



Value co-creation in tourism live shopping

Yaozhi Zhang^{a,*}, Nina Katrine Prebensen^b

^a Department of Business, Strategy and Political Sciences, USN School of Business, University of South-Eastern Norway, Drammen, Norway

^b Department of Business, Marketing and Law, USN School of Business, University of South-Eastern Norway, Norway

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ABSTRACT

Live streaming has been increasingly integrated into e-commerce platforms to sell tourism offerings, yet its value-adding mechanism for enhancing customer shopping experiences remains underexplored. From a value co-creation perspective, this study investigates how customers can co-create value by leveraging the interactive potential in tourism live shopping, and how such customer co-creation behavior can be fostered through the attributes and actions of tourism live streamers, drawing on source credibility and social presence theories. The empirical findings indicate that the credibility traits of tourism live streamers, characterized by trustworthiness, expertise, and attractiveness, are instrumental in fostering customer co-creation behaviors, which can in turn elevate customer perceived value of their tourism live shopping experiences. Additionally, the study reveals that the level of social presence during tourism live shopping sessions may positively moderate the influence of streamer credibility traits on customer co-creation behaviors.

1. Introduction

Live-streamed shopping, or live shopping, merges live broadcasting with e-commerce, offering a more dynamic and interactive alternative to traditional TV and web-based online shopping (Wongkitrungrueng & Assarut, 2020). This approach features live streamers who actively demonstrate products and communicate with potential customers in a real-time manner to facilitate sales (Chen & Zhang, 2023). By integrating socialization, entertainment, and instant purchasing, live-streamed shopping provides a superior shopping experience, making it a significant experiential marketing channel across diverse product categories (Bai et al., 2024).

The same trend has also been witnessed in the hospitality and tourism industry. Numerous tourism sectors, including hotels, restaurants, attractions, and destination marketing organizations, now adopt live streaming for communication, promotion, and direct sales (Lin et al., 2022). In such tourism live shopping events, tourism organizations collaborate with live streamers, including travel influencers, celebrities, and professional sellers, to promote and sell tourism offerings (Xu et al., 2021). Streaming viewers, namely those potential travelers, can engage directly with the streamers, participating in real-time interactions and making on-the-spot purchases as needed (Xu et al., 2021). Extant research has underscored the potential economic, emotional,

social, and knowledge-based benefits of tourism live e-commerce, highlighting its role as a promising digital tourism marketing channel (Wang & Guo, 2024; Xie et al., 2022).

Despite its prominence, not all tourism live selling events are equally successful in offering positive customer live shopping experiences and generating satisfactory sales (Liu & Sun, 2023; Xie et al., 2022). Consequently, an increasing number of studies have explored strategies that can enhance the marketing outcomes of tourism live shopping (see systematic reviews by Lin et al. (2022) and Bai et al. (2024)). For instance, such studies have looked at the role of tourism live streamers (Liu & Sun, 2023; Zhang et al., 2024), the interface design of live streaming platforms (Singh et al., 2021), the construction of tourism live streaming content (Alam et al., 2023; Xu et al., 2021), as well as concrete sales practices, such as streamers' self-disclosure (Lu et al., 2023) and the use of reminder messages to boost sales (Wang & Guo, 2024).

While existing studies offer valuable seller-centric insights, to the best of our knowledge, limited studies have adopted a customer-centric perspective to examine how customers can leverage the technology-enabled interactive potential in tourism live shopping to co-create value for themselves. Especially, considering live-streamed shopping as a multimedia platform rendering substantial real-time interactions among viewers and streamers (Deng et al., 2021; Wongkitrungrueng & Assarut, 2020; Xie et al., 2022), significant opportunities would exist for

* Corresponding author.

E-mail addresses: Yaozhi.Zhang@usn.no (Y. Zhang), Nina.K.Prebensen@usn.no (N.K. Prebensen).

¹ ORCID: 0000-0003-0055-6087.

customers' active involvement in the value-creation process. As customer involvement can be value-adding (Carvalho & Alves, 2023), it is relevant to decipher how this value co-creation process occurs. Consequently, addressing this research gap and potential, our study sets out from a value co-creation lens to investigate 1) how customer value in tourism live shopping can be derived from their own co-creation behavior, as well as 2) how such customer co-creation behavior can be fostered.

To achieve the research objectives, we first theorize the embedded cognitive and affective customer value attributes in tourism live shopping based on extant literature (Xie et al., 2022; Zeithaml et al., 2020). Then, from a value co-creation perspective, which views customers not merely as value recipients but as active value contributors (Prahalad & Ramaswamy, 2004; Vargo & Lusch, 2004, 2016), we posit that an increase in customer co-creation actions during tourism live shopping can cultivate their own perceived value. More specifically, we refer to the customer co-creation behaviors scale by Yi and Gong (2013) to identify concrete customer participation and citizenship behaviors in tourism live shopping. This framework allows us to identify how various co-creation behaviors can contribute to the multifaceted cognitive and affective customer values within this digital marketing channel.

Recognizing the imperative of customer co-creation behavior, we then look into how such behaviors are cultivated. The current study examines the dynamics of tourism live-streamers, who act as indispensable value co-creation counterparts, positing that both their identity ("who they are") and their actions ("what they do") play significant roles. Specifically, we draw on the source credibility model (Hovland & Weiss, 1951; Ohanian, 1990) to postulate that tourism live streamers' credibility traits – expressed through expertise, trustworthiness, and attractiveness – are fundamental antecedents to establishing tourist co-creation behaviors. After that, incorporating social presence theory (Short et al., 1976), we postulate that elevating social presence in live streaming, through streamers' actions that enhance communication cues, may positively moderate the effect of the three core credibility traits on customer co-creation behavior.

Our study makes three main contributions. First, it demonstrates that customer perceived value of tourism live shopping can significantly derive from customer co-creation behaviors facilitated by the interactive technologies in this channel. This finding bridges the gap by elucidating the customer-centric value co-creation mechanisms and dynamics in tourism live shopping. Second, we extend seminal communication theories, specifically source credibility and social presence theory, to this emerging marketing phenomenon. These adaptations help fill the gap in understanding the antecedents and boundary conditions necessary to foster essential customer co-creation behaviors in the digital services marketing context. Finally, our research provides actionable strategies for enhancing marketing outcomes in tourism live shopping, addressing the practical gap in managerial strategies from a customer-centric viewpoint.

This paper is structured as follows: First, we review the existing literature to develop our theoretical framework and hypotheses. Next, we outline the methods used for model testing and present the results. Finally, we discuss the theoretical and practical implications of our study.

2. Theoretical framework

2.1. Tourism live-streaming and shopping

Live-streaming refers to the real-time transmission of multi-modal information (i.e., text, image, audio, and video) between content creators (streamers) and audiences (viewers) (Ang et al., 2018). Owing to advancements in information and communication technologies like mobile devices, ubiquitous networks, cloud computing and 5G, this communication medium has evolved from traditional TV channels to social networks such as Facebook, YouTube, Twitch, and TikTok

(Wongkitrungrueng & Assarut, 2020). Recently, live-streaming has extended its reach into e-commerce platforms like Amazon and Taobao (by Alibaba), where it serves as a dynamic channel for real-time product advertising, promotion, and direct selling, constituting the phenomenon commonly referred to as live-streamed e-commerce, or live shopping (Bai et al., 2024).

In the tourism industry, live shopping has also emerged as a prominent digital marketing channel. Tourism organizations and service providers are launching streaming channels and partnering with various live streamers including celebrities, travel bloggers/vloggers, and social media influencers to promote and sell tourism products such as tour packages, hotel rooms, and tickets for attractions, events, and transportation (Lin et al., 2022). In a real-time manner, tourism live streamers may conduct virtual tours of destinations, showcase local activities and experiences, and interact directly with their audience in real-time (Lu et al., 2023). On the viewers' side, they may engage actively with the content on streaming platforms during these live-selling events (Wang & Guo, 2024). This interactive involvement allows them to immerse themselves in the content and, if interested, make immediate purchases of the featured tourism offerings on the e-commerce platform (Xie et al., 2022).

Particularly in regions like Asia, where live streaming e-commerce is popular, live shopping has become a significant revenue source for tourism businesses (Lin et al., 2022). The impact is especially pronounced amid and after the COVID-19 pandemic, where tourism live shopping has played a crucial role in fostering the recovery of the tourism industry (X. Liu et al., 2022). For instance, Ctrip, the largest Chinese online travel agency, achieved substantial financial gains through live-streamed sales activities, underscoring the transformative role of live shopping as an instrumental tool in digital tourism marketing.

2.2. Customer perceived value in tourism live shopping

The emergence and prevalence of any business phenomenon can be fundamentally attributed to its superb customer value. Customer perceived value, defined as customers' holistic assessment of a consumption experience, is widely considered a precursor to crucial marketing performance metrics such as customer satisfaction, loyalty and product sales (Otto et al., 2020; Prebensen & Xie, 2017). Consequently, the current study centers on this construct as the key outcome that tourism live shopping endeavors should strive to achieve.

Over three decades of customer value research have seen the evolution of the conceptualization of customer perceived value from a unidimensional construct solely focused on cognitive quality-price assessment to a multi-dimensional higher-order construct that includes affective aspects of value (Zauner et al., 2015; Zeithaml et al., 2020). In our study, we adopt the multifaceted conceptualization of value to argue that optimal tourism live shopping shall provide customers with both cognitive and affective benefits. This aligns with the recognition that live shopping is within both transactional and experiential consumption contexts (Bai et al., 2024; Wongkitrungrueng et al., 2020).

Specifically, cognitive value refers to the transaction-related customer benefits that can be further reflected by economic, quality and convenience value (Sheth et al., 1991; Zeithaml et al., 2020). All three types of cognitive value attributes may be associated with tourism live shopping. Economically, tourism live shopping can offer travelers lower-priced products, attributed to bulk sales and reduced costs in labor and intermediaries (Xie et al., 2022). Quality-wise, tourism live shopping potentially ensures higher product quality. This is because live-streamed selling, as a form of relationship marketing, requires streamers to conduct thorough product selection and testing (e.g., trying out hotels personally) to uphold their long-term reputation (Yu et al., 2023). In terms of convenience, tourism live shopping streamlines the product search and evaluation process for potential travelers. This efficiency is due to the immediate communication enabled between buyers

and sellers, making it more informative compared to traditional text- and image-based online travel agency shopping (Deng et al., 2021).

Affective value, on the other hand, refers to the experience-related benefits that can be reflected by emotional, social and novelty value (Sheth et al., 1991; Zeithaml et al., 2020). Emotionally, potential tourists engaging in tourism live shopping can experience hedonic and entertaining feelings. This could arise from the gratifying selling activities, such as virtual tours of destinations, conducted by live-streamers (Kang et al., 2021). Additionally, tourism live shopping can provide viewers with substantial social benefits and relatedness. Differing from traditional e-commerce, live streaming encourages real-time communication among viewers and hosts. This interaction turns the live room into a virtual community, where participants can form new connections, share ideas and exchange travel experiences (Yu et al., 2023). Finally, tourism live shopping may offer novel epistemic experiences. Many tourism live-selling events include destination introductions and can occur on-site, enabling viewers to vicariously experience the destination and gain new information and knowledge (X. Liu et al., 2022). In summary, Table 1 outlines the potential customer value attributes in tourism live shopping.

2.3. Customer co-creation behavior and perceived value

While there is no doubt that all marketing practices commit to creating customer value, the paradigms concerning how such value is created are contested. Traditional economic exchange theory, or goods-dominant logic, views producers as value creators, marketers as value communicators, and customers as value recipients (Vargo & Lusch, 2004). However, service marketing scholars advocating for service-dominant (S-D) logic argue that complex service contexts and evolving technologies can limit the ability of producers to offer value alone; as such, customers can be collaborative agents in value creation, thus becoming value co-creators (Buhalis & Sinarta, 2019; Grönroos & Voima, 2013; Vargo & Lusch, 2016).

Following the value co-creation perspective, existing studies have found that when customers contribute meaningfully with their resources during the service interaction, their perceived value can be greatly elevated (Campos et al., 2018; Prebensen & Xie, 2017; Roy et al., 2019). Therefore, in light of previous research, we can propose that when customers fully leverage the interactive potential provided by tourism live shopping platforms for active co-creation, their cognitive and affective value attributes, as outlined in Table 1 above, can be significantly enhanced. In order to operationalize specific customer co-creation behavior during tourism live shopping, the current study refers to the seminal scale by Yi and Gong (2013), which conceptualizes it into customer participation behavior and citizenship behavior.

According to Yi and Gong (2013), customer participation behavior is defined as customer in-role actions for value creation, including 1) information seeking, 2) information sharing, 3) responsible behavior, and 4) personal interaction. We anticipate that all these participation behaviors are essential for elevating customer cognitive and affective value in tourism live shopping. To argue for the plausibility, regarding

cognitive value, when viewers actively interact with live streamers by inquiring about tourism products, expressing their needs, and responding to the streamers' prompts, they are more likely to gain a thorough understanding of the promoted tourism offerings (F. Liu et al., 2022). Such enhanced product knowledge, in turn, aids in making purchases more efficiently (i.e., convenience value) (Bu et al., 2022) as well as increasing the likelihood of selecting the right products that best meet their expectations of quality (i.e. quality value) and price (i.e. economic value) (Li et al., 2020; Varadarajan, 2020). As for affective value, customer participation behaviors such as asking questions, expressing personal opinions, and sharing needs with tourism live streamers are crucial for building social-emotional connections with the streamers (i. e., social value) (F. Liu et al., 2022). These interactions can also help them understand novel elements introduced during live shopping (i.e., novelty value), as well as enhance their hedonic engagement and enjoyment (i.e., emotional value) in live shopping (Bu et al., 2022).

Customer citizenship behavior, on the other hand, is defined as the customers' voluntary, extra-role actions for value creation, exemplified by 1) feedback, 2) advocacy, 3) helping, and 4) tolerance (Yi & Gong, 2013). Likewise, we anticipate that these behaviors are essential to elevating both cognitive and affective value perceived by customers in tourism live shopping. Specifically, concerning cognitive value, customers' tolerance and provision of constructive feedback to live streamers can help tailor streamers' presentations more closely to customer preferences (Yap & Sweeney, 2007). This would improve streamers' capability to refine their offerings to the needs of customers, thus making the purchasing process more efficient (i.e., convenience value), and aiding tourists in discovering options that more suitably match their budget (i.e., economic value) and preferences (i.e., quality value) (Gong & Yi, 2021). As for affective value, customer citizenship behaviors, like assisting other audiences during live streams, may contribute to a sense of achievement by offering valuable insights (i.e., social value) (Assiouras et al., 2019). Such citizenship behaviors also enable customers to gain insights from the streaming community, enhancing their own tourism knowledge (i.e., novelty value) (Gong & Yi, 2021). Additionally, supporting the streaming activity through actions like liking and gifting can help foster a stronger emotional connection with the streamers (i.e., emotional value) (Qian & Seifried, 2023).

Besides the above argument on how specific customer participation and citizenship behaviors may contribute to customer cognitive and affective value in tourism live shopping, previous studies employing Yi and Gong (2013)'s scale in distinct contexts have similarly revealed positive patterns between customer co-creation behaviors and marketing outcomes. For instance, González-Mansilla et al. (2019) found a positive relationship between hotel guests' cooperative participation during their stay and perceived hotel brand equity. In a large-scale survey in the service sector, Tran and Vu (2021) identified a positive link between customer participation and citizenship behaviors and business outcomes and process value. In the influencer marketing context, Bu et al. (2022) found a positive correlation between customer co-creation behaviors with brand influencers and expected brand value and purchase intention. In the offline sales context, Delpechitre et al. (2018) found a positive correlation between customer participation and citizenship behaviors and commitment to a particular salesperson.

Consequently, following the review of existing literature, we can couple with our argumentation to posit that in the tourism live shopping context, it is likely that there exists a positive association between customer co-creation behavior and their perceived cognitive and affective value. As such, we propose the first hypothesis with its four sub-hypotheses as follows:

- Hypothesis 1: Customer co-creation behavior is positively associated with customer perceived value in tourism live shopping. Specifically
 - H1a-b: customer participation behavior is positively associated with customer perceived cognitive (a) and affective value (b); and.
 - H1c-d: customer citizenship behavior is positively associated with

Table 1
Cognitive and Affective Value Attributes in Tourism Live Shopping.

Customer value		Descriptions
Cognitive	Economic value	Customers can buy tourism offerings at a low price.
	Quality value	Customers can buy tourism offerings of high quality.
	Convenience value	Customers can buy tourism offerings with little effort.
Affective	Emotional value	Customers can obtain emotionally hedonic feelings.
	Social value	Customers can obtain a sense of relatedness.
	Novelty value	Customers can obtain a feeling of newness.

customer perceived cognitive (c) and affective value (d).

2.4. Live-streamers' credibility and customer co-creation behavior

Given the proposed positive association between customer co-creation behavior and their perceived value, it is important to note that such behaviors are not inherently spontaneous. Rather, they can be quite demanding, as they require significant customer resources such as time and effort (Grönroos & Voima, 2013; Zhang, 2023). Therefore, understanding antecedents for customer co-creation behavior in tourism live shopping becomes highly pertinent. According to Vargo and Lusch (2016), value is produced via meaningful interactions among all the actionable agents in a given value system. In this sense, we deem that tourism live-streamers, as dominant actors leading the selling events, arguably play crucial roles in determining how and to what extent the streaming audiences co-create in the tourism live shopping process.

In this study, we first hypothesize the traits of tourism live-streamers – or “who they are” – as fundamental precursors in influencing customer co-creation actions. Specifically, we draw on the source credibility theory (Hovland & Weiss, 1951; Pornpitakpan, 2004), positing that enhanced credibility of tourism live-streamers leads to increased customer co-creation behavior. To operationalize the credible attributes of tourism live-streamers, we refer to the foundational endorser credibility scale established by Ohanian (1990) in advertising research. This scale suggests that an endorser's credibility is reflected through their 1) trustworthiness, 2) expertise, and 3) attractiveness. In our study, we propose that all three characteristics are foundational to customer co-creation behavior.

First, trustworthiness, defined as confidence in a communicator's honesty and goodwill (Ohanian, 1990), is expected to positively influence customer co-creation behavior. In the tourism consumption context, where most offerings are intangible and subject to variability, potential travelers often face great challenges in assessing quality before experiencing the services (Chen & Tsai, 2008). Therefore, travelers frequently seek testimonials and reviews from reliable influencers (Confente, 2015; Vrontis et al., 2021). Following this logic, extant studies have widely documented the positive association between influencers' trustworthiness and customer interaction with them. For example, in the context of online travel communities, Shen et al. (2020) found that tourists' trust in other community members is a key antecedent for their co-creation activities in the forum. Similarly, Nguyen et al. (2023) found that the sincerity of travel vloggers is crucial for the viewers to interact with them. For travel agencies, Arica et al. (2023) demonstrated that trust is the determinant for travelers' intentions to co-plan their tour packages with them. As a result of these supportive findings, we can accordingly propose that in the tourism live shopping, potential travelers will actively co-create and interact – such as by asking questions, participating in discussions, and sharing their own opinions – only when they perceive the tourism live streamers as trustworthy.

Second, expertise, defined as the knowledge level and the accuracy of the communicator's statements (Ohanian, 1990), is also indispensable. The reasoning behind this is that live streamers' knowledge of tourism products can help them address travelers' questions more effectively and present the travel offerings more comprehensively (Kerstetter & Cho, 2004). This capacity to respond to tourist inquiries effectively and efficiently is paramount in building confidence among viewers (Vrontis et al., 2021), thereby increasing their likelihood of actively co-creating the live shopping experience, such as expressing their questions and advocating the channel to others. Previous empirical studies have also highlighted expertise as a core trait of influencers to ensure a high level of customer interaction. For instance, Nguyen et al. (2023) demonstrated that travel vloggers with higher professionalism lead to greater viewer engagement and adherence to their requests. Jang et al. (2021) found that travel influencers' tourism knowledge and expertise can enhance viewers' liking of their travel posts. Likewise,

Dedeoglu (2019) found that posts made by travel experts, compared to those made by casual travelers, elicit a higher level of perceived importance by tourists. Furthermore, a meta-analysis conducted by Ismagilova et al. (2020) showed the expertise of the information sender consistently has a positive impact on the interaction volume with information receivers. Thus, extending previous insights into the tourism live shopping domain, we can propose that live streamers' travel expertise is essential to foster all kinds of customer co-creation behaviors.

Last but not least, attractiveness, defined as the physical appearance and social likeness of communicators (Ohanian, 1990), is equally crucial. According to the literature on sexuality and evolution, human nature naturally tends to favor interactions with individuals who are physically appealing and possess desirable social characteristics (Kerstetter & Cho, 2004). Therefore, the attractiveness of live streamers can help capture viewers' attention and enhance their likability and approachability, which in turn, results in heightened viewer participation and citizenship behaviors, such as personal greetings, socializing, liking, and gifting (Vrontis et al., 2021). Previous marketing communication studies have widely supported this view. For instance, in the context of destination branding, Zhang et al. (2020) found that the attractiveness of destination endorsers is a key factor in boosting tourist para-social relationships with the endorsers and destination brand love. In the context of company branding, Gilal et al. (2020) discovered that the attractiveness of brand endorsers positively influences brand loyalty among travelers. Even for virtual influencers, attractiveness is positively related to brand attachment and customer purchase intention (Kim & Park, 2023). In line with these supportive findings, we can argue that the attractiveness of tourism live streamers can also act as a booster for active viewer co-creation behaviors.

Consequently, based on our above arguments and literature review, we contend that enhanced credibility traits of tourism live streamers, namely trustworthiness, expertise, and attractiveness, are basic antecedents to foster customer co-creation behaviors in tourism live shopping. This leads us to propose our second hypothesis with six sub-hypotheses:

Hypothesis 2: Tourism live-streamers' credibility is positively associated with customer co-creation behavior in tourism live shopping. Specifically

H2a–c: live-streamers' trustworthiness (a), expertise (b) and attractiveness (c) are positively associated with customer participation behavior; and

H2d–f: live-streamers' trustworthiness (a), expertise (b) and attractiveness (c) are positively associated with customer citizenship behavior.

Further, building on the two main effects propositions established above, we anticipate that customer co-creation behaviors mediate the influence of streamers' credibility traits on customer perceived value. This implies that the necessity of employing credible streamers to boost business performance is likely due to their ability to encourage customer engagement in co-creating value. To our knowledge, previous tourism marketing research often directly associates communicators' credibility with key marketing outcomes (Aye et al., 2013; Nguyen et al., 2023; Vrontis et al., 2021). Yet, there is a relative dearth of studies that explicate the underlying mechanisms of these relationships from a value co-creation perspective (Hsieh & Li, 2020). Therefore, examining the indirect effect of customer co-creation behavior between tourism live-streamers' credibility and customer perceived value can provide insights into the value-adding mechanism in tourism live shopping. As such, we propose the third hypothesis, which includes twelve sub-hypotheses, as outlined below:

Hypothesis 3: Customer co-creation behavior plays a mediating role between tourism live-streamers' credibility and customer perceived value. Specifically

H3a–c: customer participation behavior mediates tourism live-streamers' trustworthiness (a), expertise (b) and attractiveness (c) and

customer perceived cognitive value;

H3d–f: customer participation behavior mediates live-streamers' trustworthiness (d), expertise (e) and attractiveness (f) and customer perceived affective value;

H3g–i: customer citizenship behavior mediates live-streamers' trustworthiness (g), expertise (h) and attractiveness (i) and customer perceived cognitive value; and.

H3j–l: customer citizenship behavior mediates live-streamers' trustworthiness (j), expertise (k) and attractiveness (l) and customer perceived affective value.

2.5. Social presence in tourism live shopping

While selecting a credible tourism live streamer is the initial step toward fostering customer co-creation behavior, having the right person alone does not always guarantee the desired outcome. Therefore, it is crucial to examine, after employing credible streamers, the boundary condition under which (*when*) such a credible streamer can optimize customer co-creation actions. In this study, we refer to the social presence theory (Short et al., 1976) to propose that the actions of tourism live streamers – or “what they do” – may establish a boundary scenario.

By its original definition, social presence refers to the degree of communication cues and salience to other people in a given communication context (Gefen & Straub, 2003; Short et al., 1976). As noted by Kim et al. (2011), different communication channels can afford disparate levels of social presence. In general, face-to-face communication tends to exhibit a higher level of social presence compared to computer-mediated mediums such as emails and websites (Kim et al., 2011; Kreijns et al., 2022). This disparity arises because digital channels often lack the capability to convey complex and rich communication signals, such as visual images, language intonations, body language, and instant feedback, which are more prevalent in face-to-face interactions (Kim et al., 2011; Xu et al., 2021).

Nonetheless, compared to static web-based e-commerce and TV streaming channels, live shopping is arguably able to yield a much higher level of social presence, afforded by its real-time video transmission technologies and integrated software features such as commenting and gifting (Deng et al., 2021; Wang et al., 2024). As Mueser and Vlachos (2018) put it, well-designed live-streaming can bring viewers a feeling of “just being there”. However, we contend that a poorly performed live selling with very few interaction signals and social cues is still possible. For instance, if the live streamers do not actively pose questions, seek answers, or frequently neglect audience comments and reactions, the streamed selling activity may end up with one-way communication, which has few distinctions from traditional TV shopping experiences as described by Chen and Tsai (2008). Given the variability of social presence in tourism live shopping, we propose that its level likely plays a positive moderating role between streamer credibility traits and customer co-creation behavior.

This proposition is substantiated by communication literature indicating that a high level of social presence can significantly reduce the psychological distance between information senders and receivers, thereby transforming the mindset of receivers from passive and unstimulated to active and attentive (Kreijns et al., 2022). Building on this mechanism, prior research has documented the moderating effect of social presence in amplifying the influence of positive traits of information senders on stimulating active behaviors of information receivers across various contexts (Rashid et al., 2022). For instance, Chung et al. (2015) demonstrated that on social media platforms with high social presence (such as Facebook), increases in the usefulness and credibility of posts lead to more positive reader attitudes than on platforms with low social presence (like blogs). Meanwhile, Yang et al. (2023) found that extroverted individuals exhibit increased content creation and dissemination behaviors in social networks with a high level of social presence. Conversely, when social presence is low, even extroverts' content creation and sharing behaviors are suppressed (Yang et al.,

2023). In a live streaming context, Lin (2021) observed that social presence enhances the effect of established parasocial relationships between streamers and viewers on viewers' gift-giving behaviors, which is also a representative form of co-creation behavior.

In the same vein, we expect that the level of social presence during tourism live shopping will positively moderate the impact of streamer credibility on customer co-creation behaviors as well. That is to say, as the level of social presence increases, an increase in the credibility traits of live streamers can result in a greater enhancement of customer active participation and citizenship behaviors. Conversely, without such social presence, no matter how credible the live streamer is, customers may still have a passive mindset and passively listen to the presentations of live streamers, constraining the positive effects of credibility on customer co-creation actions. Following the above argument, we propose our final hypothesis with six sub-hypotheses, as well as the ultimate theoretical framework in Figure 1 below.

Hypothesis 4 The level of social presence in tourism live shopping positively moderates the relationship between live-streamers' credibility and customer co-creation behavior. That is, when the level of social presence is higher, a unit change in live-streamers' credibility leads to a greater increase in customer co-creation behavior. Specifically,

H4a–c: the level of social presence positively moderates the relationship between live-streamers' trustworthiness (a), expertise (b) and attractiveness (c) and customer participation behavior; and

H4d–f: the level of social presence positively moderates the relationship between live-streamers' trustworthiness (d), expertise (e) and attractiveness (f) and customer citizenship behavior.

3. Research methods

3.1. Measurements

To empirically test the proposed model and its associated hypotheses, we conducted psychometric modeling, harnessing survey data and structural equation modeling analysis. To ensure a high validity of the survey instrument, we grounded the measurements for each construct in our model in well-established scale development works. Specifically, we referred to Sheth et al. (1991) and Williams and Soutar (2009) to measure customer perceived value of tourism live shopping, Yi and Gong (2013) to measure customer co-creation behavior during tourism live shopping, Ohanian (1990) to measure tourism live-streamers' credibility and Gefen and Straub (2003) to measure the level of social presence.

While these scales are foundational and have been validated across diverse contexts, to our knowledge, their application in the domain of tourism live shopping is scant. Consequently, modifications to the scale wordings were necessary to maintain scale relevance (Ivankova et al., 2006). Referring to an explanatory sequential approach outlined by Ivankova et al. (2006), we first undertook a preliminary observational study to refine the wording of each construct. This observation, as well as the following main study, were both conducted within the context of Chinese tourism live-commerce. According to McKinsey Digital (2021), two-thirds of Chinese consumers participated in live-stream shopping events in 2020, providing a robust empirical foundation for our analysis.

The detailed accounts of our observations are documented in Appendix A. These descriptions illustrate how acts of customer co-creation can be afforded by technological features on tourism live shopping platforms, including liking, following, commenting, grouping, live chatting, gift-giving, shopping, and co-hosting, etc. This methodological approach enhances our understanding of the research setting and ensures the relevance and face validity of the scales within the context of tourism live shopping.

3.2. Data collection and analysis

The detailed data collection instrument, dataset and codes are

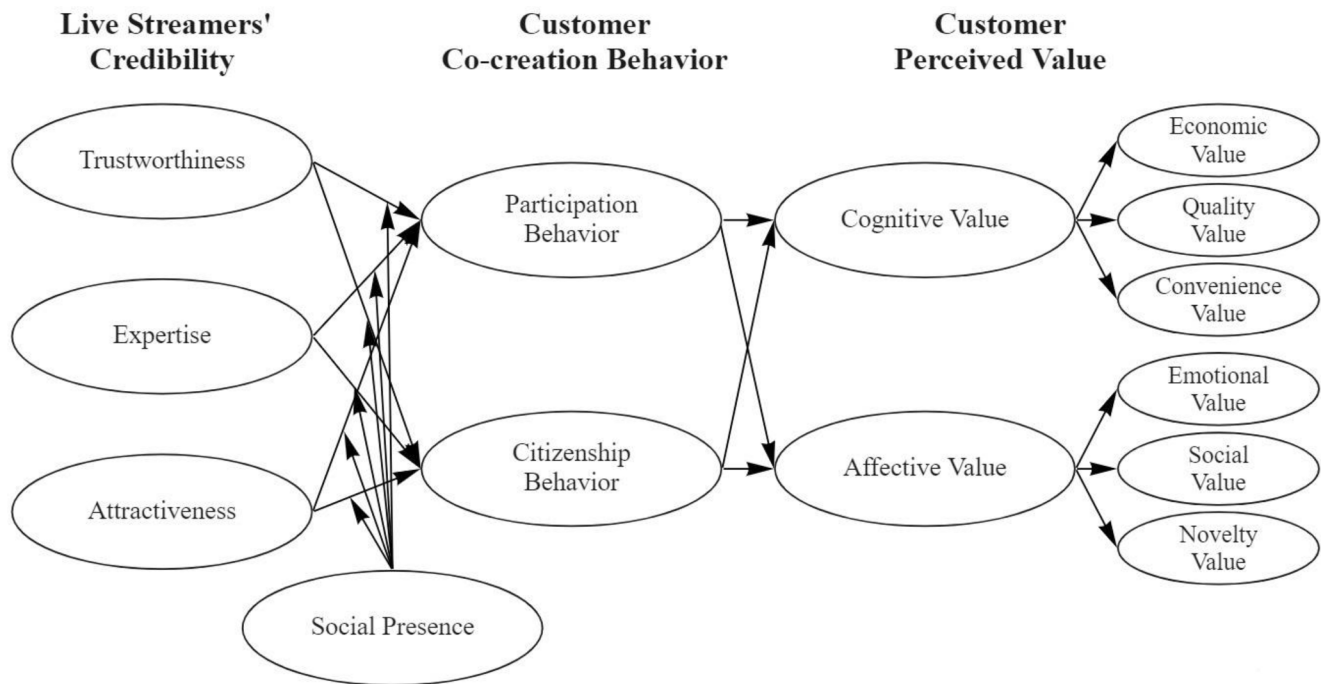


Fig. 1. Theoretical Framework.

available on the Open Science Framework. Specifically, the final survey instrument was divided into six distinct sections. Section A comprised screening questions aimed at filtering out respondents with insufficient experience in tourism live shopping. Subsequent sections, B through E, were dedicated to assessing key constructs: the credibility of live-streamers, the social presence in live streaming, customer co-creation behavior, and customer perceived value, respectively. Respondents rated all items on a 7-point Likert scale, which ranged from 1 (strongly disagree) to 7 (strongly agree). Section F collected demographic information about the participants. The questionnaire underwent a thorough review and was translated into Chinese by bilingual experts specializing in tourism marketing.

Data collection was conducted using the designed survey instrument, which was disseminated via the paid online sampling services provided by one of the leading e-commerce companies in China. Its substantial user base, which includes over five million active e-commerce shoppers, offered a diverse and relevant sample pool that closely aligns with our target demographic. The distribution of the survey was carried out randomly, with participants being reached through notifications on their application portal and via email. To encourage participation, respondents were offered a small monetary incentive. We requested a total of 500 questionnaires. After eliminating responses that failed the attention and screening checks, we retained 434 valid questionnaires with complete data for analysis in the study.

To process and analyze this survey dataset, we first employed SPSS for data preprocessing and descriptive data analysis. Subsequently, Mplus (version 8.3) was used to conduct measurement validity analysis and covariance-based structural equation modeling for hypothesis testing. The results from the data analysis are presented in the following section.

4. Results

4.1. Sample profile

Table 2 outlines the demographic profile of the survey respondents. The predominant group consisted of female young adults, aged between 18 and 35 years. A large portion of these respondents were single and

Table 2
Respondent Profile.

Variable	Category	Frequency	Percentage
Gender	Male	179	41.2
	Female	255	58.8
Age	18–25	185	42.6
	26–35	212	48.8
	36–45	31	7.1
	46–55	5	1.1
	56 and above	1	0.2
Education	Middle school and below	12	2.7
	High school/Junior college	78	18
	Bachelor	266	61.3
Marriage	Master and above	85	19.6
	Unmarried	265	61
Marriage	Married	169	38.9
	Net Income (RMB)	5000 and below	158
Net Income (RMB)	5001–10000	137	31.5
	10001–15000	51	11.8
	15001–20000	31	7.1
	Above 20,000	31	7.1
	Platforms	Douyin (TikTok)	189
Platforms	Alibaba (Taobao, Flyzoo)	125	28.9
	Ctrip	74	17
Platforms	Others	46	10.6
	Tourism Sectors	Hotel-related	330
Restaurants		51	11.8
Tour package		37	8.5
Attraction		10	2.3
Events, Transportation and others		6	1.4

held a college degree. Over half of the participants reported an annual income below 10,000 RMB (around 1,500 EUR). In terms of preferred platforms for tourism live shopping, Douyin emerged as the most popular, followed by Taobao and Flyzoo, both Alibaba affiliates, and then Ctrip. As for the types of tourism offerings purchased through live shopping, hotels were the most common choice, succeeded by restaurants and tourist attractions. Purchases of event tickets, tour packages, and transportation services via live shopping were less frequent.

4.2. Measurement validity

Before hypotheses testing, we conducted preliminary analyses to assess measurement validity. First, in our analysis, we employed the Maximum Likelihood with Robust Standard Errors (MLR) method, a parameter estimation that does not require strict multivariate normality (Mueller & Hancock, 2008). Second, to address common method bias, we implemented both procedural and statistical controls. Procedurally, we made the online survey anonymous, clearly stated the study’s purpose in the introduction, kept the survey questions brief and included attention-check questions. Statistically, Harmon’s single-factor test showed that the largest factor accounted for 36.3 % of the total variance, below the 50 % threshold suggested by Podsakoff (2003). Also, the Common Latent Factor (CLF) test indicated that the differences in standardized regression weights for all items in models with and without a CLF were smaller than 0.2, in line with the guidelines by MacKenzie and Podsakoff (2012). Hence, common method bias was not deemed a serious concern.

Moving to the confirmative factor analysis (CFA), internal consistency results showed that all Cronbach’s α values (0.747–0.894) for each construct were higher than the recommended 0.7 (Tavakol & Dennick, 2011). Given that our model has two second-order constructs (i.e., customer perceived cognitive and affective value), we first performed a second-order CFA. This involved comparing the model fit of three different configurations: model A with two second-order constructs, model B with one second-order construct, and model C with six first-order constructs, as depicted in Figure 2. The model fitness results led to the rejection of Model B due to its poor fit (Model B: $\chi^2 = 308.204$, $df = 48$, CFI=0.83, TLI=0.766, RMSEA=0.112, SRMR=0.105) suggested by Hu and Bentler (1995). Model A ($\chi^2 = 64.524$, $df = 47$, CFI=0.989, TLI=0.984, RMSEA=0.029, SRMR=0.029) and Model C ($\chi^2 = 59.475$, $df = 39$, CFI=0.987, TLI=0.977, RMSEA=0.035, SRMR=0.026) both demonstrated good fitness. Based on the parsimony principle, we kept the formation of Model A for our structural model testing.

Next, we performed CFA for the first-order measurement model. According to the results presented in Table 3, the factor loadings (0.501–0.983) of all items were significant. Meanwhile, the composite reliability (CR; 0.781–0.887) of all constructs was above the recommended threshold of 0.6 (Bagozzi & Yi, 1988), and the average variances extracted (AVE; 0.480–0.862) were within or near the acceptable range of 0.5 (Fornell & Larcker, 1981). Regarding discriminant validity (Table 4), the square roots of the AVE for each construct exceeded the correlations among any two pairs of constructs, confirming discriminant validity as per Fornell and Larcker (1981). Finally, the overall model fit

indices ($\chi^2 = 466.292$, $df = 358$; CFI=0.981; TLI=0.978; RMSEA=0.026; SRMR=0.036) indicated a good fit to the data, in line with Hu & Bentler’s (1995) criteria. Overall, our measurement model displayed satisfactory composite reliability, convergent and discriminant validity.

4.3. Main effects testing

Table 5 details the main effects test results. The results showed that customer perceived cognitive value was significantly positively correlated with customer participation behavior ($\beta = 0.637$, $p < 0.001$) but non-significantly related to citizenship behavior ($\beta = -0.045$, $p > 0.05$). In contrast, customer perceived affective value was significantly positively correlated with customer citizenship behavior ($\beta = 0.710$, $p < 0.001$) but non-significantly related to participation behavior ($\beta = 0.118$, $p > 0.05$). Thus, H1a and H1d were supported, and H1b and H1c were not supported.

Further, the attributes of live-streamer credibility, including trustworthiness ($\beta = 0.314$, $p < 0.001$), expertise ($\beta = 0.355$, $p < 0.001$) and attractiveness ($\beta = 0.323$, $p < 0.001$), were all significantly positively related to customer participation behavior. With a similar pattern, the trustworthiness ($\beta = 0.209$, $p < 0.05$), expertise ($\beta = 0.251$, $p < 0.001$) and attractiveness ($\beta = 0.464$, $p < 0.001$) of the live streamers also significantly and positively influenced customer citizenship behavior. Thus, H2a-f were all supported.

4.4. Mediating effects testing

Due to the refutation of H1b and H1c, it was unnecessary to test hypotheses H3d–f and H3g–i. For the remaining hypotheses (H3a–c and H3j–l), we followed Hayes (2009)’s methodology, employing 5000 bootstrap random samples with a 95 % confidence interval to assess the mediating effects.

As indicated in Table 6, the bootstrap interval estimates for all indirect effect paths did not include zero. Therefore, hypotheses H3a–c and H3j–l were all supported. Consequently, we concluded that customer participation behavior mediates the relationship between trust, expertise, and attractiveness, and customer cognitive value. Similarly, customer citizenship behavior mediates the relationship between expertise, trust, and attractiveness, and customer affective value.

4.5. Moderating effects testing

Applying the LMS method (the XWITH command) built into Mplus

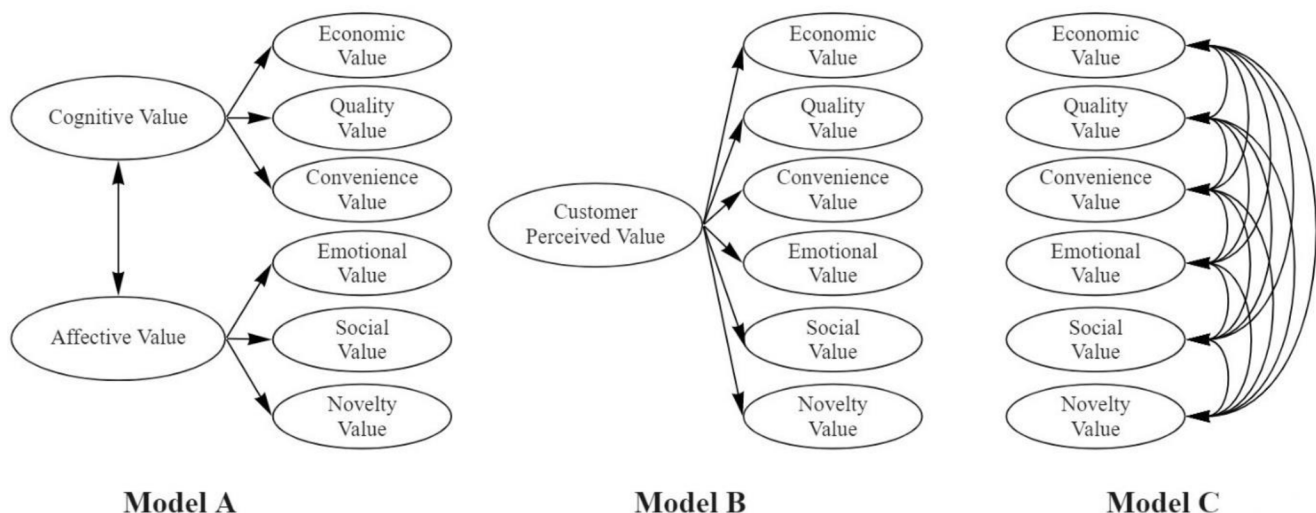


Fig. 2. Second-order Confirmatory Factor Analysis.

Table 3
Confirmatory Factor Analysis Results.

	Construct	Item	Parameters			Item Reliability SMC	Composite Reliability		Convergent Validity AVE
			STD.	S.E.	Z		Cronbach's α	CR	
Live-streamers' Credibility	Trustworthiness	TRUST1	0.813	0.028	29.419	0.661	0.833	0.836	0.63
		TRUST2	0.721	0.029	24.686	0.52			
		TRUST3	0.842	0.027	30.833	0.709			
	Expertise	EXP1	0.793	0.039	20.293	0.629	0.759	0.762	0.517
		EXP2	0.672	0.037	17.937	0.452			
	Attractiveness	EXP3	0.687	0.044	15.611	0.472	0.779	0.782	0.546
ATT1		0.814	0.037	21.903	0.663				
ATT2		0.668	0.04	16.846	0.446				
Customer Co-creation Behavior	Participation Behavior	ATT3	0.728	0.038	18.993	0.53	0.845	0.846	0.578
		PB1	0.765	0.026	29.231	0.585			
		PB2	0.821	0.024	34.892	0.674			
		PB3	0.716	0.03	23.828	0.513			
	Citizenship Behavior	PB4	0.736	0.031	23.432	0.542	0.894	0.894	0.679
		CB1	0.797	0.023	35.429	0.635			
		CB2	0.841	0.018	46.859	0.707			
		CB3	0.833	0.019	43.769	0.694			
Customer Perceived Value	Cognitive Value	CB4	0.824	0.021	39.682	0.679	0.847	0.949	0.862
		FV	0.943	0.032	29.459	0.651			
	Affective Value	QV	0.908	0.059	15.276	0.699	0.784	0.916	0.785
		CV	0.934	0.04	23.441	0.483			
		EV	0.864	0.056	15.553	0.483			
		SV	0.801	0.054	14.762	0.386			
		NV	0.983	0.061	16.146	0.651			
		SP1	0.501	0.042	11.914	0.251			
SP2	0.751	0.031	23.85	0.564					
SP3	0.844	0.029	29.542	0.712					
SP4	0.628	0.035	17.924	0.394					

Table 4
Discriminant Validity Results.

	Trustworthiness	Expertise	Attractiveness	Participation Behavior	Citizenship Behavior	Cognitive Value	Affective Value	Social Presence
Trustworthiness	0.794							
Expertise	0.402	0.719						
Attractiveness	0.593	0.632	0.739					
Participation Behavior	0.633	0.661	0.709	0.76				
Citizenship Behavior	0.575	0.605	0.730	0.704	0.824			
Cognitive Value	0.456	0.486	0.486	0.614	0.418	0.928		
Affective Value	0.504	0.571	0.620	0.587	0.783	0.420	0.886	
Social Presence	-0.342	-0.024	-0.207	0.157	0.250	-0.047	0.084	0.692

Note: Diagonal elements are the squared root of AVE for each construct.

Table 5
Results of Main Effects.

Hypothesis	DV	IV	Estimate	S.E.	Est./S.E.	R ²
H1a	Cognitive Value	Participation Behavior	0.637	0.072	8.902**	0.402
H1c		Citizenship Behavior	-0.003	0.077	-0.045	
H1b	Affective Value	Participation Behavior	0.118	0.071	1.667	0.627
H1d		Citizenship Behavior	0.710	0.064	11.071**	
H2a	Participation Behavior	Trustworthiness	0.314	0.066	4.773**	0.684
H2b		Expertise	0.355	0.064	5.553**	
H2c	Citizenship Behavior	Attractiveness	0.323	0.088	3.669**	0.625
H2d		Trustworthiness	0.209	0.062	3.378*	
H2e		Expertise	0.251	0.069	3.632**	
H2f		Attractiveness	0.464	0.085	5.425**	

Note: **p < 0.001, * p < 0.05.

(Muthén & Muthén, 2017), we determined the interaction items and tested the moderating effects of social presence on the relationship between live-streamers' trustworthiness, expertise and attractiveness and customer participation and citizenship behavior. We present the results in Table 7. It can be seen that the interaction of social presence and

expertise had a positive impact on customer participation behavior ($\beta = 0.106, p < 0.01$), and the interaction of social presence and attractiveness had a marginally positive impact on both customer participation behavior ($\beta = 0.092, p < 0.05$) and citizenship behavior ($\beta = 0.086, p < 0.05$). We also plotted these three marginally significant moderating

Table 6
Results of Mediating Effects Test.

	Indirect effect path	Indirect effect	Confidence interval
H3a	Trustworthiness → Participation Behavior → Cognitive Value	0.114	(0.051, 0.216)
H3b	Expertise → Participation Behavior → Cognitive Value	0.142	(0.071, 0.254)
H3c	Attractiveness → Participation Behavior → Cognitive Value	0.122	(0.047, 0.256)
H3j	Trustworthiness → Citizenship Behavior → Affective Value	0.091	(0.042, 0.167)
H3k	Expertise → Citizenship Behavior → Affective Value	0.118	(0.048, 0.219)
H3l	Attractiveness → Citizenship Behavior → Affective Value	0.205	(0.132, 0.338)

effects via simple slope analysis visualized in Figure 3. In sum, the results provided certain support for H4b, H4c and H4f and refuted H4a, H4d and H4e. Finally, a concise summary of our hypothesis testing results is presented in Table 8. In the next section, we discuss the testing results to put forward theoretical and practical implications.

Table 7
Results of the Moderation Test.

Variables	Participation Behavior			Citizenship Behavior		
	Model 1 (H4a)	Model 2 (H4b)	Model 3 (H4c)	Model 4 (H4d)	Model 5 (H4e)	Model 6 (H4f)
Trust	0.640***					
Social Presence	0.439***					
Trust × Social Presence	0.023					
Expertise		0.557***				
Social Presence		0.178**				
Expertise × Social Presence		0.106**				
Attractiveness			0.605***			
Social Presence			0.328***			
Attractiveness × Social Presence			0.092*			
Trust				0.630***		
Social Presence				0.547***		
Trust × Social Presence				0.092		
Expertise					0.565***	
Social Presence					0.286***	
Expertise × Social Presence					0.056	
Attractiveness						0.682***
Social Presence						0.465***
Attractiveness × Social Presence						0.086*

Note: ***p < 0.001, **p < 0.01, *p < 0.05.

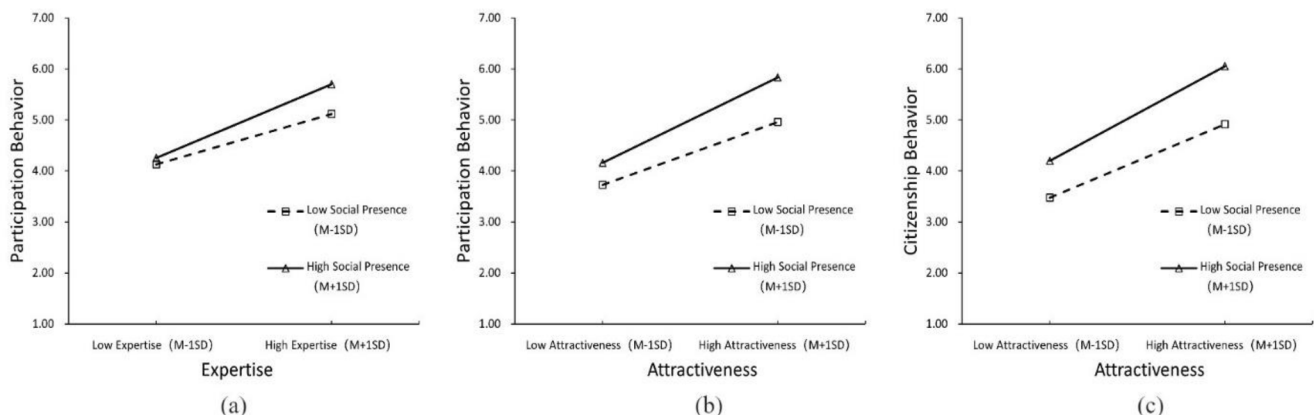


Fig. 3. Moderating Effects.

5. Discussion and conclusion

5.1. Theoretical discussion and implications

The current study aims to decipher the value co-creation process in tourism live shopping. To this end, we developed and empirically tested a model wherein customer value as the outcome, customer co-creation behavior as the mechanism, live streamers' credibility traits as antecedents, and social presence as the moderator between credibility traits and customer co-creation behavior.

The first hypothesis investigates how customer perceived value in tourism live shopping can be derived from technology-enabled customer co-creation behavior. Our results revealed a positive association between customer participation behavior and cognitive value, as well as between customer citizenship behavior and affective value. These findings are generally consistent with previous tourism marketing literature on S-D logic and value co-creation, which underscores the critical role of customers in enhancing their own consumption experiences (Campos et al., 2018; Carvalho & Alves, 2023; Prebensen & Xie, 2017). As such, our study extends the scope of typical value co-creation research from physical, on-site service contexts into live streaming, which represents a dynamic and evolving facet of digital transformations and interactive marketing environments (Zhang & Xu, 2024). In turn, the study also contributes to the tourism live streaming

Table 8
Summary of testing results.

Hypothesis	Result
H1a: Customer participation behavior → Customer perceived cognitive value	Supported
H1b: Customer participation behavior → Customer perceived affective value	Not Supported
H1c: Customer citizenship behavior → Customer perceived cognitive value	Not Supported
H1d: Customer citizenship behavior → Customer perceived affective value	Supported
H2a-f: Trust, Expertise, Attractiveness → Customer participation and citizenship behaviour	Supported
H3a-c: Trust, Expertise, Attractiveness → Customer participation behavior → Customer cognitive value	Supported
H3d-f: Trust, Expertise, Attractiveness → Customer participation behavior → Customer affective value	Not Supported
H3g-i: Trust, Expertise, Attractiveness → Customer citizenship behavior → Customer cognitive value	Not Supported
H3j-l: Trust, Expertise, Attractiveness → Customer citizenship behavior → Customer affective value	Supported
H4a: Trust * Social Presence → Customer participation behavior	Not Supported
H4b: Expertise * Social Presence → Customer participation behavior	Supported
H4c: Attractiveness * Social Presence → Customer participation behavior	Supported
H4d: Trust * Social Presence → Customer citizenship behavior	Not Supported
H4e: Expertise * Social Presence → Customer citizenship behavior	Not Supported
H4f: Attractiveness * Social Presence → Customer citizenship behavior	Supported

literature by applying a customer-centric lens to uncover how superior marketing and customer value are constructed via technology-enabled customer co-creation actions (Lin et al., 2022; Xie et al., 2022).

Beyond consistency, there were also certain dynamics found in the results. Given our second-order, dichotomic conceptualization of customer value, the results indicate that customer participation behavior does not directly influence their affective value perception and that citizenship behavior does not directly affect their cognitive value perception. This finding contrasts with prior research indicating that all customer co-creation behaviors simultaneously enhance value (Bu et al., 2022; Carvalho & Alves, 2023; Tran & Vu, 2021). To clarify this discrepancy, we refer to Deng et al. (2021) to suggest that it may be due to the fact that tourism live shopping serves a dual purpose, functioning both as a transactional and experiential digital marketing channel, and there might be a separation of the two purposes. That is, viewers merely interested in the streaming content rather than purchasing tourism offerings may not engage in transaction-related participation actions but still obtain emotional enjoyment (Deng et al., 2019, 2021). Conversely, those focused on purchasing tourism products may not display any citizenship behavior yet can still achieve financial and utilitarian benefits (Deng et al., 2021). Due to the dynamics revealed in this study, we emphasize the need for future value co-creation research to conduct detailed dissections of customer co-creation activities and customer value attributes according to the focused research context.

The second hypothesis looks at how customer co-creation behavior can be fostered by credible tourism live streamers. The results clearly showed that when tourism live streamers were perceived as trustworthy, knowledgeable, and attractive, both customer participation and citizenship behavior were significantly boosted. These findings fully met our expectations and aligned with prior marketing communication research endorsing the imperative of credibility in eliciting interactions (Aye et al., 2013; Pop et al., 2022; Pornpitakpan, 2004). More specifically, delving into the standardized regression coefficients presented in Table 5, it is also notable to see that live-streamers' travel knowledge had the greatest impact on customer participation behavior and that attractiveness had the greatest impact on customer citizenship behavior. According to Ismagilova et al. (2020), different sub-dimensions of

source credibility may functionalize separately in shaping customer attitudes and behavior. As such, our study discloses that, within a tourism live shopping environment, customer in-role engagement is primarily linked to the streamers' tourism expertise, while broader societal and extra engagement is much influenced by the streamers' physical and social appeal.

As a step forward, our third hypothesis further tested and manifested the mediating effect of customer co-creation behavior between live streamers' credibility traits and customer perceived value. Although previous studies have broadly recognized the direct positive effects of source credibility on a series of marketing outcomes such as brand image and customer purchase intention across various online and offline contexts (Aye et al., 2013; Ismagilova et al., 2020; Wang et al., 2023), few have looked into their underlying mechanisms. In this regard, the revelation of customer co-creation behavior as the mediator could be insightful in that it provides a plausible explanation regarding the causality between the credible characteristics of communicators and desired communicative goals from a value co-creation perspective.

Finally, our fourth hypothesis examined how the effects of live streamers' credibility on customer co-creation behavior might differ in accordance with the level of social presence. The results show that, in the high social presence condition, live-streamers' expertise and attractiveness exerted stronger effects on customer co-creation behavior. These findings were in line with the literature showing the positive moderating role of social presence to amplify the positive traits of communications on the communication outcomes (Chung et al., 2015; Lin & Lee, 2024; Yang et al., 2023). Also, in contrast to a study by Xu et al. (2021) who did not reveal the direct impact of social presence on purchasing volume in tourism live shopping, our findings suggest that the level of social presence in live shopping may alternatively act as an effective moderator that can change customers' mindsets in responding to the increase in live streamers' advantageous traits. In this sense, our findings also resonate with prior marketing communication studies in highlighting that a socially immersive communication setting with a high volume of social cues can strengthen customers' intention to interact and therefore facilitate information exchange among actors (Ang et al., 2018; Chung et al., 2015; Shi et al., 2023).

In conclusion, the current study has responded to recent calls for research on technology-enabled real-time value co-creation (Buhalis & Sinarta, 2019; Carvalho & Alves, 2023). By synthesizing a co-creation theoretical framework with seminal communication theories of source credibility and social presence, this research elucidates the value generation process within the nascent field of tourism live shopping, thereby shedding light on value co-creation and marketing communication literature at large.

5.2. Practical implications

Based on the findings of this study, we can put forward several useful recommendations for tourism live shopping managers to optimize marketing outcomes in live selling events.

First and foremost, managers of tourism live selling should recognize that "what customers perceive" can greatly hinge on "what customers do" during the streamed shopping process. Therefore, continuous monitoring of the streaming process to assess customer co-creation actions is crucial. Utilizing multiple metrics, such as the number of active followers, comments, likes, gift-giving, tagging, or shopping cart clicking-through rates, can serve as effective predictors of customer live shopping experience and ultimate selling performance.

Following this, if customer co-creation is low, the selection process for tourism live streamers should be rigorously reviewed. Streaming managers must ensure that the chosen live streamers are perceived as trustworthy, knowledgeable, and attractive. In this regard, conducting background checks is crucial to ascertain whether the streamers have any history of trust issues or involvement in scandals. Subsequently, it is also essential to verify that the live streamer possesses substantial

knowledge about the tourism offerings, which can be achieved through comprehensive training and firsthand experience with the products. Particularly when involving high-profile celebrities who may not be intimately acquainted with all aspects of the destinations and products, it is necessary to pair them with tourism experts. Meanwhile, selecting live streamers who are both visually and socially appealing is vital. Streamers who maintain a well-groomed appearance and are socially favored by the audience can more effectively engage and encourage viewers to co-create in the tourism live-streaming session.

Finally, with credible tourism live-streamers in place, live-streaming managers should then endeavor to maintain the streaming room as a socially stimulating environment. To this end, live streamers can narrate their travel experiences, periodically pose varied questions, and solicit audience opinions. In the meantime, streamers must consistently engage with the audience by actively responding to their comments. Moreover, streamers can take advantage of various tech features in the live-streaming App, such as lucky draws, to encourage viewer participation. Through these methods, the beneficial impact of credible live streamers can be maximized, prompting more active customer involvement, which further enhances their perceived value of the tourism live shopping experience.

5.3. Limitations and future research

There are several limitations in our study that also identify directions for future research. Contextually, our research focused on human actors (i.e., customers and live streamers) as research subjects and value co-creators in tourism live shopping. However, the rapidly evolving technological development introduces phenomena like Artificial Intelligence (AI) – based virtual streamers and sellers. Given the validity of our proposed model, it would be of interest to explore how to establish credibility for AI streamers or how AI agents may act as value co-creators.

Conceptually, our examination centered on the credibility dimensions of tourism live streamers, the degree of social presence during streaming, and their collective influence on fostering customer co-creation behavior. While these constructs were significant within this study, existing research suggests that other factors, such as sponsorship disclosure and homophily among customers, streamers, product types, and tourism organizations (Lin et al., 2022), could also impact customer co-creation intentions and behaviors. Future research could delve

Appendix

Appendix A. Preliminary observation

To ensure the content validity of our scale instrument, preliminary observations were conducted to refine the wording of the scale. Specifically, we chose Douyin (the Chinese version of TikTok) as the platform for our study on tourism live shopping. These observations occurred during the “Double 11” and “Double 12” online shopping festivals. During this period, we employed specific keywords such as hotel, tourism, tour, and travel in Douyin Live to identify relevant streaming rooms, which were entered randomly for observational purposes. Utilizing the scales, we engaged in the tourism live shopping process as genuine customers. This immersive approach allowed us to take notes, evaluate, and simultaneously adjust the wording of four sets of scales, ensuring their face validity within the context of tourism live shopping. The rationale for word changing is presented below.

Customer Perceived Value: Based on Williams and Soutar (2009) and Sheth et al. (1991), we confirmed the relevance of all six types of value in the context of tourism live shopping. We changed the contextual wordings to modify the scales, such that the phrase “the trip experience is fun” was modified to “the tourism live shopping experience is fun.”

Source Credibility Scale: Following Ohanian (1990), we found all three credibility traits to be pertinent. The wording was adapted to the live shopping context; for example, “the endorser is reliable” was changed to “the tourism live streamer is reliable.”

Social Presence Level: According to Gefen & Straub (2003), social presence was perceived in the live streaming room. The wording was accordingly adapted to fit the tourism live shopping context, such that “I feel like the (person, changed to live streamer) is speaking directly to me”.

Yi and Gong (2013)’s Scale: While all eight specific co-creation behaviors were relevant, extensive modifications were necessary to demonstrate how these behaviors could be facilitated in tourism live shopping. We elaborate on how co-creation actions are realized within this function, with specific action wordings illustrated in Figure A. As depicted in Figure A, the real-time commenting feature in live shopping apps enables all types of customer co-creation behavior. Additional functions, such as the shopping cart, facilitate more detailed access to relevant tourism product information (information seeking) and allow customers to read reviews and complete transactions, embodying roles akin to partial employees (responsible

deeper into these additional conceptual factors.

Empirically, our data collection was confined to a business context in China with a cross-sectional design. While this method was suitable for testing our psychometric model, the causal implications and broader applicability of our findings warrant cautious interpretation. Future studies could enhance research outcomes by incorporating longitudinal and experimental designs, examining diverse socio-cultural and business environments, and utilizing rich secondary data, such as tourist comments in live shopping settings, for model validation.

Declaration of Generative AI and AI-assisted technologies in the writing process

During the revision of this work, the authors used ChatGPT in order to refine the language. After using this tool, the authors reviewed and edited the content as needed and take full responsibility for the content of the publication.

CRedit authorship contribution statement

Yaoshi Zhang: Writing – review & editing, Writing – original draft, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Nina Katrine Prebensen:** Writing – review & editing, Supervision, Project administration, Conceptualization.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

The detailed instrument, data and codes are available on the Open Science Framework: https://osf.io/9kazc/?view_only=3b4bc472bd2c444ba6fbedcd1d0ef0b14.

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behavior). Customers also have the opportunity to support live streamers through actions like liking, following, forwarding, and gifting (advocacy). Interactive features like cohosting or voice chat enable viewers to share their needs or thoughts (information sharing). Moreover, the lucky draw function serves as an interactive tool to amplify customer participation (personal interaction).

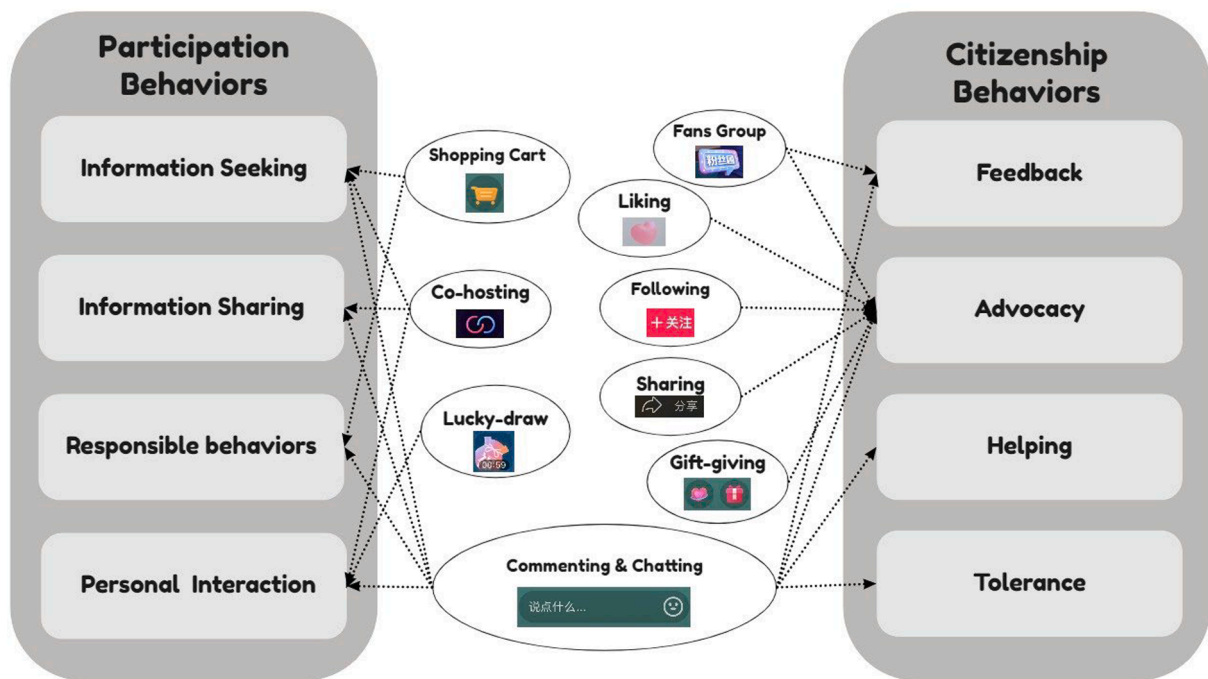


Figure A. Customer Co-creation Behavior Afforded by Tourism Live Shopping Apps

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Yaozhi Zhang is a Doctoral Research Fellow in Marketing Management at the USN School of Business, University of South-Eastern Norway. He specializes in services marketing and has been actively involved in entrepreneurship projects and companies. His research interests focus on applying appropriate tools to explore contemporary and emerging issues in the service marketing context.

Nina Katrine Prebensen (Ph.D.) is Professor of Marketing at the USN School of Business, University of South-Eastern Norway. Prebensen has a long list of publications in highly regarded journals and books. Currently, she is an associate editor in three top-tier journals. She has managed projects such as “Service Innovation and Tourist Experiences in the High North: The Co-Creation of Values for Consumers, Firms and the Tourism Industry”. She has started and managed the research group “Experiential Marketing, Management, and Innovation”.