

From Social Presence to Virtual Presence: Insights into E-Commerce Consumer Behavior

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Abstract. Live streaming has brought new opportunities for e-commerce development. As the most distinctive feature of live e-commerce is the virtual presence. How it creates a more immersive and engaging online shopping experience for consumers is a concern for academics and businesses alike. This paper reviews the relevant literature and analyzes the impact of the evolution from social presence to virtual presence on consumer behavior since the development of e-commerce, summarizing the interactions and main differences between social presence and virtual presence. The research results help e-commerce brands to better understand the differences and maximize their potential in different e-commerce models, so as to gain a deeper understanding of consumer needs and improve positive behaviors such as consumer purchase decisions and loyalty.

Keywords. E-commerce, consumer behavior, electronic brand marketing, virtual presence, social presence.

1. Introduction

The COVID-19 pandemic has affected the world and has influenced the widespread use of social media and digital marketing. Increasingly, more consumers are shifting from traditional online shopping to using social media platforms to discover and purchase products[1] (such as Instagram Shopping, Facebook Live Shopping, Amazon Live, TikTok, etc.). These live-streaming e-commerce consumers are driving e-commerce to evolve from simple online shopping to a more immersive and interactive experience[2].

Previously, scholars have mostly studied live-streaming consumer behavior from the perspectives of anchor traits, social influence, entertainment, cultural factors and Technology Acceptance Model (TAM). The most significant feature of live e-commerce (virtual presence) is overlooked, and it can bring to live e-commerce characteristics such as strong interactivity and real-time, thus distinguishing it from traditional e-commerce, which is valued by e-commerce brands and consumers [3].

Through the study, it is found that enhancing the social presence and virtual presence of consumers in live shopping can increase the inherent social needs of emotional belonging, communication, exchange and identification between anchors and consumers, and between consumers and consumers, thus deepening consumers' awareness of brands,

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anchors and products, and increasing the "stickiness" and loyalty between them and brands.

2. The development process of E-commerce

In recent years, e-commerce has made significant developments worldwide, with more and more consumers turning to online shopping as a convenient way to purchase goods and services[4]. The rapid development of the internet and widespread use of smartphones, along with the rise of social media and digital marketing, have promoted the rapid evolution from traditional e-commerce to live-streaming e-commerce[5]. Live streaming e-commerce facilitates real-time interaction between online retailers and consumers, creating more attractive and personalized shopping experiences. The evolution of development from traditional e-commerce to live-streaming e-commerce can be traced back to several periods:

- Text-based e-commerce (1990s): The earliest online shopping sites such as Amazon and eBay were mainly text-based, providing product descriptions and prices for customers to browse and purchase[6].
- Visual-based e-commerce (early 2000s): The introduction of visual content such as images and videos made e-commerce more attractive and user-friendly, enabling consumers to better visualize products and make more informed purchasing decisions [7].
- Mobile e-commerce (post-2000s): The rise of mobile devices and mobile internet usage created new channels for e-commerce, allowing consumers to shop anytime, anywhere [8].
- Real-time streaming e-commerce (since 2016): With the rise of platforms like Taobao Live and Douyin (the Chinese version of TikTok), live-streaming e-commerce began to gain popularity in China around 2016, and spread to other parts of the world. Integrating real-time video streams into e-commerce, providing real-time interaction and engagement between hosts and consumers, has become an important trend in the e-commerce industry[9].

In summary, live-streaming e-commerce builds upon the advantages of previous periods of e-commerce and adds new levels of interactivity and personalization to the shopping experience. It allows brands and retailers to create engaging entertainment activities while providing consumers with a more authentic and trustworthy shopping experience. Therefore, live-streaming commerce may continue to grow and expand in the coming years.

3. The process of the development of social presence and virtual presence

Social presence and virtual presence are two related concepts. Social presence refers to the degree to which individuals feel a sense of connection and interpersonal relationships with others in communication environments, with a focus on the social aspects of online interaction. In contrast, virtual presence refers to the degree to which individuals feel a sense of physical presence in virtual environments, with an emphasis on the sensory and perceptual aspects of the virtual environment.

- Early virtual reality systems, such as flight simulators and early gaming systems, provided limited social presence and virtual presence. The concept of social presence was first introduced by John Short (1976)[10], defined as "the degree of salience of the other person in the interaction and the consequent salience of the interpersonal relationship." This concept was initially developed in computer-mediated communication environments and has since been applied to other forms of communication technology and settings, including social media, online games, and virtual reality.
- In the early days of the internet in the 1990s, social presence in e-commerce was often limited to text-based chat systems that provided only basic levels of interaction but lacked the richness and nuances of face-to-face communication. The development of social commerce marked the period when social presence became most prominent in e-commerce. The integration of social media and e-commerce created a more social and interactive shopping experience, enabling consumers to share and recommend products on social networks[11].
- As researchers began to explore the potential of virtual reality and other immersive technologies, virtual reality technology first emerged as a way to simulate real-world experiences in the late 1990s and early 2000s. Biocca (1992) [12] was one of the pioneers in developing the concept of virtual presence. He defined virtual presence as the feeling of being present in a virtual environment and interacting with it in a natural and intuitive way.
- In recent years, technological advancements, including high-speed internet, mobile devices, and widespread use of social media, have led to the emergence of new forms of virtual presence in e-commerce, such as virtual showrooms, 360-degree product views, augmented reality experiences, and live streaming e-commerce. Live streaming e-commerce, in particular, has become increasingly popular in many parts of the world, especially in Asia. This approach combines virtual presence with social presence, allowing consumers to interact with hosts and other shoppers in real-time, ask questions, and receive personalized recommendations[13]. Live streaming e-commerce is believed to drive sales growth for many businesses, especially in the fashion, beauty, and food industries.

In general, the development of virtual presence in e-commerce has changed the way consumers shop online and interact with businesses, providing a more immersive and engaging experience and helping to drive the growth of many companies. With technology constantly advancing, we are likely to see even more innovative uses of virtual presence in e-commerce in the coming years.

4. The relationship between social presence and virtual presence in e-commerce.

Although many researchers believe that virtual presence includes social presence, this article aims to provide a clearer analysis and summary of the relationship (Table 1) and main differences (Table 2) between these two concepts.

4.1. The correlation between social presence and virtual presence

Social presence and virtual presence are interconnected concepts that can mutually interact and affect one another in multiple ways. The correlation between these concepts

is contingent on the specific context and objective of the communication or interaction and may entail complementarity, interdependence, trade-offs, or moderation.

Table 1. The correlation between social presence and virtual presence

	Social presence	Virtual presence
Complementarity	Social presence and virtual presence can complement each other to create a more appealing and personalized shopping experience. For instance, social presence can enhance the sense of community and social interaction in virtual shopping environments, while virtual presence can increase the sense of immersion and presence in social environments.	
Interdependence	Social presence and virtual presence can depend on each other to enhance the effectiveness of e-commerce. For example, social presence can facilitate the adoption and usage of virtual technologies, while virtual presence can improve social interaction and communication efficiency in online shopping environments[14].	
Trade-offs	Social presence and virtual presence can also compete with each other in e-commerce to gain attention and resources [15]. For instance, overemphasizing virtual presence may undermine social interaction and trust-building with other customers or sales representatives, while overemphasizing social presence may distract attention from the immersive and interactive aspects of virtual shopping.	
Moderation	Social presence and virtual presence can also moderate each other's effects on consumer behavior in e-commerce. For example, social presence can alleviate the negative effects of virtual anonymity and reduce social anxiety in online shopping, while virtual presence can increase the perceived authenticity and credibility of social information and influence[16].	

In summary, virtual presence refers to the sensory and perceptual aspects of the virtual environment, while social presence refers to the social and communicative aspects. Both virtual presence and social presence are crucial for understanding the impact of the virtual environment on individuals and communities and can interact with each other in complex and dynamic ways. Effective utilization of social and virtual presence in e-commerce can enhance customer engagement, increase sales revenue, and improve customer satisfaction and loyalty.

4.2. The difference between social presence and virtual presence

While there are some similarities between social presence and virtual presence, they differ in terms of their definition, focus, technology, and impact.

Table 2. The difference between social presence and virtual presence

	Social presence	Virtual presence
Definition	Social presence refers to the degree to which people feel that they are interacting with real individuals or a group of people during the communication process, even if the communication is mediated through technology[17].	Virtual presence refers to the degree to which an individual feels immersed and present in a virtual environment, giving the sensation of being physically present in the virtual environment[18].
Focus	Social presence in e-commerce focuses on the social connections and sense of interaction in the shopping experience[19], emphasizing the social and communicative aspects of the virtual environment.	Virtual presence in e-commerce emphasizes the sensory and perceptual aspects of the shopping experience[20], such as realism, interactivity, and engagement.
Technology	Social presence in e-commerce can be facilitated through various communication technologies[21], such as chatbots, social media platforms, or online forums.	Virtual presence in e-commerce requires more advanced immersive technologies[22], such as virtual reality, augmented reality, or 3D environments.

Impact	Social presence can influence people's attitudes and behaviors by increasing social connections, reducing social anxiety and improving communication efficiency[23] . The social presence in e-commerce can enhance the social impact, credibility and engagement of the shopping experience.	Virtual presence can have various impacts on human experiences in terms of cognition, emotion, and behavior[24]. In e-commerce, virtual presence can improve product understanding, increase sense of presence, and facilitate decision-making processes.
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In summary, social presence and virtual presence in e-commerce are distinct concepts that serve different purposes in enhancing the shopping experience. Social presence focuses on the social aspect of shopping, while virtual presence emphasizes the immersive aspect. Understanding these differences can help retailers develop more effective e-commerce strategies, enhance the shopping experience, and influence consumer behavior in different ways.

5. The impact of social presence and virtual presence on consumer behavior

Level of engagement: Virtual presence and social presence affect the level of consumer engagement with an e-commerce platform[25]. A positive perception of virtual presence and a strong social presence can increase consumers' willingness to spend time exploring the platform, and they are more likely to engage with the platform, participate in discussions, provide feedback or interact, which increases the likelihood of discovering new products and making additional purchases.

Interactivity: When consumers feel they are in a high-quality virtual environment that is easy to interact with in real time and provides a seamless shopping experience, they are more likely to feel connected to the brand and other consumers, and generate positive comments about the brand[26]. This can lead to increased engagement and positive e-word-of-mouth.

Purchase decisions: Perceptions of virtual and social presence can influence consumers' purchase decisions in a variety of ways[27]. For example, a positive perception of virtual presence can enhance consumers' perceptions of product quality and value, increasing their willingness to pay for the product. Similarly, a strong social presence can enhance consumers' perceptions of the trustworthiness and reliability of a platform, thereby increasing the likelihood that they will make a purchase.

Loyalty: Allowing consumers to freely comment, interact and build social identities in real time through immersive experiences, personalized interactions and seamless user interfaces, as well as creating a sense of community around the brand and facilitating customer interactions, all increase consumer trust and loyalty[28]. Loyalty rewards, such as discounts, exclusive content or sneak peeks at new products, are then offered through live streaming to encourage repeat purchases and referrals from consumers to friends.

6. Conclusion

The investigation of social and virtual presence has undergone an evolutionary process, as observed through literature reviews. This journey has advanced from early studies that focused on basic virtual environments to the emergence of virtual reality, in tandem with technological progress and the emergence of novel research inquiries. Although some scholars have made progress in studying user attitudes and behaviors using the concept of virtual presence, research on virtual presence in the emerging and challenging field of

live-streaming e-commerce is still in its infancy and urgently needs to be further investigated. Not only does this expand the theoretical research possibilities of virtual presence, but it also furnishes crisis-prone live-streaming e-commerce brands with valuable insights and strategic guidance.

Research shows that social presence and virtual presence are related concepts in e-commerce, with both similarities and differences. Social presence is important for building a sense of connection and rapport between users, helping to create a sense of community and social interaction, fostering a sense of connection and shared experience. It then builds customer trust and loyalty through user-generated content, social media engagement. And virtual presence is important for creating immersion and engagement with the virtual environment, such as through the use of technologies such as augmented reality, virtual reality and real-time streaming, which can increase product satisfaction and purchase intent. In summary, both concepts can be used to enhance the shopping experience and can provide a more immersive and interactive shopping experience for customers, enhancing consumer behavior such as consumer engagement, interactivity, purchase intent, and loyalty[29].

In summary, the study of social presence and virtual presence in e-commerce can yield valuable insights into consumer preferences, needs and pain points, information that can be used to improve products and services, address many questions or concerns, and ultimately provide consumers with a better shopping experience. By gaining a deeper understanding of live e-commerce consumer behavior, e-commerce brands can improve the customer experience and build stronger, more loyal relationships with their customers[30].

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