Can “Live Streaming” Really Drive Visitors to the Destination? From the Aspect of “Social Presence”

Wenkun Zhang1, Yanan Wang2, and Tao Zhang3

Abstract
The combination of live-streaming technology and tourism is an important development in the evolution of tourism experiences. Research on live-streaming tourism is becoming popular, but empirical studies on the relationship between live streaming and travel intention remain underexplored. The aim of this article is to determine whether live streaming has an impact on travel intention. This article collects 614 questionnaires and uses structural equation models (SEMs) to test the relevant hypotheses. This study makes some contributions to the literature on live-streaming tourism. First, it explains the relationship between live streaming and travel intention from the perspective of social presence: The presence of a destination image, the presence of an interaction, and the presence of production can effectively improve people’s trust and, in return, influence their travel intention. Second, this article verifies the role of trust in tourism management. This article is one of the earliest studies on the relationship between live streaming and travel intention, which has significance for the development of tourism management–related theories and practical management.

Keywords
social presence, destination trust, visit intention, live-streaming tourism

Introduction
As a new internet trend, live streaming, which has gained great popularity, has been participating in all-sided events with high interactivity, aiming to meet the needs of consumers by presenting all current real-time situations to end users through internet media (Zhao et al., 2018).

Live streaming, which is characterized by interaction, takes the form of a small community (C. C. Chen & Lin, 2018). Live streaming is also enjoying an expansive application scope. For example, live streamers broadcast themselves playing video games, eating food, painting, dancing, and performing other activities in real time to public audiences. While watching and listening to a streamer, viewers can also engage in direct interactions with the streamer and respond to them. Recently, some websites and e-commerce sites, such as Facebook and Taobao, have started to allow live video streaming services.

Live streaming gives people a feeling of just being there (Mueser & Vlachos, 2018). In recent years, a number of academic studies have assessed live streaming using case studies or by exploring related skill applications, such as usage intention (Hu et al., 2017), source credibility and motivation (Todd & Melancon, 2018), live-streaming theater (Mueser & Vlachos, 2018), or purchase intention (Sun et al., 2019).

Moreover, few researchers have highlighted and examined consumer motivations for live-streaming shopping (Cai et al., 2018). Wongkitrungrueng and Assarut (2020), who conducted research on the effect of live streaming exerted on building consumer trust and engagement with social commerce sellers, discovered that live streaming actually had a stronger impact than trust in influencing customer engagement. Moreover, other researchers have studied live streaming from different aspects; for example, Hu et al. (2017) sought to determine the reasons that audiences choose to keep watching streams on live video streaming platforms. In the tourism context, Tussyadiah and Fesenmaier (2009) stated that people can use various facilities (mobile phones and digital cameras) to disseminate destination images, videos, and other information representing the destination, and serve as mediators of tourist experiences. Tussyadiah et al. (2018) stated that the feeling of being there results in a

1Shan Dong Jiaotong University, Jinan, China
2Mokpo National University, Muan-gun, South Korea
3Yantai University, China

Corresponding Author:
Tao Zhang, Department of Economics and Management, Yantai University, Yantai 264005, Shandong, China.
Email: jangdao@ytu.edu.cn
stronger liking of and preference for a destination, which in return, results in a higher level of visit intention. Although increasingly more live-streaming media platforms are used to share travel experiences, live-streaming media are still not fully developed and used (Deng et al., 2019). However, there are few studies on the relationship between live streaming and tourists’ travel motivation, so it is necessary to study how live streaming affects potential tourists’ psychological activities and behavioral tendencies.

Against this background, the aim of this article is to determine the relationship between the social presence of travel live streaming and tourists’ travel motivation. To achieve this goal, this article develops a research model emphasizing three dimensions of social presence (the presence of a destination image, the presence of an interaction, and the presence of production) and travel intention. This article’s novelty and theoretical contributions are as follows. First, this research combines the theory of “social presence” to empirically study the influence mechanism of live streaming on travel intention. Second, this article divides presence of destinations into three dimensions, and separately studies the effects of the three dimensions on destination trust. The rule of destination trust is also studied in this article. Finally, this article provides some practical suggestions for tourism managers to make better use of live streaming to effectively attract tourists.

**Literature Review**

**Live Streaming**

Live streaming provides real-time audio and video transmission of an event over the internet (C. C. Chen & Lin, 2018). Live streaming offers an applicable channel for communication between a streamer and viewers and between a viewer and other viewers (Holt et al., 2016). For example, viewers offer suggestions via the live chat when a streamer asks them which game/song they want to watch/listen to. In addition, viewers, who are also advisors, can share their experiences of the streamer’s previous broadcast with the streamer. These new participatory features help viewers participate in streaming content, even as creators (Hamilton et al., 2014; Yu et al., 2018).

On that basis, studies on live streaming are under way. Early studies on live streaming focused on e-sports viewership. For example, Cheung and Huang (2011) and Scholz (2012), who conducted research on spectators who did not directly interact with the game, found the underlying social activities based on online communities. Then, successive studies focusing on participation methods followed. Hamilton et al. (2014) and Smith et al. (2013) believed that streamers sought to interact with their viewers and viewers who watched the same streamer’s broadcasts could share their experiences and build social relationships. In addition, there have been some studies on the factors that influence live-streaming participation and engagement (C. C. Chen & Lin, 2018; Diwanji et al., 2020; Hilvert-Bruce et al., 2018; Sjöblom & Hamari, 2017; Yu et al., 2018).

Nonetheless, a number of studies have addressed the effect of live streaming on purchase behaviors (C. C. Chen & Lin, 2018; Sun et al., 2019; Zhou et al., 2018). In 2018, Wongkitrungrueng and Assarut determined the role of live streaming in building consumer trust and engagement with social commerce streamers. Studies on live-streaming tourism have also become popular. The representative study of Deng et al. (2019) made efforts to address the absence of live-streaming tourism from a theoretical perspective, conceptualized a live-streaming tourism model, and compared different tourism visual media from seven aspects. Live-streaming tourism enhances the interaction between tourists and places. Live-streaming tourism makes travel more vivid because it has the following characteristics: high presence, real time, blended spaces, unedited performance, authenticity, and synchronous social interaction (Deng et al., 2019). To date, relatively few studies have been published on live streaming and travel behaviors.

**Social Presence Theory**

Live streaming gives people a feeling of being there (Mueser & Vlachos, 2018). Live streaming, which uses one or more kinds of communication technology, accomplishes and allows images and sounds to be immediately transmitted from one location to another and enables viewers to feel that they are present at an event (C. C. Chen & Lin, 2018). Social presence, which refers to the other person’s degree of salience in the interaction and the consequential salience of the interpersonal relationship (Short et al., 1976), could be enhanced through live streaming beyond the invisibility in typical e-commerce and social commerce exchanges in which the personal identity of the streamers was barely or not displayed (Wongkitrungrueng & Assarut, 2020).

Chang and Hsu (2016) stated that the social presence of a medium influenced the recipients’ understanding of the contents generated by streamers and, in turn, upgraded the viewers’ feelings regarding participating in social interactions, which was likely to enhance their participation. This medium allows an individual to establish a close personal connection with others similar to a face-to-face interaction, which is beneficial to forming the positive impacts of physical presence and communication with other humans (Shin, 2013).

Social presence has been used in studies on behavior in social-virtual environments (Osei-Frimpong & McLean, 2018; Shen et al., 2010). Existing studies have demonstrated that social presence influences a variety of factors of students’ learning experiences (Richardson et al., 2017). Currently, shopping is considered to be a social activity; accordingly, consumers are inclined to be influenced by their social interactions with others when making purchase decisions. Lu et al. (2016), who explored the relationships among...
social presence, trust, and social commerce purchase intentions, found that each dimension of social presence had a positive influence on trust in sellers, which in turn, would help shape online purchasing behaviors. X. Wang and Wu (2019) identified three user engagement mechanisms (product interactivity, communication immediacy, and peer cues) in live-streaming platforms. The results show that the three mechanisms significantly affect users’ attitudes and behavioral intentions.

Shen and Khalifa (2009) proposed a three-dimensional model of social presence, including awareness, affective social presence, and cognitive social presence. Social presence in online learning communities should be based on three dimensions: social context, online communication, and interactivity (Tu, 2002). Lu et al. (2016) applied a three-dimensional model of social presence to test the relationships among social presence, trust, and social commerce purchase intention. In the article, the authors chose the social presence of the web, the social presence of others, and the social presence of interaction as three dimensions. Jiang et al. (2019) redefined three dimensions of social presence: consumer–consumer interaction, consumer–merchant interaction, and consumer–commodity interaction.

On the basis of previous studies, this article proposes a three-dimensional model of social presence that includes social presence of the destination image, perception of production, and social presence of the interaction with others. This conceptualization is similar to the social presence models of Caspi and Blau (2008), Lu et al. (2016), and Jiang et al. (2019), all of which are composed of the three factors.

Social presence of destination image. The destination image plays an important role in tourists’ decision making and subsequent travel behaviors (Zhang et al., 2014). Live-streaming applications transport viewers to places far away from their physical and geographic environments, which allows images and sounds to be immediately conveyed from one location to another and makes viewers feel like they are present at the event (C. C. Chen & Lin, 2018; Deng et al., 2019). The sense of “almost being there” enhances viewers’ degree of immersion and engagement intention and enables them to perceive the image of the tourist destination through a digital lens (Deng et al., 2019). In other words, viewers can learn more about the relevant information of the tourist destination (landscape, climate, culture, transportation, etc.) through live-streaming applications and shape the image of the tourist destination in their mind based on the information they obtain.

In e-commerce, perceived social presence is conducive to the establishment of a closer relationship between sellers and buyers because the sense of presence can shorten the psychological distance between them (Lu et al., 2016; Sun et al., 2019). Unlike other visual media, live-streaming tourism has a special characteristic regarding the notion of time, and viewers can watch everything that a live streamer does at a tourism destination in real time (Deng et al., 2019). Overall, perceived social presence can directly and/or indirectly increase viewers’ trust in streamers and reduce their uncertainty, ultimately strengthening viewers’ behavioral intentions (C.-Y. Li, 2019; Sun et al., 2019).

Social presence of production. As potential visitors (or customers) often rely on physical cues to make inferences before actually experiencing products, the quality of information obtained through live-streaming platforms plays an important role in making offline purchase decisions, especially for experiential products, such as accommodations, entertainment, and services (Ye et al., 2020). Live streaming, which displays products from multiple angles, can explain and answer an audience’s questions in an interactive way. Therefore, it is very necessary to enhance the visibility and authenticity of products, increase the amount of information obtained by viewers, and enhance viewers’ trust in products or services through live streaming.

Some researchers have demonstrated that visual design factors, such as photographs, colors, and graphics, significantly affect consumers’ trust in online merchants (Ganguly et al., 2010; Papadopoulou, 2011). Jiang et al. (2019) and Park and Lin (2020), who considered the importance of visual elements (such as images and colors) in consumers’ trust and shopping intentions in detail, concluded that it would be significant to study this dimension of social presence.

Deng et al. (2019) stated that in live streaming, similar to a real tourism experience, production and consumption are inseparable. Tourists choose to travel to destinations for different purposes. Some tourists travel to appreciate the scenery of different places, some tourists travel to buy particular commodities, and some tourists travel to take care of their health. For example, the emergence of different forms of travel, such as food tourism (Ellis et al., 2018) and shopping tourism (Choi et al., 2016; Hsieh & Chang, 2006), has been continuously ongoing. Destination products and services are the most important contents of destinations, and it is necessary to provide viewers with real and rich product information. Based on previous research, this article takes the presence of tourism production as one of the indispensable parts of social presence.

Social presence of interaction. Lah et al. (2013), Nadeem et al. (2020), and Ye et al. (2020) stated that social presence can facilitate online interactions and enable social commerce. Traditional e-commerce harbors the conception that sellers rarely engage in direct interactions with buyers. Nonetheless, online chat tools have helped realize these interactions (Lu et al., 2016). For instance, Caspi and Blau (2008) stated that a “medium as interaction enabling” was one segment of social presence. Live streaming was characterized by the uniqueness that consumers could interact with sellers in real time, thus engaging in shopping experiences and more interpersonal connections (Haimson & Tang, 2017). Gefen and...
Strub (2004) also stated that consumers could feel a sense of social presence and social/human touch regardless of the lack of actual human communication via live streaming. The perspective of social presence as involving direct interactions with other users has been proposed in online community research (Caspi & Blau, 2008; Lu et al., 2016; Tu, 2002).

Horton and Wohl (1956) used the theory of Parasocial Interaction (PSI) to understand the relationship between television personalities and viewers. Previous studies, such as Sun et al. (2019), have stated that it is necessary to increase the interaction between streamers and customers. Their research results showed that customers’ purchasing decisions depend on the level of engagement, which includes immersion and presence. Regarding tourism, Deng et al. (2019) showed that there is a special characteristic of live-streaming tourism: Live-streaming tourism provides a real tourism experience, and the quality of the para-social interaction can be increased in live streaming via two-sided communication.

In other words, live streaming is a good provider that offers interactive conditions and involves the significant, vital role of social presence through interactions between consumers and merchants (other consumers).

Destination Trust

The ultimate goal of target marketing is to create a strong connection between consumers and brands; mutual trust is the main ingredient of this bond. Trust, through which tourists were more likely to go to destinations they consider trustworthy and reliable, managed to pave an effective way to reduce risk and uncertainty (Abubakar & Ilkan, 2016). Artigas et al. (2017) gave the definition of destination trust in a tourism aspect: Trust was defined as the reliability and credibility of the critical elements related to destinations perceived by tourists. It helped build many key constructs in travel decisions, such as tourist satisfaction, revisits, commitment, and loyalty (Su et al., 2014).

Some studies had contributed the confirmation that tourist trust would influence tourists’ risk perception and their emotional attachment to a destination (C. F. Chen & Phou, 2013). Tourists might choose destinations they consider trustworthy and reliable; moreover, they might even develop long-term connections with trustworthy destinations.

Since trust, which was one of the key indexes to study tourism, was also a crucial antecedent of tourists’ intention to travel to that destination (Mohammed, 2016). On the contrary, trust was a key quality for success in managing the marketing of tourist destinations (Choi et al., 2016).

Research Model and Hypothesis

The proposed research model is depicted in Figure 1. According to Haimson and Tang (2017), live streaming is characterized by a uniqueness in which viewers can interact with streamers in real time, thus engaging in shopping experiences and more human connections. Consequently, feeling a sense of social presence and social/human touch can occur (Gefen & Strub, 2004). In this article, by virtue of the trust of tourism destinations, we assume that this social presence (the presence of a destination image, the presence of an interaction, and the presence of production) will affect viewers’ travel intention.

Social Presence and Trust

Short et al. (1976) first defined social presence as the experience of perceiving others’ existences in the medium and interactions. Early studies used social presence theory to explain the social perspective of social commerce (Jiang et al., 2019). Those previous studies examined the relationship between trust and social situations. Hassanein and Head (2007) and Lu et al. (2016) held the viewpoint that social presence had a positive significant effect on consumers’ trust, which affected their shopping intention. Recently,
some scholars categorized social presence into several dimensions by exploring the influence of each dimension on trust. For instance, Lu et al. (2016), who divided social presence into three dimensions (presence of a web, presence of an interaction, and presence of others), concluded that they could enhance consumers’ trust according to the operational dimension of social presence. Jiang et al. (2019) also argued that dimensions of social presence could be used to examine how the information support moderated the relationship between different social presence dimensions and trust in the context of social commerce.

Live streaming has made it possible for viewers to interact with streamers in real time, which has resulted in immersive, engaging shopping experiences and gives the viewers a sense of “social presence” (Wongkitrungrueng & Assarut, 2020). Based on the results of Lu et al. (2016) and Jiang et al. (2019), the presence of a viewer–streamer interaction will positively influence viewers’ trust. Hence, social presence through viewers’ interactions can reduce the uncertainty of viewers regarding streamers.

“Trust in the product” refers to the viewers’ belief that a product could look like and function as it is claimed to and could meet their expectations as much as possible. Gefen et al. (2003) indicated that visual elements imposed a significant impact on viewers’ trust; 3D virtual models enhanced the viewers’ sense of social presence, thus increasing their trust (H. H. Lee et al., 2010). As tourist products play a critical role in tourist destinations, product trust is the foundation of tourist trust.

Based on existing research, we believe that the social presence of tourism live streaming plays a positive role in promoting trust in tourism destinations.

Hypothesis 1 (H1): Social presence of destination image will positively influence consumers’ destination trust.

Hypothesis 2 (H2): Social presence of interaction with others will positively influence consumers’ destination trust.

Hypothesis 3 (H3): Social presence of production will positively influence consumers’ destination trust.

Trust and Visit Intention

Destination trust generally represents the confidence and certainty that tourists acquired from the product or service providers in the tourism sites/places as a relational exchange between two parties (Ansi & Han, 2019). Trust works as a key quality in the success of managing the marketing of tourist destinations (Choi et al., 2016). To date, a number of studies have affirmed that trust toward a destination influences individual behaviors such as attitudes, satisfaction, loyalty, commitments, and intention to visit (Artigas et al., 2017).

According to previous studies, satisfaction or trust is closely relevant to destination choice and decisions to return (Hultman et al., 2015). C. F. Chen and Chen (2010) stated that destination loyalty was a key element in tourism marketing strategies as it functioned as the best predictor of post-visit behavior. In the tourism industry, some empirical evidence has indicated that tourists’ satisfaction and trust are strong indicators of revisiting and recommending a destination to other people (Wu, 2016). Roodurmun and Juwaeheer (2010) believed that tourists were more likely to visit destinations where they perceived the destinations to be trustworthy and dependable. Furthermore, in medical tourism, tourists are more likely to revisit places where they trust health care establishments (Han & Hyun, 2015). Thus, the following hypothesis was proposed.

Hypothesis 4 (H4): Destination trust has a significant impact on the intention to visit.

Moderating Effect of Self-Construal

According to Markus and Kitayama (1991), self-construal is an individual’s cognition of the relationship between him- or herself and the environment. Different self-construals have different influences on individual behavioral orientations. It is more likely that individuals with independent self-construal value their uniqueness and autonomy in that they view themselves as separate individual entities who are distinguished from groups. Conversely, individuals with interdependent self-construal are likely to value connectedness and group harmony as they predominantly view themselves as part of a larger group (D. Lee et al., 2012).

The relationship between self-construal and individual motivations and behaviors has been studied. People with a high independent construal value may pay more attention to personal interests and needs, which will encourage them to participate in community interactions and sharing (Akpinar et al., 2018; Cross et al., 2011; Y. Wang et al., 2015). Furthermore, self-construal has been used to explain behavioral intentions, such as knowledge sharing (J. Liu & Rau, 2014) and intentions to continue (Y. Wang et al., 2015). Hossain and Chonko (2017) found that an interesting moderation affected the relationship between relational communication and illusionary loyalty through customers’ self-construal.

Like online communities, live-streaming tourism platforms provide real-time spaces for viewers to participate, share experiences, and interact with others (Deng et al., 2019). There are many differences in the motive of participation between individuals with different levels of self-construal (Liu et al., 2018 and Y. Li et al., 2019). On a tourism live-streaming platform, different self-constructed individuals have different participation enthusiasm and participation levels in the live-streaming community, which will further affect the level of social presence. Therefore, we assume that different self-constructed individuals have different degrees of participation in the tourism live-streaming community and that this difference will affect the viewers’ presence of the destination, presence of production, and presence of interaction. Therefore, we posit that
Hypothesis 5-1 (H5-1): Self-construal positively moderates the relationship between presence of destination image and destination trust.

Hypothesis 5-2 (H5-2): Self-construal positively moderates the relationship between presence of interaction and destination trust.

Hypothesis 5-3 (H5-3): Self-construal positively moderates the relationship between presence of production and destination trust.

Hypothesis 5-4 (H5-4): Self-construal positively moderates the relationship between destination trust and visit intention.

Data and Methodology

First, the questionnaire was designed. There were three main parts in the questionnaire. The first part indicated the purpose of the research, expressed gratitude to the interviewees for their participation, and promised that the data collected would only be used for the current research. The second part mainly collected the demographic information of the respondents.

The last part of the questionnaire aimed to gather the research data. All the scale items came from the relevant literature. All items were measured with a 7-point Likert-type scale, ranging from 1 (strongly disagree) to 7 (strongly agree). Improving the content validity of the measured items should indicate generalizations in conception. Thus, with reference to the prior appropriate literature, the scales were selected to ensure the content validity. The items that measured the presence of the destination image were adapted from Fu et al. (2016), Jiang et al. (2019), Lu et al. (2016), Mahasuweerachai and Qu (2011), and Wu (2016). The items that measured destination trust were adapted from Wu (2016), Ansi and Han (2019), and J. Liu et al. (2019). Visit intention was measured using three items adapted from Abubakar and Ilkan (2016).

We first checked the quality of the questionnaire. The questionnaire was distributed and collected via social software. The questionnaire was redesigned and revised based on the respondents’ feedback on the questionnaire (ensuring that the questionnaire was correct and easy to understand). Then, the questionnaire survey was performed using an online survey platform, Wenjuanxing (https://www.wjx.cn), one of the most popular online survey services in China. In this study, we chose China, a major internet-related technology use and tourism country, as the research context to conduct the online survey. According to the China Internet Development Report 2020, China’s number of mobile internet users reached 1.319 billion people, accounting for 32.17% of the world’s total internet users by the end of 2019. In addition, China’s tourism market is developing rapidly and has broad prospects.

This survey was conducted over a period of approximately 3 weeks starting in the beginning of July 2019.

Table 1. Respondents Profile.

| Measures          | Frequency | %       |
|-------------------|-----------|---------|
| Gender            |           |         |
| Male              | 314       | 51.14   |
| Female            | 300       | 48.86   |
| Age (year)        |           |         |
| <20               | 73        | 11.89   |
| 21–30             | 220       | 35.83   |
| 31–40             | 162       | 26.38   |
| 41–50             | 109       | 17.75   |
| >50               | 50        | 8.14    |
| Occupation        |           |         |
| Student           | 88        | 14.38   |
| Stuff             | 339       | 55.21   |
| Free-career       | 119       | 19.38   |
| Civil servant     | 47        | 7.65    |
| Other             | 21        | 3.42    |
| Experience (yes/no)|         |         |
| Yes               | 424       | 69.06   |
| No                | 190       | 30.94   |
| Level of independence |     |         |
| High              | 397       | 64.66   |
| Low               | 217       | 35.34   |
| Total             | 614       | 100     |

Wenjuanxing (https://www.wjx.cn) recorded unique IP addresses so that each IP address could answer the questionnaire only once, and 930 completed questionnaires were collected. We reviewed these questionnaires and deleted those with incomplete answers and duplicate answers. In addition, questionnaires with a response time of less than 180 s (as determined by our pilot study) were also deleted. Finally, 614 acceptable questionnaires were used to conduct further data analysis. According to Chin and Newsted (1999), Chin et al. (2003), and Ringle et al. (2012), a commonly required sample size in structural equation model (SEM) can be determined by multiplying the “scale with the largest number of formative (such as causal) indicators” by 10; here, the sample size meets the criteria for further study.

There were 314 males, accounting for 51.14% of the total respondents, and 300 females, accounting for 48.86%. Through the sample, we found that young people were the majority of the respondents. The number of people in the range between 21 and 30 years of age was 220, accounting for 35.83% of the total respondents. Consumers below 50 years of age represented 91.86% of the total respondents. From the results of the occupational classification of the interviewees, it can be concluded that company employees accounted for the largest proportion, followed by freelancers and students. More than 69.06% of respondents had previously used travel live-streaming programs. The detailed respondent characteristics are presented in Table 1.
Result

Measurement Model

First, use the statistical method of SPSS to judge whether the variable is suitable for factor analysis. SPSS20 was used for Bartlett sphericity test and Kaiser–Meyer–Olkin (KMO) test and the value of KMO is 0.926 much bigger than the critical value (0.7), which shows that the original items are suitable for factor analysis. Then, confirmatory factor analysis (CFA) was employed using the covariance matrix to verify the factor structure.

In this article, MPLUS was used to complete this study. To check the reliability and validity of constructs in this study, this article conducted three sets of necessary tests: internal consistency, convergent validity, and discrimination validity (Hair et al., 2011). To assess above validities, this article portrays of the details about $R^2$, factor loadings, composite reliability (CR), and average variance extracted (AVE). CFA confirms all factor loadings are above minimum level 0.7 (Fornell & Larcker, 1981). The minimum value for $R^2$ was .656, showing that the data were of internal consistency (Hair et al., 2011, 2016). The value of CR of all constructs was above .9, which is much bigger than the cutoff point .7 (Hair et al., 2011, 2016); comparatively, the value of AVE of all constructs is above 0.5 (Chin, 1998). Hence, the outcomes mark a reasonable convergent validity (Table 2).

Discriminate validity was achieved provided the square root of the AVE for each construct was higher than the correlations of the construct with other constructs (Anderson & Gerbing, 1988; Fornell & Larcker, 1981). If the diagonal values were bigger than any other correlation, the adequate discrimination validity was established (Hair et al., 2011, 2016). As shown in Table 3, the square root of the AVE is above than the correlation between variables, which reveals the reasonable discriminate validity (Henseler et al., 2015).

Structural Model

The overall model-fit has to be tested before hypothesis testing. The standardized root mean square residual (SRMR) value is 0.039, which is smaller than the acceptable level 0.08. However, all other fit indices demonstrate that the proposed hypothesized structural model fits well to the data. Table 4 shows the details below.

Hypothesis Test

The estimated standardized path coefficients for the proposed model are presented in Table 5 and Figure 2.

H1 contributes a positive influence of the presence of destination image on destination trust. A significant positive relationship was identified between the presence of destination image and destination satisfaction as direct effect $= 0.415$, $T$-value $= 6.496$, $p < .001$. As expected, H1 was fully supported.

H2 postulates a significant effect of the presence of interaction on destination trust. As hypothesized, a significant direct relationship was present between the presence of interaction and destination trust (direct effect $= 0.212$, $T$-value $= 3.070$, $p = .002$), which is supporting H2.
**Table 3.** Discriminate Validity.

| Dim. | STD_LOADING | CR | AVE | Discriminate validity |
|------|-------------|----|-----|-----------------------|
| PD   | .830–.933   | .934 | 0.823 | **0.907** |
| PI   | .809–.953   | .913 | 0.788 | **0.888** |
| PP   | .887–.934   | .929 | 0.810 | **0.900** |
| DT   | .870–.933   | .933 | 0.823 | **0.907** |
| VI   | .857–.976   | .939 | 0.837 | **0.910** |

Note. CR = composite reliability; AVE = average variance extracted; PD = presence of destination; PI = presence of interaction; PP = presence of production; DT = destination trust; VI = visit intention.

**Table 4.** Model-Fit Test Result.

| Indices | Proposed standard | Test result | Conformity |
|---------|-------------------|-------------|------------|
| ML \(\chi^2\) | As small as possible | 156 |  |
| df \(\chi^2/df\) | As big as possible | 83 |  |
| CFI     | >0.9             | 0.977       | Yes        |
| TLI     | >0.9             | 0.971       | Yes        |
| RMSEA   | <0.08            | 0.064       | Yes        |
| SRMR    | <0.08            | 0.039       | Yes        |

Note. CFI = comparative fit index; TLI = Tucker–Lewis index; RMSEA = root mean square error of approximation; SRMR = standardized root mean square residual.

H3 provides a significant influence of the presence of production on destination trust. Findings are presenting a significant direct relationship between the presence of production on destination trust (direct effect = 0.248, \(T\)-value = 3.513, \(p < .001\)). Therefore, H3 is fully supported.

H4 posits that destination trust has a positive influence on customers’ visit intention. Results is portraying a significant direct relationship between destination trust and visit intention (direct effect = 0.625, \(T\)-value = 13.925, \(p < .001\)). Hence, H4 is supported.

The \(R^2\) represents a measure of the variance which is explained in each of the endogenous constructs, thus measuring the model’s predictive accuracy (in terms of in-sample prediction). The value .562 stands for the percentage of the interpreted variance \((R^2)\) for destination trust; .391 means the percentages for visit intention, which marks that the structural model is of predictive relevance (Hair et al., 2011).

**Moderation Test**

Moderation interactions were performed using the MPLUS process mechanism. A two-way moderation interaction was tested to predict destination trust and visit intention, and details are showed in Table 6. No significant moderation effect is seen as the value of estimate \((PD \times S-C = 0.002, z-value = 0.052, \(p = .958 > .01\))\), and H5-1 is unsupported.

H5-2 \((PP \times S-C = −0.118, z-value = −2.305, p = .021 > .01\)) \text{and} H5-3 \((PI \times S-C = −0.049, z-value = −1.07, p = .285 > .01\)), are all unsupported. Finally, self-construal has a significant effect on the relationship between destination trust and visit intention \((DT \times S-C = −0.185, z-value = −5.999, p < .001)\).

**Discussion and Implications**

**Conclusion**

The purposes of this article are to explore the relationship among destination social presence, trust, and visit intention and to explore whether live streaming affects viewers’ offline behavior (destination visit intentions).

Gefen and Straub (2004) stated that live streaming could endow viewers with a sense of presence, which could increase and consolidate the interactions between members and enhance trust (Wongkitrungrueng & Assarut, 2020). Few studies on the relationship between live streaming and tourism behavior have been conducted.

The main conclusions of this study are as follows:

First, the “sense of destination presence,” which is formed by live streaming, can help viewers obtain a better understanding of the image of the tourist destination. Tourists can obtain more information about the natural landscape of the tourist destination and have a better understanding of the history, culture, climate, and environment of the tourist destination.
Second, live streaming possesses the unique characteristics allowing consumers to interact with local streamers in real time. This means that live streaming consequentially results in an immersive, engaging shopping experience and a more interpersonal connection (Haimson & Tang, 2017). Both viewers and streamers and viewers and viewers can share and obtain relevant information, and this behavior helps to enhance trust, which contributes to reducing the audience’s uncertainty and establishing trust relationships or engagement intentions. Sun et al. (2019) and C.-Y. Li (2019) proposed similar theoretical points, and this article provides empirical support. In addition, they also stated that tourism experiences, production, and consumption are three main inseparable factors in live-streaming tourism. Sun et al. (2019) argued that live streaming gives a real shopping experience and enhances viewers’ willingness to engage and product trust from the aspect of social commerce.

Fourth, Palmatier et al. (2006) believe that trust is the main central mediating variable of relationships and provide an instrument to develop and maintain mutually profitable relationships. This article reaches the same conclusion: Trust is the main factor affecting consumer behaviors.

Finally, the present study also tests the effect of self-construal. Previous studies have studied the relationship between self-construal and consumer decision making or choices (Das & Roy, 2019). The moderating effect of self-construal in this article is also found to be significant (between destination trust and visit intention), the results of which are in line with what we expected. In other words, different self-construal has positive impacts on consumers’ behavioral perception (Aaker & Lee, 2001; Akpinar et al., 2018).

Theoretical and Managerial Implications

The main contributions of this article are as follows:

First, although live streaming is gradually being combined with business, only a few studies have been conducted on the impact of live streaming on tourism to date. Based on the existing literature, this article uses the theory of “social presence” to construct a research model and proposes related hypotheses. This article is one of the earlier articles that empirically explored the relationship between live streaming and travel intention and has a positive guiding value for future research in this field.

| Table 6. Moderation Test. |
|---------------------------|
| DV | IV | Estimate | SE | Est./SE | p value |
| DT | ON  | PD  | 0.288 | 0.049 | 5.916 | ***  |
|   |     | PP  | 0.218 | 0.057 | 3.795 | ***  |
|   |     | PI  | 0.175 | 0.048 | 3.638 | ***  |
|   |     | PD × S-C | 0.002 | 0.039 | 0.052 | .958  |
|   |     | PP × S-C | -0.118 | 0.051 | -2.305 | .021  |
|   |     | PI × S-C | -0.049 | 0.046 | -1.07  | .285  |
| VI | ON  | DT  | 0.316 | 0.048 | 6.592 | ***  |
|   |     | SC  | 0.207 | 0.049 | 4.246 | ***  |
|   |     | DT × S-C | -0.185 | 0.031 | -5.999 | ***  |

Note. SE = standard error; DT = destination trust; PD = presence of destination; PP = presence of production; PI = presence of interaction; S-C = self-construal; VI = visit intention; DV = dependent variable; IV = independent variable.

***p < .001.

Second, live streaming possesses the unique characteristics allowing consumers to interact with local streamers in real time. This means that live streaming consequentially results in an immersive, engaging shopping experience and a more interpersonal connection (Haimson & Tang, 2017). Both viewers and streamers and viewers and viewers can share and obtain relevant information, and this behavior helps to enhance trust, which contributes to reducing the audience’s uncertainty and establishing trust relationships or engagement intentions. Sun et al. (2019) and C.-Y. Li (2019) proposed similar theoretical points, and this article provides empirical support. In addition, they also stated that tourism experiences, production, and consumption are three main inseparable factors in live-streaming tourism. Sun et al. (2019) argued that live streaming gives a real shopping experience and enhances viewers’ willingness to engage and product trust from the aspect of social commerce.

Fourth, Palmatier et al. (2006) believe that trust is the main central mediating variable of relationships and provide an instrument to develop and maintain mutually profitable relationships. This article reaches the same conclusion: Trust is the main factor affecting consumer behaviors.

Finally, the present study also tests the effect of self-construal. Previous studies have studied the relationship between self-construal and consumer decision making or choices (Das & Roy, 2019). The moderating effect of self-construal in this article is also found to be significant (between destination trust and visit intention), the results of which are in line with what we expected. In other words, different self-construal has positive impacts on consumers’ behavioral perception (Aaker & Lee, 2001; Akpinar et al., 2018).

Theoretical and Managerial Implications

The main contributions of this article are as follows:

First, although live streaming is gradually being combined with business, only a few studies have been conducted on the impact of live streaming on tourism to date. Based on the existing literature, this article uses the theory of “social presence” to construct a research model and proposes related hypotheses. This article is one of the earlier articles that empirically explored the relationship between live streaming and travel intention and has a positive guiding value for future research in this field.
Second, there are many studies on purchase intention (Sun et al., 2019) and engagement intention (X. Wang & Wu, 2019) on a live-streaming platform. Although some scholars have studied live-streaming tourism from a theoretical perspective (such as Deng et al., 2019), few studies have used social presence theory to study live-streaming tourism. As an early article on this issue, this article is of great value. Considering the diversification of social presence elements, this article proposes three dimensions of social presence (the presence of a product, the presence of a destination, and the presence of an interaction) on the basis of the existing literature. Future studies can be extended based on this article’s results.

Third, this article contributes to understanding the direct influence of the three dimensions of social presence on destination trust. The role of destination trust is reconfirmed in this article. The results show that the presence of a destination image, the presence of an interaction, and the presence of products have positive effects on destination trust. The results of this article are of great significance for an in-depth understanding of the relationship between destination presence and travel intentions. Furthermore, the results provide a basis for further research on tourism behavior and the presence of destinations.

Finally, this article also tests the moderating effect of self-construal; however, self-construal has no moderating effect on the relationship between social presence and trust. However, self-construal significantly influences the relationship between trust and visit intention. Regarding this phenomenon, we believe that the information society enriches people’s access to knowledge. Live streaming provides a good platform for interactive communication by minimizing information asymmetry. In addition, this also helps locate a new research direction for future studies and to determine the impact of information asymmetry on behavioral intention.

Based on the above research conclusions and enlightenment, this research has certain practical significance.

First, with the increasingly fierce competition in the tourism industry, “live streaming + tourism” may be a wise choice to attract tourists. Therefore, destination managers should consider using live streaming to attract more visitors. For example, they can use live streaming to demonstrate the destination landscape, destination climate, history, culture, and customs to viewers and communicate with and guide them, creating an environment in which viewers perceive immersion and presence. In addition, destination managers can use live streaming to show viewers the local transportation, local foods, sanitation, accommodations, and other facilities to continuously improve the image of the destination.

Second, live-streaming tourism should endeavor to improve the level of interactiveness. Streamers should maximize the advantages of their visual and interactive nature. For example, streamers need to show more destination information and respond rapidly to viewers’ questions to improve customers’ feelings of presence. Furthermore, streamers must ensure that they have rich destination knowledge and information before giving suggestions to viewers. If streamers can give useful information and suggestions during live streaming and actively help others solve problems, then viewers’ trust in destinations will increase, which in turn, will affect their travel decisions.

Third, live-streaming tourism designers need to make an effort to strengthen the presence of products. With 3D virtual models, viewers can obtain more realistic product information, which enhances viewers’ sense of social presence, thus increasing trust (H. H. Lee et al., 2010). For example, streamers can not only provide viewers with the basic information of products but can also allow viewers to understand the product-making process (food-making process and production-making process), which not only increases the interaction between streamers and viewers but also increases viewers’ recognition and trust in the quality of products.

Finally, technology has brought more convenience to people. Nevertheless, technology is not the only factor that improves people’s satisfaction and trust. Tourism managers need to provide more humane services to enhance people’s trust. For example, tourism managers should pay attention to the needs of viewers and give them timely feedback. Viewers want to fully express their needs and receive a response from tourism managers so that they can obtain more accurate information (Sun et al., 2019). Obtaining more information can reduce viewers’ uncertainty, which will help them make travel decisions.

Declaration of Conflicting Interests
The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding
The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: The Social Science Planning Research Project of Shandong Province: 20CLYJ77.

ORCID iD
Wenkun Zhang https://orcid.org/0000-0003-0841-7153

References
Aaker, J. L., & Lee, A. Y. (2001). “I” seek pleasures and “we” avoid pains: The role of self-regulatory goals in information processing and persuasion. Journal of Consumer Research, 28(1), 33–49.
Abubakar, A. M., & Ilkan, M. (2016). Impact of online WOM on destination trust and intention to travel: A medical tourism perspective. Journal of Destination Marketing & Management, 5, 192–201.
Akpinar, E., Verlegh, P. W. J., & Smidts, A. (2018). Sharing product harm information: The effects of self-construal and self-relevance. International Journal of Research in Marketing, 35(2), 319–335.
Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. Psychological Bulletin, 103, 411–423.

Ansi, A. A., & Han, H. (2019). Role of halal-friendly destination performances, value, satisfaction, and trust in generating destination image and loyalty. Journal of Destination Marketing & Management, 13, 51–60.

Artigas, M. E., Yrigoyen, C. C., Moraga, E. T., & Villalón, C. B. (2017). Determinants of trust towards tourist destinations. Journal of Destination Marketing & Management, 6(4), 327–334.

Cai, J., Woh, D. Y., Mittal, A., & Sureshbabu, D. (2018). Utilitarian and Hedonic motivations for live streaming shopping. ACM International Conference (pp. 81–88). ACM.

Caspì, A., & Blau, I. (2008). Social presence in online discussion groups: Testing three conceptions and their relations to perceived learning. Social Psychology of Education, 11(3), 323–346.

Chang, C. M., & Hsu, M.-H. (2016). Understanding the determinants of users’ subjective well-being in social networking sites: An integration of social capital theory and social presence theory. Behaviour & Information Technology, 35, 720–729.

Chen, C. C., & Lin, Y. C. (2018). What drives live-stream usage intention? The perspectives of flow, entertainment, social interaction, and endorsement. Telematics and Informatics, 35, 293–303.

Chen, C. F., & Chen, F. S. (2010). Experience quality, perceived value, satisfaction and behavioral intentions for heritage tourists. Tourism Management, 31, 9–35.

Chen, C. F., & Phou, S. (2013). A closer look at destination: Image, personality, relationship and loyalty. Tourism Management, 36(3), 269–278.

Cheung, G., & Huang, J. (2011, May). Starcraft from the stands: Understanding the game spectator [Conference session]. Proceedings of the SIGCHI Conference on Human Factors in Computing Systems, Vancouver, BC, Canada.

Chin, W. W. (1998). The partial least squares approach to structural equation modeling. Modern Methods for Business Research, 295(2), 295–336.

Chin, W. W., Marcolin, B. L., & Newsted, P. R. (2003). A partial least squares latent variable modeling approach for measuring interaction effects: Results from a Monte Carlo simulation study and an electronic-mail emotion/adoptions study. Information Systems Research, 14(2), 189–217.

Chin, W. W., & Newsted, P. R. (1999). Structural equation modelling analysis with samples using partial least squares. In R. Hoyle (Ed.), Statistical strategies for small sample research (pp. 307–341). Sage.

Choi, M., Law, R., & Heo, C. Y. (2016). Shopping destinations and trust–tourist attitudes: Scale development and validation. Tourism Management, 54, 490–501.

Cross, S. E., Hardin, E. E., & Gercek-Swing, B. (2011). The what, how, why, and where of self-construal. Personality and Social Psychology Review, 15(2), 142–179.

Das, G., & Roy, R. (2019). How self-construal guides preference for partitioned versus combined pricing. Journal of Business Research, 101, 152–160.

Deng, Z., Benckendorff, P., & Wang, J. (2019). Blended tourism experiencescape: A conceptualisation of live-streaming tourism. In J. Pesonen & J. Neidhardt (Eds.), Information and communication technologies in tourism (pp. 212–222). Springer.

Diwanji, V., Reed, A., Ferchau, A., Seibert, J., Weinbrecht, V., & Sellers, N. (2020). Don’t just watch, join in: Exploring information behavior and copresence on Twitch. Computers in Human Behavior, 103, 106221.

Ellis, A., Park, E., Kim, S., & Yeoman, I. (2018, October). What is food tourism? Tourism Management, 68, 250–263.

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. Journal of Marketing Research, 18(1), 39–50.

Fu, H., Ye, B., & Xiang, J. (2016). Reality TV, audience travel intentions, and destination image. Tourism Management, 55, 37648.

Ganguly, B., Dash, S. B., Cyr, D., & Head, M. (2010). The effects of website design on purchase intention in online shopping: The mediating role of trust and the moderating role of culture. International Journal of Electronic Business, 8(4), 302–330.

Gefen, D., Karahanna, E., & Straub, D. W. (2003). Trust and TAM in online shopping: An integrated model. MIS Quarterly, 27(1), 51–90.

Gefen, D., & Straub, D. W. (2004). Consumer trust in B2C e-commerce and the importance of social presence: Experiments in e-products and e-services. Omega, 32(6), 407–424.

Haimson, O. L., & Tang, J. C. (2017). What makes live events engaging on Facebook live, Periscope, and Snapchat. In G. Mark & S. Fussell (Eds.), Proceedings of the 2017 CHI conference on human factors in computing systems (pp. 48–60). Association for Computing Machinery.

Hair, J. F., Jr., Hult, G. T. M., Ringle, C., & Sarstedt, M. (2016). A primer on partial least squares structural equation modeling (PLS SEM). SAGE.

Hair, J. F., Jr., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a silver bullet. Journal of Marketing Theory and Practice, 19(2), 139–152.

Hamilton, W. A., Garretson, O., & Kerne, A. (2014). Streaming on twitch: Fostering participatory communities of play within live mixed media. In Proceedings of the 32nd annual ACM conference on human factors in computing systems (pp. 1315–1324). Association for Computing Machinery. https://dl.acm.org/doi/abs/10.1145/2556288.2557048

Han, H., & Hyun, S. (2015). Customer retention in the medical tourism industry: Impact of quality, satisfaction, trust, and price reasonableness. Tourism Management, 46, 20–29.

Hassanein, K., & Head, M. (2007). Manipulating perceived social presence through the web interface and its impact on attitude towards online shopping. International Journal of Human-Computer Studies, 65(8), 689–708.

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. Journal of the Academy of Marketing Science, 43(1), 115–135.

Hilvert-Bruce, Z., Neill, J. T., Sjöblom, M., & Hamari, J. (2018). Social motivations of live-streaming viewer engagement on Twitch. Computers in Human Behavior, 84, 58–67.

Holt, J., Steirer, G., & Petruska, K. (2016). Introduction: The expanding landscape of connected viewing. Convergence:
Smith, T., Obrist, M., & Wright, P. (2013). Live-streaming changes the (video) game (Chair). In P. Paolini (Ed.), Proceedings of the 11th European conference on interactive TV and video (pp. 131–138). Association for Computing Machinery.

Su, L., Hsu, M. K., & Marshall, K. P. (2014). Understanding the relationship of service fairness, emotions, trust, and tourist behavioral intentions at a city destination in China. *Journal of Travel & Tourism Marketing, 31*(8), 1018–1038.

Sun, Y., Shao, X., Li, X., Guo, Y., & Nie, K. (2019). How live streaming influences purchase intentions in social commerce: An IT affordance perspective. *Electronic Commerce Research and Applications, 37*, 100886.

Todd, P. R., & Melancon, J. (2018). Gender and live-streaming: Source credibility and motivation. *Journal of Research in Interactive Marketing, 12*, 79–93.

Tu, C. H. (2002). The relationship between social presence and online privacy. *Internet and Higher Education, 5*(4), 293–318.

Tussyadiah, I. P., & Fesenmaier, D. R. (2009). Mediating tourist experiences. Access to places via shared videos. *Annals of Tourism Research, 36*(1), 24–40.

Tussyadiah, I. P., Wang, D., Jung, T. H., & Dieck, M. C. (2018). Virtual reality, presence, and attitude change: Empirical evidence from tourism. *Tourism Management, 66*, 140–154.

Wang, X., & Wu, D. (2019). Understanding user engagement mechanisms on a live streaming platform. In F. H. Nah & K. Siau (Eds.), Proceedings of the international conference on human-computer interaction (pp. 266–275). Springer.

Wang, Y., Ma, S. S., & Li, D. (2015). Customer participation in virtual brand communities: The self-construal perspective. *Information & Management, 52*(5), 577–587.

Wongkitrungrueng, A., & Assarut, N. (2020). The role of live streaming in building consumer trust and engagement with social commerce sellers. *Journal of Business Research, 117*, 543–556.

Wu, C. (2016). Destination loyalty modeling of the global tourism. *Journal of Business Research, 69*, 2213–2219.

Ye, S., Lei, S. I., Shen, H., & Xiao, H. (2020). Social presence, telepresence and customers’ intention to purchase online peer-to-peer accommodation: A mediating model. *Journal of Hospitality and Tourism Management, 42*, 119–129.

Yu, E., Jung, C., Kim, H., & Jung, J. (2018). Impact of viewer engagement on gift-giving in live video streaming. *Telematics and Informatics, 35*, 1450–1460.

Zhang, H., Fu, X., Cai, L. A., & Lu, L. (2014). Destination image and tourist loyalty: A meta-analysis. *Tourism Management, 40*, 213–223.

Zhao, Q., Chen, C.-D., Cheng, H.-W., & Wang, J. L. (2018). Determinants of live streamers’ continuance broadcasting intentions on Twitch: A self-determination theory perspective. *Telemat Inform, 35*, 406–420.

Zhou, L., Wang, W., Xu, J., Liu, T., & Gu, J. (2018). Perceived information transparency in B2C e-commerce: An empirical investigation. *Information & Management, 55*(7), 912–927.