B. published all three studies. The latest study published by California Polytechnic State University-San Luis Obispo concerning slow tourism was in 2013 with no citations until June 2020 (WoS, 2020).

The California State University System appeared in WoS with a total of 160,664 publications and 101,612 of them are articles in the journals. 7,483 studies covered social science-related subjects and 1,003 publications embraced tourism-related topics, putting attention on hospitality, leisure, and sport tourism. Most of these studies published in the year 2019 (554 documents) and the least number of publications dates back to the year 1979 (1 document). Regarding the topics focused on slow tourism, the California State University System published four studies. The first study published in 2010, while the latest study dated to 2013. All four studies were written by the authors (Conway D and Timms B) mentioned in the previous section (WoS, 2020).

Out of these institutions, Taylor University contributes with the least number of publications in WoS, 2,353. From the total number of publications, articles in journals counting 1,640. Regarding tourism-related studies, the organization took place with 447 articles. The least prolific year was in 2009 with only one publication. On the other hand, the most productive year was 2020 with 94 publications. Taylor University published

four studies about slow tourism. The first study was published in 2013, on the other hand, the latest study was published in 2016 (WoS, 2020).

Most Productive Authors

The figure 5 indicates the five most productive authors in Slow Tourism. According to the record count, the most productive authors are Conway D. and Timms B. counting five records (with five papers each), followed by authors, Mura P., Nair V., and Noor F., with a total of three records each (with three articles each).

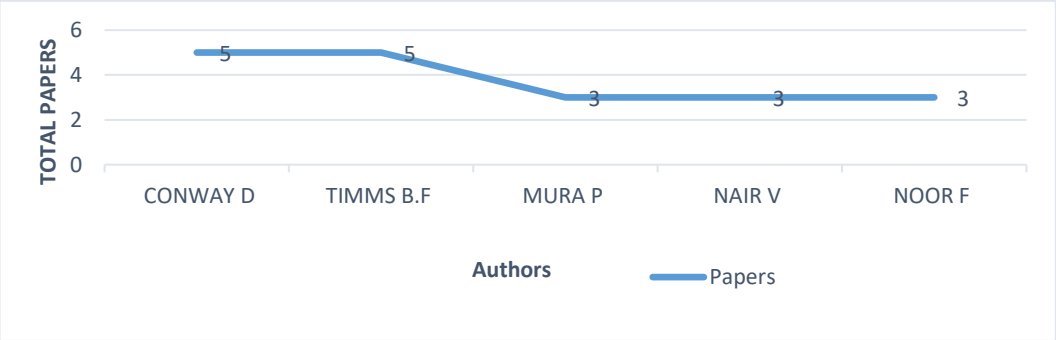

Figure 5. *Most Productive Authors*

One of the most productive authors, Conway D., from the year 1975 until November 2020 appeared in 31 searches regarding publications in WoS. Moreover, from the total number of publications, 22 were published as articles in journals. Four studies put attention on tourism, leisure, and hospitality. Interestingly, one of the authors' most cited studies, in general, is about slow tourism which is entitled "Re-branding alternative tourism in the Caribbean: The case for slow tourism". The authors most productive year was 2010, with a total of seven publications (WoS, 2020).

The second most productive author, Timms Benjamin F. authored a total of nine publications in WoS, counting seven articles published in journals. Most of the studies dated in 2013 (2 documents), while 2010 and 2018 were the least productive years for the author with only one publication each year (WoS, 2020).

Although Mura P. was not the most productive author regarding slow tourism studies, he can boast of 45 publications in WoS, counting 31 published articles, putting attention on 2013 with 13 published studies. Alternatively, in the years of 2010 and the 2012 the author published only one study each year (WoS, 2020).

Mura P. is followed by Nair V. with a total of 34 publications, of which 16 were articles in journals. Moreover, 2015 was the most productive year with four publications, on the other hand, the least productive year was 2018 with only one publication. Thus, it can be concluded, both authors were very productive regarding tourism, hospitality, and leisure related topics (WoS, 2020).

Noor F. appeared in total of three publications in WoS. Moreover, all three articles were published in the years of 2014, 2015 and 2016and interestingly, two of them put attention on slow tourism (WoS, 2020).

Most Productive Journals

The six most productive journals in Slow Tourism in the period from 1975 to 2020 are listed as follows; Tourism Recreation Research (with a total of four papers), Sustainability (with a total of three articles), as well as Anatolia-International Journal of Tourism and Hospitality Research, Annals of Tourism Research, Tourism Geographies, and Zeitschrift für Tourismuswissenschaft (with a total of two papers each) (See figure 6).

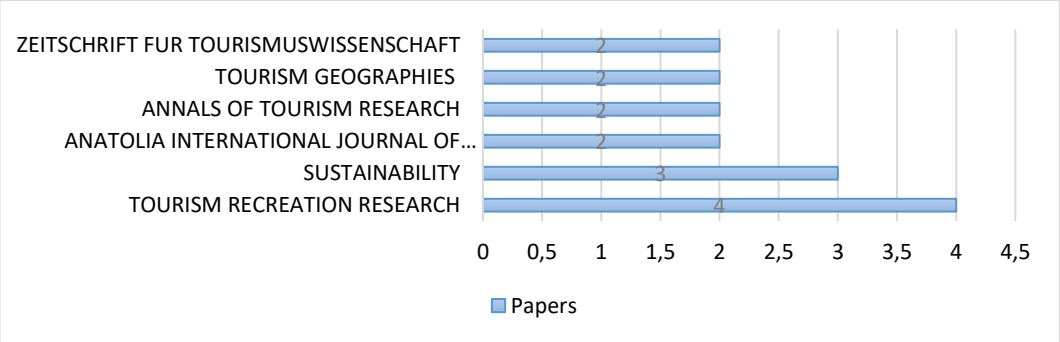

Figure 6. *Top 6 Productive Journals*

Journal Tourism Recreation Research (TRR) was established in 1976 by Professor Tej Vir Singh. It is an international research journal that publishes various studies related to tourism and recreational topics (Vishwakarma & Mukherjee, 2019). The journal has 851 publications in WoS, considering the period from the year 1975 until June 2020, regarding topics related to tourism, leisure, and hospitality. The most published studies are articles (504), as well as book reviews (171). The most productive year for the journal was 2019 with 80 publications. While the year 2015 had the least publications (38). Additionally, the number of publications in 2013 incorporates %4.465 of total number, while publications from the 2019 covers %9.401 of total publications. We can assume that publications in journal doubled in five years (WoS, 2020).

The second most productive journal is Sustainability, which is an international cross-disciplinary journal. Moreover, journal publications concentrate on environmental, cultural, economic, and social sustainability (MDPI, 2020). In 45 years, the journal published 25,015 studies in WoS, from which 23,513 are articles published in the category of green sustainable science technology. The most productive year for the journal was the 2019 with a total of 7,255 publications, while in 2011 journal published 128 publications in WoS (WoS, 2020).

Anatolia-International Journal of Tourism and Hospitality Research has a total of 878 publications in WoS. In 2019, the journal published 63 studies, while the least number of publications was in 2005, 15 published articles (WoS, 2020).

Annals of Tourism Research is a social science journal concentrating on the academic approach of tourism (Elsevier, 2020). The journal has a total of 3,679 publications in WoS, more precisely, 2,030 articles. Interestingly, the most productive year was 2020 with 165 publications, on the other hand, the year with the smallest amount of publications was in 1982 with 39 published studies (WoS, 2020).

Tourism Geographies journal was established in 1999 and aims to present and discuss the geographic aspects of tourism and tourism-related studies (Tourism Geographies, 2020). Looking into the WoS database the journal appears with a total of 766 publications, counting 546 articles. In 2019 it was the most productive with 121 publications, while in 2007 journal published seven studies (WoS, 2020).

Zeitschrift für Tourismuswissenschaft journal centres on multidisciplinary and interdisciplinary studies associated with the tourism phenomena (De Gruyter, 2020). Moreover, the journal has a total of 361 publications, from which 167 articles. The most successful year for the journal was 2011 with 47 publications, while 2020 counts eight publications until June 2020 (WoS, 2020).

The Most Popular Keywords in Papers

As shown in Figure 7, the authors' keywords were analysed by using co-occurrence feature of the VOSviewer. Moreover, this method confirms how often keywords transpire in the study. In other words, the concepts of the following keywords are linked to each other (Merigó et al., 2020). In addition, Table 3 shows occurrences and total link strengths. "Slow tourism", "sustainability", and "alternative tourism" are some of the

common keywords in the whole network as represented in Figure 7. Moreover, the visual analysis presented in Figure 7 through the VOSviewer Software distinguishes four clusters[3], which are the following:

- Cluster 1, containing the terms sustainability and alternative tourism.
- Cluster 2, which includes slow tourism and leisure.
- Cluster 3, which includes tourist experience and place attachment.
- Cluster 4, focused on sustainable tourism and tourism marketing.

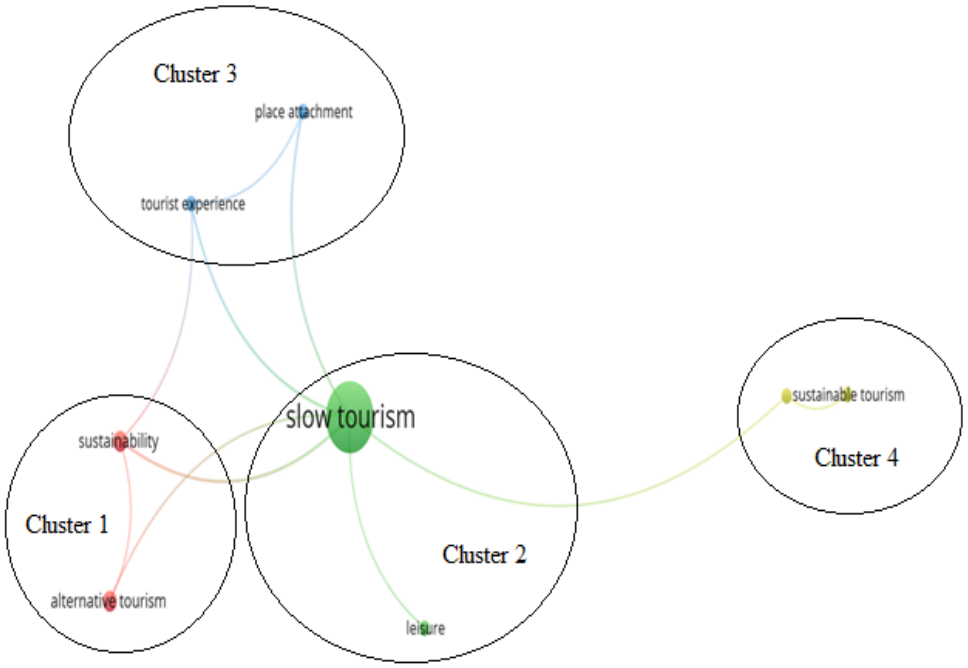

Figure 7. *Analysis of Keywords (The minimum number of occurrences of each keyword was set to two)*

Table 2. *Occurrences and Total Link Strengths*

Keyword	Occurrences	Total Link Strength
Alternative Tourism	3	2
Leisure	2	1
Place Attachment	2	3
Slow Tourism	15	9
Sustainability	3	4
Sustainable Tourism	2	1
Tourism Marketing	2	2
Tourist Experience	2	4

[3] The keywords are in the same cluster means that they are closely related to each other.

Figure 8 shows that the most recently studied concepts are related to tourist experience and place attachment (2018-2020). On the other hand, the earlier concepts studied together with slow tourism are alternative tourism and leisure (2014-2016).

Figure 8. *Analysis of Keywords - Temporal distribution*

CONCLUSION

This study carried out the bibliometric analysis of slow tourism. The current study contributes to the literature as it presents the main researches indexed in WoS about slow tourism conducted between the years 1975- 2020. Through the article search in the WoS database, we had noticed that the first article with this title was published in 2004. However, there is a significant improvement in publishing academic papers related to this topic, especially starting with the year 2013, when the subject began attracting scholars' attention. Regarding the most productive continents, Europe is the leader with a total of 15 papers, followed by America and Asia. The USA is the most productive country in terms of total publications with 9 papers. We found 4 studies that gather more than 30 "WoS" citations. The most cited research is "Re-branding alternative tourism in the Caribbean: The case for 'slow tourism" and had been cited 44 times until June 2020. In terms of organizations, Indiana University System and Indiana University Bloomington campus (with 5 papers) are the most productive institutions.

In terms of the productive authors, Conway D. and Timms B. are most productive authors (with 5 papers each). In terms of the productive journals, Tourism Recreation Research (with a total of 4 papers) is most productive journal.

The analysis of related keywords aimed to identify the main description of the research with the most common keywords. The visual analysis of keyword distinguishes four of the following clusters: a) Sustainability and Alternative Tourism, b) Slow Tourism and Leisure, c) Tourist Experience and Place Attachment, and d) Sustainable Tourism and Tourism Marketing.

The first cluster includes sustainability and alternative tourism. Sustainability and alternative tourism are some of the most frequent keywords in the papers. It could be predicted, taking into consideration that slow tourism is seen as a genre of alternative tourism and a solution for reducing the consumption of mass tourism. Because slow tourism represents a progressive type of alternative tourism which is seen as a tool for lowering mass tourism in the destinations (Conway & Timms, 2012).

The second cluster includes slow tourism and leisure. Historically, the definition of leisure was related to work. Many scholars defined leisure as the inverse of work; meaning leisure was seen as free time out of work (Voss, 1967). In recent times, however, leisure is further suggested as an experience gathered in free time (Akyıldız & Argan, 2010). Thus, time is an essential part of slow tourism, allowing tourists to experience their travel and stay in the destination on a specific and more profound way. Additionally, researching through the literature, we concluded that leisure and slow tourism are closely connected, which can be seen in figure 7.

Cluster three includes tourists' experiences and place attachment. As mentioned earlier, slow tourism consumers are seen as the antithesis of mass tourism consumers and slow tourists prefer quality over quantity; moreover, during their stay at the destination, they are involved in the daily lives of the local community (Dickinson & Lumsdon, 2010). Ordinarily being involved with the local community makes them more attached to the place.

Cluster four includes sustainable tourism and tourism marketing. Although the progress towards sustainable tourism has been improved, many destinations worldwide are still looking into enhancing their performance in attracting advocates of sustainable tourism. Besides, to achieve the goal, different styles and understanding of tourism marketing

is essential, moreover, sustainable tourism marketing targets specific groups of tourists. The aim is to attract the group of tourists who share an interest in sustainable products such as the protection of the environment, sustainability, and universalism (Vinzenz et al., 2019). Slow tourism is one of the latest types of alternative tourism which requires further research and strategical tourism marketing in order to create further development and improvement.

The insights from the bibliometric analyses offer answers to some precise topics. Moreover, the scholars and researchers should give attention to those results before commencing to study slow tourism. These analyses can assist researchers in better understanding the topic, to identify issues for further necessary investigation, the journals that mostly addressed this specific field of study, as well as use it as reference for their new research. From an academic point of view, the number of papers has increased over the years; however, the slow tourism topic requires further academic research, which will allow researchers to get more significant insights into the topic.

Limitations and Suggestions for Future Research

There are some limitations to the current study. Firstly, although the WoS database represents one of the leading collections of knowledge, it may not include all potentially relevant documents such as other journal articles and books. Therefore, other databases (i.e., Scopus) can also be included in the research. Secondly, our findings may give a picture of the current situation about slow tourism literature but the slow tourism literature may change over time. Thirdly, in this study, analyses were made only with the VOSviewer. However, apart from the VOSviewer other software (i.e., CiteSpace II and Bibexcel) can be used as well in future studies.

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TOPIC PROMINENCE OF TOURISM AND HOSPITALITY SCIENTIFIC RESEARCH: THE CASE OF SWITZERLAND

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ABSTRACT

Topic prominence is regarded as a recent indicator that reveals the present momentum of a certain topic by considering the citations, views, and CiteScore thresholds. Topic prominence has been examined in prior research within different contexts, however, there is no known study exploring this trend within tourism and hospitality literature. Therefore, this study aims to analyse and map the topic prominence of Tourism, Leisure and Hospitality Management (TLHM) research by focusing on Switzerland as a case study. The collected data included 337 articles published in 46 journals indexed in Scopus under the subject category of TLHM. The findings concluded that topic prominence is an important indicator for measuring scientific research productivity, including peer-reviewed articles. More particularly, it is revealed that the investigation of topic prominence provides an overall clearer picture of Swiss TLHM research. This study contributes to tourism studies by discussing the usage of the topic prominence metric for tourism and hospitality publications. It also presents practical implications for tourism research managers and researchers by providing solid insights into funded research, scholars' and institutions' performance, and momentum of topics associated with the Swiss TLHM articles.

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INTRODUCTION

In the last decades, investigating and evaluating scientific research outputs have been crucial activities for many concerned stakeholders in all areas, leading to a broad range of approaches being developed, reviewed, analysed, and utilised for the description and comparison of research outputs (Pechlaner et al., 2004). According to Hall (2011), developing quality assessments and criteria concerning scientific research has explicit indications and contributions for economic, human resource management, and studies practice, as well as it impacts the decision as to where researchers publish and thus the thorough development of tourism and hospitality research as a scholarly domain. On the other hand, Airey (2016) suggests that the current challenge for tourism researchers is to ensure that tourism and hospitality scientific research remains relevant in this post-industrial world.

Consequently, substantial endeavours have been made in recent years to evaluate the quality of scholarly publications, institutions' performance, and research portfolio (Pechlaner et al., 2004). One of the most common approaches of these attempts consists of bibliometric studies that have characterised and mapped the research performance of nations, institutions, authors, research topics, etc. (Airey, 2016; Hanssen et al., 2018; Pirnar, 2014; Ye et al., 2012). In addition, science mapping was employed as a process for analysing research activities, topics, science impact and other metrics (Boyack, 2004; Chen, 2017; Leydesdorff, 1987).

Furthermore, according to Elsevier Publisher ([EP], 2020), topic prominence is considered one of the recent pointers that explicate the prevailing momentum of a topic in a certain context by studying somewhat up-to-date citations, views, and CiteScore values. As a result, topic prominence was recently used to map and analyse the scientific production on a specific subject in a certain field or area of research, namely by Boyack (2017) or Guo et al. (2011), who combined different indicators in order to identify emerging research areas (e.g. the number of unique papers, author keywords and topic words analysis, and authors who have studied the topic). From the above, it is clear that there are several indicators or variables that can be used to identify the prominence topic; however, it is clear that, as stated by Wang and Shapira (2015), high impact articles are associated with acknowledged funding compared with low impact articles (i.e. articles positioned in 90th and 95th percentiles).

Based on the aforementioned discussion, topic prominence is a promising metric that can be employed for mapping the big data research

within the tourism and hospitality context. In this regard, there are many bibliometric studies that have reviewed, mapped, and analysed the previous literature of the Tourism, Leisure and Hospitality Management (TLHM) area, including systematic review, meta-analysis, content analysis, text mining, network analysis, country research analysis, citation analysis, etc. (Koseoglu et al., 2016; Merigó et al., 2020). However, to the best of the authors' knowledge, no known work has evaluated the topic prominence within TLHM scientific research in general. In addition, as far as we know, no research has investigated the link between "SciVal Topic Prominence" and authors' titles, abstracts, and keywords of articles published in journals ranked as Q1 and Q2, according to their SJR2018, among the TLHM category. Moreover, the mapping SciVal Topic Prominence of TLHM research related to Switzerland has not been performed yet.

As a result, the purpose of this study is to analyse and map the topic prominence of TLHM research in Switzerland. The current study focuses on Switzerland as one of the most dynamic nations around the world in terms of scientific research activity in general (Chen et al., 2019; Vieregge et al., 2013). Moreover, Switzerland is shown as one of the leading nations worldwide having a rich research profile associated with the TLHM area over the last decades. According to the latest SCImago Journal & Country Rank ([SJR], 2019), Switzerland comes in the 16th place in international rankings, with 764,195 documents in all subject areas. The country also comes in the 27th place worldwide, with 558 documents among the TLHM subject category (SJR, 2020).

Addressing the current research gap and objectives, the research questions driving this study are: (1) What is the relationship between "SciVal Topic Prominence" and authors' titles, abstracts, and keywords of TLHM research in Switzerland?; and (2) How to map SciVal Topic Prominence of TLHM research in Switzerland?

Taken all together, the present article has several theoretical and practical contributions. First, this study is considered the first attempt to analyse and map the Scival topic prominence of peer-reviewed articles published in Scopus-indexed journals within the tourism and hospitality setting, especially in Switzerland. Second, this paper adds to the existing literature of bibliometric studies in the tourism and hospitality field by highlighting and presenting topic prominence as a new trend and metric utilized to map the big data of TLHM. Third, the findings of this paper present practical and managerial implications for tourism and hospitality research managers as well as concerned scholars in all countries around the

world by providing solid insights into funded research projects, researchers' performance, higher education institutions' performance, and momentum of topics associated with Swiss TLHM articles published in the Scopus database.

LITERATURE REVIEW

Switzerland tourism and hospitality research

Swiss higher education in Tourism and Hospitality is recognised globally for its excellence (Chen et al., 2019; Vieregge et al., 2013) and the country is a worldwide pioneer in this area (Schön, 2016). The worlds' 41st oldest hotel school and first hospitality school, the École Hôtelière de Lausanne (EHL), is in Switzerland. Originally established as a private school in 1898, the EHL became a member of the public sector of the University of Applied Sciences Western Switzerland (HES-SO) in 1998, being the first Swiss Hotel School to be recognised as a University by the Swiss government (Chen et al., 2019). Concerning publications on the tourism topic, Schön (2016) points out that two professors at the University of Bern – Walter Hunziker and Kurt Krapf, authors of the "General Theory of Tourism" in 1942 – created a "kind of general doctrine of tourism" (p. 2). Also, Airey (2016) highlights a long tradition in tourism and hospitality research in Switzerland, which dates back to the 1940s. According to Schön (2016), the University of Berne created the first academic course in tourism in 1941, and in 1943 the "Hochschule für Wirtschaft und Verkehrswirtschaft Sankt Gallen", Graduate School of Economics, followed in its footsteps. The first Swiss publications records in T&H date back exactly 47 years ago, that is 5 decades. The first two records are from IUOTO (1973, 1974), published in the Annals of Tourism Research journal. The International Union of Official Travel Organisations (IUOTO) is a world institution that marks the history of Tourism around the world. It was established in 1934, and in its 1970 General Assembly, the World Tourism Organization (WTO) was set up (Schipper et al., 2018). These first documents were published in Geneva, Switzerland. The third record is from AIEST (1977). It was recorded in February of 1977 and submitted by AIEST (International Association of Scientific Experts in Tourism [AIEST], 1977) to the Annals of Tourism Research journal. AIEST was created in 1951 and still exists today under the same name with its base in St. Gallen, Switzerland[2]. Moreover, the concept of integrating education, training, and practice in the hotel industry, now adopted all over the world, was created in Switzerland. During the 20th

[2] https://www.aiest.org/home/

century, Swiss Schools included compulsory industrial training as part of their students' academic education (Fournier & Ineson, 2010).

With the rise of the Bologna Process, which Switzerland has been implementing since 2006, the Swiss education system has been transformed. With Bologna came accreditation in higher education, the evaluation of study programs, and the Agency for Quality Assurance and Accreditation in Higher Education (ADIP), through MODIP (Quality Assurance Unit) in the Eurydice network, to which the Swiss higher education system belongs. Quality indicators in higher education are grouped into four sets of criteria: (i) quality of teaching; (ii) quality of study programs; (iii) quality of services; and finally (iv) quality of research (European Commission [EC], 2020). The quality of research indicator is characterised by the performance of publications in a particular scientific area, namely the impact that these publications have in the world. In Swiss tourism and hospitality research, there is a lack of research characterising this scientific area. Reflecting exactly about research production in Swiss Hotel Schools, Chen et al. (2019) argue about the difficulty of formulating the performance of this research, in general, and of the Swiss case of the École Hôtelière de Lausanne, in particular, taking into account the specificity of the Swiss Tourism and Hospitality Education System.

Research performance

Research performance is a concept associated with many programs and departments of institutions that are recognised as possessing high-quality research output (Severt et al., 2009) and depends on metrics that measure certain variables to define academic excellence. The research performance is a topic studied through bibliometric studies and it is used to analyse the productivity of research and publication outputs, including topics sought, methods conducted, and samples utilised (Soares et al., 2016; Ye et al., 2012), by employing essential or advanced evaluative and/or relational measures to the data obtained from online databases (e.g. Fahimnia et al., 2015; Koseoglu et al., 2016; McBurney & Novak, 2002).

In the context of tourism and hospitality, the research performance of a country is defined by the productivity of institutions, which in turn depends on researchers' productivity, and is frequently exhibited by rankings. Researchers' performance is characterised by several variables, depending on the purpose of the study, such as number of papers published in academic journals, average number of authors per article (Park et al., 2011), and authors' publication by affiliation (Waltman, 2016; Ye et al.,

2012). Hanssen et al. (2018), in their model of the relation between quality of research, researchers' experience, and their academic environment, among others, used the number of citations per article, author rank by number of publications, the number of publication years, and the number of journals. Howey et al. (1999) applied their study to tourism and hospitality journals, but in this case, they used citation analysis. Frechtling (2004) targeted journals as a form of knowledge transfer, while Harris and Brander Brown (1998) characterised tourism and hospitality performance qualitatively. Huang and Hsu (2008) conducted a content analysis of articles published in Tourism Tribune and used statistical calculations of frequency counts in the authorship, articles, regional distribution, and institutional contributions variables.

More recently, research productivity is significantly associated with the breadth and depth of research collaboration between authors in different disciplines, as well as between institutions (Ye et al., 2012). In this case, the focus is on the type of cooperation and network analysis. These studies value research collaboration as a way of creation, acquisition, and dissemination of knowledge; all vital in research performance (Chen et al., 2019). Bibliometric analysis now includes networking analysis, but the variables at its base remain, such as those used by Loureiro et al. (2020), namely top 10 articles ordered by citation rank, top 10 papers cited under peer-reviewed journals, number of papers published in top-tier journals with newly emerged variables, such as reference network analysis and co-authorship analysis.

Topic Prominence

Another line of authors seeks to identify research topics, trying to capture emerging subjects/topics in a specific area (Xiao & Smith, 2006), where network analysis is valuable in identifying the most prominent papers and discovering key clusters of research (Fahimnia et al., 2015). This kind of bibliometric research is generally applied to assess the degree of relevance of papers in a given area, the degree of relevance of authors (e.g. citations), the growth or decline of an area or topic of knowledge, the dispersion of paper production by journals, etc. (Domingo-Carrillo et al., 2019; Mudarra-Fernández et al., 2019). Concerning science mapping, we also find qualitative studies to map research topics (Weiermair & Bieger, 2005; Wilson et al., 2019), usually analysing the best quartile of journals' topics, titles, abstracts and keywords. Also, to measure text similarity, Takano and Kajikawa (2018) used keywords analysis. However, outside the area of tourism, bibliometric studies identifying emerging topics in science (i.e.

prominence research topics) (Pham et al., 2018; Small et al., 2014) and technological areas have recently appeared. In research publications, topic prominence is found in all scientific areas published by the Scopus database, but outputs of topic prominence can only be analysed on the SciVal platform (belonging to the Elsevier group) (EP, 2020). SciVal prominence combines three metrics to indicate the momentum of the topic: (1) Citation count in year n to papers published in n and n-1; (2) Scopus views count in year n to papers published in n and n-1; and (3) Average CiteScore for year n.

Klavans and Boyack (2017) analysed the consistency, transparency and relevance of the topic prominence indicator. They argue that this indicator is useful to ascertain whether a research topic is growing or declining, and it is normally used to support research funding. In their study of research portfolio, to accomplish their goal of identifying the most prominent topics, the authors used citations, number of views and cite score of the topics (same variables used by SciVal). Topic prominence is a collection of documents with a common interest, and in this context, prominence means momentum and visibility, and, as opposed to importance, an article's prominence topic can be prominent but not important and vice versa. This indicator can predict if a topic will grow or decline in the future and also indicates emerging topics of research (Pham et al., 2018; Small et al., 2014). In traditional bibliometrics, when using citation analysis to assess the impact of an article, for example in terms of author or university performance, the main indicator used is the average number of citations per publication, while topic prominence employs a percentile-based indicator (Klavans & Boyack, 2017; Waltman & Schreiber, 2013). To assess the percentile indicator of the most prominent topics, Bornmann et al. (2013) applied the assessment of prominence percentiles by percentile rank classes (e.g. clustering topics) and Boyack (2004) used the mean of percentile citations. Boyack (2017) investigated the limitations of using sets of documents based on journals to identify the structure of scientific fields and clustering topic prominence by topic field and by regions. Guo et al. (2011) used a mixed model that combined different indicators to describe and predict the main structural and dynamic characteristics of emerging research areas (e.g. number of unique papers, author keywords, topic words analysis and authors who studied the topic).

METHODOLOGY

Data collection

Figure 1 shows the steps of data collection procedures regarding Swiss articles published in Scopus-indexed journals among the subject category of TLHM. Thus, tourism and hospitality-related publications by Swiss researchers in journals of other areas and/or categories were not included in the present study. Moreover, only journals ranked as Q1 and Q2 according to SJR2018 were considered in this study for two reasons. First, these two quartiles are more stable over longer periods, considering that there is virtually no fluctuation between them. Second, the highest impact journals are positioned in these quartiles. These journals are considered as the most appropriate to characterise scientific performance and can be accepted as certified knowledge (Koseoglu et al., 2016; Mardanov et al., 2017). Based on the defined search criteria, 51 journals were identified in the initial search.

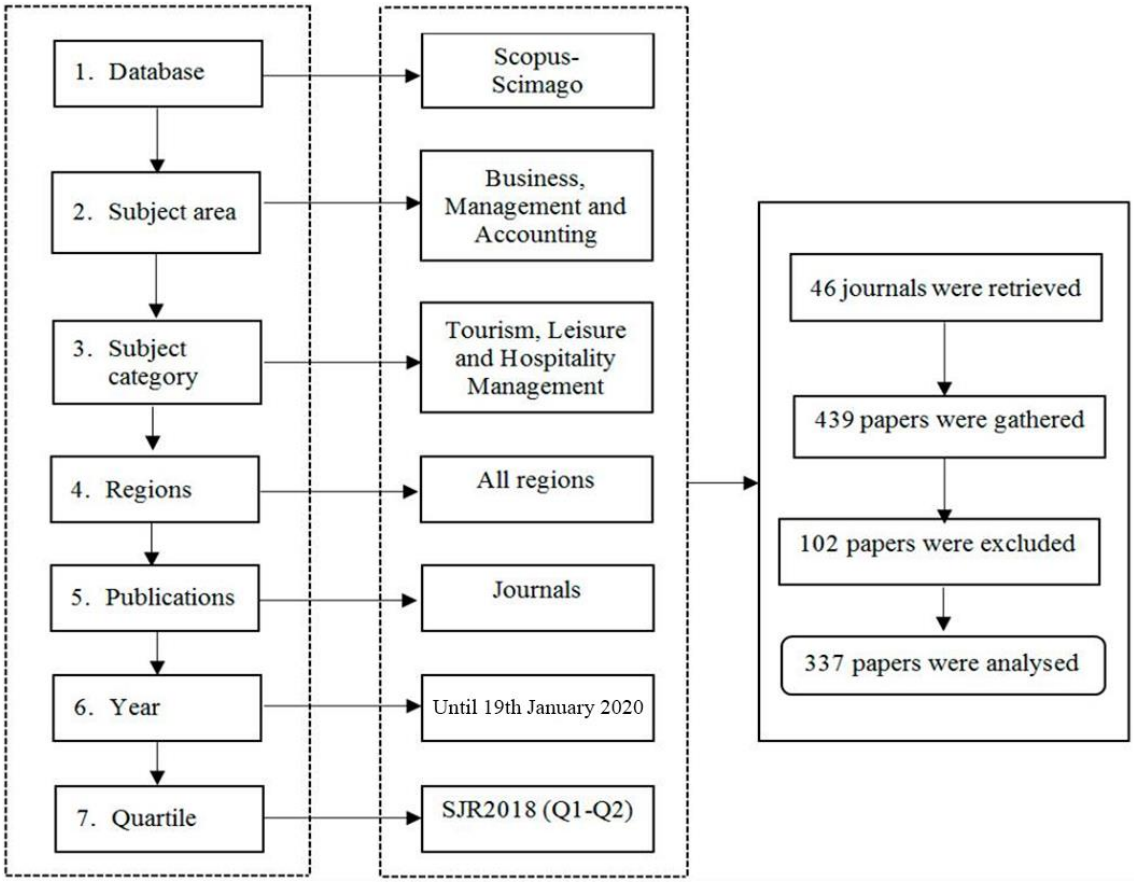

Figure 1. *The steps of data collection*

Data collection was carried out on 19th January 2020, on Elsevier's Scopus database, one of the largest and most renowned online peer-reviewed literature collections (Domingo-Carrillo et al., 2019; Mudarra-Fernández et al., 2019). The articles were checked in each of the 51 selected journals based on the following search criteria: country/territory (Switzerland) and document type (article). As a result, a total of 439 papers were retrieved from 46 journals. Using DB Gnosis software, all articles relevant to TLHM were further filtered, removing 102 papers (papers not relevant to the area and documents that were classified as editorials or conference reports). In the end, a total of 337 articles were determined to be relevant and were included in the analysis.

Figure 2 reveals a summary of the features related to the collected data that were analysed and mapped in the current study.

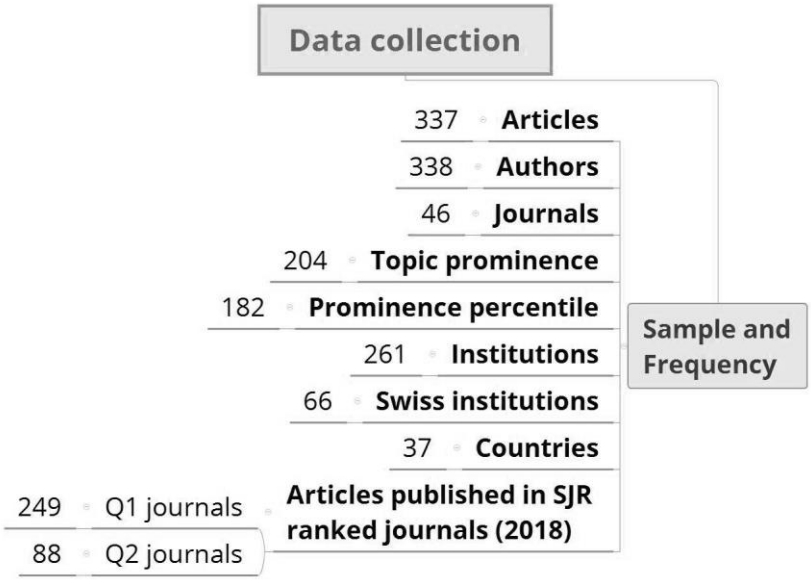

Figure 2. *A summary of the collected data*

Finally, homogeneous groups were searched within the analysed sample to check if there were any similarities of behaviour between the articles, regarding the variables title, abstract, keywords, and topic prominence. For this, a cluster analysis was carried out (conglomerate of k means), obtaining two different groups (Table 1):

1= the group that does not use the words of topic prominence in the title, author keywords or abstract. In total, it comprises 185 articles (54.9% of the sample).

2= the group that uses the words of topic prominence, on average, one word in the title, three words in the abstract and one word in the author keywords. In total, it comprises 98 articles (29% of the sample).

The remaining 54 articles do not fit in either of the two groups.

Table 1. *Cluster analysis*

	Conglomerate	
	1	2
Title	0	1
Abstract	0	3
Keywords	0	1
Topic prominence	2	2
Total articles	185	98

Analysis methods and procedures

The specific type of content analysis employed in the present work was categorical content analysis, which consists of dismembering the texts into units, or categories, according to pre-established criteria (Bardin, 2000). The data analysis process involves some procedures and steps, as presented in Figure 3.

Correlation analysis

For this study, the variables of title, abstract, author keywords and topic prominence have been quantified to carry out the content analysis. The topic prominence metric is made up of three terms: the "title" variable was quantified on a scale of 0 to 3 (0 = absent words; 1 = one word present; 2 = two words present; 3 = three words present). The same procedure was used for "author keywords". This variable was quantified depending on the presence of topic prominence in the keywords (from 0 to 3). The "abstract" variable was quantified on a scale of 0 to 5 (0 = absent words; 1 = one word present; 2 = two words present; 3 = three words present; 4 = one-word repetition; 5 = repetition of more than one word). This quantification is justified by the fact that the abstract has more words and some of the topics prominence have more than three words (e.g. Hotels | Revenue Management | Hotel Revenue). Finally, the "topic prominence" variable was quantified from 0 to 3 (0 = if the three words of the topic are different; 1 = if one word is repeated (e.g. Festival | festivals | music Festival); 2 = if more than one word is repeated; 3 = if more than two words are repeated).

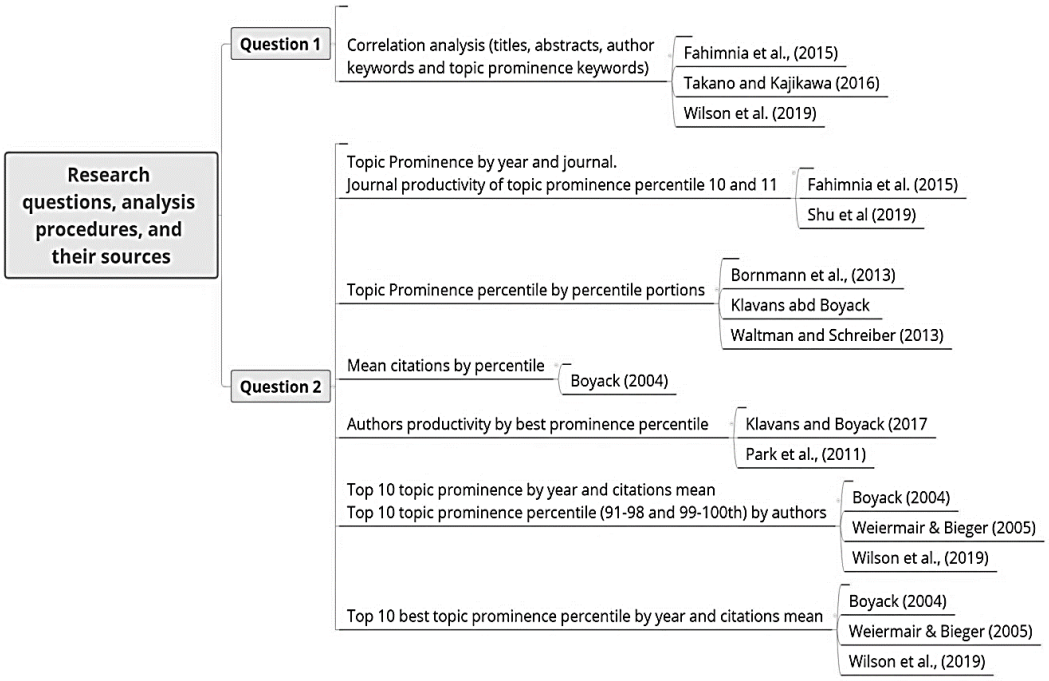

Figure 3. *Research questions, analysis procedures, and their sources*

Topic prominence cluster by percentile portions

The SciVal topic prominence was distributed in 11 portions or percentiles (frequency was the main criterion of distribution). In this distribution, 6% of articles were excluded from the total sample. The reason for this exclusion was the absence of topic prominence and prominence percentile classification from Scopus (papers from the 70s and 80s). Topic prominence distribution has several advantages over frequently used standard bibliometrics, that is, the higher the percentile, the greater the impact of the article.

Topic prominence cluster and prominence best percentile

To analyse topic prominence cluster and prominence best percentile, a count rank by frequency was done by calculating the average of citations (on papers in each cluster of topic prominence and prominence percentile), followed by the content search by year. All procedures were done in DB Gnosis software.

Mind mapping

The qualitative analysis was done in mind map clustering, which was performed using BizAgi Process Modeler (BizAgi is a Business Process

Model and Notation (BPMN) tool) and X-Mind software. In this regard, mind mapping, as a visual resource, was proposed by Buzan in the 1970s, and currently has gained popularity as a data analysis technique, especially in the fields of computer science, communication science, psychology, and marketing (Eppler, 2006). Visually, a mind map is an "image-centred and radial diagram that represents semantic or other connections between portions of learned material hierarchically" (Eppler, 2006, p. 2013). Applied to qualitative research, it is a powerful tool to analyse, interpret and link ideas and, ultimately, to present the data (Almeida, 2018; Jirásek & Hurych, 2019; Wheeldon, 2011).

RESULTS

Topic prominence relationship with titles, abstracts and author keywords

Regarding the presence of words from the topics prominence in the title, Table 2 shows that the most common is only one word present (52.8%) and very rarely two (7.2%), with the average at which this event is confirmed being 0.54 (Table 3). In the case of author keywords, identical results are achieved: the most common is only one word of topics prominence present (36.1%) and the average occurrence of this event is 0.50.

Table 2. *Relative frequency presence of topic prominence words*

Item	0	1	2	3
Title	39.9%	52.8%	7.2%	0%
Author Keywords	57.1%	36.1%	6.2%	0.3%
Abstract	41.9%	24.8%	16.2%	9.2%

As for the presence of words from the topics prominence in the abstract, the average value is 1.17, that is, in 28.8% of the cases at least one term appears (28.8%) and in 9.2% of the cases the three words of the topics prominence appear in the abstract.

Table 3. *Presence of topic prominence items*

	N	Minimum	Maximum	Average	Standard deviation
Title	337	0	2	0.54	0.628
Abstract	337	0	5	1.17	1.298
Author Keywords	337	0	3	0.50	0.630
Topic-prominence	337	0	2	1.18	0.729

Applying Pearson's correlation statistics, we obtained positive correlations between the titles and abstracts (0.619), that is, the greater the

use of words from the topics prominence in the title, the greater the use of words in the abstract; and between the abstract and the author keywords (0. 405), that is, if words from the topics prominence appear in the abstract, they do so as well in the keywords. There is also a positive correlation between author keywords and titles (0.368) and between topics prominence words and abstracts (0.155), that is, if the words from the topics prominence are themselves related (words are repeated), the use of the words in the abstract is greater. However, the correlation between topics prominence words and title, and topics prominence words and author keywords is practically non-existent as the value of the statistic is close to 0 in both cases (Table 4).

Table 4. *Title, abstract, keywords and topic prominence correlations*

		Title	Abstract	Author keywords	Topic prominence words
Title	Pearson's correlation	1	**.619**	.368	.060
	Sig. (bilateral)		.000	.000	.285
	N	318	303	289	318
Abstract	Pearson's correlation	.619	1	**.405**	.155
	Sig. (bilateral)	.000		.000	.007
	N	303	303	283	303
Author keywords	Pearson's correlation	.368	.405	1	.078
	Sig. (bilateral)	.000	.000		.188
	N	289	283	289	289
Topic prominence	Pearson's correlation	.060	.155	.078	1
	Sig. (bilateral)	.285	.007	.188	
	N	318	303	289	318

Topic prominence in Swiss TLHM research

Distribution of topic prominence by year and journal

The distribution of topic prominence by year and journal (Figure 4) reveals that, in the period 1980-1999, topic prominence was mostly distributed among one or two journals. From the years 2000 onwards, the number of publications increases, as well as the number of journals. In 2019, the number of different topics prominence reached its peak, with a total of 34 different topics prominences published in 24 different journals. The top 10 journals in 2019 show that the Tourism Review journal leads with 18.6% of different topics prominence, followed by Annals of Tourism Research, Cornell Hospitality Quarterly, and Tourism Management, with 9.3% each.

Concerning productivity of the two best percentiles (91-98 and 99-100), Tourism Review leads in both percentiles with 32 articles (Table 5). In

SJR 2018, Table 5 shows that, in the two best percentiles, the top 10 journals are led by Q1 journals. Considering SCImago - SJR 2018, the journal's score is not very relevant for positioning in the percentile.

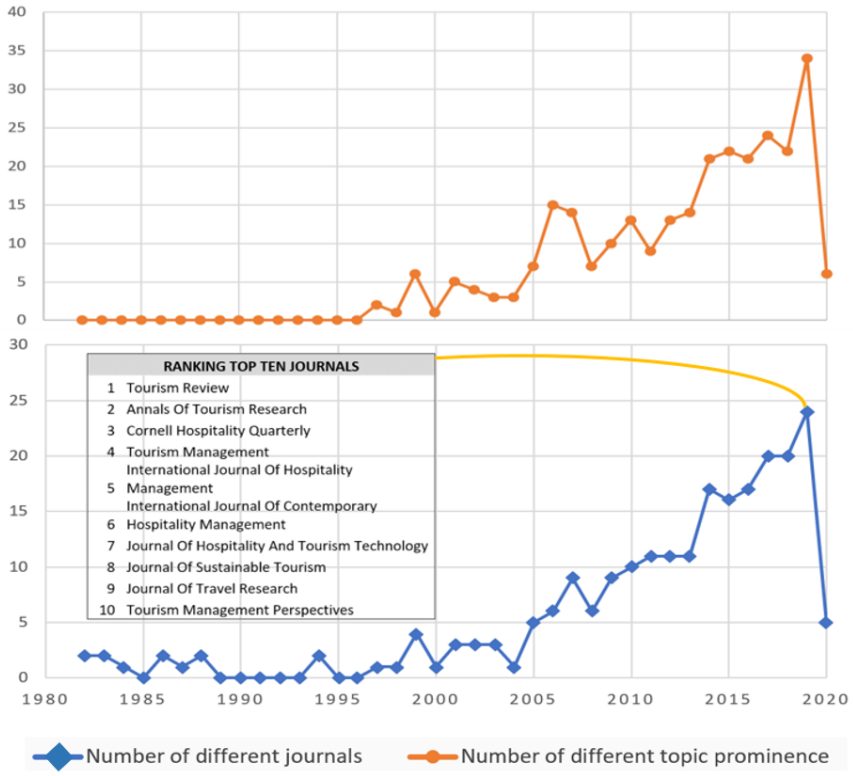

Figure 4. *Swiss TLHM topic prominence by year and journal*

Table 5. *Journal productivity of Topic Prominence Percentiles 10 and 11*

Sample size= 132	Journal Rank Topic Prominence Percentile 10				
Ranking	Variable Name	Absolute Frequency	Relative Frequency	SJR 2018	SCImago - SJR 2018
1	Tourism Review	24	0.18	Q2	0.62
2	International Journal of Hospitality Management	12	0.09	Q1	2
3	Journal of Travel Research	10	0.07	Q1	3.18
4	Tourism Management	10	0.07	Q1	2.92
5	International Journal of Contemporary Hospitality Management	6	0.04	Q1	1.85
6	Leisure Studies	5	0.03	Q1	0.74
7	Applied Geography	4	0.03	Q1	1.25
8	International Journal of Retail and Distribution Management	4	0.03	Q1	0.77
9	Journal of Quality Assurance in Hospitality and Tourism	4	0.03	Q2	0.54
10	Journal of Sustainable Tourism	4	0.03	Q1	1.37

Sample size=43	Journal Rank Topic Prominence Percentile 11				
Ranking	Variable Name	Absolute Frequency	Relative Frequency		
1	Tourism Review	8	0.18	Q2	0.62
2	Annals of Tourism Research	4	0.09	Q1	2.18
3	Cornell Hospitality Quarterly	4	0.09	Q1	1.16
4	Tourism Management	4	0.09	Q1	2.92
5	International Journal of Hospitality Management	3	0.06	Q1	2
6	International Journal of Contemporary Hospitality Management	2	0.04	Q1	1.85
7	Journal of Hospitality and Tourism Technology	2	0.04	Q1	0.79
8	Journal of Sustainable Tourism	2	0.04	Q1	1.37
9	Journal of Travel Research	2	0.04	Q1	3.18
10	Tourism Management Perspectives	2	0.04	Q1	0.97

Topic prominence percentile by percentile portions

Figure 5 reveals that 85% of the Swiss topic prominence percentiles in TLHM research are above the 50th percentile. Furthermore, 41% of topics are in 90th percentile, that is, in the 10% best in the world in momentum and visibility, while 13% of the topics are in 99th prominence percentile.

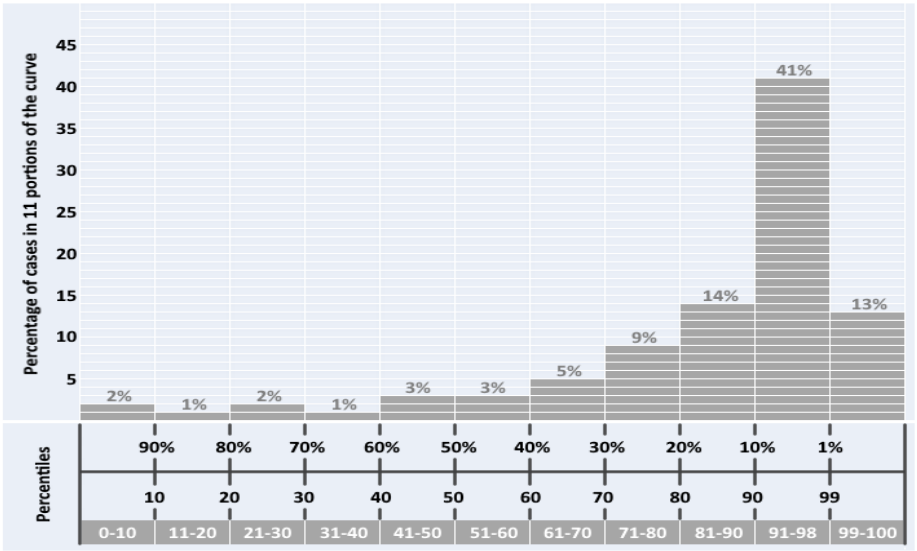

Figure 5. *Swiss topic prominence percentiles in TLHM research*

Mean citations by percentile

Figure 6 shows that the 99th topic prominence percentile of Swiss TLHM topics includes those with the highest average citations (28.8), followed by those of the 10th percentile, with 22.8.

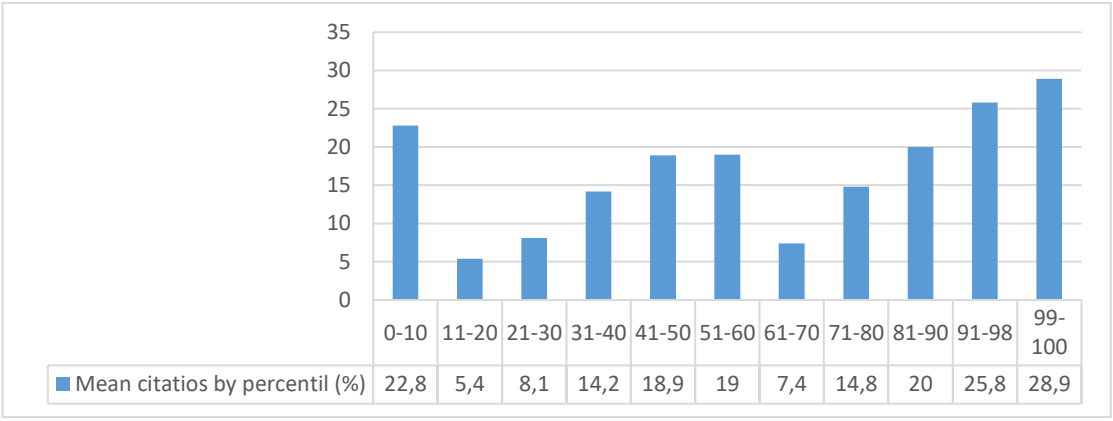

Figure 6. *Mean citations of Swiss TLHM research*

Authors' productivity by best prominence percentile

Authors' productivity in the two best percentiles, as shown in Table 6, reveals that two authors stand out in both percentiles in terms of the number of published topics and of the number of quotations: Laesser C. and Beritelli P., both from University of St. Gallen.

Table 6. *Top 10 authors' productivity by 91-98th and 99-100th topic prominence percentile*

Sample size=425		Authors Quarter 91-98		
Rank:	Variable Name:	Absolute Frequency:	Relative Frequency:	Citations
1	Laesser C.	15	0.045	436
2	Beritelli P.	7	0.02	58
3	Müller H.	7	0.02	11
4	Bieger T.	5	0.01	338
5	Chen Y.	5	0.01	58
6	Heo C.y.	5	0.01	82
7	Dolnicar S.	4	0.01	59
8	Eeckels B.	4	0.01	73
9	Filis G.	4	0.01	73
10	Murphy H. C.	4	0.01	78
Sample size= 147		Authors Quarter 99-100		
Rank:	Variable Name:	Absolute Frequency:	Relative Frequency:	
1	Beritelli P.	8	0.07	444
2	Heo C. V.	4	0.03	105
3	Reinhold S.	4	0.03	21
4	Blal I.	3	0.02	23
5	Laesser C.	3	0.02	231
6	Adukaite A.	2	0.01	11
7	Bieger T.	2	0.01	190
8	Cantoni L.	2	0.01	14
9	Chen Y.	2	0.01	1
10	Krizaj D.	2	0.01	15

Top 10 topic prominence by year and citations mean

Figure 7 shows the mind map of the top 10 topics prominence (number of articles by year and mean citations). All the years presented mean meanings with the highest average in topic 1 (54.75) and the lowest average in topic 5 (12.66).

However, topic 5 emerged in 2002, before topic 1 (2006). When we group the averages presented in Figure 7, three clusters appear: a first cluster with higher averages (54.75 - 39) in topics 1, 2, and 10; a second cluster with lower averages (12.166 / 13.20 / 15.6) concentrated in topics 5, 6, and 9; and a third median cluster with the other topics prominence (3, 4, 7, and 8). This scenario shows that the topics vary over the years and that perhaps other external factors may influence greater adherence to one or another topics prominence.

Top 10 Topic Prominence Percentile (91-98th and 99-100th) by author

Table 7 shows that, in both percentiles (91-98th and 99-100th), three topics prominence stand out in terms of number of publications. These are Tourism | Tourism Development | Community-based Tourism, Tourists | Travel | Online Travel, Sports | event | mega Events. Additionally, one author leads in all three topics, Beritelli P.

Table 7. *Top 10 most researched Topic Prominence Percentile (91-98th and 99-100th) and Top 3 authors*

Rank:	Variable Name	Absolute Frequency	Relative Frequency	Top 3 authors
1	Tourism | Tourism Development | Community-based Tourism	9	0.05	Beritelli P., Laesser C., Adukaite A.
2	Tourists | Travel | Online Travel	9	0.05	Laesser C., Beritelli P., Bieger T.
3	Sports | event | mega Events	8	0.04	Müller H., Beritelli P., Bieger T.
4	Tourism | Economic Growth | Tourism-led Growth	8	0.04	Eeckels B., Filis G., Antonakakis N.
5	Festival | festivals | music Festival	7	0.04	Laesser C., Ammann P.A., Bieger T.
6	Hotels | Revenue Management | Hotel Revenue	7	0.04	Heo C.Y., Beritelli P., Chen Y.
7	Tourism | climate Change | low-carbon Tourism	7	0.04	Abegg B., Anderwald P.Falk M.
8	Economy | Industry | Sharing Economy	6	0.03	Heo C.Y., Blal I., Blengini I.
9	Tourism | tourism Development | community-based Tourism	6	0.03	Beritelli P.; Bieger T., Buffa F.
10	Destination Image | destination | destination Images	4	0.02	Feighery W., Manyara G., Marchiori E.

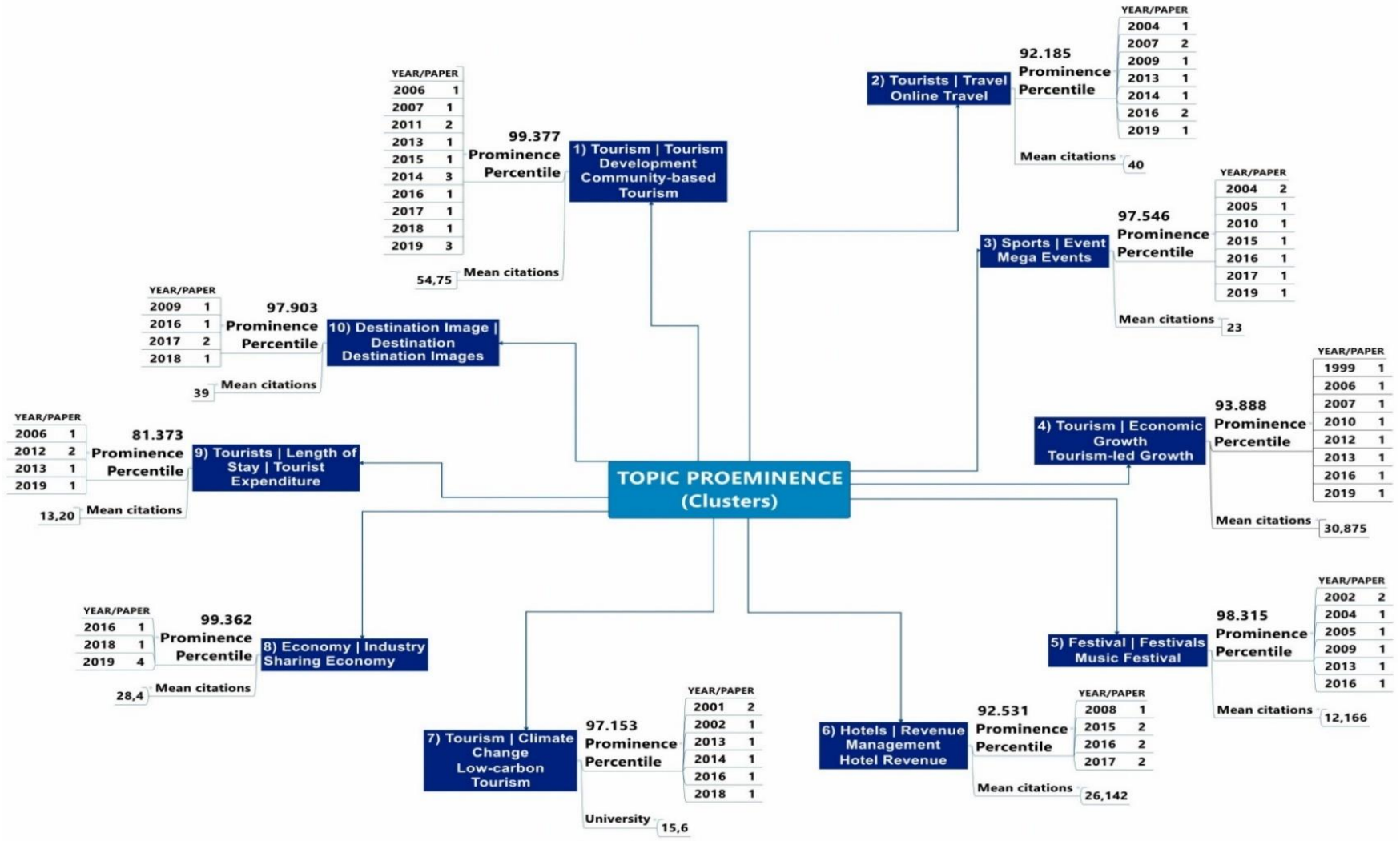

Figure 7. *Mind map of the top 10 topics prominence (number of articles by year and mean citations)*

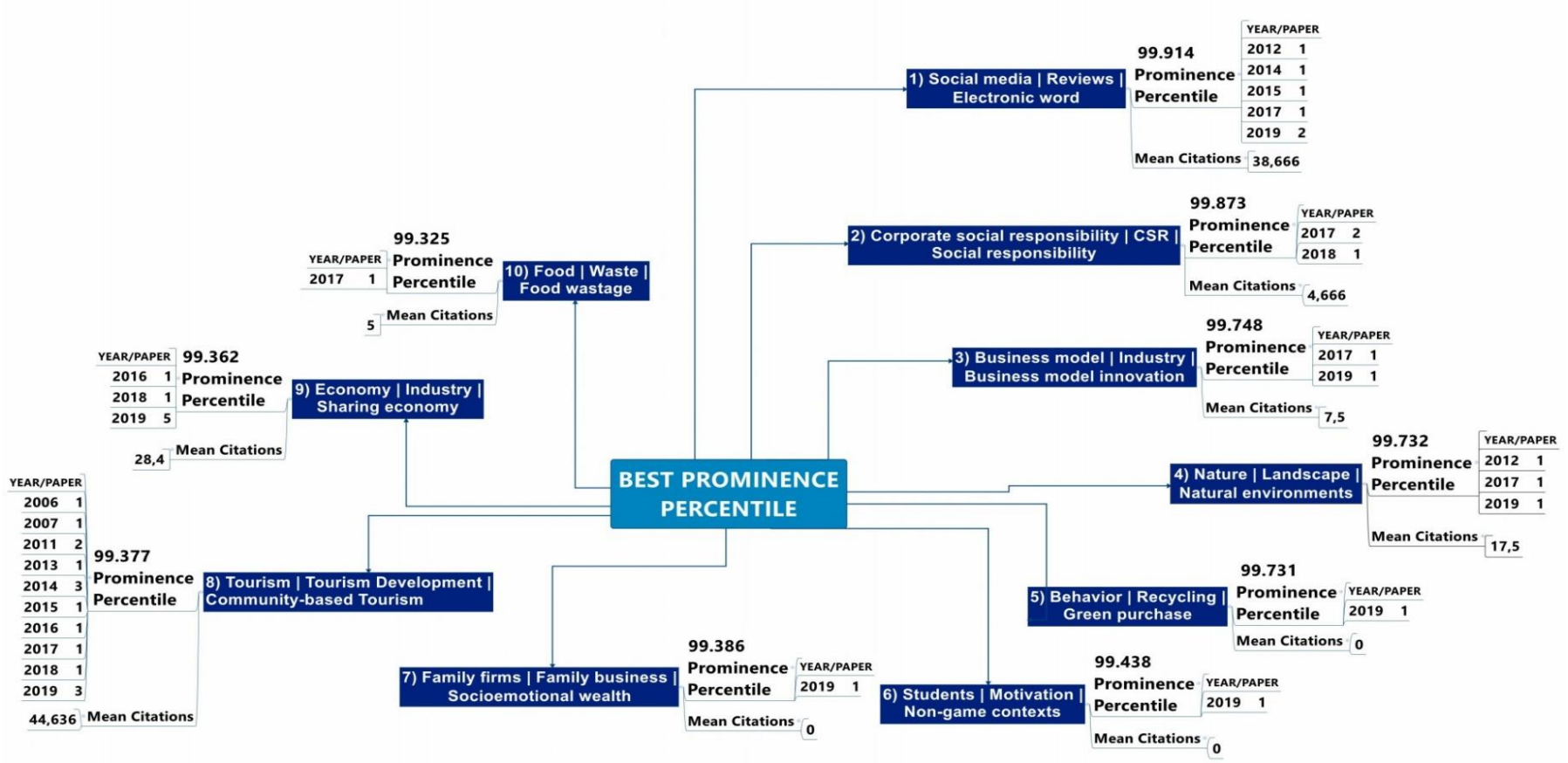

Figure 8. *Top 10 Topics prominence in 99-100th percentile by year and citations*

Figure 8 shows that all topics prominence in the 99-100th percentile that emerged after 2006 are relatively recent and have been investigated in the last decade. The Social Media | Reviews | Electronic Word topics prominence, which leads the 99-100th percentile not only in the number of published papers but also in citations mean (38.666), emerged in Swiss tourism and hospitality research in 2012 and grew until 2019. The topics 5, 6, and 7 are uncited, which is understandable, first because only one paper of each topic was published, and second because these are topics that emerged in 2019 (i.e. relatively recent).

CONCLUSIONS

The current study aims to assess and map the topic prominence of tourism and hospitality literature, showing that, in practice, the Swiss published articles in both Q1 and Q2 Scopus-indexed journals within the TLHM category.

Discussion of Findings

The results of the top 10 Swiss Topic Prominence articles by journal of the two best percentiles (91-98th and 99-100th) show that both percentiles are led by the "Tourism Review" journal. In addition, the papers of the two best percentiles are in majority published in Q1 journals, and the SCImago - SJR 2018 score is not relevant for the positioning in these percentiles (i.e. this event occurs both in journals with a score of 0.62, 0.74 or 2.92, 3.18). This study reveals that the presence of the topics prominence words in titles and authors keywords is very low. In most cases, only one word is present (39.9% in titles and 36.6% in author keywords). Another evidence verified by the results is that, in the case of the presence of the topics prominence words in the abstract, the most common is for only one word to appear (28.8%). The results show that 54.9% of Swiss articles in tourism, leisure and hospitality do not have any words from the topics prominence in title, author keywords or abstract. However, the percentage of those that have any word of the topics prominence present in title (average 1), abstract (average 3) and author keywords (average 1) is relatively high (29% of the sample).

The objective to analyse and map the topic prominence of TLHM research by focusing on Switzerland was fully achieved. The second objective of the study was also accomplished through the mind mapping technique. This technique has proven effective in this research and other

scientific discussions (Almeida, 2018; Eppler, 2006; Jirásek & Hurych, 2019; Wheeldon, 2011). The application of mind maps in this study was relevant and enhanced the proposed analyses and, ultimately, contributed strongly to the study's conclusions. Thus, in addition to the top 10 topic prominence, the two mind maps visually show other important data, such as prominence percentile, mean citations and year/papers. The analysis of this mapping presents the discussions and articulations of the Swiss scientific literature on TLHM. It can also show not only the strengths of the literature but also the gaps. Finally, relationship of SciVal topic prominence with titles, abstract and authors' keywords in Swiss TLHM literature was found in the current study.

The topic prominence identifies research topics and subjects in a specific area. That is why it has a very strong strategic value as long as authors know how to use it. The research revealed that all the hot topics in 99-100th percentile came up after 2006, in the same year when the education system in Switzerland started Bologna Process implementation. It also shows that there is a specificity of the Swiss education and tourism system (Chen et al., 2019). Citation mean metrics constitute a key tool in scientometrics and play an increasingly important role in the evaluation of researcher's and, consequently, countries' productivity. The results show that the papers with a topic prominence positioned in the 99th topic prominence percentile are the ones that get the highest average citation (28.8), followed by those that are positioned in the 90th percentile, with an average of 22.8. Future lines of research should confirm whether these results remain in samples from other countries on the same topic (e.g. tourism, leisure, and hospitality).

All top 10 topics of the 99-100th percentile of Swiss TLHM research emerged after 2006, and those with the highest score have emerged after 2010, so they have a decade of investigation. Considering that the higher the prominence percentile, the greater the topic's momentum and visibility, therefore, the more attractive it is to attract funding. The results reveal that 85% of Swiss scientific articles in TLHM are positioned in the 50th percentile. Furthermore, 41% of the topic prominence is in 90th prominence percentile, which means it is within the 10% percentile of the best momentum and visibility for these topics in the world. It should also be highlighted that 13% of the topics are in 99th percentile, within the 1% percentile of the best momentum and visibility for these topics in the world, which is a great achievement.

Implications

Over the last decades, there have been many discussions and arguments about research performance indicators, highlighting the importance of considering these indicators for scientific evaluation. In this regard, the current paper employed a solid approach to analyse the topic prominence within the tourism setting, a novel metric used for mapping big data research in various domains. In this context, this paper is considered one of the first attempts to map the topic prominence of Swiss articles in the tourism and hospitality field. In addition, the study adds to the body of knowledge regarding bibliometric studies on tourism and hospitality by analysing the SciVal topic prominence of Swiss TLHM articles. Moreover, this study presents a new bibliometric metric through the analysis procedures to measure the performance of the scientific production of authors, institutions, and countries. For bibliometric researchers, the study brings a new technique of analysis crossing qualitative and quantitative analysis through the use of mind maps applied to SciVal topic prominence. For TLHM authors, the study reveals gaps in research and reveals emerging research areas by identifying research topics that are growing or declining, making it possible to identify future lines of research. Moreover, the authors will be able to identify where they are on the science map, how they can identify new collaborations and what research topics does a journal cover. Moreover, this article has practical and managerial implications for tourism research managers and researchers by providing valuable insights into funded research, performance of authors and institutions, as well as the momentum of topics on the Swiss TLHM articles. In other words, mapping topic prominence of TLHM research in Switzerland provides unparalleled insights into distinguishing novel, emerging research approaches for tourism and hospitality scholars. Moreover, topic prominence provides many advantages for both research managers and scholars. For research managers, this indicator could present valuable information on the pockets of well-funded research, the most prolific scholars, and forthcoming talents active in certain research topics, the research portfolio and performance of institutions, and the momentum topics. For scholars, topic prominence could give clear insights into their research performance and into levels of activity of specific topics (Elsevier, 2020). With respect to Swiss tourism and hospitality institutions, this research presents a clear overview and understanding of the impact of TLHM research in Switzerland. Finally, for destination managers, this research identifies the main trends and dynamics in TLHM and areas with the greatest financing potential (the emerging topics and those positioned in the best percentiles).

Limitations and future research

Like any other study, this research has some limitations to be addressed in further research avenues. First, the data were gathered from the Scopus database. Future studies could collect and analyse data from other databases (e.g. Web of Sciences). Second, this paper focused on Swiss articles among the category of TLHM. Further studies are recommended to search for articles published in other subject areas and/or categories. Third, this paper focused on journals only. Thus, other types of publications (e.g. book series, conferences, and proceedings, etc.) could be studied in future research. Fourth, this study analysed the Q1 and Q2 Scopus journals based on SJR2018 ranking. Therefore, other quartiles (Q3 and Q4) could be analysed in future research. The SJR2019 ranking should be considered as well. Fifth, this paper focused on Switzerland as a case study. Further studies should analyse the TLHM scientific productions in other countries. For future research, there is also an opportunity for institutions, journals and tourism researchers to ensure that scientific research in tourism and hospitality remains relevant in the post-industrial world (Airey, 2016; Hanssen et al., 2018; Park et al., 2011; Pirnar, 2014; Ye et al., 2012).

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ARTIFICIAL INTELLIGENCE IN TOURISM: A REVIEW AND BIBLIOMETRICS RESEARCH

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ABSTRACT

Artificial Intelligence (AI) came up as an ambiguous concept from computer sciences and now it is being used in many areas of our life. It has stimulated academia's interest due to its alternative insights into complex problems. Therefore, a bibliometric method was applied in this study to observe the progress of AI in the tourism field. A total of 102 papers were collected from Scopus database. Key factors such as most productive authors, collaborations and institutions were identified, and research hotspots were determined using co-occurrence network and most common author keywords. Progress of AI was visualized with thematic evolution analysis. Findings indicate that there is a progressive interest in AI after 2017, and average citations signify that papers are highly cited. Since this is the first study conducting a bibliometric on AI in the tourism context, it could be considered useful for academics and tourism professionals as it provides general overview of AI, demonstrates research trends and popular papers.

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INTRODUCTION

> "*I believe there is no deep difference between what can be achieved by a biological brain and what can be achieved by a computer. It therefore follows that computers can, in theory, emulate human intelligence, and exceed it.*" Stephen Hawking

Information and Communication Technologies (ICTs) in tourism, also known as e-tourism concept, started a new era in contemporary tourism

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and hospitality industry. ICTs enabled researchers to assess tourist behavior through intelligent systems much faster and allowed them to deal with large amount of data coming from both tourists and destination parties. ICTs also affected tourist behavior radically (Buhalis, 2003) by changing the way tourists consume, purchase, and share their experiences (Gretzel et al., 2006). Tourists and service providers had the chance to access relevant information more accurately, with increased mobility and a greater decision-making process, eventually, acquiring a more favorable tourism experience (Gretzel, 2011).

In consideration of advances in ICTs, Artificial Intelligence (AI) is regarded as the next stage of tourism industry (Bowen & Whalen, 2017; Gajdošík & Marciš, 2019; Kazak et al., 2020). AI is known for its sophisticated computing capabilities as it can deal with complex relations and problems among different concepts (Pannu, 2015) and can easily work with a big amount of data (Inanc-Demir & Kozak, 2019). Broadly speaking, an AI system senses external information, understands these, acts in turn to achieve given goals and learns from its own experiences (Ferràs et al., 2020). AI functions similar to a human brain as it thinks, learns, makes decisions and inferences through given data by using intelligent machines. The main purpose of AI is to enable machines to complete tasks automatically without needing a human brain (Singh et al, 2020).

Since the late 1990s, AI studies have been applied in tourism researches to forecast hotel occupancy and tourism demand (Law, 1998, 2000). Afterwards, researchers used AI in different kind of inquiries such as resource management in tourism companies (Casteleiro-Roca et al., 2018), examining social media data and online reviews (Kirilenko et al., 2018; Topal & Uçar, 2018), forecasting tourist flow and arrivals (Zhang et al., 2020), evaluating tourist satisfaction through facial expression recognition (González-Rodríguez et al., 2020), and making smart recommendations (Zheng et al., 2020). AI models are used in tourism studies increasingly because these models have much more flexibility and they can be used to estimate non-linear relationships without the limits of traditional methods (Hadavandi et al., 2011).

Although AI promises entirely alternative solutions for potential and prospective issues of tourism, with its advanced computing and problem-solving abilities, there is a lack of academic research on AI in context of tourism (Gajdošík & Marciš, 2019; Zlatanov & Popesku, 2019). Therefore, this study adopted a bibliometric method to evaluate the progress, research themes, and statistical data of AI in tourism field within the scope of data

gathered from Scopus database. In line with this purpose, main objectives of this study are to:

- Provide an expanded overview of AI,
- Explore the overall theoretical foundation and progress of AI research in tourism field by focusing on leading contributors (authors, keywords, publications, and institutions),
- Visualize above-mentioned metrics and the evolution of AI, and
- Suggest a future research agenda for tourism academicians and practitioners.

The findings of this study have several useful implications. For social scientists and tourism researchers interested in AI, the study indicates an overview of the subject in concern with key studies, authors, collaborations, and emerging topics. As an emerging and interdisciplinary field, AI can provide different insights into social sciences and it may help us to understand complex social issues (Pavaloiu et al., 2017). Particularly in tourism context, this kind of an insight may provide useful perspectives to crises and chaotic situations such as global pandemics or disasters (Ritchie, 2004). On the other hand, this study may affect future research trends and career development of individual researchers (Law et al., 2010). Tourism managers can also benefit from AI's abilities such as complex computing and dealing with large volume of data.

LITERATURE REVIEW

Pritchard (1969) introduced bibliometrics as the application of mathematical and statistical methods on books and other types of communications. Bibliometric methods are used to assess the impact of researchers, institutions, countries, or journals (Cunill et al., 2019) and they are useful to gain a macroscopic view of large amounts of academic literature (van Nunen et al., 2018). Bibliometric methods are powerful for assessing journal performances (Cunill et al., 2019; García-Lillo et al., 2016; Guzeller & Celiker, 2019; Merigó et al., 2019), evaluating the progress of a specific field at a given time period (Askun & Cizel, 2019; Dhamija & Bag, 2020; Koseoglu et al., 2016; van Nunen et al., 2018) and especially in evaluation of international scientific influence of an agent (van Raan, 2003). Bibliometrics is used across different disciplines and it's complementary to traditional methods (Zupic & Čater, 2015). Due to its more objective and reliable analyzes compared to other qualitative and quantitative reviewing approaches (Aria & Cuccurullo, 2017), scholars are increasingly interested in bibliometrics as a research method.

Koseoglu et al. (2016) classified bibliometric methods as review studies, relational techniques, and evaluative techniques. They categorized systematic reviews, meta-analyzes and qualitative approaches in *review studies*; citation, bibliographic, co-word, co-authorship analyzes in *relational techniques*; while productivity measures, impact metrics and hybrid metrics are classified as *evaluative techniques*. Review studies use basic statistics or qualitative methods to assess a scientific study. Relational techniques try to discover the relationships in studies such as structure of the research fields, new research themes and techniques (Güzeller & Çeliker, 2018), whereas, evaluative techniques analyze the impact of scholarly work and compare the performance or scientific contributions of two or more individuals or groups (Benckendorff & Zehrer, 2013).

Bibliometric methods have been used in tourism, leisure and hospitality to assess the scientific production of the field. Furthermore, these were applied in context of different subfields such as smart tourism (Johnson & Samakovlis, 2019), gastronomy (Okumus et al., 2018), lodging industry (Köseoglu et al., 2018; Okumus et al., 2019), sustainable tourism (Ruhanen et al., 2015), rural tourism (Ruiz-Real et al., 2020), wine tourism (Sánchez et al., 2017), tourism's economic impact (Comerio & Strozzi, 2019), social media (Leung et al., 2017), peer to peer studies (Andreu et al., 2020; Núñez-Tabales et al., 2020), psychological research on tourism (Barrios et al., 2008), and competitiveness and innovation (Teixeira & Ferreira, 2018).

Researchers apply different types of bibliometrics in their studies. Benckendorff (2009) examined papers of Australian and New Zealand researchers published in *Annals of Tourism Research* and *Tourism Management* journals between 1994-2007 by using keyword, citation, co-citation, and network analyzes. Okumus et al. (2018) analyzed the progress of food and gastronomy in tourism field between 1976 and 2016, focusing on most productive journals and institutions, and contributions of countries to the scientific field. In another study, researchers identified the emerging themes in tourism and stated that bibliometric studies can enlighten the unknown patterns in disciplines and support future theory development (Koseoglu et al., 2016). Virani et al. (2019) examined medical tourism policies and combined bibliometrics and data visualization techniques. Another distinctive point of bibliometrics is the visualization of results, thus, the method increases the comprehension of potential readers in an emergent area and extends the research scope (Qian et al., 2019).

Since bibliometrics is applicable to all scientific areas (Sánchez et al., 2017), AI can be analyzed with this tool. In terms of AI, to the best of our

knowledge, bibliometrics has been conducted in different disciplines except tourism and hospitality. For instance, Tran et al. (2019) conducted a research on AI in health and medicine field. They reached 27,451 published documents between 1977 and 2018 from Web of Science (WoS) database. After the year 2002, numbers of AI studies in the health and medicine field bursts exponentially due to the advances in computing and data storage capacities. Authors also visualized author and country collaborations and networks. They revealed that the highest number of papers related to AI were about robotic surgery, machine learning and artificial neural network, respectively. Niu et al. (2016) examined 22,072 publications between 1990 and 2014 without delimiting the scientific field. According to this study, computer science and engineering were the most productive fields in context of AI, but the AI subject was also used in several other scientific fields as an interdisciplinary matter. They found that, among 122 countries that participated in AI research, the most productive ones were the USA, China, UK, Spain, France, Germany, and Canada, respectively. Chinese Academy of Sciences was the most productive institution, followed by Massachusetts Institute of Technology (MIT) and Hong Kong Polytech University.

Similar to the aforementioned research, Lei & Liu (2019) conducted a study between 2007-2016 with the keyword 'artificial intelligence' but without delimiting the scientific field. They also found USA was the most productive country in AI studies, followed by UK and Iran, respectively. They highlighted that during 10-years period 1,188 articles were published in 102 research fields. They also emphasized interdisciplinary nature of AI, with technical methods such as anfis (adaptive network based fuzzy inference systems), support vector machine (a kind of machine learning), genetic algorithm and fuzzy logic being the most utilized techniques. Besides, in terms of research fields, neural network and machine learning were the most prominent areas. In another research, Shukla et al. (2019) examined the journal of *Engineering Applications of Artificial Intelligence* (EAAI) between years 1988-2018 on both WoS and Scopus indexes. After 2008 the number of publications started to increase significantly. Distinctively, they divided total citations to total publications (Citations Per Paper), and they also calculated average citations received by a publication per year (Citations Per Year) as these are effective metrics to show the impact of a publication. According to Scopus data, neural networks, algorithms, genetic algorithm, artificial intelligence, expert systems, fuzzy sets, fuzzy logic were the trendiest author keywords. According to WoS, developing countries such as Iran, India, Taiwan, and Turkey were among

the top 10 countries that contributes to the *EAAI* journal, albeit, China was the top contributor, followed by the USA.

Many bibliometric studies have been conducted in literature to examine the progress of AI in different scientific fields. There are some commonalities in these researches such as the prominent countries regarding scientific production and, in terms of keywords, emerging topics. Authors divide their researches into time periods to distinguish periodical emerging different themes to show AI's rapid progress after spreading into other disciplines. It is obvious that AI is commonly being studied in the fields such as engineering, computer sciences, and medical and clinical studies rather than social sciences. Hence, the current study aims to bridge this gap in the tourism and hospitality field and to provide some useful insights into AI's potential for both academia and practitioners. Furthermore, this study proposes an AI perspective into the social world's complex problems.

RESEARCH METHOD

Analytical Ideology

A research philosophy, which may be assumed as a social paradigm, represents a scientific interest and guides the entire study (Gunbayi & Sorm, 2018). It helps to enlighten the research problems systematically by employing necessary tools and methods for research. Therefore, this research adopted a qualitative way in terms of interpretive paradigm (Gunbayi & Sorm, 2018) based on the systematic analysis of articles on AI in tourism through bibliometric analysis using R programming language (Askun & Cizel, 2020).

R is a free and proper program that provides open source packages, such as bibliometrix R- package specifically developed for bibliometric and scientometric studies. Since bibliometrix R- package is an effective, flexible, and adaptive tool, it is useful for the current study in performing the bibliometric analyzes (Aria & Cuccurullo, 2017). For data visualization, ggplot2 library (http://cran.r-project.org/) and VOSviewer were used. Papers were analyzed by keywords plus, authors' keywords, and titles, while network analysis, co-citation, collaboration, co-occurrence analyzes were performed to analyze keywords. Moreover, author, country, and institution effect in context of tourism was reviewed and discussed to determine the progress of the field. In general, this study investigates the most cited papers, collaborations, co-citations, thematic analysis of the field,

keyword co-occurrence, and most common keywords of AI in tourism studies, respectively.

Most cited papers show the prominent studies in terms of total citation, local citation, and average citation. Yearly average citation of each paper was calculated to show paper's impact. Most cited papers refer the most significant papers, but most cited papers are not always the most relevant (Merigó et al., 2019). Therefore, for assessing document quality, other analyzes are considered necessary.

On the other hand, collaboration analysis was conducted on author and institution level. Collaboration networks depict the clusters of research groups consisted of authors and institutions. These networks are distinctive characteristics of contemporary researches because scholars tend to act as members of a team rather than individual actors (Glänzel & Schubert, 2005). Assessing author collaboration networks enlightens the way of analyzed scientific knowledge among authors and shows prominent scholars, therefore it gives important insights about the future of the field. AI collaboration network in tourism was taken from author×author adjacency matrix which counts collaborating papers.

Co-citation analysis explains groups of papers which are likely to appear together in reference lists, but which also may have something in common (Benckendorff & Zehrer, 2013). Co-citation analysis aims to show the relationship of vast knowledge between documents. If documents are gathered through two documents, this means they're connected to each other and strength of this connection is in accordance with the number of connected documents. When two different documents compile many documents, that means there is a strong connection. It can be inferred that these documents share the same accumulation of knowledge or the same methodology (Todeschini & Baccini, 2016).

Co-occurrence analysis visualizes network connections and keywords frequently used in different documents. Creating a co-occurrence network among keywords, title and abstract of a document enables delivering a conceptual structure regarding the subject. A more frequently used keyword is represented by a larger node in the graph. Lines indicate connections between nodes and their thickness implies the strength of the relationship. Position and color of the nodes imply different theme clusters, whilst the distance between nodes asserts inverse proportion. Shorter the distance means greater co-occurrence between keywords, longer the distance means minor co-occurrence. Hence, conducting thematic evolution analysis with keyword plus is very useful. Thematic evolution displays the

longitudinal progress of AI and implies the change in time periods. It visualizes the evolution of the field and enables a smooth progressive overview of the field. Co-occurrence analysis was conducted by keywords such as in thematic analysis, but differently, co-occurrence analysis depends on author keywords. Lastly, most common author keywords occurrences clarify clusters of each keyword and their occurrences in a chart-format. Keyword occurrences refer research trends of a scientific field and may also infer possible future trends.

Data Source

This study's data were obtained from the peer-reviewed literature database Scopus. Scopus and WoS are two prominent databases for analyses, and there is still an ongoing debate upon which one is better. Both databases offer comprehensive coverage at journal, article and cited reference level (Norris & Oppenheim, 2007). Before conducting this research, topic words and keywords were applied to both databases, and as Scopus included significantly greater number and type of documents than WoS, it was preferred. Scopus offers articles, book chapters, conference papers, reviews, notes, and letters, thus providing a broader view of scientific documents.

Since the current research is a systematic analysis, aiming to position and synthesize studies about a specific research question, it uses organized, transparent, repeatable procedures in each step of the process (Littell et al., 2008). It utilizes purposeful sampling method and criterion sampling technique that are commonly used in qualitative research methods (Palys, 2008), in which keywords are sampling criterions. To create the dataset for analysis *"artificial intelligence"* was searched in author keywords or in abstract, whilst, *"tourism"* was searched in topic or in abstract. An advanced search was conducted without limiting to year, document type or language criterions. Finally, papers published between 2003 and 2020 were downloaded from Scopus on August 15, 2020. A total of 102 papers were analyzed including 52 articles, 35 conference papers, 8 reviews, 5 book chapters, 1 note and 1 letter. A remarkable number of conference papers indicates that there is a growing interest to this field, while gathering other scientific sources ensure data diversity.

In the next step, bibliographical data (e.g., papers, authors, titles, keywords, references) were downloaded in CSV format, in line with bibliometric methods proposed by Cobo et al. (2011) and Börner et al. (2005). Figure 1 displays the rapid growth of AI studies in tourism field, especially in recent years. There were only 3 papers published in 2003, and

until 2017 there wasn't much attention to this subject. However, after 2017 the number of studies has grown significantly (annual growth rate: 8.36%). The advancements in computer science and the proliferation of Internet may have affected the authors' tendency on AI, albeit these advances enabled much faster reach for data.

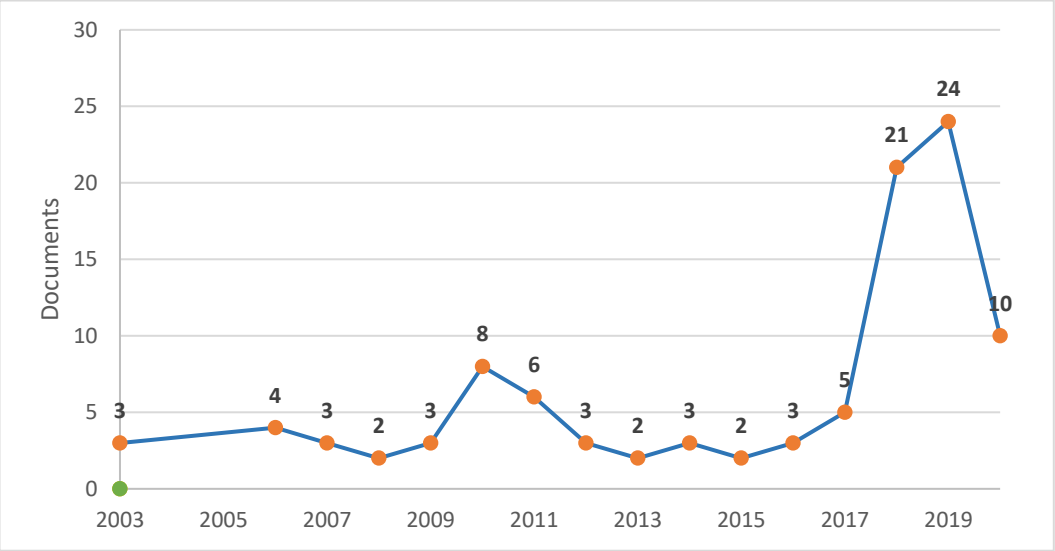

Figure 1. *Annual Scientific Production*

RESULTS AND DISCUSSION

Data of this research consisted of 263 authors and 102 publications, with 610 different keywords that authors used to classify their documents. Average citation per paper (16.58) and annual average citation per paper (3.04) denote that papers are highly cited and they're gaining importance gradually. Single-authored papers were conducted by 18 authors, whereas multi-authored papers were conducted by 245 authors (TA_m). There are 18 single-authored papers and 84 multi-authored (TP_m) ones. In that case, there is a predominant collaboration upon studies, as shown by author per paper (2.58) and co-author per paper (2.8) metrics. Because of the complex nature of interactions among authors, structure and strength of collaborations cannot be easily determined. In this case, Collaboration Index (CI) can be an effective tool to overcome that concern. CI can be calculated by a formula from Ajiferuke et al.'s (1988) study:

$$CI = \frac{TA_m}{TP_m} = 2.92$$

Papers examined in this study (total of 102) have received 1,691 citations which means a number of 16.58 citations per paper. Total citations

are related with the visibility of a paper, and also roughly imply the quality and impact of a study. Thus, the increasing amount of citations on open access journals' papers may provide a better interpretation to that case (Chiu & Ho, 2007). The current study was conducted from 76 different sources, and number of 38.61 citations per paper demonstrates that, studies in tourism upon AI will gradually enhance their academic efficiency.

Most Cited Papers and Collaborations

Table 1 shows the most influential 15 papers in tourism field regarding AI. This table shows the title, total citation, local citation, and annual average citation of the papers. Akehurst's (2009) study on improving user generated content and web blogs received 218 citations and became the most cited paper, whilst, it is in the sixth place in terms of annual average citation (19.8). The paper authored by Borràs et al. (2014), which analyzed conference papers presented upon intelligent e-tourism field focusing on different types of interfaces and the usage of AI techniques, came in the second place with 214 citations, but on the fourth in annual average citation (35.7). In terms of annual average citation, on the other hand, Buhalis & Sinarta's (2019) research upon how tourism brands' instant interaction with customers' enhances technology and social media was in first place with 56 citations within one year period. The second place was Song et al.'s (2019) research with 40 citations within one year period, upon determining the complexity of tourism demand and different forecasting methods. Buhalis et al.'s (2019) research concerning examples on information-based tourism industry's effects on intelligent settings such as AI, was in the third place with 38 citations within a year. Besides, Cho's (2003) research on forecasting the nature of tourist traffic and changes in tourism demand hits 168 citations in total, but with an annual average citation of 9.9 demonstrating that, recent studies are arousing more interest among researchers.

Figure 2 displays the AI collaboration network patterns in tourism between years 2003-2020. Leading 30 authors, collaboration of minimum one paper, and papers that show the strongest connections were taken into consideration in this analysis. Lines and their thickness indicate the presence of different collaborations.

Table 1. *Most Cited Papers*

	References	Journal	Title	Year	TC	LC	C/Y
1	Akehurst, G.	Service Business	User generated content: the use of blogs for tourism organisations and tourism consumers	2009	218	3	19.8
2	Borràs ,J., Moreno, A., Valls, A.	Expert Systems with Applications	Intelligent tourism recommender systems: A survey	2014	214	4	35.7
3	Cho, V.	Tourism Management	A comparison of three different approaches to tourist arrival forecasting	2003	168	8	9.9
4	Cambria, E. Speer, R. Havasi, C., Hussain, A.	2010 AAAI Fall Symposium Series	SenticNet: A Publicly available semantic resource for opinion mining	2010	146	0	14.6
5	Goh, C., Law, R.	Tourism Management	Incorporating the rough sets theory into travel demand analysis	2003	99	4	5.8
6	García-Crespo, A., et al.	Expert Systems with Applications	Sem-Fit: A semantic based expert system to provide recommendations in the tourism domain	2011	68	3	7.6
7	Yu, G., Schwartz, Z.	Journal of Travel Research	Forecasting short time-series tourism demand with artificial ıntelligence models	2006	56	7	4.0
8	Buhalis, D., Sinarta, Y.	Journal of Travel & Tourism Marketing	Real-time co-creation and nowness service: lessons from tourism and hospitality	2019	56	4	56.0
9	Hadavandi, E., et al.	Tourism Management	Tourist arrival forecasting by evolutionary fuzzy systems	2011	54	3	6.0
10	Felfernig, A., et al.	OGAI Journal	A short survey of recommendation technologies in travel and tourism	2006	49	1	3.5
11	Goh, C., Law, R.	Journal of Travel & Tourism Marketing	The methodological progress of tourism demand forecasting: A review of related literature	2011	44	4	4.9
12	Song, H., Qiu, R.T.R., Park, J.	Annals of Tourism Research	A review of research on tourism demand forecasting: Launching the Annals of Tourism Research Curated Collection on tourism demand forecasting	2019	40	0	40.0
13	Buhalis, D., et al..	Journal of Service Management	Technological disruptions in services: lessons from tourism and hospitality	2019	38	4	38.0
14	Kim, K., Park, O., Yun, S., Yun, H.	Technological Forecasting and Social Change	What makes tourists feel negatively about tourism destinations? Application of hybrid text mining methodology to smart destination management	2017	31	1	10.3
15	Lu,L., Cai, R., Gursoy, D.	International Journal of Hospitality Management	Developing and validating a service robot integration willingness scale	2019	26	3	26.0

TC: Total citation, LC: Local citation, C/Y: Total citation/Years

Figure 2 reveals that there were 7 different author collaborations. The greatest author collaboration was consisted of Moreno, Borràs, Valls, Anton-Clavé, Flor, Isern, Russo, Pérez, and, these were in different universities of Spain. These authors' book chapter about recommender systems on geographical information systems regarding tourism destinations, and, Moreno, Borràs and Valls' article in 2014 with 214 citations influenced this primacy. In another collaboration, Buhalis from Bournemouth University, UK, published 3 different papers in 2019. Buhalis et al.'s (2019) paper with 38 citations, and Volchek et al.'s (2019) research upon tourists visiting five different London museums (13 citations) were among the influential ones. Webster from USA and Ivanov from Bulgaria

have published four different papers since 2018 and became most productive and collaborative authors, although these papers got only 16 citations. Hadavandi and Ghanbari have collaborated in two studies. The research in ninth place at Table 1, which offers a solution regarding tourist arrival forecasting (54 citations) and the conference paper on the same topic (4 citations) affected that collaboration. Bouslama, Ayachi, and Amor from Tunusia contributed to literature by presenting two different conference papers in Spain and Serbia.

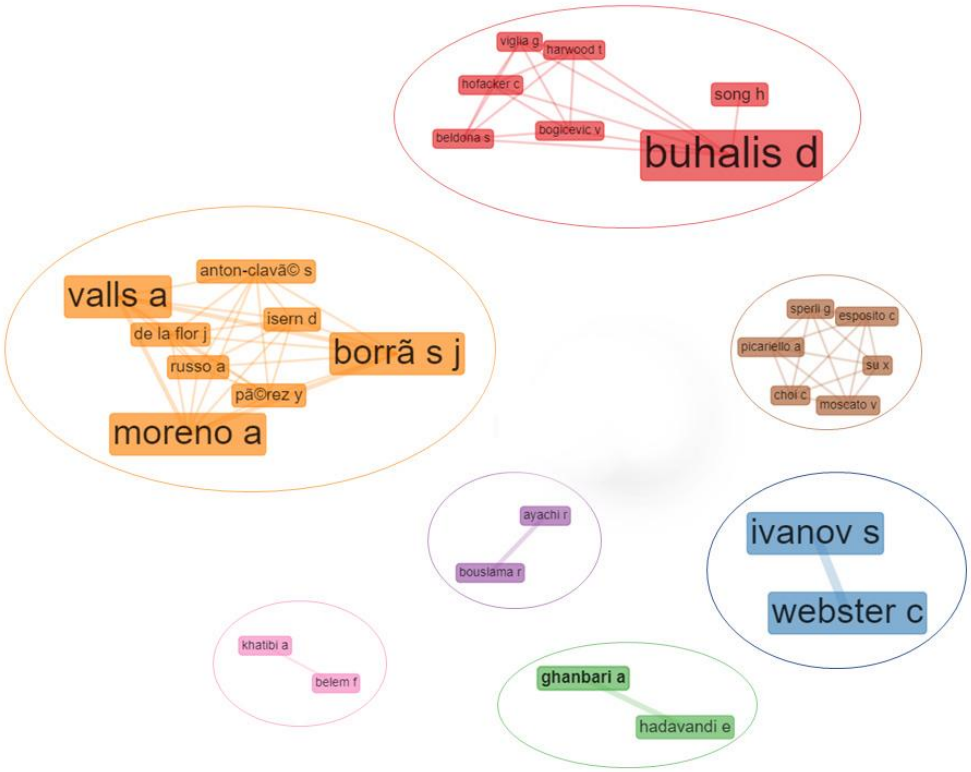

Figure 2. *Author collaboration network*

Prominent Countries and Institutions

In terms of institutions there are 38 different countries and the most prolific countries considering the number of papers were Spain (36), China (33), USA (24), UK (21), and Iran (14), respectively. Moreover, China (TC: 100) has got six corresponding authorships, whereas Hong Kong (TC: 320), Iran (TC: 72), Spain (TC: 294) and UK (TC: 210) got four of it. Accordingly, top 20 institutions that collaborated in at least one research were taken into consideration, and Figure 3 illustrates this collaboration among institutions (bolder line means more collaboration), likewise, total number of papers were expressed with the size of figure. There were five different collaboration groups. First of all, the research that mostly affected the collaboration of Bournemouth University (UK), De Montfort University

(UK), The Ohio State University (USA), University of Portsmouth (UK), University of Delaware (USA), and Florida State University (USA) was the one in which Buhalis was the corresponding author. Bournemouth University (UK) from the same group has linked with another connection to University of Surrey (UK) and The Hong Kong Polytechnic University (Hong Kong) through Buhalis' research on five different London museums. The collaboration of Ball State University (USA) and Varna University of Management (Bulgaria) was due to Craig Webster and Stanislav H. Ivanov's researches. Besides, Hadavandi and Ghanbari's research affected the cooperation of the group Sharif University of Technology (Iran), University of Tehran (Iran), Iran University of Technology (Iran).

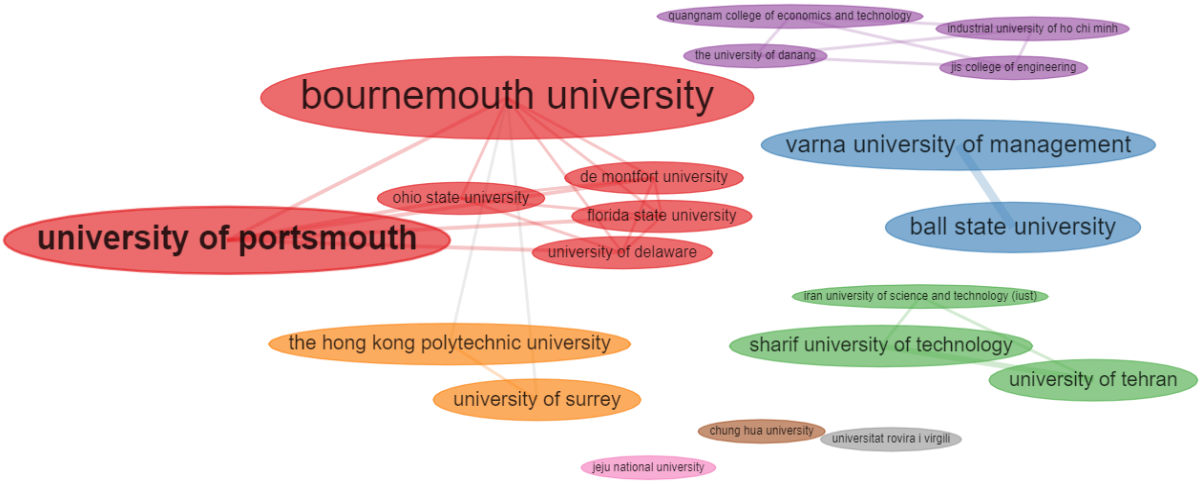

Figure 3. *Institution collaboration network*

Co-Citation Analysis

Figure 4 and Table 2 demonstrate the intellectual structure of AI in tourism field. Betweenness centrality (BC) in Table 2 is an advanced metrics which shows the importance of a node to create the shortcuts among other nodes, and also indicates the degree of influence of the communication between nodes (Freeman, 1977). Adapting from Guns et al. (2011) to calculate BC as follows;

$$BC_i = \sum_{k=1}^{V-1} \sum_{j=k+1}^{V} \frac{P_{kj}(i)}{P_{kj}} \qquad k,j \neq i$$

P_{kj} gives the number of the shortest paths that connects k and j edges, whereas $P_{kj}(i)$ gives the number of the shortest paths passes through i edge. V, is the number of edges in the graph.

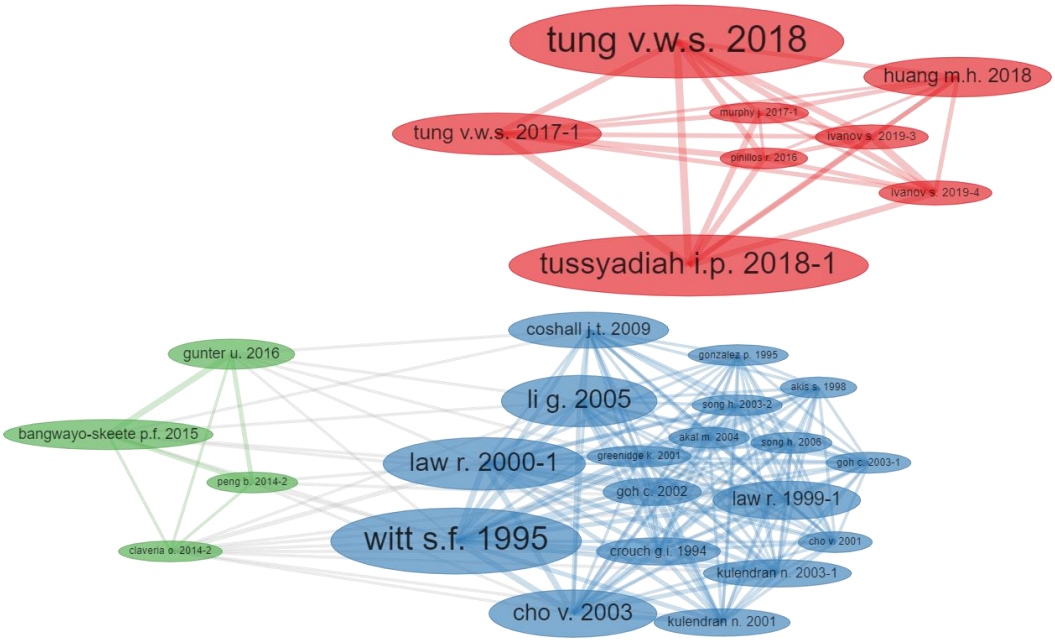

Figure 4. *Co-citation paper network*

Table 2. *Co-citation paper network overview*

Cl	References	Title	Year	BC	C	C/Y
B	Witt, S. F., Witt, C. A.	Forecasting tourism demand: A review of empirical research	1995	32.71	1,118	44,72
B	Law, R.	Back-propagation learning in improving the accuracy of neural network-based tourism demand forecasting	2000	20.36	407	20,35
B	Cho, V.	A comparison of three different approaches to tourist arrival forecasting	2003	13.00	434	25,52
B	Li, G., Song, H., Witt, S.F.	Recent developments in econometric modeling and forecasting	2005	7.93	531	35,40
R	Tussyadiah, I. P, Park, S.	Consumer evaluation of hotel service robots	2018	1.66	74	37,00
G	Bangwayo-Skeete P. F., Skeete, R. W.	Can Google data improve the forecasting performance of tourist arrivals? Mixed-data sampling approach	2015	1.5	200	40,00
G	Gunter, U., Önder, I.	Forecasting city arrivals with Google Analytics	2016	1.5	72	18,00
R	Tung, V. W. S. T., Au, N.	Exploring customer experiences with robotics in hospitality	2018	1.33	65	32,50
R	Tung, V. W. S. T., Law, R.	The potential for tourism and hospitality experience research in human-robot interactions	2017	0.61	94	31,33
R	Huang, M., Rust, R. T.	Artificial intelligence in service	2018	0.39	343	171,5

Cl: cluster, BC: betweenness centrality, C: citation, B:blue, R:red, G:green

Hereunder Witt and Witt's research upon forecasting tourism demand through empirical data was the most prominent research with total 1,118 citations and also got the most powerful BC degree (32.71). In the same group set, Law's study implying the importance of neural networks in tourism demand forecasting came in the second place in terms of BC (20.36) and received 407 citations. In the red group set, studies were conducted after 2017 and research topics were directly upon artificial intelligence, robotics. Huang and Rust's theoretical research received 343 citations in a short period of time, and this particularly implies that this research will be efficient in the field. In the green group set, there were studies upon forecasting tourist behavior through utilizing data sources such as Google, and co-citation researches were mainly upon forecasting.

Thematic and co-occurrence Analysis

Figure 5 shows a thematic evolution of two different periods. This progressive illustration is derived from the breakthrough in 2018 (Figure 1). There were 68 documents analyzed in 2003-2018 period, whereas 34 documents in 2019-2020. Themes are more likely to occur in four areas in a period of more than a year, thus, interpretation is required due to the high number of publications after this sudden breakthrough. First period's keyword plus number was 478 but second period's was 178. Among these keywords to filter the most frequently used ones, minimum 3 occurrence threshold were preferred. According to Cahlik's (2000) specification, concepts emerged at top-right side of the chart are defined as *motor themes*, and they're highly centralized and intense. In other word, these concepts imply importance for the research field and they simply illustrate the progress. In period of 2003-2018 forecasting theme's sub-dimensions were tourism demand, fuzzy systems, fuzzy inference and time series analysis, whereas expert systems theme's sub-dimensions were intelligent agents and semantics. In 2019-2020 period the emerging theme was Big Data.

The concepts in the bottom-right are highly centralized with low density, and they're called as *basic and transversal themes*. Besides implying importance for the field, these concepts are in relation to the common themes that interact with different fields of knowledge. In the period 2003-2018, under the theme of artificial intelligence, emerging sub-dimensions were knowledge management, semantic web, e-tourism, www; whereas under recommender systems theme, electronic commerce, knowledge-based systems, and intelligent systems emerged. In period of 2019-2020 there were no emerging themes in same theme zone.

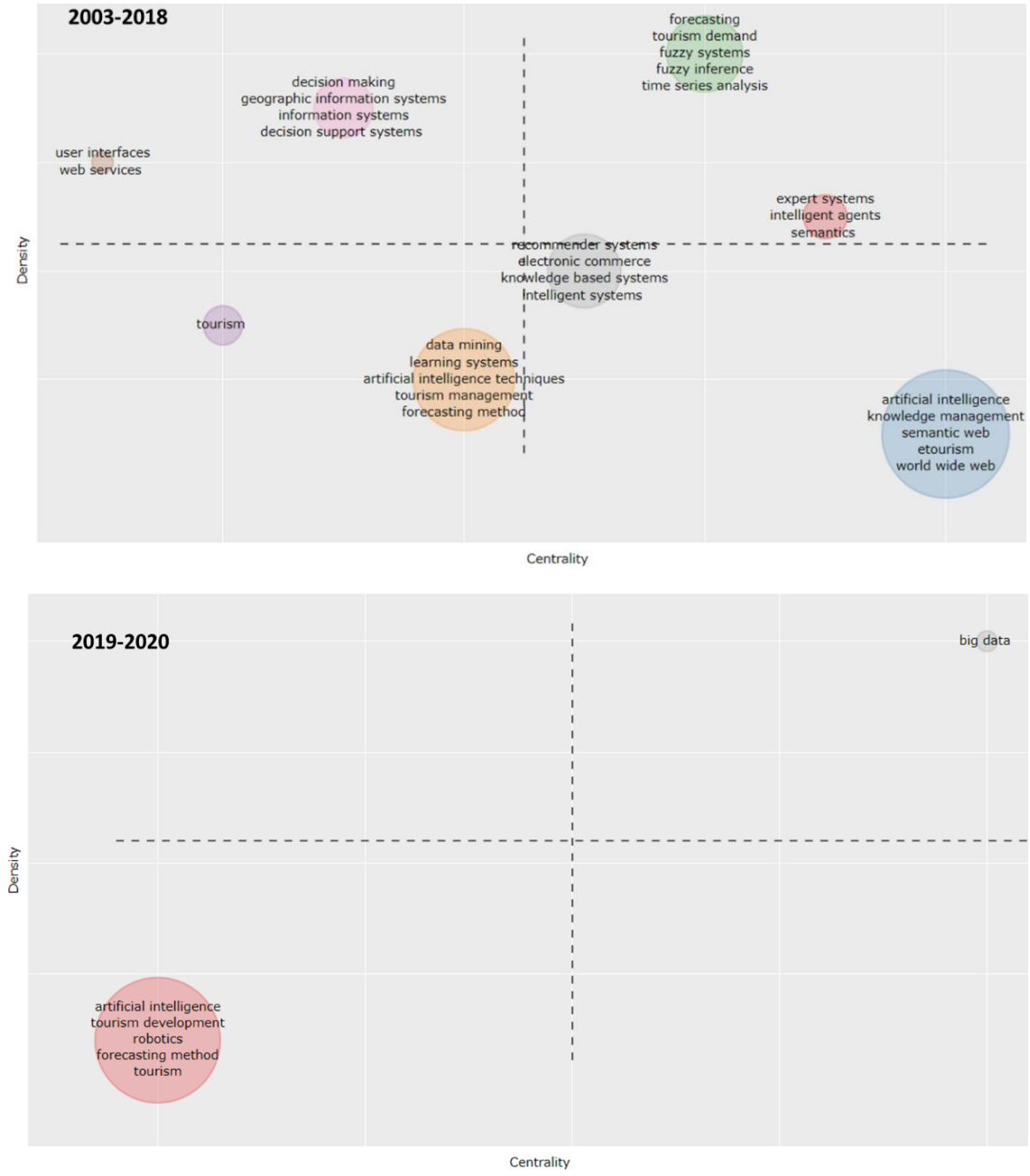

Figure 5. *Thematic Evolution*

Concepts emerging in the bottom-left have low centrality and low density, and they are called *emerging or declining themes*. These concepts are considered as underdeveloped and marginal. In 2003-2018 period, tourism and data mining themes appeared, and the emerging sub-themes of data mining were learning systems, artificial intelligence techniques, tourism management, and forecasting method. In 2019-2020 period artificial intelligence theme emerged with tourism development, robotics, forecasting method, tourism as its sub-themes. Regarding this period, themes showed up in a relatively shorter time period. It is considered

beneficial to evaluate these emerging themes as influencers of prospective studies, and how they will change or transform with future studies. The 2019-2020 Thematic Evolution map signifies a breakthrough in terms of AI's effect on tourism, and because of its themes are highly mentioned in the scientific field, it can be interpreted that these are industry's primary contemporary demands from AI technologies.

Concepts emerging at the top-left side have low centrality but high density, and they are called *high developed and isolated themes.* These notions constitute highly developed and isolated themes, thus have limited importance for the research field. User interfaces and decision-making were emerging themes in 2003-2018 period. User interfaces theme's sub-dimension was web services, whereas geographic information systems, information systems, decision support systems were the sub-dimensions of decision-making theme. In the period of 2019-2020, there was no emerging theme in that zone. Mostly, up to the year 2018 forecasting and expert systems themes were boosting themes, but after 2019 Big Data took that place. Similarly, until 2018 artificial intelligence theme was dominant in tourism field, additionally demonstrated a strong cooperation with other fields of study. After 2019 artificial intelligence theme and its sub-themes displayed weak progress against Big Data. In this context AI's effect on tourism may gain progress regarding its collaboration with Big Data. Finally, the researchers interested in tourism, AI, and data mining themes between 2003-2018 also showed interest to AI in 2019-2020 period.

Presented as in Figure 6 the result of the analysis was consisted of six clusters. Inherently, artificial intelligence keyword had the greatest number of nodes (27). Secondly, tourism keyword in green cluster was formed by 13 nodes. Table 3 details prominent 30 author keywords in documents, demonstrating the interactions between keywords and clusters.

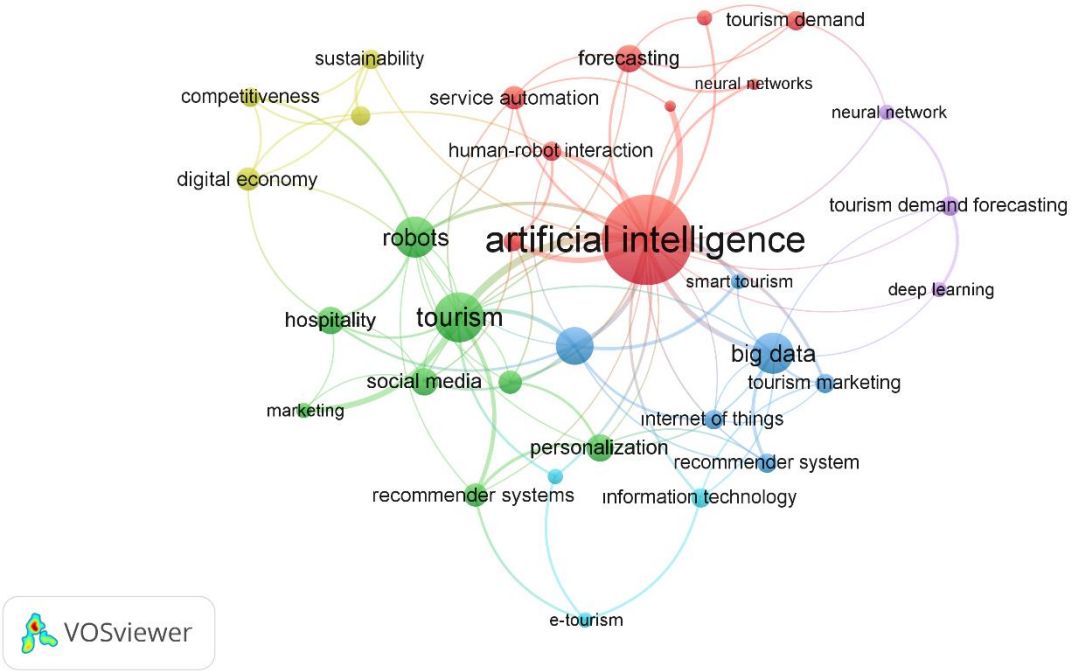

Figure 6. *Co-occurrence author keywords network analysis.*
(Note: Visualization was produced in VOSviewer software. Size of a node is proportional to number of appearances of the keyword, that is, larger the size, higher the occurrence of the papers in authors' keywords. The general distance between the nodes provide information about their relationship to each other. The shorter distance between nodes, the stronger their relationship. The relevance of terms is determined by counting the number of times terms occur in keywords. Colors are used to distinguish different clusters.)

Table 3. *Most common keyword occurrences*

R	Keywords	C	Co	Oc	R	Keywords	C	Co	Oc
1	artificial intelligence	1	27	46	16	human-robot interaction	1	4	4
2	tourism	2	13	26	17	recommender system	3	4	4
3	robots	2	10	6	18	tourism marketing	3	4	3
4	big data	3	10	8	19	internet of things	3	4	3
5	machine learning	3	9	13	20	competitiveness	4	4	3
6	forecasting	1	6	6	21	overtourism	4	4	3
7	social media	2	6	3	22	sustainability	4	4	3
8	hospitality	2	6	4	23	tourism demand forecasting	5	4	4
9	personalization	2	6	4	24	information technology	6	4	4
10	service automation	1	5	3	25	review	1	3	3
11	recommender systems	2	5	6	26	marketing	2	3	4
12	automation	2	5	3	27	smart tourism	3	3	8
13	digital economy	4	5	3	28	neural network	5	3	3
14	tourism demand	1	4	5	29	deep learning	5	3	3
15	robotics	1	4	6	30	e-tourism	6	3	5

R: rank, C: cluster, Co: Author keyword co-occurrences links, Oc: Author keyword occurrences

CONCLUSION

This bibliometric research provides a systematic overview of AI in tourism studies. It highlights the scientific proliferation of AI by scanning the most popular papers, collaborations, research hotspots, and advancements. To the best of the authors' knowledge, this current research is among the first to evaluate and demonstrate the progress of AI in the context of tourism. Therefore, this study fills this gap by enlightening the prominent aspects of AI. As AI had a long journey since it was conceptualized by McCarthy et al. in 1955, it can be said that it has just completed its incubation period and that it is now ready to transform the society as a game-changer.

This study focuses on AI's evolution in tourism field, but more importantly, aims to draw attention to its potential effects on social sciences. Even though AI is still regarded as a complicated subject, its roots are embedded in early mathematics, economics, philosophy, and psychology (Russell & Norvig, 2016). Therefore AI should not be evaluated as mere mathematical equations regarding computer and data science, but also as an economic and societal contribution to humankind (Pavaloiu et al., 2017; Tussyadiah & Miller, 2019). Results of the current study concerning popular keyword occurrences, support this reflection as there were both numeral (digital economy, forecasting, big data, etc.) and human-driven (recommender systems, sustainability, personalization, etc.) keywords regarding AI.

Due to its interdisciplinary nature, adoption of AI has potential to drive innovation across sectors and provide social welfare for countries around the world (Perrault et al., 2019). According to McKinsey Global's report (Chui et al., 2018), in terms of tourism industry, AI can double what is achievable using a traditional analytic method(s) and enable a growth between 7% to 11.6% of total revenue, making tourism and travel industry the biggest potential beneficiary of AI among industries. Besides, this study's results upon most cited papers and co-citation networks demonstrate that, AI is predominantly being used for forecasting, demand analysis, and recommender systems. In addition to that, tourism industry benefits from AI in different settings such as sentiment analysis with Natural Language Processing, augmented reality, virtual reality, robotics in hospitality and service, intelligent chatbots etc. AI improves personalization and accurate recommendations in tourism which is related to main goals of the industry (Mich, 2020). However, businesses and industries come across some challenges adopting AI. IBM and O'Reilly's

Report (Thomas, 2019) underlined these challenges and classified them in five themes as follows:

Lack of Understanding: Businesses should carefully analyze their needs and problems. They should check the applicability of AI to their concern. Because of its spreading popularity, there is a misperception that AI will fix any kind of problem.

Getting a Handle on Data: Lack of data, too much data or bad data are constraints for businesses in integrating their workflow to AI. For implementing AI successfully there is a strict need to accurate and good data.

Lack of Relevant Skills: Skills needed for AI experts are utterly different than current software engineers. This is a continuous relearning process as the machine learning algorithm learns from the training data. There is also a need for skilled AI programmers.

Trust: AI recommendations or decisions should be traceable in order to ensure businesses to see what their AI is doing. In doing so, businesses can avoid the risks of bias. Transparency in process is also another requirement for ethical AI.

Culture and Business Model Change: As AI enables deduction from unstructured vast amount of data, businesses should adapt their systems with new technologies AI brings in.

To overcome these challenges, IBM and O'Reilly (Thomas, 2019) propose a guiding strategy, called the AI Ladder, which suggests operationalizing AI throughout the business *(infuse),* building and scaling AI with trust and transparency *(analyze),* creating a business-ready analytics foundation *(organize)*, making data simple and accessible *(collect)*. Similarly, Samara et al. (2020) conducted a broad literature review and summarized AI challenges in tourism as; technical challenges, financial and business challenges, regulatory challenges, and socio-ethical challenges. Technical, financial, and business challenges refer to data quality and accuracy, ensuring lack of bias, and cost concerns. Regulatory issues imply the way data is collected and processed, referring to the role of governments regarding the safety and privacy of tourism businesses Big Data. Socio-ethical challenges are comprised of acceptance of AI in routine of tourism and the fear of job losses.

Briefly, these concerns regarding AI's implementation to businesses remind the progress and misperceptions of e-tourism along with 2000's.

Just as in e-tourism, AI systems are already being used in tourism industry for a while without realizing these are reflections of AI. AI's effect on automation, rule-based jobs, and auto-tasks are inevitable. But if the industry manages AI properly, it will augment the jobs rather than eliminating them, and it will bring new opportunities and businesses altogether. Besides, interaction between AI systems and tourism and travel industry largely depends on tourism professionals' skills, thus, human workforce will remain valuable and essential in conducting a healthy AI-industry interaction (Cain et al., 2019). Moreover, developing countries may operate AI systems without having large industrial networks, and gain a competitive advantage by utilizing these in tourism context. Throughout its effect on decision-making process, AI can be useful in terms of underdeveloped and developing touristic destinations as it can assist and ease tourist decisions and recommendations.

By its very nature, tourism industry is fragile to local or global risks and complexities. These complexities can either be human-made disasters, natural catastrophes, or global epidemics such as SARS, COVID-19 viruses. Further to that, Gretzel et al. (2020) called for transformative research and argued that COVID-19 may act as a breaking point, challenging current paradigms, just as Kuhn (1962) articulated in *'The structure of scientific revolutions'*. COVID-19 is changing conditions rapidly nowadays, and therefore exhibits a powerful uncertainty. For example, a very small change in one parameter (e.g., length of lockdowns, travel restrictions) might create very different outcome on many variables (Zenker & Kock, 2020). Accordingly, Pappas (2019) asserts that because of its mostly reductionist approach, tourism and travel research paid less attention to chaos and complexity theories. In doing so, he assumes tourist decision-making processes as complex patterns, and suggests that complexity cognizance can help understanding rapidly changing dynamics. Therefore, it is suggested that AI techniques can be applied to diverse complex problems (Corchado & Lees, 1998), herein particularly chaotic problems of tourism industry. In this study, it is suggested that AI tools (e.g., machine learning, neural networks, deep learning, natural language processing) may broaden tourism industry's perspectives to contemporary problems without the restriction of traditional methods.

However, integrating AI into tourism realm is a nuanced phenomenon. Tussyadiah (2020) points out application of AI and intelligent automation in tourism and travel industry is expected to increase in near future. Therefore, she sheds light on AI-tourism relationship and suggests a guideline for future researches:

Designing Beneficial Artificial Intelligence: AI systems should be designed and developed to enhance tourism experiences by intelligent automation. This relationship can be considered as a mutual relationship that both parties interact due to the progress between each other. Technical issues such as privacy of tourists' personal data, eliminating bias, bugs, cyber-attacks, and other security concerns appear in designing and implementing beneficial artificial intelligence.

Facilitating Adoption: AI brings some acceptance concerns to tourism field. Tourism businesses, employees and tourists' attitude towards technology will shape this adoption, thus, barriers to adoption should be carefully understood and facilitators should be encouraged. This notion is evaluated in a broader viewpoint in Ivanov & Webster's (2017) study. Authors discussed adoption process in scope of robots, AI, and service automation in tourism and travel industry. They focused on costs of AI and implied that company characteristics and culture, technology costs, degree of technological complexity, customer's attitudes and characteristics, and safety characteristics affect cost side of AI adoption.

Assessing the Impacts of Intelligent Automation in Tourism: Positive and negative effects of AI need to be deliberately evaluated with respect to host community, tourists, and tourism professionals, namely the industry. Dynamics of AI integrated destination and community may be rapidly changed, so the ratio of labor-automation should be carefully planned. Ethical concerns also arise in terms of human-robot interaction; thus, probable harms of intelligent systems must be minimized.

Creating a Sustainable Future: AI systems and intelligent automation should prevent prospective future problems of tourism. Along with governmental policy support, AI systems can be designed to reduce the negative effects of automation in industry; and provide a sustainable development through tourism. Since intelligent automation may diminish socialization between tourism partners (e.g., tourist, employee), beneficial AI implementation acts a vital role in maintaining human values and responsible use behaviors among partners. Regarding AI-tourism relationship, both technical and social aspects are critical to create a sustainable future.

This study aims to contribute to scientific field of AI in tourism context by providing the hotspots and progress, and furthermore highlights the importance of AI for changing tourism complexities. Focusing on its interdisciplinary characteristic, AI can be an effective tool for tourism

stakeholders (e.g., tourist, tourism employees, destinations, governance actors) in adaption of new solutions to contemporary concerns.

Finally, this bibliometric study has some shortcomings. First, the current study was conducted on documents incorporated in Scopus database, hence, future studies could use Google Scholar as a data collection database. Second, the data source of this study was limited to only tourism-related documents. Future research could examine the progress of AI in other fields or apply inclusive bibliometrics to different disciplines to review the evolution. Considering the limitations of bibliometrics, systematic reviews and content analyses of most cited papers can be conducted to gain deeper understanding of AI in different fields. Lastly, this study was conducted upon keywords. Therefore, conducting different bibliometric techniques in other languages could provide a valuable evaluation upon AI.

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A BIG-DATA ANALYSIS OF PUBLIC PERCEPTIONS OF SERVICE ROBOTS AMID COVID-19

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ABSTRACT
This research note investigates public perceptions of robotic services in the hospitality and tourism industry in the context of COVID-19. Relevant comments from YouTube videos were crawled and analysed by Natural Language Processing (NLP) techniques including explorative analysis, sentiment analysis, and topic modelling. The results reveal that while there are supporters and opponents toward robotic services during the pandemic, the overall public sentiment is neutral, and confirm that the health factor and a series of social-cultural factors encompassing the employment concern, political influence, and cultural norm should be involved as more significant variables for COVID-Tourism research. Some practical suggestions for robotic services amidst COVID-19 are accordingly put forward.

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INTRODUCTION

The impacts of COVID-19 pandemic on the global hospitality and tourism industry are inarguably detrimental and long-lasting, making the health issue become one of the most critical factors for industrial recovery in the foreseeable future. This shift has unprecedentedly led to substantial requirements and needs of hygiene management, social-distancing, and contactless services (Jiang & Wen, 2020). In this context, AI-based robots and pertinent unmanned services have been largely proposed and adopted in different tourism and hospitality sectors (Gretzel et al., 2020; Seyitoğlu & Ivanov, 2020). According to Zeng et al. (2020), the application of service robots amid COVID-19 can be generally classified into six scenarios:

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hospitals, communities, airports, transportations, recreation, attraction, and scenic areas, and hotels and restaurants.

While the robotic service is not a brand-new realm for hospitality and tourism studies, the COVID-19 crisis may become an essential driving force of changing relevant market profile and industry practice (Gössling et al., 2021; Zenker & Kock, 2020). Recent research agenda specifically focusing on interdisciplinary robotic studies has also been raised by many tourism researchers including Tavakoli et al. (2020), Gretzel et al. (2020), Zeng et al. (2020), and Wen et al. (2020), and it is agreed to be necessary and valuable to study how robotic services can contribute to the tourism restoration. In this process, public perception is undoubtedly a key indicator. Hence, in line with the proposed research agenda and research needs, this study, adopting a big data analysis method, investigates how the public perceives the robotic services in such a special period, the reflections of which would shed light on future academic enquiries and industrial revival.

METHODS

In the big data era, the availability of online reviews, particularly those User Generated Content (UGC) from social media, presents enormous opportunities for capturing and understanding a certain topic more comprehensively. As shown in Figure 1, this study followed the core steps adapted from Knowledge Discovery in Database (KDD) (Tan et al., 2014) comprising data collection, pre-processing, data mining, and interpretation.

In the first step, following the procedure in previous studies (Amatulli et al., 2019; Guo et al., 2017), the English videos and reviews from YouTube were selected as the domain for data collection. Specifically, the word "COVID" or "Coronavirus", combined with "robot" and nine keywords based on robot adoption scenarios claimed by Zeng et al. (2020), namely "hospital", "community", "airport", "transportation", "recreation", "attraction", "scenic", "hotel" and "restaurant", were respectively set as the term searched in the YouTube. To ensure the highest relevance and validity of samples, the eligible comments must be 1) from the objective news report videos; 2) displayed in official channels and 3) directly related to service robots applied in the hospitality and tourism industries. Following the data screening protocol, the results were sorted by relevance and the video contents were carefully checked by the author. Consequently, 3948 reviews from 84 videos, with the counts of "like", "dislike" and "reply", were extracted through the web crawler program as of July 2020.

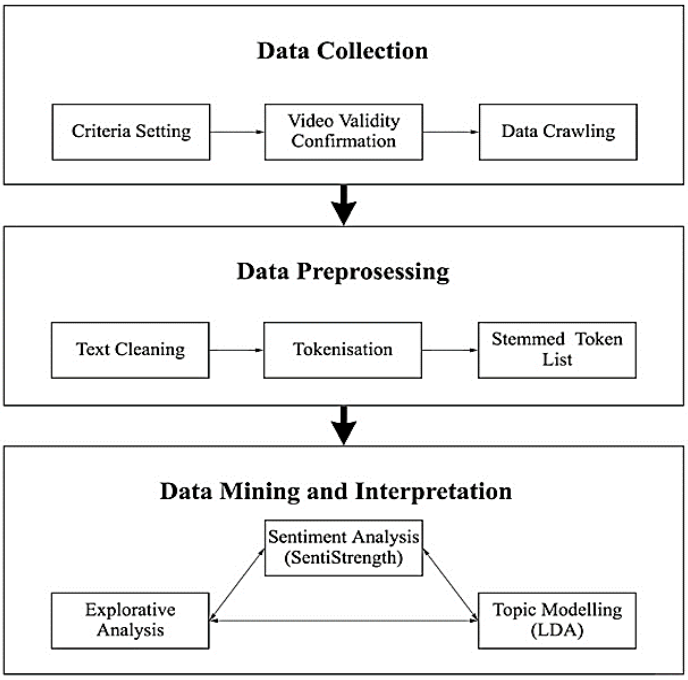

Figure 1. *Research framework*

The data pre-processing was performed by Python 3.7 with the Natural Language Toolkit (NLTK) package. Suppose the original downloaded review data set R0 = (r1, r2, ..., r3948). First, this study discarded all non-English texts and all replies to original comments. After that, 1852 reviews were finally confirmed as the dataset R1= (r1, r2, ..., r1852). Next, all r in R1 were joined together as one string, and the texts in the string were transformed into lowercase, followed by removing all numbers, URLs, punctuations, and symbols within the string to formulate the cleaned dataset. Then, the cleaned dataset was loaded into the NLTK tokenizer algorithm where the texts were broken into tokens. After that, with NLTK Part-of-Speech Tagging (POST), each token was tagged with their part of speech such as noun, adjective, verb, etc. These tokens were later inputted into the NLTK Word Net Lemmatizer to transform all tokens into their stem or root forms. Finally, nonsensical stop words were removed from the tokens to form the new stemmed token list dataset R2, and accordingly, a noun list R3 derived from R2 was also prepared.

A triangulation structure was set in the data mining step. The explorative analysis set out to discern the key words emerging from the reviews, by producing a Word Cloud involving thirty most frequently mentioned noun-words based on dataset R3 and by presenting the top five comments with the highest number of agreements (computed by the number of "likes" minus "dislikes") and replies. The sentiment analysis was

carried out by SentiStrength, a widely-used opinion mining tool in academia (Abdelhamied, 2011), to investigate the general public's attitudes. In detail, each r in R1 went through the SentiStrength algorithm and produced a scale between -4 (extremely negative) to 4 (extremely positive), and then the mean value and weighted mean value influenced by the number of agreements were calculated. Lastly, the Latent Dirichlet Allocation (LDA) topic modelling technique, an unsupervised learning algorithm based on the probabilistic generation model, was applied through the Gensim python library. This step comprised several attempts to respectively import data sets R1, R2, R3 to try different combinations of the number of topics and the number of words contained in topics, so as to obtain the most sense-making solution. The findings are shown and interpreted in the following.

FINDINGS

According to the Word Cloud (Figure 2), though the words "robot" and "coronavirus" were within the expectation, it was unexpected that the second most frequent word was "China". Two deductions were thereby made: first, service robots were widely used in China during the pandemic; second, there existed some general discussions such as critiques, compliments, political disputes about China that had nothing to do with robots. The first deduction was somehow proved by Table 1 that three out of five most arguable comments were directly related to the service robot adoption in China while the latter one needed to be further confirmed. Other than that, another noticeable word set was "patient", "doctor", "nurse", "care" and "hospital", revealing that the comments were much concentrated on the healthcare scenarios, which could be inferred that the current booming emergence of service robots was essential for health reasons. In addition, the words "job" and "work" were also evident in the diagram, implicating that people might be awfully concerned with the job opportunities deprived by the service robots. Lastly, as can be seen from Table 2, the comments that appeared to show the worries and downsides of service robots received the most agreements. Nonetheless, to verify whether the general public had negative attitudes towards service robots, the results of sentiment analysis have to be referred to.

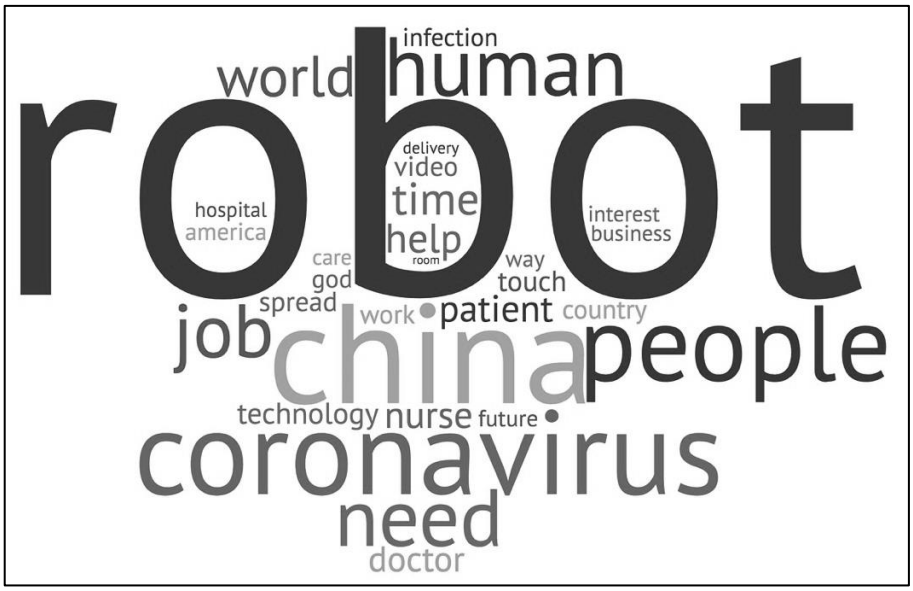

Figure 2. *Word Cloud*

Table 1. *Top five comments with most replies*

Comments	Number of replies
"China actually is a very technological advance country."	41
"Imagine if it happened in my country, more than 800 million would have been infected while believing a cow dung has a cure over it"	28
"Please keep your social distance...this is your first warning..."	27
"What don't kill CHINA will only make China stronger"	26
"the start of something new. In 5 years, robots will be everywhere in China, you can bet on it."	25

Table 2. *Top five comments with most agreements*

Comments	Number of agreements
"Scientists: 'technology will soon lead to the end of the world'"	788
"Please keep your social distance...this is your first warning..."	764
"Robots: find cure"	540
"Everyone's gangsta until the robots start taking over..."	358
"This is too much like the start of a Black Mirror world"	332

Interestingly, as shown in the bar chart of sentiment value distribution (Figure 3), the results manifested a mean sentiment value of 0.05 with an approximately normal distribution pattern. For the weighted mean considering the influence of the agreement level, the score remained at 0.14, which is even a little higher than the unweighted mean. Thus, the sentiment analysis results did not support the negative attitude

assumption, and it can be further concluded that even though the negative comments were eye-catching and there were extreme supporters and opponents, the mainstream of people actually holds a neutral attitude when watching the videos pertaining to service robots.

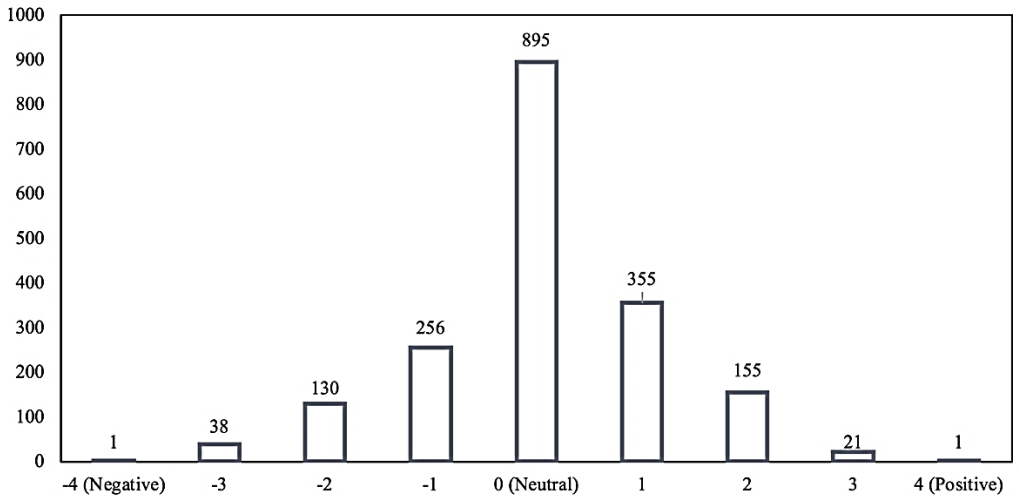

Figure 3. *Sentiment analysis results*

As to the LDA results, the most sense-making outcome was by using dataset R2 with four three-word topics: topic 1 = 0.015*"robot" + 0.007*"China" + 0.006*"make", topic 2 = 0.034*"robot" + 0.010*"China" + 0.009*"coronavirus", topic 3 = 0.023*"robot" + 0.009*"people" + 0.009*"help", topic 4 = '0.012*"robot" + 0.008*"coronavirus" + 0.006*"job". Instead of naming for the four topics as LDA analysis usually does, this study tried to interpret their latent meanings by relating them to the above discussion. For the first two topics, the words "robot" and "China" were respectively correlated with "make" and "coronavirus". This can be used to infer that the reasons for the emergence of "China" in the comments were due to both its large-scale robot manufacturing and other non-robotic discussions regarding the virus. Therefore, it can be reasonably said that robotic services would go beyond the technological realm and be politically, socially, and culturally interpreted, especially considering the contemporary complicated socio-political environments in the world. The third topic ("robot", "people", "help") denotes the positive facets of the service robots and helps explain why there was a certain quantity of robotic service supporters. Conversely, the fourth topic validates employment as a potentially predominant negative concern for the massive robot implementation in the service industry.

CONCLUSION

Theoretically, previous studies have revealed numerous factors affecting the adoption of service robots in the hospitality and tourism industry, such as the cost, novelty, usefulness, ease of use, etc. on the supply side as well as various demo- and psycho-graphic factors including the income, educational level, attitude to technology, etc. on the demand side (Ivanov et al., 2019; Ivanov et al., 2018; Kuo et al., 2017; Lu et al., 2019; Yu, 2020). Nevertheless, none of them has mentioned the health factor. As a matter of fact, recent COVID-related studies have already started to focus on the perceived trust and risk reduction functions provided by service robots (Shin & Kang, 2020; Wan et al., 2020). Therefore, consistent with Jiang and Wen (2020), the health factor should be included as a more significant push and pull factor in future hospitality and tourism research related to robotic services. Meanwhile, in line with Sigala (2020), this study also calls for paying attention to how a series of societal factors play a role in technological application in the current- and post-pandemic worlds, such as the trade-off between technology adoption and job deprivation, the influence of political discourse and orientation, the new social norms of social-distancing and so forth. This research note would further elicit such arguable and critical research questions as whether a person who worries about AI or does not wear a face mask would support service robots, whether an anti-China regime would import those robots made in China, and whether the social-cultural background allows service robots to be widely employed. All these questions must be investigated from country to country, culture to culture, and person to person basis.

Practically, due to the public's neutral sentiment towards service robots and the reality that there is a sizable group of supporters, a niche market for service robots does exist. In the meantime, the health guarantee provided by robotic services further promotes the level between service providers and customers, which would speed up the progress of service robots' adoption. Therefore, this research note confirms the argument made by Zeng et al. (2020) that the COVID-19 provides a precious window period for the popularization of robotic services. On their basis, we would further suggest that robots that can facilitate sanitation management during the service process, such as item delivery, auto-registration, information provision, and disinfection would have a comparatively broader prospect, and practitioners should pay more attention to these opportunities.

In conclusion, this research note attempts to initiate the discussion of service robots in the context of COVID-19 by providing insights based on

public perceptions. To formulate a more up-to-date and in-depth understanding, it is recommended that future empirical studies in the form of survey and interview should be conducted by considering more factors related to COVID-19, focusing on customers from different social, political, cultural backgrounds, and looking into specific segmented service robot category and application scenarios.

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