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Voice Assistant Source and Tourist Inspiration: The Moderating Effects of Collective Threats and Implicit Beliefs

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Abstract

As Voice-Assistant (VA) devices become increasingly integrated into consumers' daily lives, their application in tourism marketing has drawn scholarly attention. This research investigates how the source of VA-provided positive recommendations—either from in-group or out-group members—affects tourists' attraction-visiting intentions and information-seeking behaviours. Drawing on social identity theory and the concept of consumer inspiration, this study examines the mediating role of tourist inspiration and the moderating effects of perceived collective threats and tourists' implicit beliefs. Two scenario-based experiments were conducted to test the proposed framework. Study 1 involved 180 participants and study 2 involved 360 participants. Results show that in-group travel information provided by the VA evokes greater tourist inspiration than out-group information, leading to higher information-seeking and visit intention. The effect is moderated by perceived collective threat and belief type: under high threat, tourists are more inspired by in-group messages; under low threat, out-group messages are more effective. Tourists with entity beliefs respond more to in-group messages, while those with incremental beliefs are more inspired by out-group information. These findings highlight the importance of tailoring VA messages to tourist profiles and travel contexts to enhance marketing impact. Theoretically, the study contributes to understanding the interplay between social identity, inspiration, and AI-based recommendation systems. Practically, it offers actionable insights for tourism marketers and technology developers to optimise VA messaging strategies, tailoring them according to tourist profiles and contextual factors to enhance destination marketing effectiveness.

Keywords: Voice-assistant recommendation source, Tourists' inspiration, Collective threats, Implicit beliefs.

1 | Introduction

There has been a shift for organisations to offer extra information to customers by adopting interactive voice-based, artificial intelligence-embedded devices. With this trend, a growing number of consumers have a high engagement with their voice-activated device (Aka voice assistance, hereafter Voice-Assistant (VA)), and have

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used VA to search for product and service recommendations. Statistics show that there were 4.2 billion digital voice assistants in use worldwide in 2020; more than 8.4 billion VA devices are expected to be used by 2024 [1].

As VA information searching can offer the advantages of filtering relevant information and providing recommendations on the best deal for a purchase, the application of VA is particularly useful in tourism. When tourists go for a trip in an unfamiliar travel destination, VA can be used to search for attraction information and reviews. Tourists can use it as a reference to evaluate the attractiveness of the destination or products [2]. Researchers [3] indicate that VA opens a huge opportunity for tourism marketing and provides another channel for contacting potential consumers and informing travellers about attractions to visit, which can significantly promote regional economic development and stimulate consumption [4]. Multinational hotels such as Hilton and Wynn have therefore started using voice-based apps to provide personalised information to consumers and to help travellers make visiting decisions [5].

For tourism practitioners to provide effective information on VA and to alter tourists' choices of what attractions to visit or what products to purchase, studies suggest that VA providing positive comments, such as Word-Of-Mouth (WOM) recommendations, is an applicable approach. Such recommendations and consumer reviews could be provided by experiences reported by in-group (e.g., online users having similar preferences as the information seeker, such as members in the same online community) or out-group (e.g., other tourists on a review website, people having different preferences from the information seeker, or people whose pretences are unknown). From a social identity perspective, the source of this tourism recommendation is able to influence an individual's decision and behaviour.

An individual in a society is prompted to categorise him/herself in various social groups (In-group), such as gender, religion, habits, and other affiliated memberships [6]. The social self-schema explains that when an individual is exposed to in-group information, there is an increased processing of the information because it is more relevant to their self-identity. That is, the individual tends to be more favourable to and pay more attention to information that is relevant to the group [7]. On the other hand, previous research shows that individuals are likely to resist listening to information provided by the out-group [8]. The resistance to listening exists because the out-group information communicated by the VA is less relevant to individuals' social self-schema, and they are less likely to process the information explicitly. Consequently, tourists may be more likely to be inspired by in-group information communicated by the VA during their travel compared to out-group information.

Nevertheless, recent studies have found that the influence of in-group and out-group information sources on consumer purchase intentions is not necessarily straightforward due to different individual perceptions. Böttger et al. [9] reveal that a growing number of consumers are interested in knowing how people who are dissimilar to them would make a decision and tend to follow how those people would decide when facing options. Psychological studies suggest that inspiration is an affective state that can affect an individual's perception towards a received message. It infers that consumer inspiration might mediate the effectiveness of VA recommendations on tourist consumption and site visiting decisions. Inspiration is evoked by an incoming stimulus and further linked to an individual's object acceptance and adoption intentions [10].

More specifically, consumers (Tourists) evaluate the VA recommendation sources, and process that information; such cognition regarding consumers' information processing, elicited by the message, is likely to influence their feelings of inspiration. Tourist inspiration, as a motivational state, can then evoke an action tendency to predict tourists' purchase or visit intentions [11]. That is, the positive recommendation information sources need to be able to appropriately trigger the tourists' inspiration towards the recommended travel attractions in order to encourage adoption and consumption.

Furthermore, this study proposes that the effect of VA recommendation sources on tourist inspiration may be moderated by the severity of collective threats that a tourist perceives and the tourist's implicit belief. Zheng et al. [4] indicate that the collective threats are associated with threats when an individual is making a

decision with a group of people. In the context of tourism, when a group of tourists goes for a trip together, the threats involved to the group in the trip can be classified as collective threats. The treats can come from factors such as the limited time and resources for the trip. For instance, when a tourist is on a trip with friends in a foreign city that s/he would not frequently visit, the decisions that s/he needs to make with his/her travel partners, such as an attraction-visiting decision (e.g., whether they should visit attraction A or other attractions), would generate threats. A high severity collective threat scenario could be a group of travellers visiting a foreign city for a few days together, where they need to decide where to visit, as it is surely not possible for them to visit every place during a limited time schedule. Existing studies show that when people experience severe threats, the threats will enhance the social identity of the group members and allow them to find a solution to the threats by seeking information from in-group sources and thereby be inspired [12]. In this case, the in-group information communicated by the VA becomes more prominent for the group of individuals under severe threats [13]. On the other hand, when one experiences low, severe threats, it is expected that people would be more open to out-group recommendations compared to in-group attraction reviews.

Another moderator is an individual's implicit belief. The moderator refers to the lay beliefs that an individual has about the malleability of their attributes and characteristics [14]. Implicit theory suggests two types of personalities, incremental and entity tourists, which discuss the influences on goals and behaviours. Incremental tourists believe that their abilities and characteristics are malleable through learning and contributions [15]. Incremental tourists focus on improving themselves through gaining new experience, taking risks because they perceive mistakes as part of their learning process [16]. Therefore, they are considered to be inspired more by out-group recommendations offered by VA.

On the other hand, entity tourists believe that their abilities are stable and unchanging [15]. They focus on signalling and proving their positive abilities to others and hiding some negative abilities to show their good side to others [17], [18]. Thus, in-group recommendations from VA are more likely to inspire their behavioural intentions.

The present research project employed two scenario-based experiments to investigate: 1) how a VA positive recommendation source (In-group vs. out-group) may affect the traveller's attraction-visiting intention and willingness to search for further attraction relevant information (Triggering the interest towards the suggested attraction), 2) how this effect may be mediated by tourist inspiration, and 3) how the relationship between VA positive recommendation source and tourist inspiration may be moderated by the tourist's perceived collective threats and implicit belief. The findings are expected to not only contribute to technology management and marketing relevant literature, but to offer tourism practitioners suggestions on using VA messages to encourage and influence tourists' travelling decisions.

2|Theoretical Framework Development

2.1|Using Voice Assistant Device to Improve Tourists' Interests and Intentions of Visiting an Attraction

Tourism, especially international tourism, has been recognised to contribute to the economy in various ways. Statistics show that tourism and its associated sectors account for 10% of the global GDP. For example, the tourism industry is directly linked with travel agents, airlines, tour operators, local economies, and maintenance of the travel destinations [19]. The outbreak of coronavirus disease (Hereafter, COVID-19) has led to a severe hit on the tourism industry due to the lockdowns in different countries and social distancing restrictions, causing a 6% negative impact on the global GDP [20]. The tourism industry has not only amplified the impacts of tourism on the world's economy, but it also indicates how important the tourism industry is to many sectors [21], [22]. For example, COVID-19 has led to a monetary loss of between 60% and 80% in revenue from international tourism (USD 910 billion to USD 1.2 trillion). Monetary loss. And around 100 to 120 million tourism-associated jobs at risk [23]. Based on the economic impacts of the tourism

industry, travel destinations need to reconsider their marketing strategies to enhance tourists' visit intentions in order to contribute to the recovery of the world's economy. Zheng et al. [4] indicate that the promotion of a travel attraction can largely stimulate consumption and promote regional economic development.

The adoption of digital technologies in the tourism industry has been suggested by the previous research [24]. Advanced digital technologies contribute to the tourism industry in various ways. Examples include using robots or chatbots in the hotel or airport to handle parts of the service process, using VA to provide useful travel information to tourists, and using virtual reality to help tourists see and experience an attraction without travelling to the site [25]. While there has been some research on service delivery, promoting virtual or actual travel using advanced digital technologies [26], there is a lack research focussed on how advanced digital technologies can be used to promote and attract tourists to search for more attraction information (Showing an interest in the travel attraction that is been promoted) and to encourage the intention to visit the travel destination (Actually wanting to visit that attraction) more effectively and efficiently [26]. Such an issue is important, as it can indirectly facilitate the recovery of the world's economy by arousing tourists' interests in visiting the attraction [4].

A VA is a digital assistant that uses voice recognition, language processing algorithms, and voice synthesis to listen to specific voice commands and return relevant information or perform specific functions as requested by the user. VA is one of the digital technologies being popularly used in the tourism industry, particularly in Western countries. It is easily accessible for digital-gadget users, and it provides opportunities for tourists/practitioners to search for/promote attraction information or purchase/sell tickets to an attraction online [3]. VA offers tourism managers a new channel to promote and communicate their travel destination more effectively with more than 4.2 billion VA users across the globe [1]. Previous research has recognised that VA can be involved in tourists' travel planning processes [27], and, from here, it can engage tourists in order to motivate them to search for more information and make a travel decision [28]. Such a planning process can also happen during tourists' travel. For example, some tourists may need to decide whether they would go to a restaurant, museum, attraction, or other recreational activity after they have landed at their destination. In this case, VA can be used to provide other tourists' reviews and background information about the attraction [29].

Providing more information to tourists can be crucial to influencing tourists' decision-making because tourists' visit intentions can be affected by tourists' subjective knowledge about the travel destination [30], which could be formed by the information provided by the VA. With the popular use of social media and other user-generated content (Hereafter, UGC) by tourists to obtain information [29], VA can provide more relevant and detailed information about a travel destination. Such relevance, which ultimately correlates to the persuasiveness of the information [31], depends on different sources of UGC [32].

2.2|Social Identity Theory and the Source of Information Provided by the Voice Assistant

Social identity theory argues that information provided by people within the social network (i.e., in-group) would be more persuasive than that provided by people outside of the social network (i.e., out-group) because the identity salience fosters processing identity-relevant information, i.e., schematic or abstract processing, by the individual [7], [28]. That is, individuals tend to be more receptive to information provided by the in-group compared to that offered by the out-group. The social self-schema explains that when an individual is exposed to in-group information, there is increased processing of the information because it is more relevant to their self-identity. In this scenario, the individual tends to be more favourable to and pay more attention to information that is relevant to the group [7].

On the other hand, previous research shows that individuals are less likely to adopt suggestions from listening to information provided by out-groups [8]. Individuals have less tendency to adopt recommendations from listening because the out-group information communicated by the VA is less relevant to the individuals' social self-schemas, and they are less likely to process the information explicitly. Consequently, tourists may be more

likely to be inspired by the in-group information communicated by the VA during their travel compared to out-group information. Thus, when the VA refers to the review or information from the tourists' in-group VA users (As opposed to out-group VA users), it may result in the tourist being more willing to listen to the information.

Although in-group recommendations seem to be a more convincing VA information source, social identity theory provides a foundation for this view, and its underlying social self-schema suggests an opportunity for VA to make a more persuasive message to tourists, recent studies [9] show that the influence of in-group and out-group information sources on consumer behavioural intention can vary due to individual perceptions. Some consumers are found to be more willing to take out-group suggestions instead of proposals made by in-group members. The section below explains how the sources of information provided by the VA may become an antecedent to tourist inspiration and how the inspiration may influence tourists' behavioural outcomes.

2.3 | Tourist Inspiration and the Source of Information Provided by the Voice Assistant

Inspiration is a feeling state that can motivate tourists to put their received information into action [10]. Inspiration can be explained by the Cognitive Appraisal Theory of emotions (CAT), which involves a process of eliciting inspiration and behavioural outcomes after an individual experiences inspiration [33]. In other words, inspiration can be illustrated by cognition of an incoming stimulus, emotional response towards the stimulus, and motivation of action [34]. With the use of CAT, a customer inspiration model has been developed by Bottger et al. [9].

To further explain the model with reference to CAT, inspiration has been conceptualised by three components or stages: Evocation, transcendence, and motivation [35]. These explain the cognition-emotion-action process of the CAT. First, evocation explains how inspiration can be evoked [36]. Evocation may involve an external incoming stimulus being exposed by tourists, for example, an attraction or other information that tourists are exposed to during their travel. Second, transcendence illustrates the emotional response component of inspiration, which involves feelings of positivity, clarity, and self-enhancement [9]. In the context of tourism, transcendence involves mainly positive emotional responses associated with inspiration, such as the joy over receiving useful information from the VA or the excitement the travel experience generates towards an attraction [37]. Finally, motivation describes the action state of the tourist after being inspired by the cognition of the incoming stimulus and its associated motivational elements of the emotional response [38].

Looking further into the concept of inspiration, it is also comprised of two sub-components that explain the mechanism of inspiration using the concepts of evocation, transcendence, and motivation. These two components illustrate that inspiration is an intrinsic motivational state [38]. 'Inspired by' explains the activation component and 'inspired to' delineates the behaviour and intention component. These two components are considered as second-order constructs in the model, as they can illustrate the full episode of inspiration while distinct from the aforementioned cognition-emotion-action process [9].

2.3.1 | Inspired by

'Inspired by' delineates the activation state when tourists are exposed to new ideas or information during their travel, i.e., evocation, and the increase in tourists' awareness over new options during their travel [9]. The previous tourism research conducted by Khoi et al. [37] discovers that tourists can be inspired by the incoming tourism stimuli, and they also find that such inspiration will become higher when tourists feel closer and emotionally attached to the tourism stimuli. Based on this, when the VA provides in-group (Versus out-group) information, the social self-schema may process the information more favourably because of the identity salience. Such information may provide tourists with a moment of sudden realization and insight [38].

Consequently, the positive affect response towards the in-group information from the VA may then broaden tourists' mental horizons and self-transformation [9].

According to CAT, VA information can also be part of the source characteristics of the inspiration model, for which in-group information may be more persuasive than out-group information for tourists. The social identity theory and its underlying social self-schema concept also explain the cognitive mechanism in which tourists are more likely to adopt a schematic process with social self-schema information that is consistent with their social self-schema. For example, when tourists are seeking a tourist spot during their travel and they use VA to ask for information, it may be more effective if the VA communicates the review or usage experience from the tourists' in-group, such as online community members and travel experts whom they know. Therefore, we propose:

H1: Overall, in-group information provided by the VA can trigger a higher tourists' inspiration, compared to out-group information.

2.3.2 | Inspired to

'Inspired to' is related to the intrinsic pursuit of a consumption-related goal [9]. The transmission model of inspiration suggests that after the incoming tourism stimulus inspires consumers, there is a transition from the 'inspired by' state to the state of being inspired to pursue and adopt the product or service [39]. That is, the 'inspired by' has a causal relation with the 'inspired to' state. Previous research discovers that consumers can be inspired by their product or service experience, and such inspiration can lead them to a positive behaviour, instead of negative behaviour [40].

Tourism offerings, including both products and services, aim to provide tourists with refreshing experiences that manifest original and creative thoughts through broadening minds and horizons of a new product or service experience [41]. While previous research in tourism has predominantly focused on the tourist experience, which refers to 'a constant flow of thoughts and feelings during moments of consciousness which occur through highly complex psychological, sociological, and cognitive interaction processes' [42], research in tourist inspiration is scant. Companies' goals in the tourism market, in general, are to provide pleasure, intense joy, and peak experiences that satisfy tourists' curiosity and creativity [43]. Inspiration in the tourism context is valuable because tourists' inspiration may be elicited by tourist offerings such as the destination as well as stimuli along the tourist journey [37]. As proposed in H1, the source of the VA recommendation messages can elicit inspiration. The inspiration evoked tourists are more likely to feel interested in the recommended travel attraction/destination – not only wanting to search for further information, but also willing to visit the spot. Consequently, this study proposes:

H2: Higher tourist inspiration can lead to tourists' higher 1) willingness to seek more relevant information, and 2) visit intention towards the travel attraction.

2.4 | Severity of Collective Threats during Travel

Cohen and Garcia [44] propose the concept of collective threats, which is about the risks related to a group of people when making decisions. People make decisions differently when they face a threat as a group [4]. Some research suggests that people act more selfishly when they face a threat collectively as a group [45], whereas other research argues that people may be more cooperative with other people by sharing resources and advice when they are facing collective threats [46], [47].

In the context of tourism, threats can be commonly seen when tourists are traveling both internationally and domestically. For example, tourists may not know the area where they stay, be familiar with the transportation system, or the language etc. The current research focuses on collective threats that are related to a group of tourists. The focus is on collective threats because many tourists travel as a group, regardless of the purpose of their travel. For instance, a group of employees travel abroad for a business trip, family members travel together for a family trip or foreign tourists travel together for a packaged trip. The concept of severity of

collective threats has been applied to the current study to refer to the degree of urgency or danger that the tourists face during their travel [4].

When a group of tourists is under more severe threats and in a more intense situation during their travel, they may be more likely to resolve the threats as a collective group [12]. According to the social identity theory, when a group of tourists is under severe collective threats, they are more likely to listen to the advice provided by in-group members, as they trust the advice communicated by the people close to and similar to themselves [13]. Similarly, the construal-level theory also indicates that people adopt a more abstract information processing style when they can refer to information that they can trust [48]. For example, when a group of tourists have a very limited time and are not able to visit all the planned travel destinations during the trip on the final (Versus first) travel day, they tend to seek advice available from their in-group (Out-group) members, such as people in the same online community or sharing similar travel preferences.

Collective threats are expected to change the source-characteristics aspect of the inspiration model in relation to how tourists may be inspired by in-group (Versus out-group) information provided by the VA. In particular, tourists in a more severe collective-threats situation during their travel are more likely to be inspired by social self-schema-consistent information. Consequently, VA in-group travel information may be more effective and persuasive when tourists are under more severe collective threats through the elicitation of an inspiration state. On the other hand, when the severity of collective threats is low (Compared to high), individuals are more likely to be affected by out-group peers. Therefore, we propose:

H3a: When tourists are under more severe collective threats, they are more likely to be inspired by the in-group travel information provided by the VA.

H3b: When tourists are under less severe collective threats, they are more likely to be inspired by the out-group travel information provided by the VA.

2.5 | Implicit Beliefs

The inspiration model and CAT explain that the elicitation of inspiration depends not only on the incoming stimulus, but on an individual's subjective information processing of the incoming stimulus [9], [49]. The implicit beliefs explain the differential interpretation, prediction, and control of different people in the social world. The beliefs of different people are kept deeply in people's minds [50], affecting their decision-making and information decoding processes. Previous research indicates that implicit beliefs can influence how individuals understand and interpret things based on their human nature [51], [52]. Some studies also suggest that implicit beliefs are associated with an individual's malleability towards different things in the world, including products and services [53], [54].

There are two types of people based on which of the belief systems they hold: incremental-oriented and entity-oriented beliefs. The two show different perspectives on personal goals, values, and characteristics. Individuals who possess an incremental belief system believe that their abilities and characteristics are malleable through learning [15]. They focus on improving themselves through self-development and gaining experience. Incremental tourists perceive that making mistakes is part of their learning process. Therefore, they are willing to take risks even if the mistake may make them look unsmart [16].

Previous research [55] indicates that individuals with incremental beliefs usually emphasise the consistency of the schema less because they adopt a more concrete information processing style. Based on this learning pattern, incremental tourists are likely to adopt a concrete processing style on the out-group travel information provided by the VA, which allows them to learn more than the in-group or social self-schema consistent information. This links with the inspiration model in that the incremental tourists are more likely to be inspired by out-group information than by in-group information, enhancing the likelihood to be inspired by out-group travel information.

The inspiration model is indicated considering their concrete information processing and their favourability of learning from schema-inconsistent information. Based on the characteristics of incremental belief,

individuals with this belief system are more likely to be receptive towards out-group travel information provided by the VA and perceive such information as a way for them to learn and improve their knowledge.

H4a: Tourists with incremental beliefs are more likely to be inspired by the out-group than in-group travel information provided by the VA.

Entity individuals believe that their abilities are stable and fixed [15]. Individuals with entity belief focus on signalling and proving their positive abilities to others but hiding their negative abilities in order to exhibit their 'good sides' to others [17]. Hence, these individuals are less likely to take risks when making decisions. In terms of perceiving travel information, individuals with entity beliefs are likely to rely on their initial trait information when making causal attributions or subsequent judgements [53].

The research conducted by Flaherty and Pappas [55] confirms that individuals with entity beliefs are more likely to adopt an abstract processing style in which an overall picture is evaluated, looking at schema-consistent information, which allows them to prove their performance. Based on this, tourists with entity beliefs are more likely to be inspired by the in-group travel information provided by the VA because it is social-self-schema consistent, which fits into their abstract processing style. Thus, this proposes:

H4b: Tourists with entity beliefs are more likely to be inspired by the in-group than out-group travel information provided by the VA.

Furthermore, an individual's implicit belief is also expected to affect the moderation effect of perceived severity of collective threats on the direct impact of source of the VA recommendation message on tourist inspiration. Tourists who have an incremental belief system learn from the process of trial and error. When the collective threats that they face are perceived to be more likely to influence the results, they are more likely to take a risk and be open to both in-group and out-group suggestions. After all, incremental tourists learn more through these intense experiences that can help them improve. Thus, they are equally inspired by both in-group and out-group messages from their VA devices. When they perceive a low collective threat, out-group suggestions can widen their thoughts and help them think outside the box.

On the other hand, entity tourists prefer making a reasonable decision without taking significant risks. Therefore, when they perceive a high collective threat, they tend to be conservative, and their inspiration is likely to be evoked by in-group recommendations. However, when they perceive the collective threats are not that serious, the possibility of making a regrettable decision is low, and they are more willing to see how people outside their circle are making choices.

For tourists with incremental beliefs:

I. H5a: When they perceive a less severe collective threat, they are more likely to be inspired by the out-group than in-group travel information provided by the VA.
II. H5b: When they perceive a more severe collective threat, there is no difference between their inspiration from VA messages provided by out-group or in-group sources.

For tourists with entity belief:

I. H5c: When they perceive a more severe collective threat, they are more likely to be inspired by the in-group than out-group travel information provided by the VA.
II. H5d: When they perceive a less severe collective threat, there is no difference between their inspiration from VA messages provided by out-group or in-group sources.

The theoretical framework is presented in *Fig. 1*.

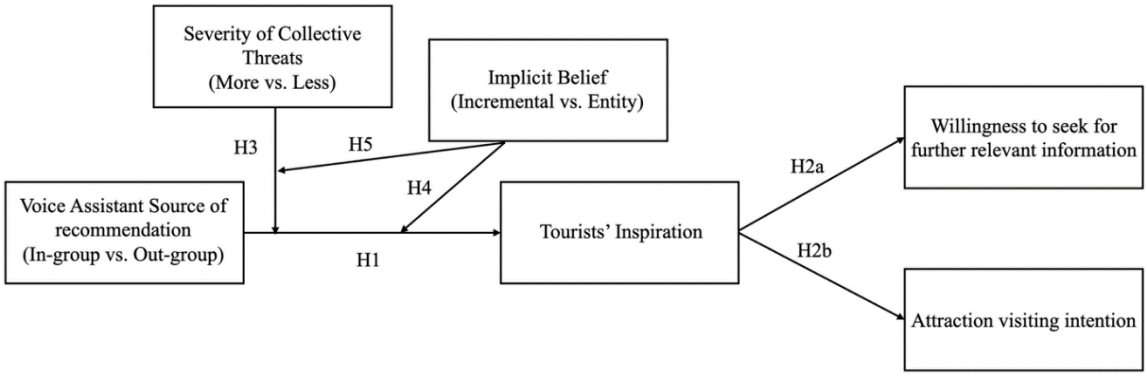

Fig. 1. Theoretical framework.

3 | Methods

Two online scenario-based experiments were designed and employed to test the proposed research model. The quality of the data collected from Qualtrics has been demonstrated to be as good as traditional data collection channels [56]. The voluntarily-recruited participants were initially checked by Qualtrics to ensure that they have relevant experience of using a voice assistant and have moderate overseas travelling experience. Participants had given informed consent forms before starting tasks.

3.1 | Study 1

The purpose of Study 1 is to examine the effect of VA social identity prime recommendation message sources on tourist inspiration and subsequent behavioural and attitudinal outcomes in the context of different levels of tourists' perceived collective threats. A two (VA social identity prime recommendation message source: In-group vs. out-group peers) by two (Severity of collective threats: More vs. less) between-subject scenario-based experiment was designed. The experimental website was built with the aforementioned combined scenarios for the study. The between-subject experimental design removes the possibility of fatigue among the respondents when answering the scaled questions, as well as any biased opinions, by allowing them to view more than one scenario.

3.1.1 | Scenario development

The manipulations of the VA recommendation message source were selected via a two-stage pre-test. In the first stage, 30 participants who had used VA and had relevant foreign country travel experience were invited to share their previous experience about searching for travel attractions online (Not from their friends or family). They were guided to recall their relevant recent information-search process for travel attractions and to identify how the information was found, where it was found, and whether the source was considered an in-group or out-group peer. Examples of in-group peers were people who shared certain similarities, such as purchasing and travel preferences. Out-group peer examples were people who shared their travel experience and recommendations on YouTube or blogs but did not necessarily share the same taste as the attraction-information-searching tourists. The participants were then asked to write down the traits that they would use to identify the information source as in-group or out-group.

Additionally, they were invited to share and list any collective threats they had experienced when traveling with companions. An example would have been a short trip that had limited time, but the city planned to be visited had many attractions, and the tourists needed to evaluate the costs and trade-offs. The collected data was used for developing the scenarios. The researcher adopted the collected data and designed eight to ten pairs of descriptions about the recommendation sources and four sets of collective threat scenarios for the second stage of the pre-test.

In the second stage, 42 participants who had VA use and relevant travel experience were invited to read the developed recommendation source descriptions and the collective threat scenarios, rate the source from 1 (An in-group peer) to 7 (An out-group peer), and rate the collective threat severity from 1 (Less severe threat)

to 7 (More severe threat). Participants who had joined the first stage of the pre-test were excluded by mapping Qualtrics user IDs. The most representative source descriptions and collective threat scenarios (More severe: M = 6.04, SD = 1.14 / less severe: M = 2.21, SD = 1.52) were adopted as the manipulations in the experiment.

3.1.2 | Procedure and participants

One hundred eighty participants were recruited via Qualtrics. After the participants had read the participant information and agreed to the ethical terms, they were allocated to one of the four groups randomly. They were guided to carefully read the described scenario and answer the tourist (Consumer) inspiration and visiting intention scales. The 'willingness to search for further attraction information' was the real behavior measure in the research. Participants were provided a fictitious web link if they wished to search for further travel information about the travel destination. The number of clicks on the fictitious web page was then recorded by the system as a real behavior in an online scenario-based experiment [57]. Participants reported demographic information, including age, gender, education, income, and frequency of traveling in foreign countries afterward. Regarding checking the scenario manipulation, a random data-split approach was applied to compare the findings of the randomly split datasets.

3.2 | Study 2

In Study 2, an individual's implicit belief is expected to moderate the two-way interaction effect of the VA recommendation source and the severity of collective threats on tourist inspiration. A two (VA social identity prime recommendation message source: in-group vs. out-group peers) by two (Perceived Severity of collective threats: More vs. less) by two (Implicit belief: Incremental vs entity) scenario-based experiments (with the same structure but different treatments for implicit beliefs) were conducted.

3.2.1 | Stimuli development

Pre-test

Scenarios used in Study 1 were adopted in this study for the severity of collective threats. Implicit beliefs were recorded through existing measurement items from the pertinent study (i.e., no manipulation was applied); that is, the implicit beliefs used here were the participants' original/dispositional traits of beliefs. Afterwards, participants responded to the implicit belief scale items developed by Levy et al. [51]. The two scenarios that received the highest ratings (M incremental scenario = 6.32, SD = .91; M entity scenario 6.54, SD = 1.21, meaning that these two scenarios were most likely to arouse an individual's incremental/entity beliefs, were selected as the manipulations. Participants were also invited to make suggestions on these two scenario descriptions (e.g., whether the expression was clear and whether any parts needed to be corrected/improved), and the advice was applied if appropriate.

3.2.2 | Procedure and participants

A total of 360 participants were recruited and randomly allocated to one of the eight groups. The participants were guided to imagine the described scenario. After experiencing the scenarios of VA message source and collective threats, participants were instructed to respond to the implicit beliefs scale. Then, participants were asked to rate the scenarios on the tourist inspiration scale before they proceeded to the two behavioral outcome variables and demographic questions. The data-split approach was again utilized when analyzing the data to ensure that the samples were randomly assigned.

4 | Results

4.1 | Study 1

An independent samples t-test revealed evidence to support H1. In-group VA information sources (M=5.43, SD=1.44) exhibited a higher Tourist Inspiration compared to out-group VA information sources (M=4.21, SD=1.21; $t(178)= 14.37$, $p < .01$). After conducting a median split on Tourist Inspiration (Mdn = 4.29), a

Chi-squared analysis unveiled a significant association between a heightened level of tourist inspiration and an increased likelihood of seeking additional information ($X^2 = 14.92$, $p < .01$; *Table 1*). Therefore, H2a was supported.

Table 1. Chi-squared analysis: Between inspiration and likelihood of seeking additional information.

	Searched for more Attraction Information	Did not Search for more Attraction Information
High inspiration	68 (Exp. count: 55.3)	25 (Exp. count: 37.7)
Low inspiration	39 (Exp. count: 51.7)	48 (Exp. count: 35.3)

Supporting H2b, a linear regression analysis indicated that tourist Inspiration had a positive influence on an individual's willingness to visit the recommended attraction ($\beta = .59$, $SE = .04$, $p < .01$; $R^2 = .51$).

On the other hand, after conducting a median split on severe collective threats (Mdn=4.12), a Two-way ANCOVA (Gender, age, education level were controlled as covariates) demonstrated a significant two-way interaction effect between collective threats and information sources ($F(1, 173) = 21.41$, $p < .01$, *Table 2*, *Fig. 2*). Particularly, when tourists faced more severe collective threats, they were more likely to be inspired by the in-group travel information provided by the VA (M more collective threats + in-group = 5.92, SD = 1.10 vs. M less collective threats + in-group = 4.21, SD = .84). Contrariwise, when tourists faced less severe collective threats, they were more likely to be inspired by the out-group travel information provided by the VA (*Fig. 2*). The findings provided support for H3a and H3b.

Table 2. Tests of between-subjects effects: Information source * collective threats.

Dependent Variable: Inspiration					
Source	**Type III SS**	**df**	**MS**	**F**	**Sig.**
Corrected model	6.30	6	1.051	.42	.864
Intercept	38.29	1	38.29	15.37	.000
Gender (Cov.)	.03	1	.03	.014	.907
Age (Cov.)	1.19	1	1.19	.47	.490
Education (Cov.)	1.17	1	1.17	.47	.493
Information source (IS)	16.24	1	16.24	8.82	< .05
Collective threats (CT)	.80	1	.80	.32	.571
IS * CT	40.33	1	40.33	21.41	< .01
Error	430.86	173	2.49		
Corrected total	528.91	179			

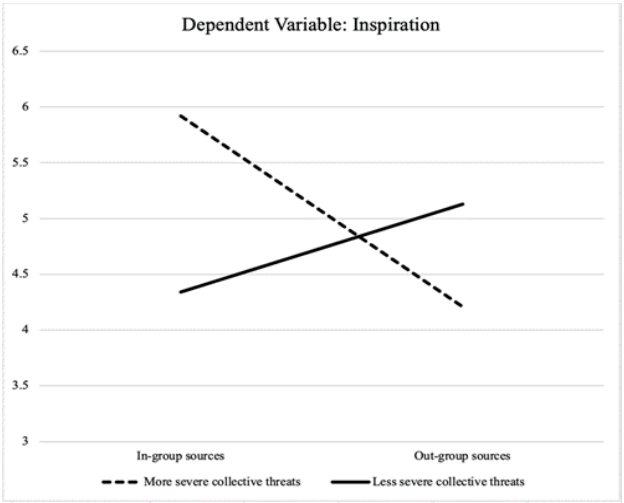

Fig. 2. Interaction effect: Information source * collective threats.

4.2 | Study 2

Supporting H4a and H4b, a two-way ANCOVA revealed that different implicit beliefs among travelers significantly interfered with the impact of VA recommendation sources on inspiration ($F(1, 353) = 15.21$, *p*

< .01, *Table 3*). Travelers with incremental beliefs were more prone to finding inspiration in out-group travel information provided by the VA (M = 5.72, SD = 1.02) as opposed to in-group information (M = 4.66, SD = .83). Conversely, individuals with entity beliefs were found more inclined to be inspired by in-group travel information recommended by the VA (M = 5.51, SD = 1.14) rather than out-group information (M = 4.02, SD = 1.21). See *Fig. 3*.

Table 3. Tests of between-subjects effects: Implicit belief * information source.

Dependent Variable: Inspiration					
Source	**Type III SS**	**df**	**MS**	**F**	**Sig.**
Corrected model	12.61	6	2.102	.861	.524
Intercept	76.58	1	76.58	31.373	.000
Gender (Cov.)	.03	1	.03	.028	.867
Age (Cov.)	.98	1	.98	.978	.323
Education (Cov.)	.96	1	.96	.961	.328
Implicit belief (IB)	1.68	1	1.68	1.677	.196
Information source (IS)	9.2	1	9.2	9.22	< .05
IB* IS	15.21	1	15.21	15.21	< .01
Error	861.73	353	2.441		
Corrected total	889.81	359			

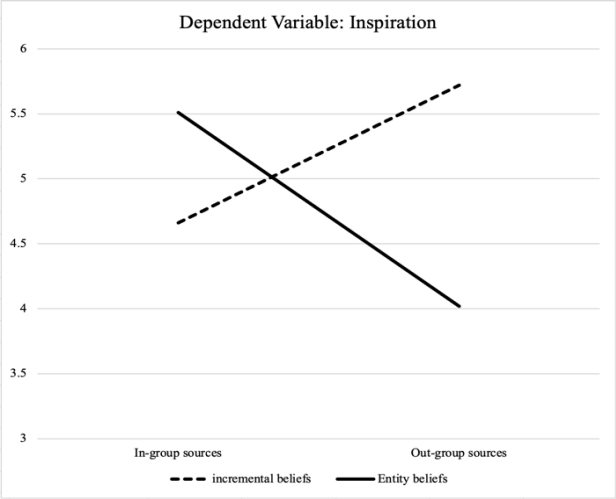

Fig. 3. Interaction effect: Implicit belief * information source.

In addition, for individuals with incremental beliefs, when they perceived a lower level of collective threat, they were more likely to be inspired by the external group's travel information provided by the VA (M = 5.57, SD = .98), rather than the internal group's information (M = 4.45, SD = 1.23; t =21.33, p < .01). However, when they perceived a higher level of collective threat, there was no difference found in their inspiration from the external (M = 4.71, SD = 1.43) or internal (M=4.52, SD = 1.20; t = 2.34, p = .53) group's information provided by the VA (*Fig. 4*). Thus, H5a and H5b were both supported.

For individuals with entity beliefs, when they experienced a higher level of collective threat, they were more likely to be inspired by the internal group's travel information provided by the VA (M = 5.53, SD = 1.42; t =28.12, p < .01), rather than the external group's information (M = 4.02, SD = 1.10). When they perceived a lower level of collective threat, no difference was found in their inspiration from the external (M = 4.31, SD = .91) or internal (M = 4.14, SD = 1.21; t = 1.77, p = .65) group's information provided by the VA (*Fig. 5*). H5c and H5d were both supported.

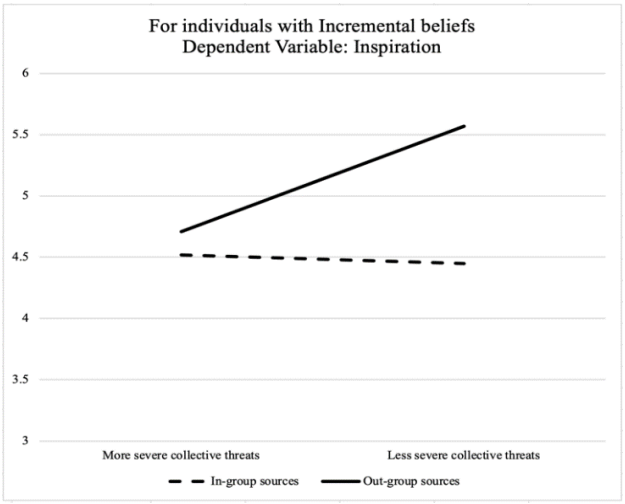

Fig. 4. For incremental beliefs: IS*CT.

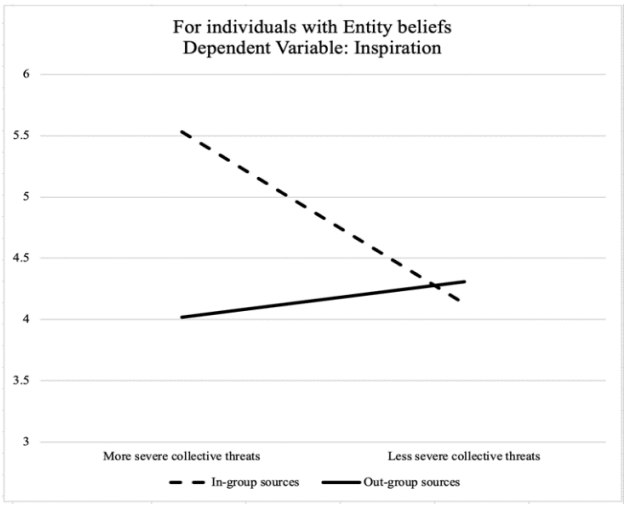

Fig. 5. For entity beliefs: IS*CT.

4 | Conclusion

The research findings are making significant contributions to the existing body of literature on technology management and marketing, particularly in the context of tourism. This study delves into the application of cutting-edge technology, specifically voice assistants, and explores the various antecedents and outcomes of tourists' inspiration. One of the noteworthy insights derived from this research is the realization that the source of information, in addition to the content itself, plays a pivotal role in influencing tourist persuasion and inspiration. The study demonstrates that the choice of information source, as facilitated by voice assistants, can have varying impacts on tourist behavior depending on the specific situation or context. Furthermore, this research highlights the significance of an individual's internal factors, such as implicit beliefs, and external factors like collective threats during a trip. These factors are crucial determinants affecting tourists' intentions related to destination visits and the pursuit of additional information.

In addition, implicit belief is a relatively novel concept in the field of tourism, it has shown to be a potent personality trait that can influence a tourist's behavioral outcomes. It establishes that different personality traits can predispose tourists to be inspired by different sources of travel information recommended by the voice assistant. The effects of tourists' perceived collective threats can also potentially shed light on the inconsistencies observed in the existing literature. The collective threats include the debate over whether

individuals are more likely to be inspired by someone recognized as similar to them or by acquaintances on the Internet, and whether they are more inclined to adopt recommendations from these sources.

For voice assistant function designers tasked with providing users with informational messages, this study provides valuable insights. It suggests that tailoring the information offered, whether in-group or out-group travel information, should be contingent upon the user's personality traits or the prevailing travel scenarios, such as the presence of more or less severe collective threats and the traveler's specific purposes. This tailored approach enables designers to meet user needs better, enhancing the user experience and satisfaction.

The present study suggests that advertisements utilizing content from Key Opinion Leaders (KOLs) can be employed to identify and present familiar (In-group) and unfamiliar (Out-group) information providers. This strategy proves instrumental in attracting diverse segments of tourists with varying preferences and motivations, further enhancing the effectiveness of marketing efforts in the tourism industry. This research bridges the gap between technology, tourism, and user behavior, offering a holistic understanding of how voice assistants can be effectively harnessed to cater to the unique needs and preferences of tourists.

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Data Availability

All data are included in the text.

Conflicts of Interest

The authors declare no conflict of interest.

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Appendix

Table A1. A measurements.

Variables	Source	Items
Implicit beliefs	Levy et al. [51]	- Everyone is a certain kind of person, and there is not much that they can do to really change that. (Entity) - The kind of person someone is is something basic about them, and it can't be changed very much. (Entity) - People can do things differently, but the important parts of who they are can't really be changed. (Entity) - As much as I hate to admit it, you can't teach an old dog new tricks. People can't really change their deepest attributes. (Entity) - People can change even their most basic qualities. (Incremental) - Everyone, no matter who they are, can significantly change their basic characteristics. (Incremental) - People can substantially change the kind of person they are. (Incremental) - No matter what kind of person someone is, they can always change. (Incremental)
Perceived collective threats	Zheng et al. [4]	- For selecting an attraction to visit, I think we may lose a lot if I choose the wrong place to visit. - For selecting an attraction to visit, I feel worried about the sunk cost. - For selecting an attraction to visit, I think if we choose the wrong attraction to visit, the overall quality of this trip will be degraded.

Table A1. Continued.

Variables	Source	Items
Tourist (Consumer) inspiration	Böttger et al. [9]	- My imagination was stimulated. (Inspired by) - I was intrigued by a new idea. (Inspired by) - I unexpectedly and spontaneously got new ideas. (Inspired by) - My horizon was broadened. (Inspired by) - I discovered something new. (Inspired by) - I was inspired to buy something. (Inspired to) - I felt a desire to buy something. (Inspired to) - My interest in buying something was increased. (Inspired to) - I was motivated to buy something. (Inspired to) - I felt an urge to buy something. (Inspired to)
Attraction visiting intention	Tan and Wu [30]	- I may visit [the tourist attraction]. - I plan to visit [the tourist attraction]. - I intend to visit [the tourist attraction].