



**MECHANISMS AND EFFECTS OF NONVERBAL COMMUNICATION,
PRESENCE PERCEPTION AND CONSUMER EXPERIENCE ON
CONSUMER PURCHASE INTENTION IN THE LIVE STREAMING
CONTEXT**

By

HUANG WENJUN

**Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia,
in Fulfilment of the Requirements for the Degree of Doctor of Philosophy**

April 2024

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Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfilment
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Since its emergence in 2016, live streaming has evolved into a novel business model, becoming increasingly popular among Chinese customers. Unlike traditional social e-commerce, live streaming uniquely emphasizes consumer needs and interactive relationships, thereby creating a virtual environment that caters to the varied demands of both broadcasters and viewers. Consequently, live streaming has not only established its prominence as a marketing strategy in the era of the traffic economy but also initiated an epoch of unprecedented growth.

However, the landscape is changing. With the diminishing Internet traffic dividend, the lack of human and social cues and presence has impeded the development of live streaming. Variations in sales levels of live streaming products across different anchors, along with the impact of live streamers' characteristics on users' emotional attachment, have become critical issues. Promoting users' attachment and trust to enhance purchase intention is essential. Despite significant scholarly attention to online service platforms,

the specific context of live streaming's "face-to-face" service, particularly its psychological and behavioral impacts on consumers, remains under-explored. This oversight underscores the necessity for an in-depth investigation into how live streaming, as an online service scene, affects consumers' purchase intentions. Addressing this need, the current study integrates foundational theories such as the Stimulus-Organism-Response (SOR) model, field theory, place attachment theory, and consumer behavior theory to construct a comprehensive conceptual framework. The study's primary objective is to explore the potential positive effects of nonverbal communication, physical presence, and social presence on consumer purchase intentions. Following a survey-based quantitative methodology, online questionnaires were distributed to users with experience in live stream shopping. A total of 677 responses were received, of which 529 were valid. Descriptive analysis and structural equation modeling were conducted through SPSS 26.0 and Smart PLS 3.3 software, respectively, to analyze the response data. The findings indicate that nonverbal communication (i.e., kinesics, proxemics, paralanguage, physical appearance), physical presence, and social presence significantly enhance consumer purchase intentions. These influences are mediated by commercial friendship and place attachment (i.e., place identity and place dependence) and moderated by consumer experience. Incorporating the SOR model, this research posits that live streaming, as an innovative service scenario, significantly impacts user psychology and behavior, thereby contributing to sustainable competitive advantage.

From these findings, the study derives valuable insights for both theory and practice. Theoretically, this research is pioneering in its inclusion of the service scene in live streaming studies, thereby broadening the scope and boundaries of existing research.

Moreover, it utilizes the SOR theory to examine the interplay between stimuli (nonverbal communication, presence perception), organisms (commercial friendship, place attachment), and responses (consumers' purchase intentions). This comprehensive empirical testing through structural equation modeling represents a significant advancement in the field of live streaming and consumer purchase intentions. Practically, the study underscores the importance of incorporating social cues in live streaming services, like the anchor's role, demeanor, physical appearance, and service skills, to strengthen consumer purchase behavior. It also highlights the value of leveraging live streaming scene technologies to attract traffic, foster attachment, and present products in a practical, realistic, and intuitive manner. The ultimate aim is to enhance the quality of the relationship between anchors and consumers, thereby increasing online consumers' trust, shop attachment, and behavior and intentions. In conclusion, live streaming creates an emotional bond between a company's e-commerce platform and its consumers, akin to relationships between acquaintances or friends. This bond manifests in consumers' positive attitudes and behaviors, engendering feelings of camaraderie and enjoyment. Such experiences are crucial in building consumer trust and sustained engagement, which are essential for the long-term success of live streaming platforms.

Keywords: Live Streaming, Nonverbal Communication, Presence Perception, Consumer Experience, Purchase Intention

SDG: GOAL 4: Quality Education

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Doktor Falsafah

**MENYIASAT MEKANISME DAN KESAN KOMUNIKASI BUKAN LISAN
DAN PERSEPSI KEHADIRAN TERHADAP NIAT PEMBELIAN
PENGGUNA DALAM KONTEKS PENYIARAN LANGSUNG, KESAN
PENYEDERHANAAN PENGALAMAN PENGGUNA**

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Sejak kemunculannya pada tahun 2016, penstriman langsung telah berkembang menjadi model perniagaan baharu yang semakin popular di kalangan pelanggan di China. Berbeza dengan e-dagang sosial tradisional, penstriman langsung menekankan keperluan pengguna dan hubungan interaktif, dengan itu mewujudkan persekitaran maya yang memenuhi permintaan pelbagai penyiar dan penonton. Akibatnya, penstriman langsung bukan sahaja telah menegaskan kepentingannya sebagai strategi pemasaran dalam era ekonomi trafik tetapi juga telah memulakan zaman pertumbuhan yang belum pernah terjadi sebelumnya.

Namun, landskap ini sedang berubah. Dengan pengurangan dividen trafik Internet, kekurangan isyarat dan kehadiran manusia dan sosial telah menghalang perkembangan penstriman langsung. Variasi dalam tahap jualan produk penstriman langsung merentasi pelbagai penyiar, bersama dengan kesan ciri-ciri penyiar terhadap keterikatan emosi pengguna, telah menjadi isu kritikal. Meningkatkan keterikatan dan

kepercayaan pengguna untuk meningkatkanniat pembelian adalah penting. Walaupun terdapat perhatian yang signifikan dari kalangan akademik terhadap platform perkhidmatan dalam talian, konteks khusus perkhidmatan “bersemuka” penstriman langsung, terutamanya kesan psikologi dan tingkah laku terhadap pengguna, masih kurang diterokai. Kekurangan ini menekankan keperluan untuk penyelidikan mendalam mengenai bagaimana penstriman langsung, sebagai senario perkhidmatan dalam talian, mempengaruhi niat pembelian pengguna.

Mengikut metodologi kuantitatif berasaskan tinjauan, soal selidik dalam talian telah diedarkan kepada pengguna yang berpengalaman dalam pembelian siaran langsung. Sebanyak 677 respons telah diterima, dari mana 529 adalah sah. Analisis deskriptif dan pemodelan persamaan struktur telah dijalankan melalui perisian SPSS 26.0 dan Smart PLS 3.3, masing-masing, untuk menganalisis data respons. Penemuan menunjukkan bahawa komunikasi bukan lisan, kehadiran fizikal, dan kehadiran sosial secara signifikan meningkatkanniat pembelian pengguna. Pengaruh ini dimediasi oleh persahabatan komersial dan kelekatan tempat (iaitu, identiti tempat dan pergantungan tempat) dan dimoderasi oleh pengalaman pengguna. Dengan menggabungkan model *SOR*, penyelidikan ini mendakwa bahawa penyiaran langsung, sebagai senario perkhidmatan yang inovatif, memberi kesan signifikan kepada psikologi dan tingkah laku pengguna, sekali gus menyumbang kepada kelebihan daya saing yang mampan. Daripada penemuan ini, kajian ini memperoleh pandangan yang berharga untuk teori serta amalan. Secara teorinya, penyelidikan ini adalah perintis dalam memasukkan adegan perkhidmatan dalam kajian penyiaran langsung, dengan itu meluaskan skop dan sempadan penyelidikan sedia ada. Selain itu, ia menggunakan teori *SOR* untuk mengkaji interaksi antara rangsangan (komunikasi bukan lisan, persepsi kehadiran),

organisma (persahabatankomersial, kelekatan tempat), dan tindak balas (niat membeli pengguna). Ujian empirikal komprehensif melalui pemodelan persamaan struktur ini mewakili kemajuan ketara dalam bidang penyiaran langsung dan niat pembelian pengguna. Secara praktikalnya, kajian ini menekankan kepentingan menggabungkan isyarat sosial dalam perkhidmatan penyiaran langsung, seperti peranan utama, gelagat, penampilan fizikal dan kemahiran perkhidmatan, untuk mengukuhkan perilaku pembelian pengguna. Ia juga menyerlahkan nilai memanfaatkan teknologi adegan penyiaran langsung untuk menarik trafik, memupuk perhubungan dan mempersembahkan produk dengan cara yang praktikal, realistik, dan intuitif. Matlamat utama adalah untuk memperbaiki kualiti perhubungan antara kedai dan pengguna, justeru meningkatkan kepercayaan, kelekatan kedai, dan tingkah laku dan niat pengguna dalam talian. Kesimpulannya, penyiaran langsung mewujudkan ikatan emosi antara platform e-dagang syarikat dan penggunanya, sama seperti hubungan antara kenalan atau rakan. Ikatan ini nyata dalam sikap dan tingkah laku positif pengguna, melahirkan perasaan setiakawandan keseronokan. Pengalaman sedemikian adalah penting dalam membina kepercayaan dan penglibatan berterusan pengguna, yang penting untuk kejayaan jangka panjang platform penyiaran langsung.

Kata Kunci: Siaran Langsung, Komunikasi Bukan Lisan, Persepsi Kehadiran, Pengalaman Pengguna, Niat Membeli

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LIST OF ABBREVIATIONS

CBT	Consumer Behavior Theory
CMB	Common Method Bias
KOL	Key Opinion Leader
PAT	Place Attachment Theory
PLS-SEM	Partial Least Squares Structural Equation Modeling
SEM	Structural Equation Modeling
SOR	Stimulus-Organism-Response
VR	Virtual Reality

CHAPTER 1

INTRODUCTION

1.1 Introduction

This chapter comprises the background of the study, research problem, research questions, research objectives, and significance of the study. This study aims to investigate the mechanisms and effects of nonverbal communication and presence perception on consumers' purchase intentions in the live streaming context. The sense of presence is divided into multiple dimensions by combining the characteristics of e-commerce live streaming platforms. The subsequent parts are research problems, questions, objectives, research scope, and the significance of the study. Definitions of variables are presented, along with the organization of the thesis at the end of this chapter.

1.2 Background of the Study

The rapid evolution of Internet technology, along with the accelerated progression of social networking and the widespread adoption of intelligent communication devices, has instigated transformative shifts in people's lifestyles, production methods, and cognitive frameworks. In this context, the traditional unidirectional presentation of product information in e-commerce, primarily through images and text, has failed to meet the evolving demands of consumers. Consequently, spurred by advancements in new Internet technologies, a novel business model has emerged: live streaming e-commerce.

Live streaming is characterized by its method of simultaneous information dissemination and a two-way flow of communication, occurring in real-time (Wood et al., 2008). Presently, live streaming platforms can be categorized into three main types: entertainment-focused, pan-entertainment, and vertical field platforms (Zou & Peng, 2019). Pan-entertainment, in particular, refers to a comprehensive form of live streaming that integrates elements of entertainment and live e-commerce. This model employs an anchor matrix, consisting of stars and web celebrities, to attract high traffic and enhance user engagement (Zhang & Pan, 2023). In contrast, the emerging vertical live streaming model, known as “live broadcast + e-commerce,” is widely seen as the significant trend in e-commerce. This model combines elements of both e-commerce and streaming media, leveraging live online channels to connect potential consumers with products in a “what you see is what you get” manner (Xie et al., 2022). Live streaming thus serves as a business model that directly connects consumers with product sales through webcasting. Companies in this domain transform into immersive experiential scenarios, maximizing the user consumption experience by creating an enjoyable shopping experience through interaction and social engagement (Addo et al., 2021).

Since its rise to prominence in 2016, live streaming e-commerce has become incredibly popular in Chinese customer (Chen et al., 2017). Its multimedia, multicultural, and multichannel characteristics facilitate the generation and dissemination of information, making it a cornerstone of the Internet era (Dospinescu et al.). In the large-scale intelligent mobile cloud era, live e-commerce actively meets consumers’ personalized needs, enhancing both the shopping experience and online customer stickiness. Its high interactivity and live incentives have garnered

widespread attention and loyalty from consumers (Zhao et al., 2019).

Statistics indicate that as of June 2023, the scale of China's live streaming users reached 765 million people, accounting for 71.0% of the overall Internet users and representing an increase of 14.74 million in the six-month period since December 2022 (see Figure 1.1). Among them, 526 million were e-commerce live streaming users (48.8% of overall Internet users), up 11.94 million people from December 2022; 298 million were game live streaming users (27.6% of total Internet users), an increase of 31.88 million in six months; 194 million were reality show live streaming users (18.0% of total Internet users), an increase of 6.57 million in half a year; 187 million were concert live streaming users (17.3% of total Internet users), down 20.66 million from December 2022; and 323 million were sports live streaming users (29.9% of total Internet users), down 50.72 million in six months. Evidently, as of June 2023, the scale of China's live streaming users has reached remarkable figures, encompassing a significant portion of overall Internet users, with varying interests ranging from e-commerce to game streaming and reality shows.

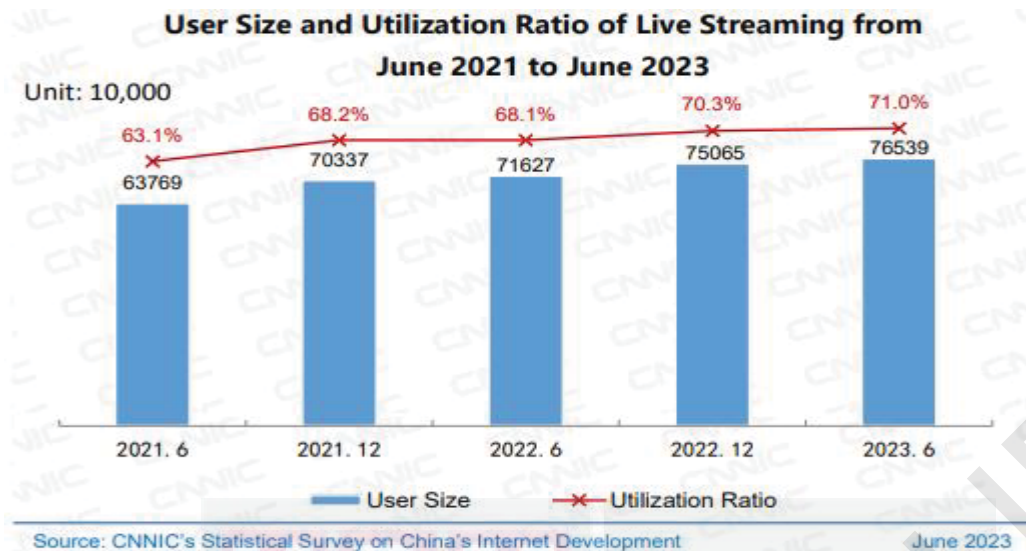


Figure 1.1 : User Size and Utilization Ratio of Live Streaming from June 2021 to June 2023

(Source: CNNIC. 2023. China Internet Network Information Center. (ONLINE). Available at: <https://www.cnnic.com.cn/IDR/ReportDownloads/>)

Traditional e-commerce follows a one-way model where consumers search for goods, whereas live e-commerce adopts a multi-directional interactive model where goods are presented to consumers. Merchants primarily focus on sales while also incorporating entertainment elements on live platforms to attract more targeted customer traffic. This creates a ‘live + e-commerce + social’ closed-loop service scenario (Feng & Wang, 2021).

Live streaming e-commerce has diversified in recent years, innovating traditional consumption methods and elevating the economy and society. Unlike the one-way communication on traditional video sites, live streaming offers a platform for lively interactions, revolutionizing communication modes and enhancing social interactions (Lu et al., 2020; Sukendia & Harianto, 2021). Users engage in self-expression, participate in performance, and receive feedback, filling psychological gaps in a virtual world (Geng et al., 2020; Ma, 2021). This makes up for the biggest shortcoming

of traditional e-commerce platforms: the lack of social cues for service providers.

Furthermore, live streaming's impact on consumer behavior has been studied extensively. For example, Beibei (2021) found that the external stimulus of the ambient context in live streaming can influence consumers' emotions and purchase intentions. Bhat and Singh (2018) highlighted that mobile contextual factors affect perceived arousal and pleasure, influencing consumer purchase intentions. As a result, live e-commerce is experiencing rapid growth and development, indicating its significant role in the e-commerce market.

With the advent of a "large, intelligent mobile cloud" (Hou et al., 2019), live streaming e-commerce actively addresses the individual needs of consumers, enhancing user technology, shopping experiences, and online customer stickiness. Due to its unique high interactivity and on-site incentives (Zhao et al., 2019), it has received extensive attention from consumers. A major challenge facing live streamers is figuring out how to survive and develop in the era of strong partnerships between live streaming and e-commerce. According to iiMedia Research (see Figure 1.2), the most commonly watched types of programs by Chinese live streaming users in 2022 were predominantly entertainment-oriented, attracting 75.5% of viewers, closely followed by lifestyle content with a viewership ratio of 73.6%. Additionally, a substantial proportion of users, 43.3% and 42.2%, showed a preference for sports and e-economy related streams, respectively. Analysts at iiMedia Consulting have observed that entertainment live broadcasts, with their colorful, humorous, and engaging content, are particularly appealing to the younger demographic, thereby playing a crucial role in the sustained growth of the live streaming industry.

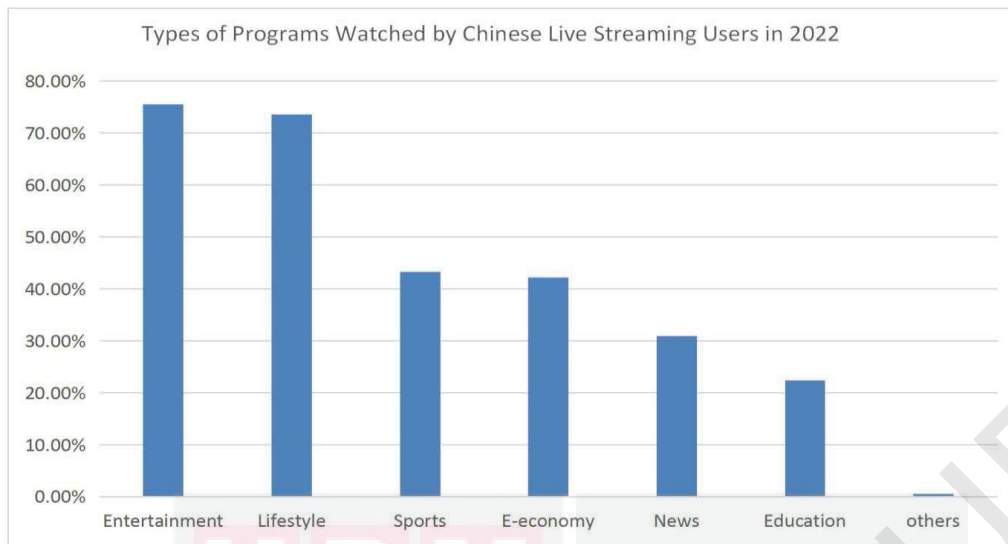


Figure 1.2 : Types of Programs Watched by Chinese Live Streaming Users in 2022

(Source: iiMedia data in 2022. (ONLINE) Available at: <https://www.statista.com/statistics/1130687/china-most-watched-types-of-live-streaming/>)

However, iiMedia Research also revealed a more nuanced picture of user satisfaction with the live streaming industry. While 24.3% of users reported being highly satisfied and 60.4% were relatively content, there remains a segment of the audience that is not fully satisfied with live streaming. This indicates a degree of ambivalence, as some users adopt a neutral, wait-and-see approach towards live e-commerce. These findings suggest that the conversion rate of live e-commerce is currently at a moderate level, underlining the necessity for further evaluation of the effectiveness of live streaming marketing strategies. Furthermore, with the diminishing Internet traffic dividend, the mobile Internet economy has entered a new stage of development. Live streaming e-commerce has experienced a gradual slowdown in growth and has entered a period of fierce competition for users (Shi, Ma & Zhu, 2021). The survival of an enterprise is now contingent on whether users will stay in the live stream for a long period and develop attachment to the service (Li et al., 2020).

In conclusion, live e-commerce, a driver of economic promotions in the advanced internet era, has changed the traditional e-commerce model, improving consumer shopping experiences and quality of life. This study adopts a live scenario perspective, analyzing live streaming e-commerce service scene perception and its influence on consumers' purchasing intentions. The current scholarly research on live streaming e-commerce, consumer attachment, and purchase intention is still emerging. Systematically identifying influencing elements and constructing a sound theoretical model to empirically prove its influence are crucial in the current landscape of live e-commerce research.

1.3 Problem Statement

The rise and development of live-streaming e-commerce in China reflect a diversification trend in the modern economy and digital age, driving innovation in traditional consumption methods and elevating the economy and society to new levels. According to Avery Consulting, China's live-streaming e-commerce market reached 4.9 trillion yuan in 2023, with a year-on-year growth rate of 35.2%. Despite this growth, the landscape is changing. The diminishing internet traffic dividend, coupled with a lack of human and social cues and presence perception, has impeded the development of live streaming (Luo et al., 2021). Additionally, the industry faces challenges such as market saturation, variable anchor quality, and misleading advertising, which exacerbate the overall weaknesses within the sector (Lv et al., 2022). The severe homogenization of live-streaming content and the lack of communication skills among anchors are leading to a decrease in viewers' interest and retention rates. This decline in user engagement and retention subsequently influences consumers' purchase intentions (Chen & Dou, 2023).

As market competition intensifies and user aesthetic fatigue sets in, the growth rate and activity levels of users on live-streaming platforms have started to decline. User behavior in China's live-streaming industry has undergone significant qualitative changes. Users' interest and engagement in live streaming content are gradually decreasing, alongside their loyalty to live-streaming platforms. This shift not only affects the user base of these platforms but also poses a challenge to their business models and profitability (Wongsunopparat & Deng, 2021). The severe homogenization of live-streaming content and the lack of communication skills among anchors are leading to a decrease in viewers' interest and retention rates. This decline in user engagement and retention subsequently influences consumers' purchase intentions (Chen & Dou, 2023).

From the dimension of non-verbal communication, anchors in live streaming directly impact consumers' perceptions and attitudes through their non-verbal communication style. For instance, Key Opinion Leader (KOL) anchors, who possess expertise and authority in their fields, foster closer relationships with audiences compared to celebrities. Their expertise helps audiences feel more informed about the products and services offered, leading to the formation of quasi-social relationships (Beibei, 2021). Pinkse and Bohnsack (2021) found that audiences often mimic media characters and follow their advice in these quasi-social interactive relationships, which can lead to purchasing intention. Similarly, Ding et al. (2020) noted that perceived authenticity, frequency of media consumption, and the attractiveness of media characters promote quasi-social interactions. However, many anchors lack appropriate non-verbal communication skills during live streaming. They often exhibit stiff expressions and unnatural movements due to inadequate expression management and body language

training, which fails to effectively communicate the features and advantages of the products (Su, 2019). Additionally, some anchors employ exaggerated or false non-verbal communication styles, such as overstating product effects and using unrealistic demonstrations to attract consumers' attention. While such methods may temporarily enhance consumer attention, they can damage consumers' trust and purchase intention in the long run (Li et al., 2022). From the perspective of consumer satisfaction, over 40% of consumers reported poor service quality during live-streaming shopping. The indifferent attitude and lack of interaction from anchors were the most frequently mentioned issues, accounting for 28.5%. This indicates a significant need for improvement in consumer interaction and experience in live-streaming services. Moreover, the accuracy of commodity information is a significant concern, with studies showing that incorrect or exaggerated product information during live streaming occurs as often as 35% of the time. This highlights issues in commodity information delivery and its negative impact on consumers' purchasing decisions and satisfaction. Anchors also perform poorly in demonstrating product use and benefits through non-verbal communication, making it difficult for consumers to make informed purchasing decisions (Ching, 2022).

Secondly, exploring the dimension of presence perception, live e-commerce also faces consumer service dilemmas. Live streaming e-commerce offers real-time interactivity, instant sociality, and buy-while-watching features, providing consumers with a novel shopping experience that significantly influences their shopping habits and lifestyles. Presence perception refers to the live atmosphere and realism that consumers feel when watching live streaming. However, some live e-commerce companies struggle to create a strong sense of presence, making it difficult for consumers to engage deeply

and realistically. This issue mainly stems from limitations in technology and anchor performance. For instance, insufficient clarity of the live broadcast screen and poor audio quality can affect consumers' perception and understanding of the content (Huang & Suo, 2021). According to China Avery Consulting, 62% of users believe the live broadcast screen significantly differs from the actual goods, with 45% stating that the displayed goods in the live broadcast are overly embellished, resulting in a significant gap between the actual goods received and those seen in the live broadcast. This indicates a significant inadequacy in live e-commerce's ability to create a real sense of presence. Moreover, only 38% of live e-commerce companies provide compelling real-time interactive features, meaning over 60% of users lack timely interactive feedback, reducing their sense of participation and immersion.

The professionalism and performance of anchors are crucial factors affecting the sense of presence in live streaming. Industry reports indicate that only 45% of anchors display exemplary professionalism and expression during live broadcasts. This deficiency leads many users to perceive the anchors' performances as unnatural and inauthentic, which subsequently affects their trust and purchase intention (Guo et al., 2021). Additionally, technical failures and delays in live e-commerce, such as lagging and blurred picture quality, are reported by about 23% of users. These issues negatively impact the viewing experience and weaken the presence effect created by live streaming.

Overall, live streaming faces challenges such as market saturation, variable anchor quality, and misleading advertising (Wu & Huang, 2023; Chen & Fay, 2018). In this context, fostering social interactions and enhancing consumer experiences become

critical. Challenges for the industry include establishing synergy between scenes and decision-making, enhancing consumer decision-making efficiency, creating meaningful connections between live streams and users, and optimizing operations to reduce consumer decision-making delays. Additionally, to grow live-streaming e-commerce, it is vital to develop social cues within live service environments. Exploring the emotional bonds between consumers, anchors, and broadcasts, and leveraging the influence of opinion leaders in online communities, is crucial to mobilize the consumer atmosphere and strengthen social bonds. This study, therefore, explores how non-verbal communication and presence perceptions in live streaming influence consumer purchase intentions, addressing real marketing needs in live e-commerce service scenarios.

Apart from the practical issues highlighted above, this study identifies four key gaps in the existing literature that require exploration. The first gap pertains to the observed significant differences in the factors influencing consumers' purchase intentions in live streaming. Prior research, approached from perspectives such as information technology (IT) affordance (Sun et al., 2019), marketing strategy (Min et al., 2019), and streamer endorsement, product matching (Park & Lin, 2020), predominantly employed qualitative methods (Kahraman & Kazançolu, 2019; Valtakoski, 2020; Chopra et al., 2021). By empirically examining the impact of nonverbal communication and presence perception on consumer behavior intentions, this approach extends the scope of previous studies, providing a robust basis for theory development and testing.

Second, this study enhances the stimulus-organism-response (SOR) model by incorporating field theory (FT) and place attachment theory (PAT). Previous studies on online consumer behavior primarily relied on the SOR model and the technology acceptance model (TAM), resulting in theoretical homogeneity (Aggarwal & Rahu, 2017; Ling et al., 2022). While the SOR theory is suitable for studying psychological responses to environmental fields, the incorporation of field theory emphasizes individuals' hierarchical positions, shedding light on their actions for cooperation or competition (Burnes & Cooke, 2013). Furthermore, PAT is widely employed in leisure, tourism, and consumption settings, describing emotional and psychological attachments to places (Scannell & Gifford, 2014). By combining field theory and PAT with the SOR model, this study explores users' emotional responses and psychological states in the live streaming service scene.

Third, friendship, a positive and mutually beneficial emotion between individuals, extends into the realm of commerce as "commercial friendship," akin to a friendship-like emotion established between buyers and sellers (Busser & Shulga, 2019). While existing literature has explored real-life relationships, such as in the beauty salon industry, more research is needed to understand the application of commercial friendship in the unique characteristics of live streaming scenarios (Ahn et al., 2014; Price & Arnould, 1999; Grayson, 2007). This study bridges this gap by examining the role of commercial friendships generated between anchors and consumers in live streaming situations.

Fourth, Consumer experience comprises a range of interactions and perceptions, including sensory, emotional, intellectual, behavioral, and social interactions (Lemon

& Verhoef, 2016). These components are particularly significant in live e-commerce environments, where they can be visualized, perceived, and interacted with by consumers through live streaming. According to Lemon and Verhoef's research, environments that provide rich experiences effectively enhance consumers' emotional connections and purchase intentions (Lemon & Verhoef, 2016). In the context of live-streaming e-commerce platforms, prior research has predominantly focused on the impact of users' cognitive and affective responses on purchase intentions (Hajli, 2015; Shin & Biocca, 2017). The role of consumer experience in live e-commerce, particularly within the purchasing processes, has garnered increasing attention. However, its function as a moderating variable influencing the relationship between place attachment and purchase intention remains under-explored in the existing literature.

Previous studies have underscored the role of place attachment in purchase intention (Wang et al., 2023) and place attachment in fostering emotional connections that encourage repeat visits and purchases (Harmeling et al., 2017). Additionally, research has demonstrated that place attachment predicts consumer satisfaction and loyalty in online shopping experiences (Suh & Lee, 2005; Jang et al., 2008). Place attachment has traditionally been linked to customer satisfaction (Puccinelli et al., 2015), brand trust (Van Doorn et al., 2010), and consumer engagement (Wang et al., 2017) in the service domain. Yet, the moderating effect of consumer experience on the relationship between place attachment and purchase intention in live e-commerce settings is not well understood. Therefore, it is necessary to investigate and analyze the impact of consumers' live-streaming viewing experience on the relationship between their place attachment and purchase intention. This study aims to address this gap by innovatively

analyzing the influencing factors that motivate or inhibit consumers' purchasing intentions in the live streaming environment through the lens of consumer experience. It provides an empirical exploration to understand consumer perceptions and attitudes within the dynamic live-streaming context.

1.4 Research Questions

The overarching research question is: "What is the impact pathway and mechanism by which nonverbal communication and presence perception jointly influence consumers' purchase intention?" To expand this line of inquiry, the following specific research questions are posed:

1. Does nonverbal communication (kinesics, proxemics, paralanguage, physical appearance) influence commercial friendship and consumers' purchase intention?
2. Does presence perception (physical presence and social presence) influence place attachment (place identity and place dependence) and consumers' purchase intention?
3. Does commercial friendship mediate the influences of nonverbal communication and place identity on consumers' purchase intention?
4. Does place attachment (place identity and place dependence) mediate the influence of presence perception on consumers' purchase intention?
5. Does consumer experience moderate the influences of place attachment (place identity and place dependence) on consumers' purchase intention?

1.5 Research Objectives

The primary research objectives of this research aim to unravel how nonverbal communication and presence perception impact consumers' purchase intention in the

e-commerce live streaming setting. In line with these overarching objectives, this study seeks to accomplish the following specific goals:

1. To examine the influence of nonverbal communication (kinesics, proxemics, paralanguage, physical appearance) on commercial friendship and consumers' purchase intention.
 - a. To examine the influence of kinesics on commercial friendship and consumers' purchase intention.
 - b. To examine the influence of proxemics on commercial friendship and consumers' purchase intention.
 - c. To examine the influence of paralanguage on commercial friendship and consumers' purchase intention.
 - d. To examine the influence of physical appearance on commercial friendship and consumers' purchase intention.
2. To examine the influence of presence perception (physical presence and social presence) on place attachment (place identity and place dependence) and consumers' purchase intention.
 - a. To examine the influence of physical presence on place identity and consumers' purchase intention.
 - b. To examine the influence of social presence on place dependence and consumers' purchase intention.
3. To analyze the mediating role of commercial friendship in the influences of nonverbal communication (kinesics, proxemics, paralanguage, physical appearance) and place identity on consumers' purchase intention.
 - a. To analyze the mediating role of commercial friendship in the influences of kinesics and place identity on consumers' purchase intention.
 - b. To analyze the mediating role of commercial friendship in the influences of proxemics and place identity on consumers' purchase intention.

- c. To analyze the mediating role of commercial friendship in the influences of paralanguage and place identity on consumers' purchase intention.
 - d. To analyze the mediating role of commercial friendship in the influences of physical appearance and place identity on consumers' purchase intention.
4. To examine the mediating effect of place attachment (place identity and place dependence) in the influence of presence perception on consumers' purchase intention.
- a. To examine the mediating effect of place identity in the influence of presence perception on consumers' purchase intention.
 - b. To examine the mediating effect of place dependence in the influence of presence perception on consumers' purchase intention.
5. To evaluate the moderating impact of consumer experience on the influences of place attachment (place identity and place dependence) on consumers' purchase intention.
- a. To evaluate the moderating impact of consumer experience on the influences of place identity on consumers' purchase intention.
 - b. To evaluate the moderating impact of consumer experience on the influences of place dependence on consumers' purchase intention.

1.6 Significance of the Study

The significance of this study encompasses both its theoretical and practical contributions, which are elucidated in the following sections.

1.6.1 Theoretical Significance

First and foremost, this study holds theoretical value in its integration of new elements and quantification of influence paths of non-verbal communication and presence perception variables impacting the live service scene. It aims to foster research integration within the live service field paradigm and develop an online consumer purchase intention indicator system. Field perception, an important aspect of online retailing theory, is examined in depth in this study. By subdividing field perception factors and combining them with service scene representations to form place attachment, this study identifies factors influencing consumers' purchase intentions, thereby encouraging deeper exploration into how field perception affects consumers' purchase intentions. Furthermore, the majority of existing studies have concentrated on the antecedents of presence perception, with limited focus on non-verbal communication and presence perception's influence on user consumption in virtual environments (Helly, Efrat & Yosef, 2010). Thus, exploring multidimensional presence perceptions deepens the understanding of customer attachment and purchase tendencies.

Secondly, this study constructs a comprehensive theoretical research framework by amalgamating three dimensions: live field research connotation, place attachment mechanisms, and consumer behavior intention research. This approach broadens the consumer behavioral intention research scope to include behavior patterns, elements, and influence pathways. Traditional consumer research often focuses on specific behaviors or analyzes intentions within certain contexts, resulting in a narrower examination of consumer behavioral intentions (Engel, Kollat & Blackwell, 1973; Sundar, Kardes & Wright, 2015). Building on the SOR model, this study investigates

online purchase intentions formed through place attachment, integrating field theory, PAT, and consumer behavior theory (CBT). This enriches the understanding of online purchase intentions, connecting external live field expressions to psychological perceptions and specific behaviors.

Finally, to deepen research on live consumption behavior, this study expands beyond the formation elements of online consumption behavior to examine intentions at three levels: formation, mediating effects, and willingness to transform. Organized into three modules, this research innovates in the area of online behavioral intention (Yoon & Leem, 2021). Existing literature often focuses on direct effects of variables like scenario attachment and business friendship, with less emphasis on mediated indirect paths. This study hypothesizes that place attachment mediates the relationship between commercial friendship and customers' purchase intentions. Through empirical analysis, it aims to explore the variations and significance of different mediating types on purchase intentions. By investigating the interplay between commercial friendship, place attachment, and purchase intention, this research contributes a comprehensive understanding of live consumption behavior complexities. The mediation hypothesis introduced adds depth to existing literature and opens avenues for new insights into factors influencing customers' purchase intentions.

1.6.2 Practical Significance

Firstly, empirical research on online purchase intentions is immensely valuable for the practical application of translating real-time e-commerce consumption intentions into actual behaviors. This research enhances the precision and effectiveness of corporate

marketing strategies in the context of live streaming e-commerce. Since consumer behavior in live streaming is significantly influenced by perceptual factors, a marketing strategy based on a thorough analysis of these factors is essential. This study examines the characteristics and influencers of live streaming consumption and place attachment behaviors. It examines intermediary variables in the relationship between live streaming and consumer behavior, using theoretical models to elucidate the roles of each element in the live broadcast scene. Insights from this research are instrumental in converting the consumption attitudes of live broadcast e-commerce shoppers into tangible behaviors, thereby enriching the overall consumption experience of live streaming e-commerce.

Moreover, the multidimensional examination of presence perception is of great practical importance. It equips live streaming companies with insights to enhance the online presence experience, thereby increasing customer stickiness and improving the management of relationships between e-commerce enterprises and consumers. The study's perspective on social presence perception encourages e-commerce enterprises to shift their focus from solely meeting external functional demands to addressing the intrinsic social needs of customers engaging in live consumption behavior. This approach aims to provide a holistic and complete online shopping experience (Hegner, 2017). Additionally, this study's insights on social presence management can guide live e-commerce operators to build customer adhesion tendencies, prompting a reassessment of current enterprise customer relationship management strategies from the perspective of the customer's intrinsic needs.

Lastly, in the context of the evolving experience economy and the increasing standardization of products, consumer experience emerges as a key factor in enterprise competitiveness. Scholars like Berry (2000) have highlighted the significant role of consumer experience in the brand formation process. Live consumption, with its personal preferences, multi-level demands, and information asymmetry, requires a nuanced understanding. This study includes an in-depth questionnaire survey targeting consumers with live shopping experiences. Analysis of the survey data reveals that diverse consumer experiences lead to varying responses and satisfaction levels based on sensory perceptions, thereby influencing distinct market consumption behaviors and attachment to live broadcasting scenarios. By validating a model of purchasing behaviors from an experience regulation perspective, the study makes various assumptions to enhance understanding. This knowledge is crucial for live platforms in executing targeted marketing strategies, cultivating and maintaining a loyal consumer base, and enhancing brand loyalty, thereby strengthening their competitiveness in the fast-paced world of live e-commerce.

1.7 Scope of Study

This study aims to identify the essential factors influencing consumers' purchase intentions in the context of live e-commerce services. A key focus is on the role of social cues, particularly nonverbal communication, which significantly engages the sensory perceptions of live audiences. Additionally, the shopping experience within the live service environment, a crucial aspect of customer engagement, is given due attention.

The live streaming scene is metaphorically likened to a stage where captivating performances are delivered. This analogy underscores the need for skillful integration of elements in live streaming to evoke a sense of “being there” and “being with others” among users. Consequently, this research thoroughly examines the impact of physical presence perception and social presence perception on live streaming services. Anchored in the SOR model, the study synthesizes theories from field theory, Place Attachment Theory (PAT), and Consumer Behavior Theory (CBT) to dissect the nuances of consumers’ purchase intentions. While PAT is traditionally associated with geographical and tourism contexts, such as natural landscapes and tourist attractions, this study innovatively applies it to the context of live e-commerce. In this setting, place attachment acts as a cognitive and emotional link, connecting users emotionally to the live scene.

This study aimed to deliver 944 online questionnaires to live streaming users in China. However, due to 317 respondents indicating that they had not had any ‘live streaming’ shopping experience, the number was subsequently reduced to 677. To ensure the validity and relevance of the data, respondents had to satisfy one primary criteria: Live e-commerce viewership and purchase experience within the past 12 months: Respondents must have watched a live stream or shopped through a live room within the past year. This criterion helps to avoid biases that could arise from outdated experiences and ensures that the data reflects current trends and behaviors.

The selection process for respondents and additional details are elaborated in Chapter 4. Finally, the variables chosen for this study were carefully selected to align with the SOR model, ensuring they are applicable and provide comprehensive coverage for all

aspects of the research.

1.8 Definitions of Constructs

This section defines the key variables used in this study, including the antecedents (nonverbal communication, physical presence perception, social presence perception), mediators (commercial friendship, place identity, place dependence), moderator (consumer experience), and outcome (purchase intention). Table 1.1 presents their definitions and sources.

Table 1.1 : Definition of Terms

No.	Construct	Definitions	Source
1.	Nonverbal Communication	“Nonverbal communication is communication using methods other than language, expressing emotions and delivering postures without language expressions, including the number of service personnel and whether they dress appropriately, whether their attitude is friendly, whether they behave correctly, and whether they can provide timely assistance with an appropriate mood when the customer needs help.”	Argyle, (1975); Sundaram & Webster (2000); Luo et al. (2021)
2.	Physical Presence	“Physical presence reflects the user’s feeling of being “in the presence, it describes the sensation of being at a far-off location when surrounded by a mediated environment.”	Lombard & Ditton (1997); Ijsselstein et al. (2000); Yoon & Lee (2021)
3.	Social Presence	“Social presence was first introduced to the field of communication by three scholars, Short, Williams, and Christie (1976). They defined it as the degree to which a user perceives the presence of another person through the social cues provided by the communication medium.”	Short et al. (1976); Albertson (1980); Tung & Deng (2007); Yoon & Lee (2021)
4.	Place Dependence	“Place dependence is the user’s functional attachment to the scene, which reflects the importance of the essential functions of the space scene to the user, and depends on the degree of matching between the uniqueness of the space scene and the user’s needs.”	Williams et al (1992); Kelly & Bric (2010); Scannell & Gifford (2010)
5.	Place Identity	“Place identity is a kind of spiritual attachment, belonging, and symbolic attribute users possess to live broadcast space.”	Williams et al. (1992); Kelly & Bric (2010); Scannell & Gifford (2010)
6.	Commercial Friendship	“A friendship relationship developed in a business environment, which refers to the cooperation and friendly relationship between customers and service personnel to achieve instrumental goals in a business environment”	Pamacheche (2021); Price (1999); Li & Peng (2021)
7.	Consumer Experience	“Consumer experience is the internal and personal reaction of consumers from direct or indirect contact with a company.”	Christopher & Andre (2007)
8.	Purchase Intention	“Purchase intention refers to the specific activities or behavioral tendencies that live streaming e-commerce consumers may take about products or companies after consumption.”	Engel et al. (1973); Qiu, Chen & Lee (2021)

1.9 Organization of the Thesis

This research is divided into six chapters, organized as follows:

Chapter 1 serves as the general framework for this research. It not only introduces the research background and clarifies the relatively weak areas of the current live streaming research field, but also theoretically defines and explores fundamental concepts and principal directions. This lays the foundation for the overall research framework.

Chapter 2, the literature review, first introduces field theory, PAT, and CBT as theories to be used for reference in this study, providing a theoretical basis for model construction and hypotheses. Secondly, it reviews research related to presence perception and factors influencing nonverbal communication, as well as their impact on consumers' purchase intentions. This chapter mainly expounds on the antecedents affecting consumers' purchase intentions, including nonverbal communication and presence perception, as well as intermediary variables like commercial friendship, place identity, place dependence, consumer experience, and consumers' purchase intentions. By examining the relationship between these variables and consumers' purchase intentions, the main idea and framework of this study are developed. Finally, it summarizes previous research and identifies areas in need of further investigation.

Chapter 3 focuses on developing the conceptual framework and hypotheses. Building upon the related theories and main variables identified in Chapter 2, this chapter proposes the overall theoretical model of consumers' purchase intention and outlines the relationships between various variables. It introduces primary hypotheses regarding the relationships between these variables, with a particular focus on

explaining the concept of variables in field theory and their influence paths. Additionally, it provides an explanation of the research samples selected for this study.

Chapter 4 covers the research methodology, including questionnaire design, pre-testing, pilot testing, and analysis. It details the procedures for designing the questionnaire, discusses the pre-test survey results, and describes the scale refinement process leading to the final questionnaire. This chapter also covers the main survey, including descriptive statistical analysis, and reliability and validity tests of the questionnaire. It concludes with an explanation of the methods used for data collection, research tools, and analysis procedures.

Chapter 5 reports the results of data screening, measurement model evaluation, structural model assessment, and hypotheses testing. It constructs dimensional models based on the research variables, uses independent sample tests to analyze demographic differences, and applies mediating effect analysis and structural equation modeling to test the theoretical model and hypotheses. The chapter also includes adjustments and analyses of the model based on the significance of relationships and path effects.

Chapter 6 encompasses research conclusions and prospects. It begins by summarizing the conclusions derived from this research and underscores their implications for e-commerce live streaming marketing. Additionally, it refines the contributions of this research and highlights remaining research deficiencies. Finally, it outlines potential areas for future research.

1.10 Chapter Summary

This chapter serves as a foundational overview of the research, offering a blueprint for the subsequent chapters. It begins by introducing the research background and problem statement, following which the research objectives and questions are articulated. Furthermore, it elucidates the theoretical and practical significance of the research, as well as its scope. Additionally, this chapter provides clear conceptual definitions of key variables such as nonverbal communication, presence perception, commercial friendship, place identity, place dependence, consumer experience, and purchase intention. Lastly, the chapter outlines the overall organization of the thesis. The following chapter covers the literature review, further defining the framework of this research.

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