The Impact of Virtual Presence on the Behavior of Live E-Commerce Consumers

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Abstract. Virtual presence is one of the most significant features of live e-commerce. How to create a more immersive and attractive online shopping experience for consumers and increase purchase intention, brand awareness and consumer loyalty has become the most important concern for live brands nowadays. Through literature review and systematic analysis of selected related literature, the research sort out the development of live e-commerce, discuss the importance of virtual presence, summarize the impact of virtual presence on live e-commerce consumers, and refine the factors of virtual presence that affect consumer behavior. By understanding the mechanism of virtual presence on consumer behavior, e-commerce brands have a clearer picture of where to start to create a more engaging and immersive consumer-centric virtual environment and develop more effective sales strategies to meet the unique and personalized shopping needs consumers expect.

Keywords: Virtual Presence · Live E-Commerce · Consumer Behavior

1 Introduction

Live e-commerce is growing rapidly worldwide, and more and more consumers are turning to online live streaming platforms for shopping. With the development of information technology, live e-commerce has disrupted traditional e-commerce through the highly social nature achieved by virtual face-to-face technology [1], and has gained wide recognition for its unique content presentation and high level of interactivity [2]. As virtual reality continues to advance, the characteristic of virtual presence has had a profound impact on consumer behavior.

Previous research on live e-commerce has mostly focused on external factors, exploring the factors affecting the traffic of corporate webcasts, as well as the motivation and influencing factors of audience participation in live streaming [3], the impact of system design such as virtual gifts or user interfaces on webcasts etc. [4]. However, the virtual immersion, a more central need of live e-commerce users, has not been sufficiently analyzed. In fact, the virtual presence provided by live streaming helps bridge the psychological distance between buyers and sellers, creating a more immersive and engaging shopping experience, thus promoting a closer relationship between users and

the company or platform, and increasing consumers' trust and loyalty to products and live brands [5]. Therefore, virtual immersion is undoubtedly a good entry point and perspective to study the behavior of live e-commerce consumers.

2   Overview of the Development of Live E-Commerce

In the early 2010s, live streaming platforms such as Periscope and Meerkat became popular, allowing anyone with a mobile device to share their experiences with the world via live streaming in real time. 2015 saw the launch of Chinese live streaming platform Taobao Live, which allowed merchants to sell their products via live streaming, marking the beginning of the integration of live streaming and e-commerce.

Taobao Livestreaming quickly achieved great success [6], and other Chinese e-commerce giants such as JD.com and Pin duoduo.com followed suit. At the same time, the COVID-19 pandemic has accelerated the global growth of live e-commerce, with platforms such as Amazon Live and Facebook Live Shopping also launching in the United States. Increasingly, consumers are turning to live shopping due to blocking and social distance measures [7].

In short, live e-commerce has become an exciting and innovative way for merchants to sell products and for consumers to discover and purchase products online. The rise of social media, mobile technology and evolving consumer behavior are driving this trend. As this trend continues to grow, we are likely to see more platforms and merchants making live e-commerce a key part of their online sales strategy.

3   Virtual Presence Intervention in E-commerce

Virtual presence is critical to the success of live e-commerce. This presence is often described as the feeling of "being there" in a virtual environment, despite the fact that the user is elsewhere. Virtual presence can be achieved through a variety of technologies, including virtual reality, augmented reality, and other immersive technologies [8].

Virtual presence helps overcome some of the limitations of traditional online shopping. For example, it can be difficult for consumers to understand the size, color and texture of a product through images alone. However live e-commerce then enables consumers to see products in action and get a better understanding of their physical attributes. This can lead to fewer returns and more satisfied customers. At the same time merchants can use limited-time offers, exclusive discounts and special promotions to motivate consumers on the spot, create excitement and urgency, drive sales and create a more memorable shopping experience [9]. It also provides merchants with opportunities for personalized contact with consumers. Merchants can showcase their expertise and products in a virtual space and answer questions in real time, creating a more transparent and trustworthy shopping experience [10].

In short, virtual presence is an important part of live e-commerce. It transforms the e-commerce experience, enabling consumers to interact with products and brands in new and more engaging ways.

4 The Impact of Virtual Presence on Live Streaming E-commerce Consumers

The involvement of e-commerce through virtual presence greatly enhances the realism and sense of presence of live e-commerce, satisfying the demand of consumers for deep interactive experience, thus having a positive impact on consumers' perception, cognition and behavior, as seen in Table 1:

Virtual presence has great potential to enhance consumer behavior in e-commerce. By providing a more immersive and interactive shopping experience, virtual presence can increase consumers' emotional perceptions and awareness, leading to positive word-of-mouth and loyalty, among other behaviors [11, 12]. As technology continues to advance, virtual presence is likely to become an increasingly important tool for e-commerce platforms, and companies must continue to explore newer ways to create a virtual presence and interact with customers in real time while understanding their marketing mechanisms.

5 Virtual Presence Influences the Behavior of Live E-commerce Consumers

Live e-commerce has become a popular trend in recent years, with more and more consumers turning to online platforms to make purchases. As virtual reality continues to advance, the nature of virtual presence has had a profound impact on consumer behavior. What factors of virtual presence in live e-commerce affect consumer behavior in live e-commerce.

Interactivity: The degree to which consumers interact with the live streamers, other users, and the product or environment affects their engagement and purchase intentions. "Active" interactions allow consumers to immerse themselves in the broadcast, become more willing to participate in live promotions, and form rapport and long-term relationships with the host [13]. This rapport often leads customers to purchase products, share their shopping experiences, help others make more accurate decisions, and offer advice to others.

Realism: The extent to which virtual environments simulate real-life experiences affects consumers' trust and emotional experience. Realistic and immersive virtual environments can enhance the emotional experience and increase trust in the product or service offered [5]. For example, a realistic virtual tour of a hotel can increase the likelihood of booking a room.

Social cues: Social cues (e.g., nonverbal communication and facial expressions) can influence consumer behavior [14]. In some cases, the lack of social cues can lead to misunderstandings or a decrease in trust. For example, the lack of nonverbal communication in a live chat by an anchor can make it difficult for consumers to understand the tone and intent of the conversation, leading to frustration and a decrease in trust.

Personalization: Providing consumers with a more personalized and customized shopping experience in a virtual environment allows brands to create unique and differentiated brand identities and increase the perceived value of products and offerings, thus

Table 1. The impact of virtual presence on live e-commerce consumers

Impact Classification	Specific performance
Perceived impact	**Perceived entertainment**: allowing consumers to interact with the live streamer or other viewers during the live stream provides a more immersive and interactive activity, creating a more fun and enjoyable shopping experience.
	Perceived authenticity: with 360-degree panoramic video, consumers can see the product and environment more realistically, as if they were actually there.
	Perceived satisfaction: the shopping experience can be made more immersive, interactive and satisfying through various interactive elements, AR and VR technologies and personalized experiences.
	Perceived trust: live streamers and platforms use the personalization and authenticity of virtual presence to build strong relationships with viewers and demonstrate social identity to build and maintain brand trust and credibility.
	Perceived risk: use virtual reality (VR) or augmented reality (AR) technology to reduce the perceived risk of online shopping by creating a sense of realism and providing more meticulous information, transparency, and shopping for deeper interactions.
Cognitive impact	**Product cognition**: through live demonstrations, close-ups and interactive features, consumers can better understand the features, functions and benefits of the products, increase product knowledge and improve product recall rates.
	Service cognition: through real-time interaction with the anchor, consumers can ask questions, receive instant feedback and get personalized recommendations. It also provides a more personalized and responsive service experience to enhance service perception.
	Brand cognition: by virtually showcasing a brand's personality, values and culture, consumers can build a stronger emotional connection with the brand and increase brand loyalty and advocacy.
Behavioral impact	**Participation**: a virtual presence creates a sense of social presence and increases the motivation for consumers to engage in virtual experiences and interact with brands and other consumers.
	Purchase intention: increase consumer perception of product value, suitability and relevance to their needs more authentically through real-time interactions, while leveraging consumer data and artificial intelligence to provide personalized product recommendations that will increase purchase intent.

(*continued*)

Table 1. (*continued*)

Impact Classification	Specific performance
	Electronic word-of-mouth: A virtual presence can influence electronic word-of-mouth by providing consumers with a more engaging and interactive experience, thereby increasing their motivation to share their experiences and opinions about products and services with others.
	Repurchase intention: Consumers are left with positive electronic word-of-mouth, creating a sense of community in the virtual live room, providing opportunities for social interaction and collaboration, enhancing consumers' perception of product quality and value, and in turn creating a willingness to repurchase.
	Recommendation intention: Providing opportunities for social sharing and communication, integrating social media and messaging platforms into the e-commerce experience, consumers can easily share their purchases and experiences with their friends and family.

impacting the personalization of live e-commerce [15]. This is achieved through features such as personalized recommendations, customized products, targeted promotions, and interactive chats.

Technical quality: The quality of the audio, video, and other technical aspects of live streaming can influence consumer behavior [1]. High-quality audio and video can enhance the immersive experience of a live broadcast and make consumers feel more connected to the product or service being offered. The opposite can lead to a decrease in consumer trust. Increase consumer engagement and purchase intent by investing in high-quality equipment and technology, as well as hiring live streamers who can provide a seamless and engaging broadcast.

Feedback mechanism: Feedback mechanisms are enhanced by providing real-time interactions between consumers and merchants. Consumers can ask questions, give feedback, and interact with merchants in real time during live streaming [16]. This direct interaction can help merchants better understand consumers' preferences, needs, and concerns, which ultimately helps improve their products and services. This in turn builds trust and credibility, improves accuracy and speed, increases transparency and authenticity, and ultimately leads to better consumer behavior.

In summary, the creation of a virtual presence has become an important tool for companies to interact with consumers and drive sales. Factors such as interactivity, authenticity, social cues, personalization, quality of technology and feedback mechanisms can all influence consumer behavior in virtual environments. By understanding these factors and leveraging them effectively, companies can enhance consumer engagement, build trust and ultimately drive sales and revenue.

6 Conclusion

Through literature review, this paper compares the development of live e-commerce and analyzes the important role of virtual presence sense intervention in e-commerce. Through the study, it is found that the development of virtual reality technology and high-speed Internet has brought about a disruption in the sense of virtual presence, where the relationship between people and media becomes more intimate and breaks through spatial and temporal limitations [3]. The intervention of virtual presence has transformed the e-commerce experience, enabling consumers to interact with products and brands in new and more engaging ways in real time.

Then, this research finds out what important influences virtual presence has on consumer behavior in live e-commerce. Factors that influence live-streaming consumer behavior by virtual presence are identified. Research suggests that as consumer demand escalates, consumers are more interested in the social needs of emotion [17], psychology, friendships, and interaction when shopping in virtual spaces. Live streaming forms the content production while needing to focus on these needs [18].

Therefore, to enhance the virtual presence of consumers in the live shopping, increase the anchor and consumers, consumers and consumers between the emotional belonging, communication, communication and identity and other inherent social needs, so as to deepen consumer awareness of the anchor, the brand, the product. At the same time to create a reliable virtual shopping environment and consumer transaction security, strengthen contact with consumers, focus on consumer purchase feedback and emotional interaction, stand in the consumer's perspective to solve problems, improve service levels in order to achieve consumer super satisfaction and trust, to establish a good electronic word of mouth, in order to strengthen consumer loyalty to the e-commerce brand, and thus strengthen the relationship with the brand " stickiness".

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