



The antecedent and consequence behaviour of sustainable tourism: integrating the concepts of marketing strategy and destination image

Chih-Hsing Liu^a, Jing-Feng Jiang^b and Bernard Gan^c

^aDepartment of Tourism Management, National Kaohsiung University of Science and Technology, Kaohsiung, Taiwan;

^bHospitality Management Department, Fuzhou Melbourne Polytechnic, Minhou County, People's Republic of China;

^cDepartment of Business Strategy and Innovation, Griffith Business School, Griffith University, Nathan, Australia

ABSTRACT

Drawing on integrated concepts of marketing strategy and destination image, this study proposes and develops a model of antecedent and consequence behaviour for sustainable tourism. A survey of 505 tourists was conducted. In the antecedent model, perceived risk may indirectly affect travel behaviour through psychological involvement and destination image. In the consequence model, we found that marketing strategy was related to increased destination impression and thus enhanced sustainable tourism intention. Specifically, it is not surprising that in a big data environment, new technology sharing may also enhance the positive evaluation of destinations that encourage sustainable behaviour.

KEYWORDS

Marketing strategy; destination image; travel behaviour; sustainable tourism; perceived risk; big data

Introduction

Following the flooding and drastic climate change in China in 2020, causing substantial damage, sustainability has become a hot issue in the study of tourism and the attention by policymakers. According to statistics, Hall (2019) asserted that research on “sustainable tourism” has occupied approximately five percent of journal output, which raises its position of importance in the tourism literature. Additionally, regarding this hot issue, the UN sustainable development goals (SDGs) report includes a 2030 outline for sustainable progress “to end poverty, protect the planet and ensure prosperity for all”. Thus, we expected that 2020 would offer a new focus for tourism development. However, despite such attention and overt interest by academics and policymakers, an empirical examination recommended that sustainable tourism should consider more attributes and new trends, such as new technology sharing (Mandal, 2018), media sharing (Tham & Sigala, 2020), risk evaluation (Mandal & Dubey, 2020) and destination management (Kurniawan et al.,

2019). This is because intra and cross-borders movements in recent years for tourism purposes came with huge carbon footprints that contributed to global climate change that in turn, resulted in the rise of communicable diseases and natural disasters (Prideaux & Yin, 2019; Wang et al., 2019). Yet, this wicked problem could not easily be tackled without the help of big data and technology. By developing a model of antecedent and consequence behaviour for sustainable tourism that encompasses technology sharing and the other key constructs, this study not only contributes to practical managerial implications and gaps in the literature of sustainable tourism, it promotes awareness that we all has a shared responsibility to be a responsible traveler/ tourist.

In the antecedent tourist behaviour prediction, tourism researchers have argued that perceived risk may lead to an influence on tourists' psychological status and perception of subsequent sustainable behavioural intention (Sohn et al., 2016). Moreover, destination image is one of the pillars of sustainability behaviour (Lee & Xue, 2020). For example, Becken

et al. (2017) found that high risk levels of air pollution and a negative evaluation of destination image might shape an individual's awareness about destinations and their travel intention. Given that antecedent attributes influencing tourists' travel behaviour, perceived risk, psychological involvement and destination image are likely to be among the least foundational causes of individual behaviour evaluation. This is especially true because tourists' awareness about possible travel risks with undesirable outcomes results in anxiety and psychological involvement regarding the destination image (Tseng & Wang, 2016). When individuals perceive risk, they tend to collect information from destinations that "seem most likely to reduce the uncertainty, undesirable outcomes and satisfy the specific needs" (Park & Tussyadiah, 2017). However, few tourism researchers have inspected whether and how perceived risk can produce both psychological involvement and destination image as simultaneous potential inspirations for individual sustainable travel behaviour.

Furthermore, in the consequence behaviour prediction model, the marketing strategy literature suggests that different marketing strategies may react differently to tourism behaviour (Liu & Chou, 2016) because when firms conduct marketing strategies for different green products and qualities, they promote a new perspective of services or products that will affect customers' preferences and behaviours (Eneizan & Obaid, 2016). As a result, individuals' evaluation of the effectiveness of a marketing strategy can shift fundamentally and influence their impression of destinations and their intention towards sustainable tourism. Past tourism studies have mostly focused on the effectiveness of a marketing strategy, such as how it influences brand equity, marketing and motivation (Liu & Chou, 2016). What has been missing from research attention is how individuals' evaluation of marketing strategy characteristics influences patterns of decision-making processes between destination impression and sustainable tourism intention.

In addition, following the new media and technology applied in the tourism environment, this study identifies a potentially significant moderating attribute—technology sharing—and explores its role in sustainable tourism development. This is defined as an individual's "used new technology or media to sharing the tourism activities or personal feelings and emotions, to discriminate among them and to use this tourism sharing information to guide individual or others thinking and actions" (Król, 2019; Pierdicca

et al., 2019). Social media and new technology sharing for tourism products has proven to be an excellent strategy and includes online tools, apps, e-platforms and social media, and information sharing technology (Zeng & Gerritsen, 2014). Many countries and tourism managers have also recognized social media and new technology as important tools to strengthen the effectiveness of marketing strategies for the benefit of their tourism business development (Canovi & Pucciarelli, 2019). As such, technology sharing may constitute a key moderating mechanism during the whole sustainable behaviour and decision-making process.

In sum, this study seeks to answer the following key research questions: (1) What is the antecedent-consequence of tourists' sustainable behaviour? Consequently, (2) how to develop a risk evaluation process in the antecedent model? and (3) how to build the marketing strategies that influence travel behaviour in the consequence model? Figure 1 shows the integration of the antecedent-consequence sustainable behaviour model on destination image, marketing strategy and technology sharing based on an overarching research framework of sustainable tourism. The current study encompasses previous tourism research on sustainable behaviour in several ways. First, by discovering individuals' evaluation of the effectiveness of destination management and marketing strategy as a fundamental instrument through which sustainable tourism intention is linked to the individual assessment of the values of sustainable tourism, this research proposes an affective explanation of travel decision-making procedures as an alternative, yet complementary, approach to the predominant cognitive explanation. Second, based on antecedent and consequence behaviour for sustainable tourism intention explanations, which have not been discovered in the tourism literature to connect the antecedents of central concepts of destination image with the consequences concepts of marketing strategy to sustainable tourism, the research rectifies this deficiency. As Prebensen et al. (2014) suggested, using behavioural data to discuss antecedent and consequence behaviour is shown to be more reliable than stated preferences and demonstrates what factors can explain the tourism literature gap in destination image (Rather et al., 2019). Third, conducting mediation moderation offers a more balanced perspective on tourism development evaluation, explaining not only multiple mediation mechanisms of destination

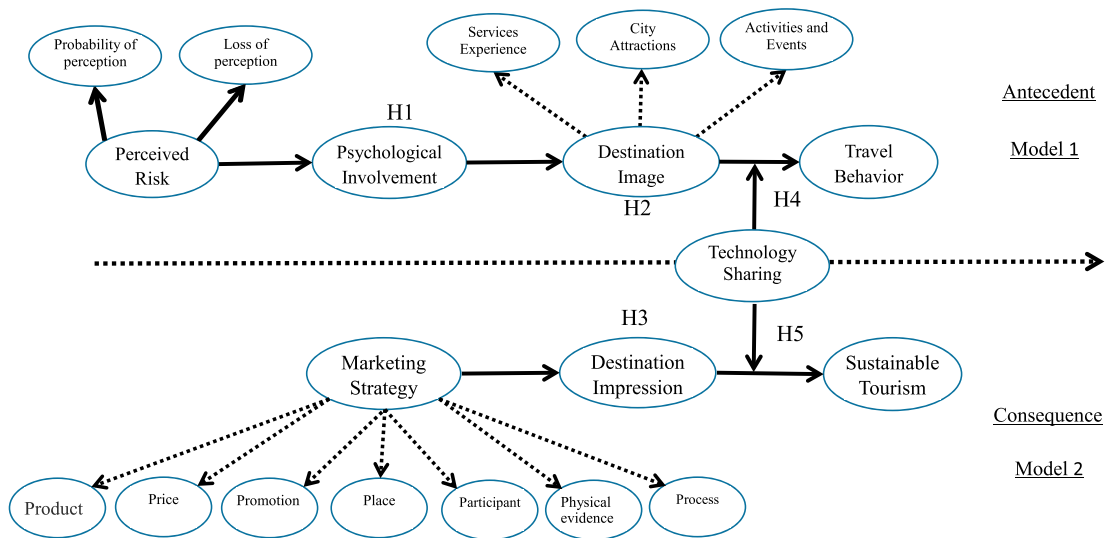


Figure 1. Proposed theoretical model and research framework.

image but also why technology sharing may strengthen in this regard and may even produce sustainable tourism intention. The mediation-moderation analysis provides a sufficient predictor for the sustainability development and exaction of pro-environmental behaviours, which fill underexplored gaps in the tourism literature (Liu & Huang, 2020).

Theory and hypotheses development

Perceived risk was first proposed by Bauer in the 1960s, including the uncertainty of the decision outcome, which is risk probability, and the loss caused by incorrect consequences as well as risk loss. In the study of tourism risk, Voraveeravong (2015) divided perceived risk into six aspects, including functional risk, financial risk, substantive risk, psychological risk, social risk and temporal risk, and asserted that when consumers make decisions, these unknown and uncertain risks largely affect consumers' actions, such as delay, change or cancellation (Kotler, 2002). Extended to the tourism industry, this can also explain why the uncertainty and unpredictability in the process of tourism consumption will discourage consumers from the idea of tourism and then affect the behaviour of tourists (Snmez & Graefe, 1998).

Involvement theory originates from social psychology involved in the concept of self and the social judgement theory proposed by Sherif and Cantril (1947). Psychological involvement as part of the involvement

theory refers to how people are affected by others, scene and products and feel the importance of things and the intention to produce things. Chang and Gibson (2015) proposed that involvement, as one of the important factors affecting people's leisure and tourism, is often studied jointly with loyalty, habits, and collective tendencies. However, "involvement", especially psychological involvement, emphasizes that self-worth as a guide can influence or encourage or change the attitude and behaviour of tourists. McIntyre (1989) introduced the concept of sustained participation to describe and perfect people's attachment tendency to behaviours or activities formed by long-term sustained participation. At present, people pay more attention to the perceived value of tourism destinations caused by long-term involvement and the extended loyalty of tourism destinations. Dedeoğlu (2019) takes psychological or behavioural involvement as a regulating mechanism and points out that involvement, as an intermediary factor, will affect the image of the destination and the behaviour decision of tourists. At the same time, he notes that high levels of positive psychological involvement, such as positive long-term marketing strategies, can significantly improve a visitor's impression of the destination. Therefore, regardless of whether psychological involvement is a direct influencing factor or an indirect intermediary factor, psychological involvement will affect people's consumption and travel behaviour.

Additionally, Lai and Li (2016) put forward a more complete definition of the destination image. They believed that the destination image is a group of voluntary, multi-sensory, pictorial and conscious psychological experiences of tourists regarding the destination. Almeida-garcia (2020) concluded that tourist destination impressions are largely spiritual and psychological conceptual impressions of destinations, which are usually composed of tourists' knowledge, impressions, or some ideas, so most of them are subjective. They also pointed out that the image of a tourist destination is usually affected by the initial perception, that is, people's first impression of a tourist destination is often from various kinds of information they are exposed to, such as marketing information, network pictures, others' evaluations, etc. (Akgün et al., 2020). Li et al. (2018) also pointed out that the image of destination is also affected by tourists' experience, that is, whether people choose this destination again is often affected by the impression of the destination based on the first experience. Therefore, for tourism destinations, the initial stage will be influenced by marketing, network information and other aspects, and the initial perception impression will be formed (Akgün et al., 2020). After the tourism experience, the image of the tourism destination will be affected by the quality, experience, service and other aspects of the tourism process, which will change the image of the tourism destination (Li et al., 2018). The spread of these experiences on the Internet will affect the attitudes of non-participants or visitors (Bizirgianni & Dionysopoulou, 2013).

The tourism industry needs technological updates to provide support for its products and services and ensure competitiveness within the industry (Labanauskaitė et al., 2020). For consumers, the development and progress of information technology also guarantee their consumption rights and interests, which enables them to make travel plans and have a preliminary understanding from social media without leaving home and saves much unnecessary trouble (Bizirgianni & Dionysopoulou, 2013). The development of tourism technology and the sharing of information have greatly improved consumers' perceived value, promoted the operational efficiency of the tourism industry, and greatly enhanced the soft service strength of the tourism industry, which is also one of the most important competitive strengths in the tourism industry and even in the whole business environment (Bilgihan & Nejad, 2015). The

development of information technology gives travel companies more ways to develop new lines, there are more ways to create difficult-to-execute tourism projects, there is more of a possibility to find potential customers before mining, and it also provides the tourism industry with the business opportunity to create better service, more unique projects and the economic benefits of more firms (Bizirgianni & Dionysopoulou, 2013). In general, under the background of the new era of scientific and technological development and information sharing, tourism has achieved better development and greater development space.

Mediation roles of psychological involvement and destination image

Perceived risk, tourist psychological involvement and the destination image of tourism have been studied as the objects of their respective connections. Various dimensions of perceived risk will force travel consumers to fear unknown and uncertain consumption opportunities and will affect their purchasing power (Voraveeravong, 2015). Tourists will form initial thoughts and obtain information about tourist destinations that have not yet been personally experienced through various external information sources, which is the stereotype of travel destinations (Li et al., 2018). These initial perceptions will affect the impression of the destination, but psychological or behavioural involvement will form a moderating effect to change the psychological cognition of tourists and even the purchasing and consumption behaviour of tourists (Dedeoğlu, 2019). Shakoori and Hosseini (2019) indicate that tourists' motivation or risk perception can be transformed into a strong impression of a tourism destination through the intervention of intermediaries and in specific dimensions (Shakoori & Hosseini, 2019). Li et al. (2018) pointed out that tourists' perception of risks will force them to give up their choice of tourist destinations, but they will also transform risks into curiosity due to the influence of marketing means or tourism information to form a consumption trend towards destinations, which will then evolve into a positive destination impression.

Research shows that psychological involvement is also divided into low-level involvement and deep-level involvement. Strong and deep involvement helps tourists integrate more information into existing information. In this way, in the process of further research and comparison, new integrated information

will reduce the impact of existing initial information. However, tourists with low involvement lack understanding and access to other information and instinctively take the initial information as a decisive factor, affecting their tourism consumption behaviour (Dedeoğlu, 2019). From the perspective of deep psychological involvement, Chen (2005) shows that tourists' involvement has a positive impact on their satisfaction and destination image, and tourists' psychological involvement can enhance their recreation satisfaction and improve their image of the destination. Lee and Shen (2013) studied the relationship between the involvement of leisure activities (attraction and cognitive impression of leisure activities), place attachment (cognition and impression of places) and destination loyalty and concluded that the involvement of long-term stable leisure activities forms positive impressions of leisure places, which can be transformed into attachment of leisure places. From the perspective of a low level of psychological involvement, this low level of psychological involvement may be due to one's unwillingness to understand the image of the destination (Dedeoğlu, 2019), or it may be due to the influence of national policies and the difficulty in obtaining destination information, resulting in a low level of psychological involvement (Li et al., 2018). Li et al. (2018) pointed out that because of the influence of the policy and information, tourist destinations that can pass information are limited. On the one hand, tourist destinations can form a conservative, inherent tourism destination image, but on the other hand, this difficult flow of information will lead to a mysterious destination form. Visitors will be intrigued because the characteristics of these mysterious and not-easy-to-obtain impressions form a curiosity about the destination and create a positive destination image. Based on this, this study proposes the following hypothesis.

Hypothesis 1: Psychological involvement mediates the relationship between perceived risk and tourism destination image.

Tourist psychological involvement refers to the stage when potential tourists develop psychological interest in a certain leisure resort area, which is reflected by their continuous attention and understanding of this area. The degree of psychological involvement also influences individual consumption decisions (Stone, 1984). Continuous attention and understanding of destination information can form a

strong, deep-level psychological involvement, promote consumers' conscious integration of information, change the initial impression, and thus improve the tourism impression of destination, and help tourists form a positive consumption behaviour motivation (Bilkey & Nes, 1982; Shakoori & Hosseini, 2019). As a psychological or emotional demand or desire, tourism motivation, which is influenced long-term by external information, helps to form a positive image of the destination and can also play an important role in leading tourism behaviour and affect tourists' travel decisions (Lee & Shen, 2013).

In other words, due to the different ways, sources and degrees of continuous attention to information, the tourism behaviour orientation of tourists of different age groups generated by psychological involvement is also different. According to Li et al. (2018), due to insufficient and unskilled ways of obtaining information, elderly people easily obtain fixed information or stereotyped information and form inherent impressions or stereotypes. However, stereotypes that are positively guided (such as films, propaganda, policies, etc.) can be guided into nostalgic psychology among the elderly, and stereotypes can be transformed into nostalgic pilgrimage wishes and aspirations, which can inspire tourists to travel (Akgün et al., 2020; Li et al., 2018). For young people, due to the richer social resources they have access to and the more diverse information platforms they are skilled in, they are often good at using and collecting information and can obtain the final information and make judgements from multiple angles and layers (Bizirgianni & Dionysopoulou, 2013). Diversified information sources lead to different sources and degrees of psychological involvement, presenting different results. On the positive side, diversified information will increase the level of psychological involvement, improve information sources, help young people integrate and enrich the initial information, change or enhance the impression of tourism destinations, and help to make and form a stable travel plan (Tiago et al., 2020). On the other hand, too much information will lead to miscellaneous information, and young people who do not have the ability to discriminate and arrange will receive adverse information and comments on tourism destinations, which will easily affect their confidence in travelling and lead to a state of psychological depression, prompting them to change their travel plans and cancel the formation of a desire to travel (Bizirgianni & Dionysopoulou, 2013).

For destination impression, most scholars define it as a psychological framework, including tourists' knowledge of the destination, image impression and belief impression (Akgün et al., 2020). Gartner (1993) notes that tourists' impressions of destinations are often based on their own subjective views rather than objective destination facts (Gartner, 1993). Intangible tourism destination products and limited second-hand destination information integration will affect the intention and decision of potential tourists (Akgün et al., 2020). Before carrying out tourism activities, tourists tend to collect all kinds of information, make judgements and finally make tourism decisions based on the expected evaluation results (Moutinho, 1987). Due to the authenticity and attraction of the available information, this kind of travel decision will lead to the good or bad impression of the destination in the mind, which will be either firm or hesitant (Almeida-García et al., 2020). Shakoori and Hosseini (2019) clearly pointed out that the positive destination impression formed by external factors would help tourists have a strong intention to travel and have a positive impact on tourism behaviour.

Influenced by the accepted tourism information, tourists will exhibit firm tourism behaviour under the influence of the combination of strong travel motivation and favourable tourism destination impression. Based on the above literature, this study proposes the following hypothesis:

Hypothesis 2: Tourism destination image mediates the relationship between psychological involvement and travel behavior.

Tourism destination marketing concept research is based on different tourism destination concepts. Liu and Chou (2016) concluded that a good marketing strategy is an important factor in developing tourism and enhancing the image of tourism destinations, and from the perspective of product, price, region and promotion, it is concluded that tourism image and the marketing strategy of destinations are important factors for tourists to make travel plans or implement tourism actions. As one of the important ways to promote tourism destinations, marketing conveys the image of tourism destinations to tourists from outside through sound, image, text, video and other ways to create a positive first impression of tourism destinations (Li et al., 2018). On this basis, the positive marketing strategy can overturn the negative impression of the tourist destination to produce a positive impression. Travel

agencies and tourism managers carrying out the correct tourism marketing guidance can help the tourist destination to improve its impression and change the attitude of tourists. Through marketing and other means, the tourism information conveyed can subtly shape a good impression of the tourist destination, thus forming the tourism behaviour trend among tourists (Tiago et al., 2020).

The development of marketing strategies driven by sustainable behaviours should be analysed from two aspects. First, when the tourism industry carries out influence publicity in accordance with the concept of sustainable development, it can create an impression on the destination of sustainable tourism and attract a large number of tourists who accept and embrace the concept of sustainable tourism (Tiago et al., 2020). Second, sustainable tourism for tourism practitioners means the rise of operating costs and the decline of service quality (such as the reuse of artificial grass), which will form a resistance effect to some extent (Shafiee et al., 2019).

Tourism destinations deliver sustainable green tourism in a subtle and selective way (Trivedi et al., 2018). Li et al. (2018) pointed out that the determination of marketing strategy can determine the trend and group characteristics of target customers, help the destination subtly guide the attitude and concept of tourists, and form the destination impression based on the concept of "sustainable development". Tourists who love and accept the concept of sustainable development in tourism can establish an impression of sustainable development of tourism destinations, form a preference for destinations, and then develop tourism behaviours in line with the concept of the sustainable development of tourism destinations through the publicity call of marketing strategies (Yu et al., 2017). The communication of these attitudes and ideas among tourism practitioners will influence tourists through marketing strategies, form the preferred image of sustainable tourism destinations, and form the overall environment of sustainable tourism (Tölkes, 2018). However, combining tourism destination marketing propaganda with the concept of sustainable development is double-sided and still has some drawbacks. First, for the operators of tourism destinations, the sustainable development of destination marketing means an increase in costs, such as the upgrading of facilities and equipment in hotels of tourist destinations (Tiago et al., 2020; Tölkes, 2018). Sustainable development of tourist destinations for visitors will result in a

certain degree of decline in the quality of service, such as hotel artificial grass in repeated use and the repeated use of tableware in destination catering facilities (Tiago et al., 2020). For example, sustainable behaviour of tourists for the pursuit of quality would greatly hit their travel motivation, destination image and psychological expectations, causing them to then select other tourist destinations to visit.

Different strategies of tourism destination marketing can convey the impression of sustainable tourist destinations to the market (Li et al., 2018; Yu et al., 2017), identifying and capturing the target group during the selection of the target market. Like-minded target tourists should choose sustainable tourism destinations, which not only recognize the sustainable tourism behaviour of tourism destinations but also practice their own sustainable lifestyle. In the process of visiting destinations, they will also follow sustainable tourism behaviour (Tiago et al., 2020; Tölkes, 2018). Therefore, the selection of marketing strategies can guide or change the image of the destination, thereby exerting a subtle influence on tourists, which is conducive to the generation and development of sustainable behaviours. Based on this, this study proposes the following hypothesis.

Hypothesis 3: Tourism destination impression mediates the relationship between marketing strategy and sustainable tourism intention.

Moderation roles of technology sharing

With the progress of science and technology and the development of information sharing, people can easily obtain much information on the Internet, and the development of network information has greatly changed people's way of life (Büttcher et al., 2016). Especially for tourism activities, attitudes and impressions of tourist destinations for people can easily be influenced by social information and Internet media manipulation. People's impressions and attitudes towards tourist destinations can even affect people's consumption behaviour or reduce their judgement ability (Kotoua & Ilkan, 2017).

Operators of tourism destinations enjoy the fruits brought by scientific and technological progress, vigorously develop tourism destinations and enhance the image of tourism destinations from the perspective of technological hardware (Tölkes, 2018). Studies have shown that signs, images, specific symbols and other widely disseminated information

can stimulate tourists' psychological reactions to the Internet marketing of destinations, including curiosity, longing, love, etc. (Blazevic et al., 2013). With the promotion of the development of science and technology leading to the sharing of information, the optimization of tourism destinations can rely on their own advantages and characteristics and the spread of the use of information technology in the tourist destination selection stage for positive publicity, to attract tourists' curiosity, to mobilize and encourage visitors to destinations to maintain novelty, and thus for tourism planning and tourism behaviour (Kotoua & Ilkan, 2017; Tiago et al., 2020).

Additionally, scientific and technological progress and information sharing are also closely related to the destination impression and tourism behaviour of tourists. For tourists, the destination information they receive usually comes from two aspects: market-oriented marketing information and network evaluation dominated by other tourists (Blazevic et al., 2013). Through research, some scholars have divided the specific impact of information sharing and technological progress into two parts. One is that travel marketers can influence consumers' impressions and attitudes through online comments with higher "credibility" and promote their intention to travel (Vas, 2017). On the other hand, consumers obtain more accurate information, such as previous consumption experience or travel experience, through the network and scientific information with higher "credibility", thus influencing their own future consumption (Kotoua & Ilkan, 2017). Tourists believe that the credibility of online information is much higher than that of word-of-mouth in real life, and they believe that online information is free from prejudice and concealment (Kotoua & Ilkan, 2017). Therefore, tourists use the network information to find the closest to the "real" tourism information and take this information as the basis of tourism decisions to change their impression of tourism destinations and tourism plans. Tourism destination businesses also consciously guide the image of the destination through online information to convey positive tourism information and have a positive impact on tourists' behaviour (Kotoua & Ilkan, 2017; Vas, 2017).

For tourist destinations, technology sharing and development can help to improve hardware, make innovations, underline the highlights of destinations, optimize the image of tourist destinations, improve the service quality of tourist destinations, and attract tourists to travel (Kotoua & Ilkan, 2017; Tiago et al.,

2020). Through the “closest to the real” travel network information, tourists can also accept the impression of the destination, change their inner thoughts or strengthen their travel motivation, and then make travel plans (Blazevic et al., 2013; Kotoua & Ilkan, 2017; Vas, 2017). Based on this, this study proposes the following hypothesis:

Hypothesis 4: Technology sharing moderates the relationship between destination image and travel behavior.

The development of information technology facilitates the acquisition of various data on the tourism industry and provides new development tools and strategies for the tourism industry. For some scholars, wisdom tourism is defined as the evolution of traditional tourism and science and technology development (Shafiee et al., 2019) and mainly refers to modern information technology and the development of science and technology, combined with the concept of the sustainable development of tourism and tourism destination innovation development, aimed at improving the quality of tourists to visit the tourist experience and create a new form of green tourism (Gretzel et al., 2015), which conform to the development of science and technology and sustainable development and gradually evolve into a mature form of tourism development, increasing the enticement of this market.

Tourist wisdom, tourism due to the increase in tourists through rapid scientific and technological content in online information exchange to obtain information about tourist destinations, and the sustainable development of green tourism destinations for the sustainable development of tourism concepts to form the initial impression that helps visitors determine whether the destination image is in line with expectations all provide inputs to the network information to develop a suitable way for tourism firms to compete (Navio-Marco et al., 2019). Tourism destinations can also get a good chance to recuperate through the scientific and technological development contained in smart tourism and the rational application of sustainable concepts. The image of sustainable green ecological tourism destinations is thus gradually strengthened (Shafiee et al., 2019).

For tourism operators (hotels or travel agencies), the wisdom of tourism is to ensure that intelligent tourism destinations adopt new technology in new ways to improve tourism services, improve the image of destinations and the use of information

systems and technical innovation. Beyond the limitations of the traditional tourism industry, destination advantages are no longer limited to the development of natural resources but enhance the proportion of destination operation management and software resources, pay attention to the importance of sustainable behaviour, develop science and technology and share information for the sustainable behaviour of destination image, and tour operators have a positive influence on these factors (Gretzel et al., 2015; Shafiee et al., 2019). However, another point of view, complying with the policy and the era of sustainable tourism, is likely to raise costs and a drop in the quality of service. On the one hand, the cost of introducing new technology and later maintenance is difficult to maintain; on the other hand, some of the ways of sustainable tourism, such as the repeated use of artificial grass, are bound to affect service quality (Tiago et al., 2020).

In general, through the progress of information technology, tourists can obtain more cutting-edge information, such as the theory of sustainable development, which will subtly change their tourism concept (Almeida-García et al., 2020). Industry is affected by the development of science and technology. Attention to form green tourism and sustainable development of tourism, together with the growth of the concept of sustainable development of tourist groups, make the developers of tourism adjust their policy, cater to the vast number of consumer groups and long-term industry trends, and improve and raise their destination image (Shafiee et al., 2019; Tiago et al., 2020). In the long run, with the development of information technology, smart tourism is bound to become a trend, the image of tourism destinations will be optimized and improved, and sustainable tourism behaviours will gain momentum of development and publicity (Almeida-García et al., 2020; Gretzel et al., 2015).

Hypothesis 5: Technology sharing moderates the relationship between destination impression and sustainable tourism intention.

Methods

Sampling and respondents' profiles

This study uses convenience sampling with at least one or more sustainable tourism experiences during the participants' past tourism history. As Huang and Liu (2017) asserted, sustainable experience refers to

experience in national parks, waterfalls, harbours important wetlands, water bird refuges, walking trails, scenic overlooks and other nature-protected areas. To clarify the research purpose and ensure that the original meaning was maintained, the researchers also asked three company managers and lecturers in Fuzhou Melbourne Polytechnic who had abundant research or practical experience in sustainability studies to perform a pretest of the questionnaire and revised the unclear measurement items or sentences before data collection. A total of 600 surveys were issued in important national parks, waterfalls, harbours and important wetlands located in Fujian Province. After the data were collected, the researchers deleted the unusable surveys that had multiple missing values or contained responses the survey with obvious regularity (e.g. selected the same option without obvious differences for all measuring items). The final sample was collected from 505 usable surveys from tourists with sustainable experience who have visited such areas, which resulted in a 84.2% effective response rate.

The final sample was analysed using Stata 15.0, SPSS 23.0 and AMOS 22 software. The demographic data for all participants are revealed in Table 1. Regarding the gender for respondents, 261 (51.7%) were female and 244 (48.3%) were male. Most participants had a university degree (327; 64.8%), and most participants were 21–30 years old (309; 61.2%) or 31–40 years old (136; 26.9%).

Measures and variables

The scales selected in this study were first comprehensively reviewed through famous international business or tourism literature that focused on the study of

business management, tourism, sustainability, marketing strategy and technology application in sustainable tourism. Because they were selected from international literature, the original measuring items were selected and translated from English to Chinese. Furthermore, to ensure that the original meaning was consistent with the literature, the method of back-translations was conducted by several scholars and experts who have abundant research experience and are familiar with the operation with back-translations. The purpose of this step was to confirm that the Chinese translations did not deviate from the original English items. There are seven main constructs as well as background information to measure tourists' true experiences.

The first construct, *perceived risk*, was measured by 6 items based on Sangwon Park and Tussyadiah (2017) and contained two dimensions: loss of perception and probability of perception. The second construct, *psychological involvement* of tourism, was measured by 5 items based on Gursoy and Gavcar (2003). The third construct, *destination image*, contained three dimensions: *service experience*, *unique city attractions* and *activities and events* with 8 items based on Papadimitriou et al. (2015). The fourth construct of *travel behaviour* was measured by 5 items based on Chen and Petrick (2016). The fifth construct of *marketing strategy* contained seven dimensions: product, price, promotion, place, participants, physical evidence, and process, measured by 23 items, was used by Zeithaml et al. (2006). The sixth construct of *sustainable behaviour* was measured by 5 items based on Rebollo and Baidal (2003). The final construct of *technology sharing* had two dimensions: visitor information sharing and personalized sharing, which was adapted from Mistilis et al. (2014).

Table 1. Descriptive information of participants.

Variables	Items	Frequency	Percentage (%)	Variables	Items	Frequency	Percentage (%)
Gender	Male	244	48.3	Marriage	Married	254	50.3
	Female	261	51.7		Unmarried	251	49.7
Age	Below 20	18	3.6	Level of Education ¹	1	21	4.2
	21~30	309	61.2		2	151	29.9
	31~40	136	26.9		3	327	64.8
	41~50	25	5.0		4	6	1.2
	51~60	11	2.2	Number of Travel Times	1	120	23.8
	Above 61	6	1.2		2	97	19.2
Salary per months	Below 5,000	117	23.2	3	82	16.2	
	5,000 –10,000	140	27.7	4	73	14.5	
	10,000-15,000	118	23.4	5	65	12.9	
	Above 15,000	130	25.7	6	68	13.5	

¹Level of Education: 1. Below junior high school; 2. Senior high school; 3. University; 4.MBA or above.

Results

The results of variable validity and reliability

To estimate the validity and reliability of the scales, the values of confirmatory factor analysis (CFA) were calculated, and Anderson and Gerbing (1988) suggested that values of CFA were suitable to measure discriminant validity. Table 2 shows the results of descriptive statistics, such as the means, factor loading, standardized loading, standard deviations (SD), composite reliability (CR), and average variance extract (AVE). When measuring scale reliability, the values of factor loading should be above 0.5, and composite reliability (CR) should be above 0.7 (Milman & Tasci, 2018). The results indicated that the values of CR in this study ranged from 0.773–0.930, which are higher than the suggested values of the standard of 0.7, and all of the factor loadings are above 0.5. Furthermore, other values of average variance extracted (AVE) are also used in the estimated constructs' validity, which suggests that the values should be greater than 0.5 (Liu & Huang, 2020). The values of AVE for measuring items used in this study ranged from 0.560–0.743, and all were above the suggested values of 0.5. The results of factor loading, CR and AVE indicating average explanatory power, validity and reliability of the constructs were adequate and suitable for advanced analysis.

Common method variance (CMV) measurement and estimate

The issues of common method variance are common issues when the survey is collected once. According to previous studies, several steps were adapted to avoid CMV. First, CFA was calculated, as Liu and Huang (2020) suggested that values of CFA could be capable of correctly assessing CMV. Second, Harman's single-factor method was used and calculated to address the issue of CMV (Teng & Chen, 2019). The Harman's single-factor analysis value was 42.12%, which was below the suggested value of 50% explanation and fit the requirement of model fit. Third, we observed that the variables used in this study, perceived risk, psychological involvement of tourism, destination image, travel behaviour, marketing strategy, sustainable behaviour and technology sharing, are highly correlated. Therefore, the variation inflation factor (VIF) was calculated, and the results are presented in Table 3 to

clarify the potential problem of high correlation. The values are below the suggested value of 10 and indicate no concern of multicollinearity (Liu & Huang, 2020). Fourth, before the data collection, the researchers explained to respondents that there are no right or wrong answers in the measurement and that they should select the level of agreement according to their feeling when experiencing sustainable tourism (Mäkelä & Brewster, 2009). Finally, anonymity of respondents is guaranteed, and the main purpose of the study is just for research purposes and would not disclose personal information.

Hypotheses testing

A structural equation model (SEM) was used to examine the proposed hypotheses in this study. According to Hair et al. (2009), "The method of SEM conducted the concepts of multiple regression, and results may also represent the factor analysis to estimate interrelated relationships among constructs instantaneously". In this structure, which is composed of multiple dependent variables and independent variables, we used the potential of the proposed model construct confirmatory factor analysis (CFA) to assess the project of the two-model structure analysis. The overall fitting of the two models is shown in Figure 2. Model 2A demonstrates several indexes, including perceived risk, psychological involvement, contained destination image and travel behaviour in antecedent behaviour. Further, Model 2B includes destination image, marketing strategy and sustainable behaviour to illustrate the consequence behaviour. The following indexes were used in measuring model fit: Chi-square/degrees of freedom, normed fit index (NFI), relative fit index (RFI), incremental fit index (IFI), Tucker-Lewis index (TLI), comparative fit index (CFI) and root mean square error of approximation (RMSEA). The measurement of Model 2A fits the data satisfactorily, with all indexes greater than the standards ($\chi^2/df=2.834$, $p=0.000$; AGFI = 0.878; GFI = 0.900; CFI = 0.952; NFI = 0.928; TLI = 0.946; IFI = 0.952; RMSEA = 0.060), and Model 2B displayed a good fit ($\chi^2/df=2.762$, $p=0.000$; AGFI = 0.830; GFI = 0.852; CFI = 0.926; NFI = 0.890; TLI = 0.914; IFI = 0.920; RMSEA = 0.059).

The results show that factor loadings for all items are significant ($p < .001$). Although the values of GFI and AGFI are less than the suggested values of 0.9 but above the values of 0.8, they also indicated good

Table 2. Variables of exploratory factor analysis, descriptive statistics and confirmatory factor analysis.

Indicator	Measurable Variable	Result of Exploratory Factor Analysis	Descriptive Statistics		Confirmatory Factor Analysis		
			Factor Load	Mean	Standard Deviation	Standardized Loading	Average Variance Extracted
Loss of perception	LOP1	0.886	5.710	0.942	0.850	0.560	0.903
	LOP2	0.899	5.700	0.959	0.862		
	LOP3	0.889	5.700	0.979	0.839		
	LOP4	0.842	5.680	0.974	0.795		
Probability of perception	POP1	0.923	5.610	1.053	0.799	0.635	0.777
	POP2	0.923	5.730	0.959	0.879		
Psychological involvement of tourism	PIT1	0.822	5.650	0.939	0.773	0.727	0.930
	PIT2	0.869	5.730	0.970	0.802		
	PIT3	0.880	5.720	0.947	0.807		
	PIT4	0.817	5.680	0.981	0.782		
	PIT5	0.872	5.700	0.996	0.852		
Services Experience	SE1	0.799	5.410	1.064	0.783	0.538	0.892
	SE2	0.825	5.580	1.020	0.858		
	SE3	0.869	5.620	0.997	0.852		
	SE4	0.786	5.680	1.023	0.852		
Unique City Attractions	CV1	0.869	5.810	0.945	0.913	0.797	0.887
	CV2	0.888	5.850	0.983	0.872		
Activities and Events	EVENT1	0.857	5.710	1.039	0.784	0.630	0.773
	EVENT2	0.801	5.600	0.969	0.803		
Travel Behaviour	EB1	0.748	5.640	0.958	0.707	0.611	0.887
	EB2	0.856	5.730	1.032	0.802		
	EB3	0.813	5.770	0.908	0.757		
	EB4	0.865	5.690	0.962	0.828		
	EB5	0.849	5.680	0.964	0.808		
Product	PRO1	0.865	5.790	0.964	0.815	0.530	0.887
	PRO2	0.886	5.860	0.954	0.832		
	PRO3	0.872	5.900	0.956	0.830		
	PRO4	0.827	5.860	0.982	0.776		
Price	PRI1	0.830	5.730	0.990	0.769	0.484	0.860
	PRI2	0.854	5.860	0.972	0.793		
	PRI3	0.868	5.910	0.977	0.827		
	PRI4	0.796	5.730	0.907	0.719		
Channel	PLA1	0.835	5.770	0.876	0.752	0.608	0.823
	PLA2	0.882	5.870	0.941	0.820		
	PLA3	0.856	5.750	0.976	0.765		
Promotion	PROM1	0.883	5.540	0.994	0.821	0.743	0.896
	PROM2	0.927	5.500	1.045	0.895		
	PROM3	0.915	5.520	1.104	0.868		
Personnel	PART1	0.876	5.860	0.919	0.811	0.663	0.855
	PART2	0.891	5.800	0.888	0.821		
	PART3	0.874	5.820	0.941	0.810		
Process	PROC1	0.855	5.710	1.135	0.755	0.626	0.834
	PROC2	0.891	5.580	1.046	0.814		
	PROC3	0.852	5.530	1.000	0.803		
Tangible demonstration	PE1	0.900	5.850	0.926	0.852	0.710	0.880
	PE2	0.913	5.850	0.941	0.874		
	PE3	0.878	5.900	0.919	0.801		
Sustainable tourism	ST1	0.862	5.610	0.992	0.828	0.698	0.920
	ST2	0.887	5.710	0.969	0.857		
	ST3	0.877	5.740	0.977	0.840		
	ST4	0.872	5.680	1.026	0.834		
	ST5	0.855	5.830	0.971	0.819		
Information sharing	VIS1	0.817	5.680	1.005	0.761	0.606	0.885
	VIS2	0.837	5.830	0.947	0.766		
	VIS3	0.831	5.780	0.946	0.786		
	VIS4	0.767	5.730	0.977	0.769		
	VIS5	0.808	5.730	0.900	0.810		
Personalized sharing	PS1	0.839	5.810	0.923	0.814	0.601	0.819
	PS2	0.855	5.580	1.074	0.740		
	PS3	0.905	5.660	1.031	0.770		

Table 3. Correlation, reliability and distinguishing validity of variables

Construct	LP	POP	PI	SE	CV	EVENT	EB	PRO	PRI	PLA	PROM	PART	PROC	PE	ST	IS	PS	VIF
Perceived Risk (<i>PR</i>)																		
Loss of perception (LP)	(.902)																	
Probability of perception (POP)	.964**	(.823)																
Psychological (<i>PI</i>)	.822**	.824**	(.905)															
Destination Image (<i>DI</i>)																		
Services experience (SE)	.626**	.604**	.619**	(.902)														
Unique city attractions (CV)	.662**	.673**	.660**	.868**	(.886)													
Activities and events (EVENT)	.713**	.729**	.711**	.725**	.818**	(.886)												
Travel Behaviour (EB)	.755**	.771**	.738**	.631**	.674**	.708**	(.884)											
Marketing Strategy (MS)																		
Product (PPO)	.627**	.635**	.645**	.699**	.717**	.673**	.617**	(.885)										
Price (PRI)	.642**	.665**	.669**	.666**	.700**	.665**	.648**	.773**	(.858)									
Channel (PLA)	.674**	.700**	.649**	.651**	.704**	.670**	.651**	.717**	.796**	(.820)								
Personnel (PROM)	.588**	.608**	.590**	.577**	.692**	.660**	.627**	.541**	.611**	.661**	(.894)							
Promotion (PART)	.611**	.630**	.662**	.565**	.618**	.605**	.634**	.598**	.596**	.642**	.533**	(.854)						
Tangible demonstration (PROC)	.589**	.582**	.580**	.733**	.769**	.672**	.559**	.708**	.612**	.626**	.611**	.518**	(.831)					
Process (PE)	.470**	.501**	.549**	.491**	.527**	.533**	.565**	.568**	.533**	.544**	.482**	.704**	.481**	(.879)				
Sustainable Tourism (ST)	.755**	.769**	.743**	.580**	.636**	.789**	.752**	.588**	.589**	.620**	.600**	.565**	.530**	.482**	(.920)			
Technology Sharing (TS)																		
Information sharing (IS)	.662**	.681**	.710**	.666**	.723**	.754**	.680**	.668**	.675**	.658**	.635**	.709**	.659**	.655**	.663**	(.870)		
Personalized sharing (PS)	.611**	.650**	.655**	.546**	.612**	.656**	.657**	.549**	.552**	.574**	.574**	.630**	.521**	.562**	.643**	.724**	(.833)	
Mean Value	5.701	5.687	5.697	5.574	5.730	5.678	5.703	5.854	5.809	5.799	5.518	5.824	5.608	5.863	5.714	5.751	5.682	
Standard Deviation	0.874	0.833	0.824	0.902	0.814	0.806	0.798	0.831	0.805	0.799	0.952	0.806	0.918	0.833	0.860	0.775	0.876	

Note. $N = 505$ sustainable tourism tourists. Internal consistency reliabilities are shown on the diagonal in bold. Values of correlation above .481 are at significant level of .05.

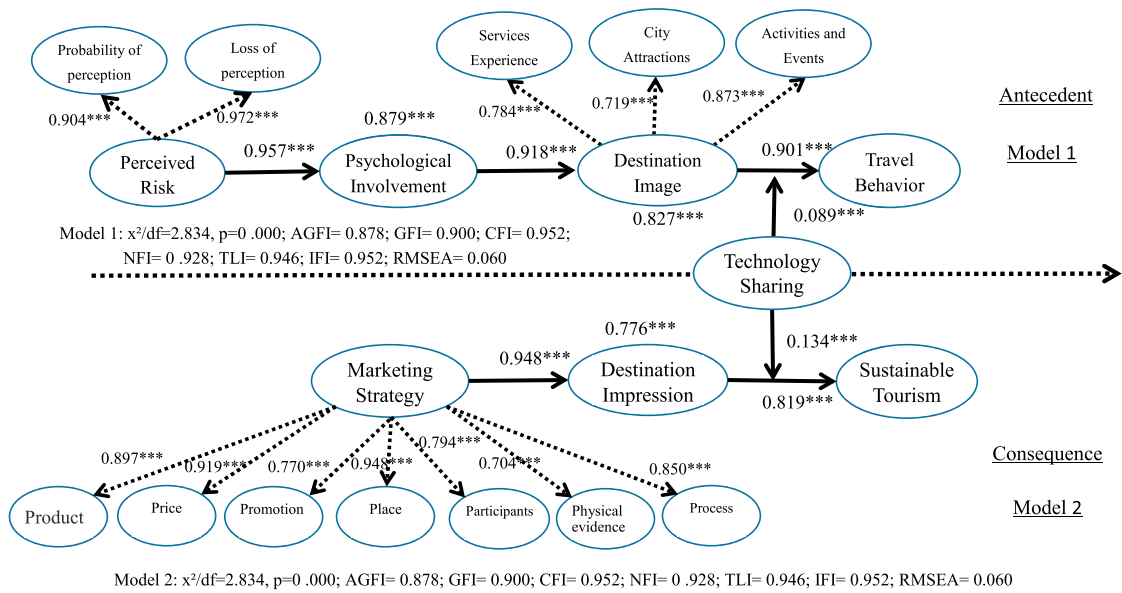


Figure 2. Results of proposed theoretical model and research framework.

model fit (Bagozzi & Yi, 1988, p. 79). Furthermore, we also assessed that the values of Cornbrash’s alpha for all the constructs were higher than the 0.70 benchmark. To exclude and detect the possibility of deviation of common methods, we examined the alternative model A model fit ($\chi^2/df = 4.983, p = 0.000$; AGFI = 0.816; GFI = 0.850; CFI = 0.895; NFI = 0.873; TLI = 0.882; IFI = 0.896; RMSEA = 0.090) and alternative model B model fit ($\chi^2/df = 6.385, p = 0.000$; AGFI = 0.587; GFI = 0.638; CFI = 0.775; NFI = 0.745; TLI = 0.757; IFI = 0.776; RMSEA = 0.103) and showed a poorer model fitting effect than the hypothesized model. The above examination and alternative models confirmed that the hypothesized model was suitable for examination of the study’s theoretical framework.

Mediation effects analysis

Hypothesis 1 and Hypothesis 2 proposed two mediation effects in model A. There are two indirect effects: psychological involvement mediates the relationship between perceived risk and destination image, and destination image mediates the relationship between psychological involvement and travel behaviour. Table 4 shows the path coefficient analysis of direct effects, and Table 5 shows the mediation effect of proposed hypothesis examinations.

To examine the proposed mediation effect, a similar bootstrap method was used to test

Hypotheses 1 and 2. Liu and Huang (2020) suggested that appropriate ranges should be selected with 95% bootstrap confidence intervals and a function of bias-corrected confidence intervals to estimate all parameters in the model (Preacher & Hayes, 2004). The results of Hypothesis 1 show that psychological involvement mediates the relationship between perceived risk and destination image and is significant ($\beta = 0.879, p < 0.001$). The values of estimate of indirect effect are positive and statistically significant with 95% bias-corrected bootstrap confidence interval (CI) ($\beta = 0.879; CI [0.816; 0.917]$) and the 95% bootstrap confidence interval (CI) ($\beta = 0.879; CI [0.835; 0.926]$). Furthermore, the results show that

Table 4. Path coefficient analysis of direct effects.

Path	Standardized Path Coefficients	Standard Error	Results
Perceived Risk → Psychological Involvement	0.96	0.053	Significant
Psychological Involvement → Destination Image	0.92	0.058	Significant
Destination Image → Travel Behaviour	0.90	0.071	Significant
Destination Impression → Marketing Strategy	0.95	0.061	Significant
Marketing Strategy → Sustainable Tourism	0.82	0.058	Significant

Table 5. Mediation effect of proposed hypothesis examinations.

Hypothesis Path	Estimates	Bias-corrected 95%CI		Percentile 95%CI		Results
		Lower	Upper	Lower	Upper	
Perceived Risk → Destination Image	0.879	0.816	0.917	0.835	0.926	Support
Psychological Involvement → Travel Behaviour	0.827	0.776	0.870	0.782	0.874	Support
Marketing Strategy → Sustainable Tourism	0.776	0.703	0.829	0.703	0.829	Support

destination image mediates the relationship between psychological involvement and travel behaviour significantly ($\beta = 0.827$, $p < 0.001$). The indirect effect is positive and statistically significant, as evidenced by the 95% bias-corrected bootstrap confidence interval (CI) ($\beta = 0.827$; CI [0.776; 0.870]) and the 95% bootstrap confidence interval (CI) ($\beta = 0.827$; CI [0.782; 0.874]). The above results indicated that Hypothesis 1 and Hypothesis 2 were fully supported.

Hypothesis 3 tests the relationship effect in model B. Destination image mediates the marketing strategy between sustainable behaviour. The total effect of destination image on marketing strategy through sustainable behaviour is significant ($\beta = 0.776$, $p < 0.001$). The indirect effect is positive and statistically significant, as evidenced by the 95% bias-corrected bootstrap confidence interval (CI) ($\beta = 0.776$; CI [0.703; 0.829]) and the 95% bootstrap confidence interval (CI) ($\beta = 0.776$; CI [0.7703; 0.829]). Therefore, Hypothesis 3 was supported.

Moderating effect analysis

Table 6 shows the moderating effect test of technology sharing. The moderating effects of destination image-travel behaviour associations with technology sharing in model A and destination image-sustainable

Table 6. Moderating effect test of technology sharing.

Hypothesis Path	Standardized Path Coefficients	Standard Error	Results
Destination Impression → Travel Behaviour	0.434	0.044	Support
Technology Sharing → Travel Behaviour	0.433	0.045	
DI×TS → Travel Behaviour	0.134***	0.027	
Destination Impression → Sustainable Tourism	0.442	0.490	Support
Technology Sharing → Sustainable Tourism	0.397	0.500	
DI×TS → Sustainable Tourism	0.089***	0.030	

behaviour associations with technology sharing in model B are shown in Figure 1. The moderating effect process was suggested, and regression analyses were used to test the interaction effects of the proposed variables (Edwards & Lambert, 2007). This study followed the steps and used mean centred interaction variables to reduce multicollinearity (Aiken & West, 1991). As the result shows in Table 3, the interaction between destination image and technology sharing was significantly related to travel behaviour ($\beta = 0.134$, $p > .05$) and sustainable behaviour ($\beta = .089$, $p > .05$). To understand the nature of the moderating relationship, the interaction was plotted by adopting Aiken and West's (1991) to plot the interaction relationship between destination image and technology sharing at 1 SD above (high technology sharing) and 1 SD below (low technology sharing) the mean of tourists' perception of travel behaviour and sustainable behaviour. As shown in Figure 3A and 3B, the interaction effects of technology sharing were consistent with our predictions. Simple slopes showed that destination image cannot improve the level of tourism behaviour and sustainable behaviour when technology sharing is low. However, the relationship between destination image and tourism behaviour, as well as sustainable behaviour, is strengthened when technology sharing is high. Therefore, Hypothesis 4 and Hypothesis 5 are both supported.

Conclusion and discussion

As an illustration of an integrated perspective of sustainable tourism, this study empirically surveyed the antecedent mechanisms of destination image and consequence function of marketing strategy is related to individual sustainable tourism intention and the buffering role of technology sharing in travel decision-making procedures. With a sample of 505 tourists who have had sustainable experiences, we found that perceived risk may indirectly influence travel behaviour through psychological involvement and destination image in the

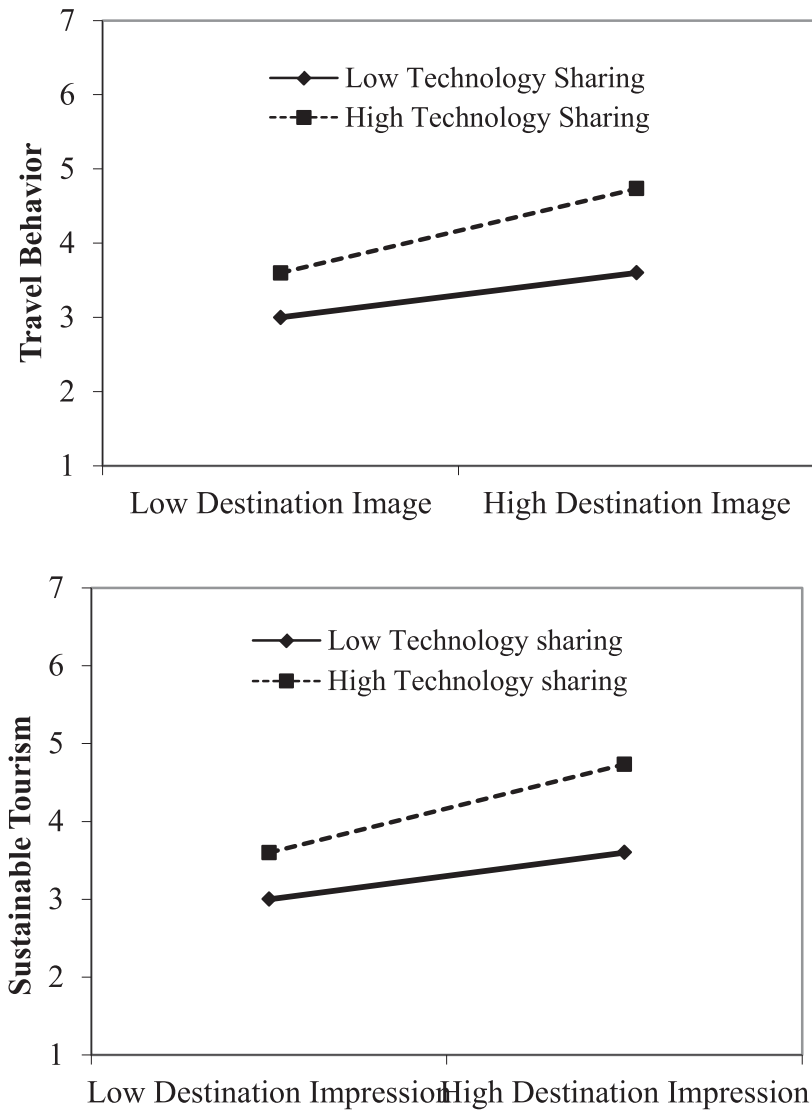


Figure 3. (A) Moderating effects of technology sharing on the relationship between destination image and travel behaviour. (B) Moderating effects of technology sharing on the relationship between destination impression and sustainable tourism.

antecedents. Furthermore, the destination impression links the relationships between marketing strategy and sustainable tourism intention. Additionally, the study found that technology sharing played an important role in these complex antecedent-consequence processes by intervening in one moderating mechanism. In the antecedent stage, technology sharing strengthens the destination image to changing travel behaviour, such that destination impression is related to increased sustainable tourism intention only for a high level of technology sharing in the consequences stages.

Theoretical implications

This study is one of the first to conduct an antecedent-consequence concept and examine sustainable tourism for its influence on tourist behaviour, marketing strategy, and destination management. We selected tourists as a sample who have had sustainable experiences for studying how the antecedent-consequence critical attributes of marketing strategy may influence sustainable behaviour, which provides existing literature with a better understanding of the conceptualization and measurement of marketing

strategy and its effects (Xu & Gursoy, 2015). Hence, this study empirically supports the proposition that the development of destination image and sustainability marketing strategy are key to influencing tourists' sustainable behaviour and results from their perceptions of attractions and satisfaction (Lee & Xue, 2020). Beyond that, the antecedents-consequences concepts and measurement objects used in this study could act as important indicators of connecting the concepts of sustainable tourism, destination management and business strategy for the benefit of future research.

Second, the antecedents model touches on the relation between perceived risk, psychological involvement, destination image and travel behaviour. Based on the model proposed by Sohn et al. (2016), the study hypothesized that perceived risk would positively impact tourists' psychological involvement and destination image and then promote their travel behaviour towards sustainability. The results of this study extend the study of Sohn et al. (2016), who proposed that perceived risks, psychological status and destination image must be studied together to establish an effective analysis of tourist behaviour in relation to tourism destination management (Kebete & Wondirad, 2019). In addition, in the consequences model, we extended the examination of the effects of marketing strategy on sustainable tourism intention, finding empirical evidence that marketing strategy is indirectly positively related to sustainable tourism through destination impression. This result supports the position by Campón-Cerro et al. (2017) that successful marketing strategy results not only in attracting newly satisfied customers but also in advancing the loyalty and repurchase decisions of those who have already purchased sustainable products. The findings are concordant with previous research reporting factors affecting marketing strategies to encourage more arrivals of destination impression (Lee & Jan, 2019; Lee & Shen, 2013), as well as factors driven by customer-relevant sustainable product or service design, and increase the intention or responsibility for sustainable tourism (Sánchez-Fernández et al., 2019).

Third, in contrast to the supported moderating effect of technology sharing in the relationship between destination management and sustainable tourism intention, our results did support the prediction that technology sharing will moderate the relationship between destination image and travel behaviour in the antecedents model and strengthen the relationships between destination impression and sustainable tourism intention. These results may

have confirmed the critical roles of new technology usage in current and future tourism and destination management (Ivars-Baidal et al., 2019). Kebete and Wondirad (2019) asserted that considering technology sharing in sustainable tourism echoes fundamental theoretical implications for stakeholders when considering destination image. From another perspective, new technology usage behaviour provides more insight into the important role of predicting visitor actions, which is also indicated as a key element in assisting destination evaluation and pleasing visitors (Canovi & Pucciarelli, 2019). Furthermore, this study highlights the consequences of sustainability commitment in marketing strategies to confirm a longer-term travel destination image improvement. Consequently, the findings of this study improve our understanding of the connection among destination management and technology sharing as well as sustainable tourism destination development.

Managerial implications

The findings of the present study provide some substantial implications for sustainable tourism administration. First, with rapid global weather changes and disease spread, the issue of "take responsibility for environments" has become a new trend in tourism activities (Chen, 2005). Especially in the Chinese tourism industry, following economic growth, awareness of environmental protection has also increased; thus, the emphasis of "sustainability" may not only satisfy customers' needs but can also maintain an organizational competitive advantage, thus achieving the goal of organizational growth and survival (Eneizan & Obaid, 2016). Dedeoğlu (2019) suggested that managers need to use demand-side thinking to design tourism activities and use the appropriate marketing strategy to improve destination quality perception and loyalty. Furthermore, increasing customers' psychological involvement of sustainability and risk perception of environmentally harmful behaviours also provides another way of designing tourism activities by tourism organizations (Landon et al., 2018).

Second, the findings indicate an important moderating effect of technology sharing, which indicates that managers need to be aware of the new media effects and create a friendly and convenient technology environment to attract potential users, such as providing free WIFI, easy-to-use functions or useful travel apps to help organizations deliver critical information to their target guests (Zhang et al., 2019).

Furthermore, the findings also indicate that managers who want to increase tourists' sustainable tourism intentions and who are undergoing rapid growth in the tourism market must use new social media or technology to deliver the world trend of new knowledge and educational approaches to change tourists' behaviours towards sustainability to increase natural or eco-friendly ways of travel because following changes in the tourism environment and new social media or technology sharing is needed in the future tourism market (Bizirgianni & Dionysopoulou, 2013).

Third, this study emphasizes the discovery of the effects of destination management and marketing strategy to increase tourists' sustainable experiences and encourage their travel intention when engaging in sustainable tourism. Therefore, tourism managers should pay attention to changing the marketing strategy by altering tourists' antecedent travel awareness and, with consequences, environmental behaviours in which firms are required to satisfy tourists' expectations of destination image (Lee & Xue, 2020). As Eneizan and Obaid (2016) asserted, marketing strategy should customize customer needs and guide their intention of consuming a green service or product, simplify the trade and purchase process, and ensure that customers can search for important sustainable information in a short time. Furthermore, marketing strategy may also strengthen destination image and emotional effects to encourage customer awareness of sustainable tourism in a timely and effective manner (Kebete & Wondirad, 2019). In addition to providing customers with sustainability information about tourism value and impacts, managers may also think about how to use marketing strategy to provide new tourism trends of sustainability and more environmental protection information regarding various travel information platforms with comparative functions, such as green consumption behaviour comparison information and the formation of responsible tourism (Pope et al., 2019). The multiple functions of marketing strategy can not only enhance customers' awareness of sustainability and establish a positive evaluation of destination image but also enable customers to effectively obtain sustainable and environmentally friendly value information and feedback that meets customers' changeable requirements.

Limitations and future studies

To address the concepts of destination management and marketing strategies for sustainable tourism, this

study found that new technologies are useful for destination marketing. It is also possible that certain critical attributes of destination management and marketing strategy that were included could be considered useful promoting tools depending on how they are defined or which aspect of sustainable behaviour is encouraged. For example, Landon et al. (2018) introduced psychological mechanisms to explain pro-sustainable behavioural intent, which is slightly different from the consideration characteristics in this study. Another limitation could be tourists' willingness to perform the pro-environment behaviour or other mechanism to enforce then-real adoption of sustainability behaviour (Eneizan & Obaid, 2016), because it is possible that participants were affected by our demonstration of potential critical attributes. Additionally, due to time and resource limitations, the current study only collects related small samples and focuses on sustainable tourism. These findings may not be representative of the situation of all travel purposes, such as festival, culinary or adventure tourism. For the above reasons, the following suggestions are also proposed for future tourism and hospitality studies. First, a follow-up study should be conducted with other destination purposes, and the findings of this study should be extended to look at the actual impacts of the sustainability experience and destination management effects. Second, the technologies application in this study should be extended to include newer and different technologies under different situations of country development status. As Ezzaouia and Bulchand-Gidumal (2020) asserted, country development status may influence the adoption of information technology and customer satisfaction. Therefore, the consideration of country development status and culture differences may provide more meaningful information for current and future studies.

Disclosure statement

The author(s) declare(s) that there is no potential conflict of interest regarding the publication of this article.

Reference

- Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Sage.
- Akgün, A. E., Senturk, H. A., Keskin, H., & Onal, I. (2020). The relationships among nostalgic emotion, destination images and tourist behaviors: An empirical study of Istanbul.

- Journal of Destination Marketing & Management*, 16, 100355. <https://doi.org/10.1016/j.jdmm.2019.03.009>
- Almeida-García, F. (2020). Current issues of tourism in Morocco. In M. Novelli, E. A. Adu-Ampong, & M. A. Ribeiro (Eds.), *Routledge handbook of tourism in Africa* (pp. 170–181). Routledge.
- Almeida-García, F., Domínguez-Azcue, J., Mercadé-Melé, P., & Pérez-Tapia, G. (2020). Can a destination really change its image? The roles of information sources, motivations, and visits. *Tourism Management Perspectives*, 34, 100662. <https://doi.org/10.1016/j.tmp.2020.100662>
- Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin*, 103(3), 411–423. <https://doi.org/10.1037/0033-2909.103.3.411>
- Bagozzi, R. P., & Yi, Y. (1988). On the evaluation of structural equation models. *Journal of the Academy of Marketing Science*, 16(1), 74–94. <https://doi.org/10.1007/BF02723327>
- Becken, S., Jin, X., Zhang, C., & Gao, J. (2017). Urban air pollution in China: Destination image and risk perceptions. *Journal of Sustainable Tourism*, 25(1), 130–147. <https://doi.org/10.1080/09669582.2016.1177067>
- Bilgihan, A., & Nejad, M. (2015). Innovation in hospitality and tourism industries. *Journal of Hospitality and Tourism Technology*, 6(3), 198–202. <https://doi.org/10.1108/JHTT-08-2015-0033>
- Bilkey, W. J., & Nes, E. (1982). Country-of-origin effects on product evaluations. *Journal of International Business Studies*, 13(1), 89–100. <https://doi.org/10.1057/palgrave.jibs.8490539>
- Bizirgianni, I., & Dionysopoulou, P. (2013). The influence of tourist trends of youth tourism through social media (SM) & information and communication technologies (ICTs). *Procedia-Social and Behavioral Sciences*, 73, 652–660. <https://doi.org/10.1016/j.sbspro.2013.02.102>
- Blazevic, V., Hammedi, W., Garnefeld, I., Rust, R. T., Keiningham, T., Andreassen, T. W., Donthu, N., & Carl, W. (2013). Beyond traditional word-of-mouth: An expanded model of customer-driven influence. *Journal of Service Management*, 24(3), 294–313. <https://doi.org/10.1108/09564231311327003>
- Büttcher, S., Clarke, C. L., & Cormack, G. V. (2016). *Information retrieval: Implementing and evaluating search engines*. The MIT Press.
- Campón-Cerro, A. M., Hernández-Mogollón, J. M., & Alves, H. (2017). Sustainable improvement of competitiveness in rural tourism destinations: The quest for tourist loyalty in Spain. *Journal of Destination Marketing & Management*, 6(3), 252–266. <https://doi.org/10.1016/j.jdmm.2016.04.005>
- Canovi, M., & Pucciarelli, F. (2019). Social media marketing in wine tourism: Winery owners' perceptions. *Journal of Travel & Tourism Marketing*, 36(6), 653–664. <https://doi.org/10.1080/10548408.2019.1624241>
- Chang, S., & Gibson, H. J. (2015). The relationships between four concepts (involvement, commitment, loyalty, and habit) and consistency in behavior across leisure and tourism. *Tourism Management Perspectives*, 13, 41–50. <https://doi.org/10.1016/j.tmp.2014.11.003>
- Chen, C. C., & Petrick, J. F. (2016). The roles of perceived travel benefits, importance, and constraints in predicting travel behavior. *Journal of Travel Research*, 55(4), 509–522. <https://doi.org/10.1177/0047287514563986>
- Chen, H. R. (2005). The relationship among tourists' involvement, place attachment and interpretation satisfaction in Taiwan's national parks. *Tourism Management*, 26(2), 143–156. <https://doi.org/10.1016/j.tourman.2003.11.006>
- Dedeoğlu, B. B. (2019). Shaping tourists' destination quality perception and loyalty through destination country image: The importance of involvement and perceived value. *Tourism Management Perspectives*, 29, 105–117. <https://doi.org/10.1016/j.tmp.2018.11.006>
- Edwards, J. R., & Lambert, L. S. (2007). Methods for integrating moderation and mediation: A general analytical framework using moderated path analysis. *Psychological Methods*, 12(1), 1–22. <https://doi.org/10.1037/1082-989X.12.1.1>
- Eneizan, B. M., & Obaid, T. F. (2016). Prior research on green marketing and green marketing strategy: Critical analysis. *Singaporean Journal of Business, Economics and Management Studies*, 5(3965), 1–19. <https://doi.org/10.12816/0033265>
- Etzaouia, I., & Bulchand-Gidumal, J. (2020). Factors influencing the adoption of information technology in the hotel industry. An analysis in a developing country. *Tourism Management Perspectives*, 34, 100675. <https://doi.org/10.1016/j.tmp.2020.100675>
- Gartner, W. C. (1993). Image formation process. *Journal of Travel and Tourism Marketing*, 2(2–3), 191–216. https://doi.org/10.1300/J073v02n02_12
- Gretzel, U., Sigala, M., Xiang, Z., & Koo, C. (2015). Smart tourism: Foundations and developments. *Electronic Markets*, 25(3), 179–188. <https://doi.org/10.1007/s12525-015-0196-8>
- Gursoy, D., & Gavcar, E. (2003). International leisure tourists' involvement profile. *Annals of Tourism Research*, 30(4), 906–926. [https://doi.org/10.1016/S0160-7383\(03\)00059-8](https://doi.org/10.1016/S0160-7383(03)00059-8)
- Hair, E. C., Anderson Moore, K., Hadley, A. M., Kaye, K., Day, R. D., & Orthner, D. K. (2009). Parent marital quality and the parent-adolescent relationship: Effects on adolescent and young adult health outcomes. *Marriage & Family Review*, 45(2–3), 218–248. <https://doi.org/10.1080/01494920902733567>
- Hall, C. M. (2019). Constructing sustainable tourism development: The 2030 agenda and the managerial ecology of sustainable tourism. *Journal of Sustainable Tourism*, 27(7), 1044–1060. <https://doi.org/10.1080/09669582.2018.1560456>
- Huang, Y. C., & Liu, C. H. S. (2017). Moderating and mediating roles of environmental concern and ecotourism experience for revisit intention. *International Journal of Contemporary Hospitality Management*, 29(7), 1854–1872. <https://doi.org/10.1108/IJCHM-12-2015-0677>
- Ivares-Baidal, J. A., Celdrán-Bernabeu, M. A., Mazón, J. N., & Perles-Ivares, Á.F. (2019). Smart destinations and the evolution of ICTs: A new scenario for destination management? *Current Issues in Tourism*, 22(13), 1581–1600. <https://doi.org/10.1080/13683500.2017.1388771>
- Kebete, Y., & Wondirad, A. (2019). Visitor management and sustainable destination management nexus in zegie peninsula, northern Ethiopia. *Journal of Destination Marketing & Management*, 13, 83–98. <https://doi.org/10.1016/j.jdmm.2019.03.006>
- Kotler, P. (2002). *Marketing places*. Free Press.
- Kotoua, S., & Ilkan, M. (2017). Tourism destination marketing and information technology in Ghana. *Journal of Destination Marketing and Management*, 6(2), 127–135. <https://doi.org/10.1016/j.jdmm.2017.04.007>

- Król, K. (2019). Forgotten agritourism: Abandoned websites in the promotion of rural tourism in Poland. *Journal of Hospitality and Tourism Technology*, 10(3), 431–442. <https://doi.org/10.1108/JHTT-09-2018-0092>
- Kurniawan, F., Adrianto, L., Bengen, D. G., & Prasetyo, L. B. (2019). The social-ecological status of small islands: An evaluation of island tourism destination management in Indonesia. *Tourism Management Perspectives*, 31, 136–144. <https://doi.org/10.1016/j.tmp.2019.04.004>
- Labanauskaitė, D., Fiore, M., & Stašys, R. (2020). Use of E-marketing tools as communication management in the tourism industry. *Tourism Management Perspectives*, 34, 100652. <https://doi.org/10.1016/j.tmp.2020.100652>
- Lai, K., & Li, X. (2016). Tourism destination image: Conceptual problems and definitional solutions. *Journal of Travel Research*, 55(8), 1065–1080. <https://doi.org/10.1177/0047287515619693>
- Landon, A. C., Woosnam, K. M., & Boley, B. B. (2018). Modeling the psychological antecedents to tourists' pro-sustainable behaviors: An application of the value-belief-norm model. *Journal of Sustainable Tourism*, 26(6), 957–972. <https://doi.org/10.1080/09669582.2017.1423320>
- Lee, S. W., & Xue, K. (2020). A model of destination loyalty: Integrating destination image and sustainable tourism. *Asia Pacific Journal of Tourism Research*, 25(4), 393–408. <https://doi.org/10.1080/10941665.2020.1713185>
- Lee, T. H., & Jan, F. H. (2019). Market segmentation based on the environmentally responsible behaviors of community-based tourists: Evidence from Taiwan's community-based destinations. *International Journal of Tourism Research*, 21(3), 400–411. <https://doi.org/10.1002/jtr.2272>
- Lee, T. H., & Shen, Y. L. (2013). The influence of leisure involvement and place attachment on destination loyalty: Evidence from recreationists walking their dogs in urban parks. *Journal of Environmental Psychology*, 33(Mar.), 76–85. <https://doi.org/10.1016/j.jenvp.2012.11.002>
- Li, F., Wen, J., & Ying, T. (2018). The influence of crisis on tourists' perceived destination image and revisit intention: An exploratory study of Chinese tourists to North Korea. *Journal of Destination Marketing & Management*, 9, 104–111. <https://doi.org/10.1016/j.jdmm.2017.11.006>
- Liu, C. H., & Huang, Y. C. (2020). An integrated structural model examining the relationships between natural capital, tourism image and risk impact and behavioural intention. *Current Issues in Tourism*, 23(11), 1357–1374. <https://doi.org/10.1080/13683500.2019.1620187>
- Liu, C. H. S., & Chou, S. F. (2016). Tourism strategy development and facilitation of integrative processes among brand equity, marketing and motivation. *Tourism Management*, 54(Jun.), 298–308. <https://doi.org/10.1016/j.tourman.2015.11.014>
- Mäkelä, K., & Brewster, C. (2009). Interunit interaction contexts, interpersonal social capital, and the differing levels of knowledge sharing. *Human Resource Management*, 48(4), 591–613. <https://doi.org/10.1002/hrm.20300>
- Mandal, S. (2018). Exploring the influence of big data analytics management capabilities on sustainable tourism supply chain performance: The moderating role of technology orientation. *Journal of Travel & Tourism Marketing*, 35(8), 1104–1118. <https://doi.org/10.1080/10548408.2018.1476302>
- Mandal, S., & Dubey, R. K. (2020). Role of tourism IT adoption and risk management orientation on tourism agility and resilience: Impact on sustainable tourism supply chain performance. *International Journal of Tourism Research*, 22(6), 800–813. <https://doi.org/10.1002/jtr.2381>
- Mcintyre, N. (1989). The personal meaning of participation: Enduring involvement. *Journal of Leisure Research*, 21(2), 167–179. <https://doi.org/10.1080/00222216.1989.11969797>
- Milman, A., & Tasci, A. D. (2018). Exploring the experiential and sociodemographic drivers of satisfaction and loyalty in the theme park context. *Journal of Destination Marketing & Management*, 8, 385–395. <https://doi.org/10.1016/j.jdmm.2017.06.005>
- Mistilis, N., Buhalis, D., & Gretzel, U. (2014). Future eDestination marketing: perspective of an Australian tourism stakeholder network. *Journal of Travel Research*, 53(6), 778–790. <https://doi.org/10.1177/0047287514522874>
- Moutinho, L. (1987). Consumer behavior in tourism. *European Journal of Marketing*, 21(10), 5–44. <https://doi.org/10.1108/EUM0000000004718>
- Navio-Marco, J., Ruiz-Gómez, L. M., & Sevilla-Sevilla, C. (2019). Progress in wireless technologies in hospitality and tourism. *Journal of Hospitality and Tourism Technology*, 10(4), 587–599. <https://doi.org/10.1108/JHTT-07-2018-0061>
- Papadimitriou, D., Apostolopoulou, A., & Kaplanidou, K. (2015). Destination personality, affective image, and behavioral intentions in domestic urban tourism. *Journal of Travel Research*, 54(3), 302–315. <https://doi.org/10.1177/0047287513516389>
- Park, S., & Tussyadiah, I. P. (2017). Multidimensional facets of perceived risk in mobile travel booking. *Journal of Travel Research*, 56(7), 854–867. <https://doi.org/10.1177/0047287516675062>
- Pierdicca, R., Paolanti, M., & Frontoni, E. (2019). eTourism: ICT and its role for tourism management. *Journal of Hospitality and Tourism Technology*, 10(1), 90–106. <https://doi.org/10.1108/JHTT-07-2017-0043>
- Pope, J., Wessels, J. A., Douglas, A., Hughes, M., & Morrison-Saunders, A. (2019). The potential contribution of environmental impact assessment (EIA) to responsible tourism: The case of the kruger national park. *Tourism Management Perspectives*, 32, 100557. <https://doi.org/10.1016/j.tmp.2019.100557>
- Preacher, K. J., & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments, & Computers*, 36(4), 717–731.
- Prebensen, N. K., Woo, E., & Uysal, M. S. (2014). Experience value: Antecedents and consequences. *Current Issues in Tourism*, 17(10), 910–928. <https://doi.org/10.1080/13683500.2013.770451>
- Prideaux, B., & Yin, P. (2019). The disruptive potential of autonomous vehicles (AVs) on future low-carbon tourism mobility. *Asia Pacific Journal of Tourism Research*, 24(5), 459–467. <https://doi.org/10.1080/10941665.2019.1588138>
- Rather, R. A., Hollebeek, L. D., & Islam, J. U. (2019). Tourism-based customer engagement: The construct, antecedents, and consequences. *The Service Industries Journal*, 39(7-8), 519–540. <https://doi.org/10.1080/02642069.2019.1570154>
- Rebollo, J. F. V., & Baidal, J. A. I. (2003). Measuring sustainability in a mass tourist destination: Pressures, perceptions and policy responses in Torrevieja, Spain. *Journal of Sustainable Tourism*, 11(2–3), 181–203. <https://doi.org/10.1080/09669580308667202>

- Sánchez-Fernández, R., Iniesta-Bonillo, M.Á., & Cervera-Tauet, A. (2019). Exploring the concept of perceived sustainability at tourist destinations: A market segmentation approach. *Journal of Travel & Tourism Marketing*, 36(2), 176–190. <https://doi.org/10.1080/10548408.2018.1505579>
- Shafiee, S., Ghatari, A. R., Hasanzadeh, A., & Jahanyan, S. (2019). Developing a model for sustainable smart tourism destinations: A systematic review. *Tourism Management Perspectives*, 31, 287–300. <https://doi.org/10.1016/j.tmp.2019.06.002>
- Shakoori, A., & Hosseini, M. (2019). An examination of the effects of motivation on visitors loyalty: Case study of the golestan palace, Tehran. *Tourism Management Perspectives*, 32, 100554–13. <https://doi.org/10.1016/j.tmp.2019.100554>
- Sherif, M., & Cantril, H. (1947). *The psychology of Ego-involvements; social attitudes and identifications. The psychology of ego-involvements*. J. Wiley & Sons, Inc.
- Snmez, S. F., & Graefe, A. R. (1998). Influence of terrorism risk on foreign tourism decisions. *Annals of Tourism Research*, 25(1), 112–144. [https://doi.org/10.1016/S0160-7383\(97\)00072-8](https://doi.org/10.1016/S0160-7383(97)00072-8)
- Sohn, H. K., Lee, T. J., & Yoon, Y. S. (2016). Relationship between perceived risk, evaluation, satisfaction, and behavioral intention: A case of local-festival visitors. *Journal of Travel & Tourism Marketing*, 33(1), 28–45. <https://doi.org/10.1080/10548408.2015.1024912>
- Stone, R. N. (1984). The marketing characteristics of involvement. In T. C. Kinnear (Ed.), *Advances in consumer research* (Vol. 11, pp. 210–215). Association for Consumer Research.
- Teng, H. Y., & Chen, C. Y. (2019). Proactive personality and job crafting in the tourism industry: Does job resourcefulness matter? *Journal of Hospitality and Tourism Management*, 41, 110–116. <https://doi.org/10.1016/j.jhtm.2019.10.010>
- Tham, A., & Sigala, M. (2020). Road block (chain): Bit (coin) s for tourism sustainable development goals? *Journal of Hospitality and Tourism Technology*, 11(2), 203–222. <https://doi.org/10.1108/JHTT-05-2019-0069>.
- Tiago, F., Gil, A., Stemberger, S., & Borges-tiago, T. (2020). Digital sustainability communication in tourism. *Journal of Innovation & Knowledge*, 6(1), 27–34. <https://doi.org/10.1016/j.jik.2019.12.002>
- Tölkes, C. (2018). Sustainability communication in tourism—A literature review. *Tourism Management Perspectives*, 27, 10–21. <https://doi.org/10.1016/j.tmp.2018.04.002>
- Trivedi, R. H., Patel, J. D., & Acharya, N. (2018). Causality analysis of media influence on environmental attitude, intention and behaviors leading to green purchasing. *Journal of Cleaner Production*, 196(pt.1-862), 11–22. <https://doi.org/10.1016/j.jclepro.2018.06.024>
- Tseng, S. Y., & Wang, C. N. (2016). Perceived risk influence on dual-route information adoption processes on travel websites. *Journal of Business Research*, 69(6), 2289–2296. <https://doi.org/10.1016/j.jbusres.2015.12.044>
- Vas, K. (2017). Birding blogs as indicators of birdwatcher characteristics and trip preferences: Implications for birding destination planning and development. *Journal of Destination Marketing & Management*, 6(1), 33–45. <https://doi.org/10.1016/j.jdmm.2016.02.001>
- Voraveeravong, P. (2015). *The effect of perceived risk on the adoption of online hotel bookings in the Thai market* [Master's thesis]. Shanghai Jiaotong University.
- Wang, Q., Mao, Z., Xian, L., & Liang, Z. (2019). A study on the coupling coordination between tourism and the low-carbon city. *Asia Pacific Journal of Tourism Research*, 24(6), 550–562. <https://doi.org/10.1080/10941665.2019.1610002>
- Xu, X., & Gursoy, D. (2015). A conceptual framework of sustainable hospitality supply chain management. *Journal of Hospitality Marketing & Management*, 24(3), 229–259. <https://doi.org/10.1080/19368623.2014.909691>
- Yu, T. Y., Yu, T. K., & Chao, C. M. (2017). Understanding Taiwanese undergraduate students' pro-environmental behavioral intention towards green products in the fight against climate change. *Journal of Cleaner Production*, 161, 390–402. <https://doi.org/10.1016/j.jclepro.2017.05.115>
- Zeithaml, V., Bitner, M. J., & Gremler, D. D. (2006). *Services marketing, integrating customer focus across the firm*. McGraw-Hill.
- Zeng, B., & Gerritsen, R. (2014). What do we know about social media in tourism? A review. *Tourism Management Perspectives*, 10, 27–36. <https://doi.org/10.1016/j.tmp.2014.01.001>
- Zhang, S. N., Li, Y. Q., Liu, C. H., & Ruan, W. Q. (2019). Critical factors in the identification of word-of-mouth enhanced with travel apps: The moderating roles of confucian culture and the switching cost view. *Asia Pacific Journal of Tourism Research*, 24(5), 422–442. <https://doi.org/10.1080/10941665.2019.1572630>