



Faculty of Economics and Business

**The Effects of E-commerce Live Streaming on Chinese Consumers'
Purchase Intention**

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Thesis Guidelines: The Effects of E-commerce Live Streaming on Chinese
Consumers' Purchase Intention

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DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Malaysia Sarawak. Except where due acknowledgements have been made, the work is that of the author alone. The thesis has not been accepted for any degree and is not concurrently submitted in candidature of any other degree.

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ABSTRACT

With the increasingly fierce competition in the online retail industry and consumers' increasing demand for online shopping experience, the existing marketing model is difficult to sustain and effectively attract consumers, and more and more e-commerce websites and sellers are trying to adapt to the ever-changing business environment through the introduction of new marketing models. Among many marketing models, e-commerce live streaming has rapidly become a mainstream commercialised marketing model by integrating the consumer attributes of e-commerce and the rapid user acquisition capability of live streaming. Although e-commerce live streaming is constantly promoted in practice, its driving effect on online consumption intention still lacks theoretical support and empirical support. Understanding the effect of e-commerce live streaming's influence on online purchasing intention can provide references and suggestions for e-commerce websites and sellers to give full play to the marketing value of live streaming and improve market competitiveness by doing so, and it can help to expand the scope of the research on the commercialized marketing mode of live streaming, provide theoretical basis.

This study takes e-commerce live streaming as the research object, explores the effect of e-commerce live streaming on consumers' online purchase intention, and considers the tripartite interaction system formed by consumers, sellers and live streaming platforms, and based on socio-technical theories, analyses in depth the e-commerce live streaming's technical feature and service quality impact on purchase intention. This study obtains questionnaire survey.

Considering the interaction process between consumers and e-commerce live streaming platforms, we construct a relationship model between e-commerce live streaming technical feature and online purchase intention based on the theory of "stimulus-organism-response". The study found that the real-time interactivity experience, perceived proximity, and authenticity of e-commerce live streaming positively influence consumer purchase intention. By enhancing social support, these technical features further boost online buying interest. This research provides a technical perspective on how live streaming features shape consumer behaviour, highlighting their key role and offering insights for optimizing resource allocation in e-commerce and live streaming technology.

We further explore the impact of e-commerce live streaming service quality on online purchase intention based on social exchange theory in the interaction process between consumers and e-commerce live streaming sellers. The study found that while information quality in e-commerce live streaming enhances online purchase intention, interactive quality has a negative impact. However, both factors help establish swift relationship, which ultimately boost purchase intention. This phase expands the service quality evaluation framework by integrating social factors, introduces swift relationship into the e-commerce live streaming context, and lays the groundwork for personalized marketing strategies.

Keywords: E-commerce live streaming, socio-technical theory, technical feature, service quality, purchase intention

Kesan Penstriman Langsung E-dagang Terhadap Niat Pembelian Pengguna China

ABSTRAK

Dengan persaingan yang semakin sengit dalam industri runcit dalam talian serta permintaan pengguna yang semakin meningkat terhadap pengalaman membeli-belah dalam talian, model pemasaran sedia ada semakin sukar untuk dikekalkan dan menarik pengguna dengan berkesan. Oleh itu, semakin banyak laman web dan penjual e-dagang berusaha menyesuaikan diri dengan persekitaran perniagaan yang sentiasa berubah dengan memperkenalkan model pemasaran baharu. Dalam kalangan pelbagai model pemasaran, penstriman langsung e-dagang telah menjadi strategi pemasaran arus perdana dengan menggabungkan atribut pengguna e-dagang dan keupayaan pemerolehan pelanggan yang pantas melalui penstriman langsung. Walaupun model ini semakin popular dalam amalan, kesannya terhadap niat pembelian dalam talian masih kurang mendapat sokongan teori dan empirikal yang mencukupi. Memahami kesan penstriman langsung e-dagang terhadap niat pembelian dalam talian bukan sahaja dapat memberikan panduan dan cadangan kepada laman web dan penjual e-dagang untuk memaksimumkan nilai pemasaran penstriman langsung serta meningkatkan daya saing pasaran, tetapi juga membantu memperluaskan skop penyelidikan mengenai model pemasaran penstriman langsung yang dikomersialkan, sekali gus menyediakan asas teori yang kukuh.

Kajian ini menjadikan penstriman langsung e-dagang sebagai objek penyelidikan, meneroka kesannya terhadap niat pembelian dalam talian pengguna. Ia mengambil kira sistem interaksi tiga pihak yang melibatkan pengguna, penjual, dan platform penstriman langsung. Berdasarkan teori sosio-teknikal, kajian ini menganalisis secara mendalam ciri

teknikal penstriman langsung e-dagang serta kesan kualiti perkhidmatan terhadap niat pembelian. Data kajian diperoleh melalui tinjauan soal selidik.

Memandangkan proses interaksi antara pengguna dan platform penstriman langsung e-dagang, kami membangunkan model hubungan antara ciri teknikal penstriman langsung e-dagang dan niat pembelian dalam talian berdasarkan teori "rangsangan-organisma-tindak balas". Kajian ini mendapati bahawa pengalaman interaktif masa nyata, kedekatan yang dirasakan, dan keaslian penstriman langsung e-dagang memberi kesan positif terhadap niat pembelian pengguna. Dengan meningkatkan sokongan sosial, ciri teknikal ini dapat meningkatkan lagi minat pembelian dalam talian. Penyelidikan ini memberikan perspektif teknikal mengenai bagaimana ciri penstriman langsung membentuk tingkah laku pengguna, menekankan peranan utamanya, serta menawarkan pandangan untuk mengoptimumkan peruntukan sumber dalam e-dagang dan teknologi penstriman langsung.

Kami meneroka lebih lanjut kesan kualiti perkhidmatan penstriman langsung e-dagang terhadap niat pembelian dalam talian berdasarkan teori pertukaran sosial dalam proses interaksi antara pengguna dan penjual penstriman langsung e-dagang. Kajian ini mendapati bahawa walaupun kualiti maklumat dalam penstriman langsung e-dagang meningkatkan niat pembelian dalam talian, kualiti interaktif mempunyai kesan negatif. Namun, kedua-dua faktor ini membantu membentuk hubungan pantas, yang akhirnya meningkatkan niat pembelian. Fasa ini memperluaskan rangka kerja penilaian kualiti perkhidmatan dengan mengintegrasikan faktor sosial, memperkenalkan konsep hubungan pantas dalam konteks penstriman langsung e-dagang, dan meletakkan asas bagi strategi pemasaran yang diperibadikan.

Kata kunci: *Penstriman langsung e-dagang, teori sosio-teknikal, ciri teknikal, kualiti perkhidmatan, niat pembelian*

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LIST OF ABBREVIATIONS

SOR	Stimulus-Organism-Response
SET	Social Exchange Theory
CMB	Common Method Biases
VIF	Variance Inflation Factors
SEM-PLS	Structural Equation Modelling – Partial Least Square
AVE	Average Variance Extracted
CR	Composite Reliability
EDI	Electronic Data Interchange
CNNIC	China Internet Network Information Centre
CRE	Credibility
EMP	Empathy
RES	Responsiveness
RTI	Real-time
USE	Usefulness
VIV	Vividness
ES	Emotional Support
IS	Information Support
MU	Mutual Understanding
PA	Perceived Authenticity
PI	Purchase Intention
PP	Perceived Proximity
RH	Relationship Harmony
RI	Real-time interactivity

RR	Relationship Reciprocity
SS	Social Support
SR	Swift Relationship
IQ1	Information Quality
IQ2	Interaction Quality

CHAPTER 1

INTRODUCTION

1.1 Introduction

With the rising competition in online retail and growing consumer demands for a better online shopping experience, current marketing models struggle to sustain and attract consumers. Consequently, an increasing number of e-commerce platforms and sellers are introducing new marketing strategies to adapt to the evolving business landscape (Qing & Jin, 2022; Yu et al., 2025). E-commerce live streaming has emerged as a popular marketing strategy, blending the interactive nature of live streaming with the consumer engagement of e-commerce. However, its impact on online purchase intention remains insufficiently explored, with limited theoretical and empirical evidence. Gaining deeper insights into its influence can provide valuable guidance for e-commerce platforms and sellers. This knowledge can help them maximise the marketing potential of live streaming and enhance market competitiveness. Additionally, it is crucial to expand the theoretical foundation of live streaming as a commercial marketing model (Xu et al., 2024). Specifically, economic growth can be attributed to the significant expansion of online business platforms, including Alibaba, Taobao, Amazon, AliExpress, and others (Addo et al., 2021; Yu et al., 2025), which needs to be further explored.

1.2 Background of the Study

1.2.1 E-commerce in China

E-commerce began with the development of electronic data interchange (EDI) in the 1960s. By the late 1980s, EDI was widely adopted in developed countries, with value-added

network services further enhancing these systems. The global spread of the Internet accelerated the rapid growth of e-commerce, leading to its significant expansion in the 21st century (Liao et al., 2024).

E-commerce refers to the buying and selling of goods and services online, enabling transactions between businesses (B2B), businesses and consumers (B2C), or consumers themselves (C2C). In China, e-commerce has flourished due to widespread digital payment adoption, efficient logistics, and dominant platforms like Alibaba's Taobao and Tmall, JD.com, and Pinduoduo (CNNIC, 2023; iResearch, 2023). These platforms offer convenience, competitive pricing, and personalized recommendations, making online shopping a cornerstone of China's retail economy, accounting for over 50% of global e-commerce transactions (Statista, 2023).

The global economy is transitioning into the information age, bringing significant changes to economic growth and trade. As globalisation and information technology advance, e-commerce is transforming traditional trade methods and reshaping economies. More transactions between countries, businesses, and individuals, as well as the exchange of goods and services, are now being conducted through e-commerce. This shift positions e-commerce as a key economic trade model for the 21st century, with the potential to revolutionise production, distribution, consumption, and social life (Xu et al., 2024).

E-commerce is a natural progression of modern society, and adapting to online trade, shopping, payments, services, and entertainment is inevitable. The key challenge is how to engage with e-commerce, adjust to the digital landscape, and compete globally to foster growth. These challenges affect individuals, businesses, sectors, and nations, and require serious attention from national authorities. To effectively leverage the rapid development of

e-commerce, many countries have developed frameworks, laws, and strategies tailored to their specific needs (Lin et al., 2022).

China began promoting e-commerce in the 1980s, and by the 1990s, its growth had accelerated significantly. Today, e-commerce is expanding into various sectors, including foreign trade, finance, and commerce, garnering widespread attention. Although China's e-commerce started later compared to developed regions like North America, Europe, and Japan, it is experiencing rapid development (Aboulilah et al., 2023).

Firstly, China has established a solid foundation for e-commerce development. The Internet has expanded rapidly, network connectivity has improved, and most financial institutions now support online payments. Additionally, tools such as e-wallets, digital currencies, and smart cards have become increasingly popular (Bilal et al., 2024). Secondly, the surge in Internet users has significantly supported e-commerce growth. Various business models have emerged, including auction sites, real estate platforms, and transportation websites. Notable platforms, such as the China Ocean Shipping Container Information System, China Commodity Trading Network, China Commodity Ordering System, and China Enterprise Credit Network, have been launched (Gao et al., 2020). Thirdly, the regulatory framework for e-commerce is becoming increasingly robust. In February 1996, the China International Electronic Commerce Centre (CIECC) was established. By 1997, the State Council's Office for the Promotion of Electronic Information System (OPSEIS) and eight other ministries formed the China Electronic Data Interchange (EDI) Technical Committee, and e-commerce laws and regulations continue to evolve (Wongsunopparat & Deng, 2025)

In 2024, e-commerce remains an essential force for promoting consumption, protecting people's livelihoods, and facilitating foreign trade. It has maintained a strong momentum of development, contributing to economic vitality, flexible employment, and confidence in development (Zheng, 2024). E-commerce has continued to evolve rapidly with innovations such as instant retail, live shopping, short-video commerce, and community group buying. New consumption models, including automated retail, bulk ordering, and mini-program e-commerce, also emerged. E-commerce's role in stimulating consumption growth has evolved, offering consumers diverse choices and enhancing their living standards from general well-being to higher aspirations. The unique advantages of e-commerce being contactless and online align with the requirements of coordinating the prevention and control of epidemics with economic and social development. Thus, it has played a crucial role in preventing epidemics, maintaining supplies, and stabilising prices (Zhao, 2022).

According to the National Bureau of Statistics of China, the national e-commerce turnover reached 49.2 trillion yuan in 2024, an increase of 12.3 per cent over the previous year on a comparable calibre (Yin, 2025). Figure 1.1 shows National E-commerce Transaction Volume in 2013–2024.

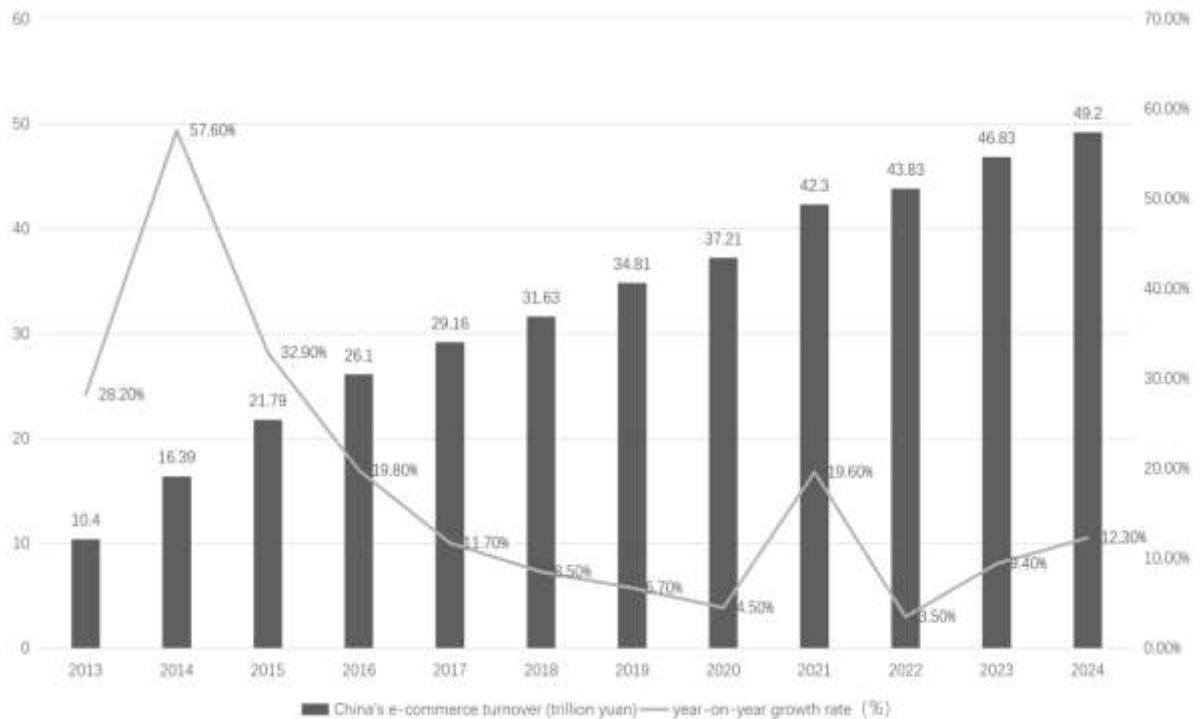


Figure 1.1: National E-commerce Transaction Volume in 2013–2024
Source: The National Bureau of Statistics of China (2024).

E-commerce continues to grow, driving significant increases in domestic demand and consumption. By December 2024, China's Internet users had reached 1.108 billion, an increase of 16.08 million from the previous year, with an Internet penetration rate of 78.6%. According to the National Bureau of Statistics, online retail sales totalled 15.52 trillion yuan, a 7.2% increase from 2023. Physical goods accounted for 13.08 trillion yuan, up 6.5%, representing 26.8% of total consumer retail sales. Among them, food, clothing, and consumer goods grew by 16.0%, 1.5%, and 6.3%, respectively (Yu & Zhao, 2025). Figure 1.2 illustrates national online retail sales from 2013 to 2024.

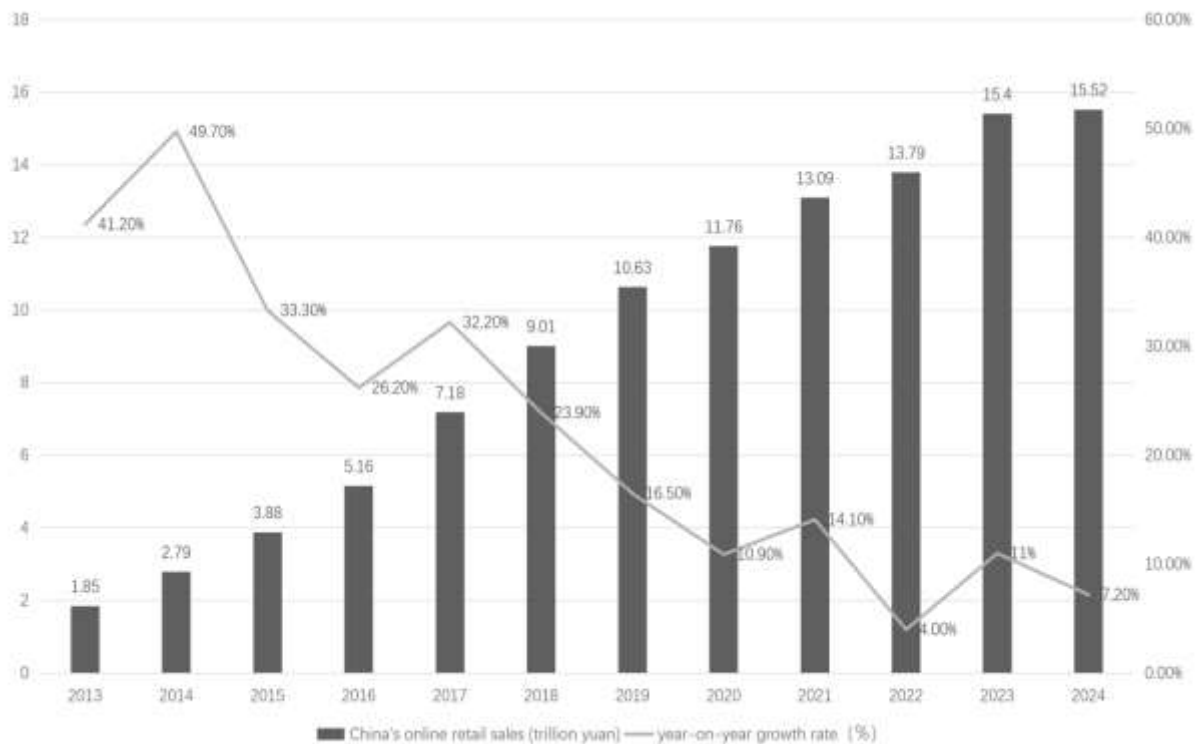


Figure 1.2: National Online Retail Sales in 2013-2024
Source: The National Bureau of Statistics of China (2024).

1.2.2 E-commerce Live Streaming in China

Live streaming has emerged as a significant global social and economic trend in recent years, providing users with essential information and interactive experiences. Major social networking platforms like Facebook, YouTube, and Twitter have incorporated live streaming features since 2017. The Interactive Advertising Bureau's 2024 report indicates that over 71.2% of Internet users have engaged with live streaming, with 47% continuing to watch real-time content (Zhou et al., 2025).

Live streaming commerce is an interactive sales format where hosts showcase products in real-time via video streams, allowing viewers to ask questions, see demonstrations, and purchase instantly. In China, platforms like Taobao Live, Douyin, and Kuaishou have popularized this model by blending entertainment, social engagement, and

shopping (Alibaba Group, 2023; Kuaishou Technology, 2023). Top influencers, such as Li Jiaqi and Viya, attract millions of viewers, driving massive sales through limited-time promotions and immersive experiences (Sina Tech, 2023). This format thrives due to its ability to build trust, create urgency, and reach diverse audiences, including lower-tier cities, with live streaming commerce sales exceeding \$480 billion in 2023 (McKinsey, 2023).

Additionally, a report by the China Internet Network Information Centre (CNNIC) revealed that by 2025, the live streaming and short video industry was expected to generate over 100 million job opportunities, making it a prominent career path for young people. Approximately 500,000 individuals are employed by leading live streaming and short video companies. By December 2024, China had 1.07 billion online video users, an increase of 3.47 million from the previous year, representing 96.6% of all Internet users. Short video users reached 1.04 billion, accounting for 93.8% of Internet users. Figure 1.3 illustrates the trends in online video users from December 2020 to December 2024. Meanwhile, online live streaming users grew to 833 million, an increase of 17.37 million, comprising 75.2% of Internet users. Figure 1.4 presents the growth and usage trends of online live streaming from December 2020 to December 2024.

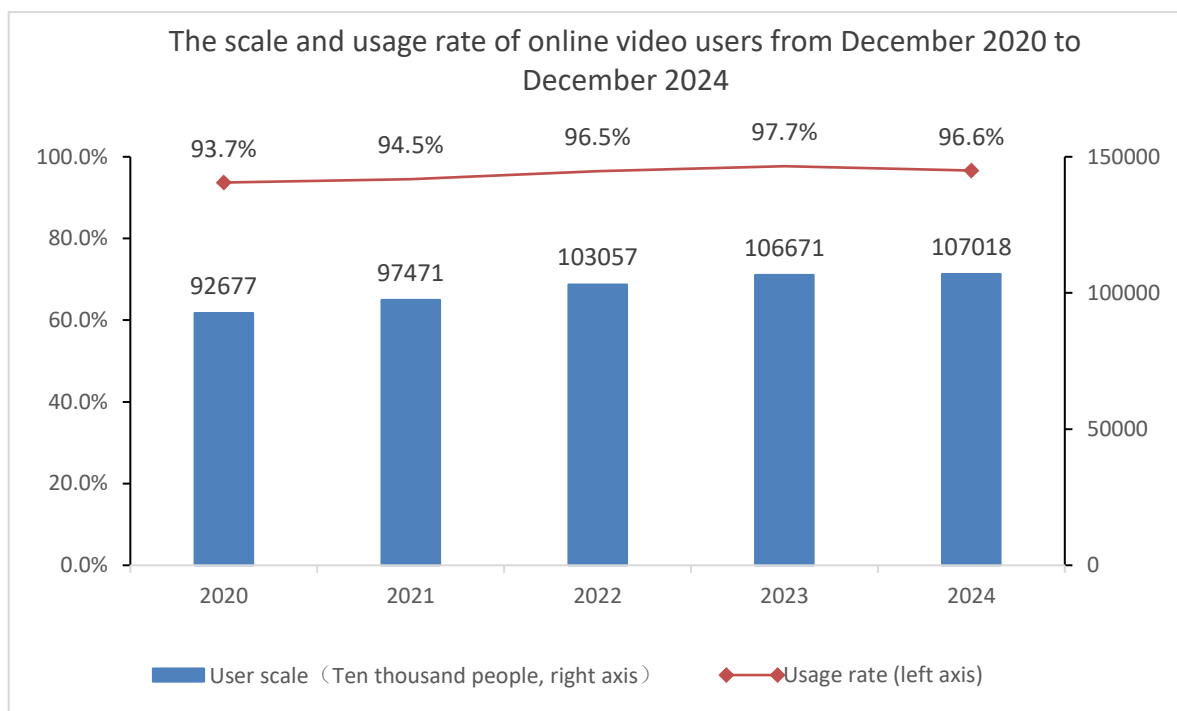


Figure 1.3: The Scale and Usage Rate of Online Video Users in 2020–2024
 Source: The China Internet Network Information Centre (2024).

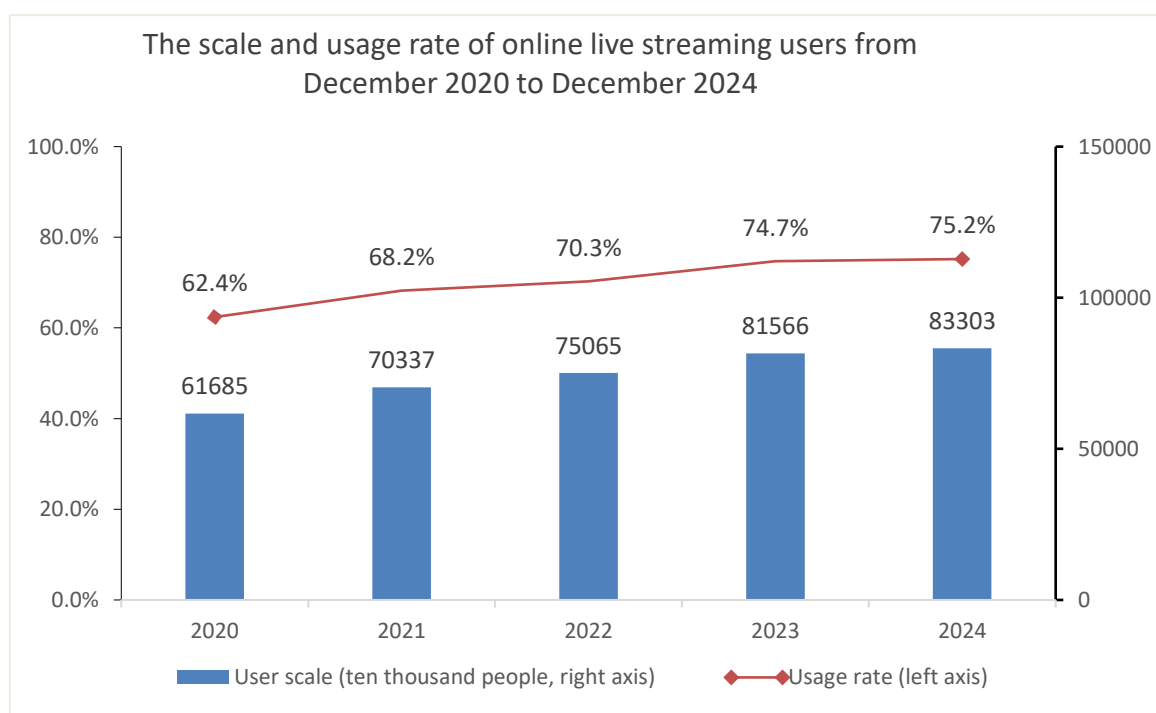


Figure 1.4: The Scale and Usage Rate of Online Live streaming Users in 2020–2024
 Source: The China Internet Network Information Centre (2024).

In addition to social media platforms, major e-commerce sites like Amazon, Taobao, TikTok, and JD.com have also adopted live streaming to attract and retain more customers. These platforms enable sellers to use live streaming to enhance the virtual shopping experience, including real-time interactivity, detailed product displays, insights into the retail environment, product recommendations, and the ability to shop while watching. According to Imedia Research, over 70% of live streaming users find e-commerce live streaming more appealing and promising compared to static images or text (Liu et al., 2024). Figure 1.5 shows the Users Survey on the Future of E-Commerce Live Streaming. Additionally, 97.2% of consumers view the e-commerce live streaming model, with 64% making purchases while watching live streams. As e-commerce live streaming transactions increase, it has become a crucial sales channel for online retailers, with additional businesses leveraging live streaming strategies to gain a competitive advantage (Huang & Luo, 2024). Figure 1.6 illustrates the trends in e-commerce live streaming transaction penetration.

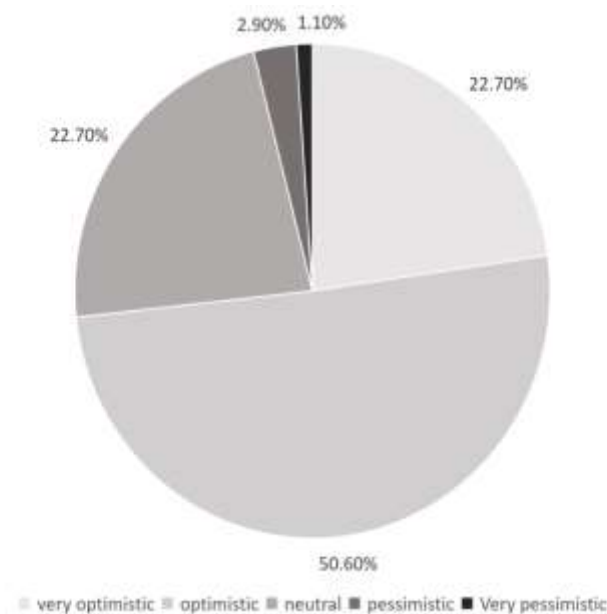


Figure 1.5: Users Survey on the Future of E-Commerce Live Streaming
Source: Imedia Research (2024).

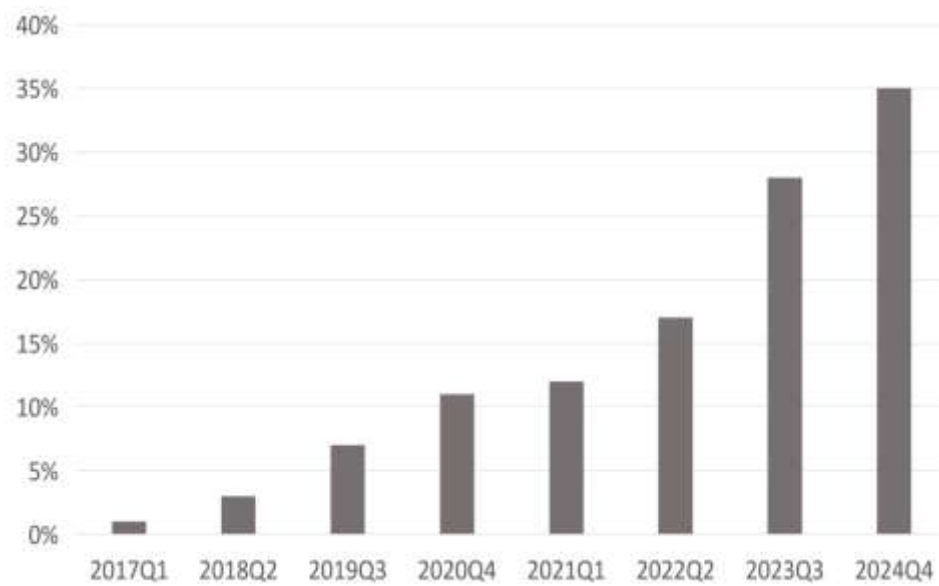


Figure 1.6: E-commerce Live Streaming Transaction Penetration Trends
Source: Live Streaming Ecology Trends Report (2024).

China's e-commerce live streaming surged in 2016, marked by Taobao's launch of its live streaming module in May of the same year. This was followed by other platforms such as Mogujie and JD.com, leading to further development of live streaming e-commerce in China. The year 2016 is often referred to as China's first year of webcasting. Initially, live streaming e-commerce was primarily an experiment focused on content creation and traffic monetisation. However, the industry's ecosystem has since become more comprehensive and diversified (Dong et al., 2023).

The outbreak of the COVID-19 pandemic in 2020 accelerated the growth of live streaming e-commerce. Many shopping centres and brands introduced “cloud shopping” experiences, while stagnant agricultural products found new sales channels through live streaming for agricultural assistance. Even the real estate industry embraced this trend with “cloud viewing” services. As a result, live streaming sales have become increasingly diverse and enhanced (Gao et al., 2020).

During the pandemic, Chinese Internet users' acceptance of live stream content grew significantly, and watching live broadcasts became a daily habit for many. Live streaming e-commerce has evolved into a crucial feature across major platforms, with resources increasingly directed toward this format. This growth marked a phase of rapid development for live streaming e-commerce, which shows vast potential for future advancement (Kang et al., 2021). The pandemic also created opportunities for further expansion of live streaming e-commerce. As the offline market contracted due to physical distancing measures, the online market, which does not require physical contact, became more appealing to consumers. Live streaming e-commerce saw significant growth during this time. After the pandemic was brought under control, governments at various levels introduced supportive policies to aid economic recovery and recognised live streaming e-commerce as a new consumer model. Mayors and county officials even took on the role of hosts to promote local products, making live streaming e-commerce a central strategy for economic development across China (Liao et al., 2024).

The rise of e-commerce live streaming as a dominant business model stems from its effective integration of live streaming and e-commerce features that enhance transaction volume. As shopping shifts from offline to online platforms, e-commerce benefits from technological advancements that remove geographical and temporal limitations, addressing information asymmetry in decision-making. Traditionally, e-commerce platforms have struggled to provide face-to-face interactions with sellers, leaving consumers reliant on static graphics, which increases uncertainty in the transaction process (Liu et al., 2024). E-commerce live streaming mitigates these challenges by providing a more tangible shopping experience through scene-based models. It offers a more intuitive and immersive way for consumers to understand products, facilitating frequent and interactive engagement between

consumers and sellers, as well as among consumers themselves. The group dynamics generated through information exposure and interactive engagement can drive stronger purchase intention compared to traditional graphic-based information (Guo et al., 2021).

The China Internet Network Information Centre (CNNIC) released its 55th Statistical Report on China's Internet Development, revealing that by December 2024, China had 1.108 billion Internet users, with a penetration rate of 78.6%. The number of online shopping users increased to 974 million, up 59.47 million from December 2023, accounting for 87.9% of all Internet users. The report also noted that China's e-commerce market continues to expand in size, becoming a significant driver of domestic consumption (Imedia Research, 2024). Currently, China's main consumer population are among the younger generations.

The advent of e-commerce live streaming has elicited a notable transformation in the conventional transactional model between buyers, sellers, and e-commerce platforms. In contrast to the conventional offline and traditional e-commerce marketing models, where physical sellers and platforms typically occupy distinct roles, e-commerce live streaming introduces a three-party interactive system involving consumers, live streaming platforms, and sellers (Yu & Zheng, 2021). This innovative model facilitates enhanced interaction between buyers and sellers, as well as between buyers and platforms, which makes online purchasing a more complex process. Therefore, it is imperative to consider these interactions and evaluate the marketing effect of e-commerce live streaming, which is central to consumer appeal for sellers.

1.2.3 Consumers' Purchase Intention in China

Consumption plays a vital role in driving China's economic growth, influencing various aspects of daily life, including clothing, food, housing, and transportation. These

essentials reflect the public's desire for a better quality of life. To tap into the consumer market's potential, regions and government departments have taken significant steps to enhance consumption capacity, improve conditions, and introduce innovative scenarios. Preliminary data from the National Bureau of Statistics shows that China's GDP reached 29.63 trillion yuan in the first quarter of 2024, up 5.3% year-on-year at constant prices. The role of consumption in economic growth has grown, with final consumption contributing 66.6% to economic growth in the first quarter. This marks a notable rebound from last year's performance, positioning consumption as the leading factor among the three main drivers of economic growth. These trends indicate a gradual recovery and improvement in consumption (Zhan, 2024).

Consumer purchase intention and perceived consumer confidence. In 2022, the purchasing intentions and consumption intentions of Chinese residents experienced a general downturn due to various factors. However, moving into 2023, the global economy began gradually recovering from the impact of the COVID-19 pandemic, and China's economic recovery is gaining momentum. Shopping malls and supermarkets saw increased numbers of customers, tourist attractions and parks became crowded with visitors, and airports and stations are again filled with travellers. The lively scenes of people queuing for food at popular destinations, along with vibrant street life, underscore the resilience and vitality of China's consumer market (Gong, 2024).

Firstly, consumer willingness to purchase and their confidence are gradually recovering for over half of the surveyed participants. The survey revealed that 65.2% of respondents have seen an increase in their willingness to purchase since the beginning of this year, while 8.6% reported no change, and 26.2% noted a decrease. However, a lower

willingness to purchase does not necessarily mean consumers stop consuming. When asked if government policies to stimulate consumption would enhance their purchase intentions, 63.1% responded positively, 4.8% were uncertain, and 32.1% indicated no. This finding suggests that consumer confidence and purchase intention have notably improved compared to last year, and government stimulus measures could further boost this trend (Zhan, 2024).

Secondly, the May Day holiday underscored the vibrancy and potential of China's consumer market. During the holiday, foot traffic surged in central commercial districts, and there was significant growth in travel, entertainment, and accommodations, reflecting robust holiday spending. Data from the Ministry of Culture and Tourism showed 274 million domestic trips, a 70.83% year-on-year increase, with tourism revenue reaching 148.056 billion yuan, up 128.9%. Furthermore, the Ministry of Commerce reported that sales of key retail and catering enterprises rose by 18.9% and 57.9% year-on-year, respectively. These figures highlight the ongoing improvement in consumer spending and purchasing power (Gong, 2024).

Consumers' perception of China's consumption trends in 2024. As consumers increasingly seek products that reflect their values and provide a strong sense of fulfilment, understanding the future direction of consumption amid emerging trends is crucial. This challenge not only impacts the healthy development of the consumer industry but also requires a careful balance between supply and demand. According to consumers, China's consumption in 2024 is expected to exhibit the following new trends and features (People's Think Tank, 2024). Figure 1.7 illustrates consumers' perceptions of China's consumption trends in 2024.

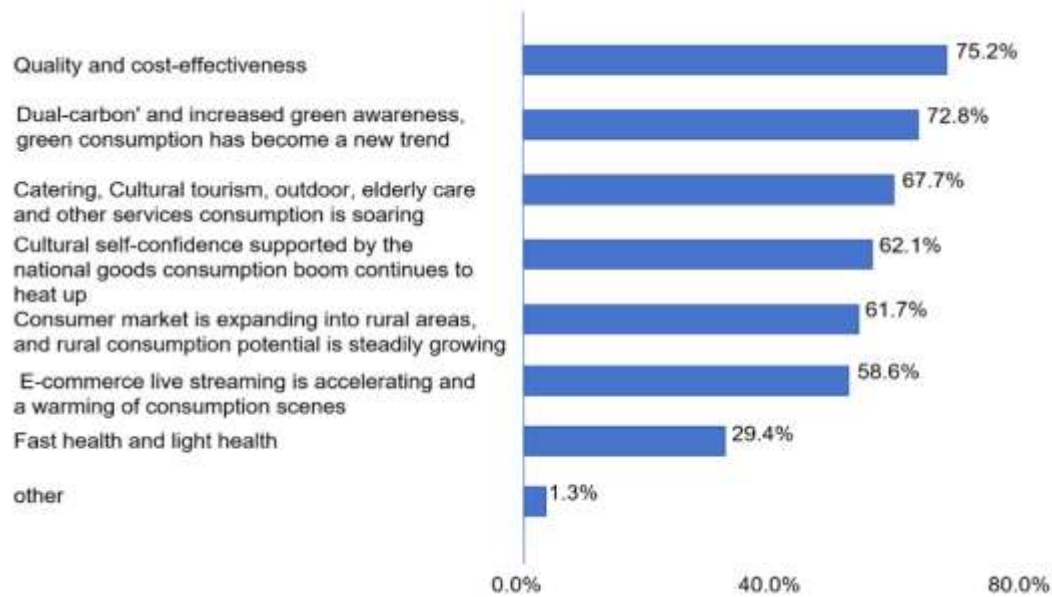


Figure 1.7: Consumers' Perception of China's Consumption Trends in 2024
Source: Survey on Chinese Consumers' Purchasing Intentions and Expectations (2024), State Governance.

Firstly, consumer intention is increasingly driven by rationality, with a focus on quality and cost-effectiveness. A new era of value-oriented and rational consumption is emerging. The survey indicates that 75.2% of respondents expect consumption trends in 2024 to emphasise quality and cost-effectiveness as consumers become more rational in their purchasing decisions. Observations of daily life reveal that many consumers are shifting away from luxury brands, instead prioritising value for money. Additionally, there is a growing emphasis on health, wellness, and personalised experiences, with 29.4% of respondents noting an increase in “fast health and light health” trends and personalised, self-pleasing consumption. These trends highlight a significant shift in consumer attitudes and priorities (People's Think Tank, 2024).

Secondly, service consumption is increasing, and green products and services are leading the new consumption trends. Consumers' prognosis on the latest trends and characteristics of China's consumer market this year primarily focuses on the field of service-

based consumption, e.g. “dual-carbon and increased green awareness, green consumption has become a new trend” (72.8%), “catering, Cultural tourism, outdoor, elderly care and other services consumption is soaring” (67.7%) and “cultural self-confidence supported by the national goods consumption boom continues to heat up” (62.1%). Recently, the idle economy, sharing economy, recycling and other green consumption concepts have gained momentum. The post-90s, post-00s, and other consumer groups have gradually become the main force of green consumption; they tend to choose green, low-carbon, health and wellness products and services in their daily lives, leading to a new trend of green consumption. In addition, catering and lodging, culture and tourism, outdoor, health and wellness, and the trend of national goods have gradually become consumption hotspots (People's Think Tank, 2024).

Thirdly, the consumer market is expanding into rural areas, and the potential for rural consumption is steadily increasing. The survey indicates 61.7% of respondents recognise a shift of the consumer market to the countryside as a significant trend this year. Recent policies aimed at improving rural infrastructure and public services, along with rising farmer incomes, have revitalised the rural consumer market. This is evident in the growing demand for a range of products and services beyond traditional agricultural needs, including household appliances, furniture, automobiles, cosmetics, clothing, and various services. Rural consumption is shifting from basic survival needs to development and enjoyment. The Ministry of Agriculture and Rural Affairs reports that retail sales of consumer goods in rural areas increased by 6.2% year-on-year in the first quarter of this year, surpassing the growth rate in urban areas by 0.5 percentage points (People's Think Tank, 2024).

Finally, live streaming e-commerce is gaining momentum, and consumption scenes are expanding. This indicates that most consumers can reasonably access and enjoy new products and services, with the quality of these offerings essentially ensured. Respondents are optimistic about the role of new consumer products in driving demand, boosting the market, and supporting the economic “dual cycle.” This reflects a growing expectation for consumer and service companies to innovate rapidly to meet market needs. Traditional e-commerce platforms, such as Taobao and Jingdong, along with shopping sites like Pinduoduo, and service-oriented platforms like Meituan and Hungry Man, are evolving. The integration of online and offline channels is accelerating, resulting in a resurgence of consumer activities at shopping malls, supermarkets, and bazaars. The survey shows that 58.6% of respondents expect this year’s consumer spending to be characterised by the “live streaming e-commerce is accelerating and a warming of consumption scenes” (People's Think Tank, 2024).

1.3 Problem Statement

Based on the above, live streaming has become a mainstream business marketing model (Shang et al., 2024). For e-commerce sellers, it is both a development opportunity and a challenge. Understanding consumers' online purchasing intentions in the context of e-commerce live streaming is crucial. This study focuses on e-commerce websites and examines which elements of live streaming sellers can use to attract consumers and drive purchasing (Zhang & Liu, 2023). Based on the above background, this study investigates the impact of e-commerce live streaming on consumer purchase intention. Utilising socio-technical theory, it examines technical and social factors to reveal how live streaming technical feature and service quality affect consumer intention.

Firstly, how does e-commerce live streaming technical feature affect consumers' online purchase intention? Consumers form purchase intention by watching and participating in live streaming, while consumer intention is fundamental. Based on socio-technical theory and the interactive system of e-commerce live streaming, the efficiency of new technologies can be examined from two aspects: technical and social factors (Ma et al., 2023). Traditional e-commerce relies on text, images, and product descriptions on detail pages to introduce products, resulting in a more passive shopping experience. In contrast, live e-commerce offers a dynamic and engaging way to showcase products, where hosts provide vivid interpretations and comprehensive displays of product information (Matthew et al., 2024). For instance, when promoting food items, hosts might sample the product live, allowing consumers to see its qualities firsthand. Similarly, when demonstrating small appliances, hosts can show the product in action, giving viewers an immediate understanding of its functionality (Senanayake & Mudiyanse, 2022). From the perspective of consumer information acquisition, traditional e-commerce often requires consumers to open a chat window to consult with sellers or browse through reviews to gather more details about a product. However, in live e-commerce, consumers can interact in real-time with the host or other viewers through real-time comments, enhancing the efficiency of information delivery and the precision of the shopping guidance (Merritt & Zhao, 2022).

Despite the growing research on live streaming commerce, few studies have systematically examined how the interplay between technical affordances and social dynamics shapes consumer purchase intention from a socio-technical systems perspective. This study aims to bridge this gap by developing an integrated theoretical framework that uncovers the synergistic effects of technological and social factors in driving consumer decisions, offering deeper insights beyond isolated analyses of either dimension. Therefore,

live e-commerce is an innovative e-commerce model that combines visualisation, personalised services, and real-time interactivity. To fully understand the impact of live streaming on merchants and consumers, it is essential to explore its specific effects. From a technical perspective, this study identifies which unique features of e-commerce live streaming influence consumers' online purchasing decisions and examines which features affect consumer intention. The goal is to enhance the understanding of how e-commerce live streaming influences purchase intention and to improve the technical aspects of live streaming platforms to better meet consumer needs.

Secondly, how does e-commerce live streaming technical feature affect consumers' online purchase intention through social support? With the rapid development of e-commerce live streaming, its technical feature has become crucial in shaping consumer behaviour. However, the technical attributes that influence online purchase intention remain underexplored. Existing research primarily focuses on the direct impact of live streaming on consumer engagement; the role of social support as a mediating factor is not well understood (Dong et al., 2023). E-commerce live streaming provides consumers with interactive real-time engagement, perceived proximity, and authenticity, which may enhance their sense of social support. Social support, in turn, fosters trust, reduces perceived risk, and strengthens consumer confidence, potentially increasing purchase intention (Bai, 2024). Despite the growing adoption of live streaming as a marketing tool, there is a lack of theoretical and empirical evidence explaining how its technical feature drive online purchase intention through social support (Jamil & Rahman, 2020).

While prior studies recognize the general effects of live streaming features on consumer behaviour, the underlying mechanism through which technical attributes translate

into purchase intention via social support remains theoretically fragmented. This study seeks to advance socio-technical theory by empirically validating the mediating role of social support, thereby providing a nuanced understanding of how technology-enabled interactions foster relational trust and drive consumption decisions in live commerce. This study addresses the research gap by examining the relationship between e-commerce live streaming technical feature, social support, and consumers' online purchase intention. Understanding these dynamics will provide valuable insights for e-commerce platforms and sellers, enabling them to optimise live streaming strategies and enhance consumer engagement.

Thirdly, how does e-commerce live streaming service quality affect consumers' online purchase intention? In measuring the efficiency of new technologies, another factor that socio-technical theory emphasises is social factors. Social factors advocate for considering factors related to people. Consumers' online purchase decisions not only depend on the technical factors of e-commerce live streaming but are also affected by the online service quality of e-commerce sellers on live streaming platforms (Carolina et al., 2024). Service quality is typically considered a determining factor affecting consumers' offline and online purchasing intentions (Ermeç, 2022). While e-commerce live streaming shares similarities with traditional online shopping sites, there are notable differences. For example, live streaming offers real-time and immediate engagement, which significantly alters consumers' perceptions of service quality (Vo et al., 2022). Additionally, due to new technological advancements, live streaming necessitates considering users as social beings within a complex social environment. Scholars suggest that understanding user intention and the formation of “social” connections is crucial in this context, highlighting how live streaming influences the social aspects of online shopping (Ma et al., 2023). However, the

dimensions of service quality in various contexts have been a subject of debate. This study examines the impact of service quality in e-commerce live streaming on relationship building and consumer purchase intention. The aim is to provide insights and recommendations for developing effective e-commerce live streaming strategies.

While existing research acknowledges the importance of service quality in live streaming commerce, there is limited theoretical understanding of how its unique dimensions foster social connections and ultimately drive purchase decisions within the socio-technical framework. This study addresses this gap by integrating service quality theory with socio-technical systems theory, offering a novel perspective on how technology-mediated service interactions cultivate relational bonds and influence consumer behavior in live streaming environments. Therefore, understanding the service quality of e-commerce live streaming in the context of new e-commerce live streaming and how it affects consumers' intention to purchase online will help e-commerce sellers exert more targeted social influence on consumers, while providing high-quality services. Better quality service attracts customers.

Fourthly, how does e-commerce live streaming service quality affect consumers' online purchase intention through swift relationship? With the rapid increase in e-commerce live streaming, service quality has emerged as a critical factor influencing consumer behaviour and purchase decisions. While previous research has explored the direct impact of live streaming service quality on consumer engagement, the understanding of the underlying influence is limited (Ko & Chen, 2024). Particularly, the role of swift relationship—defined as the rapid establishment of trust and emotional connection between consumers and sellers—has not been thoroughly examined. Live streaming service quality encompasses varying dimensions, including information accuracy, responsiveness,

interactivity, and entertainment value (Addo et al. 2021). High-quality live streaming experiences can foster swift relationship by enhancing consumer trust, reducing perceived uncertainty, and creating a sense of closeness between buyers and sellers. These swift relationships may, in turn, strengthen consumer confidence and positively impact online purchase intention (Barata & Coelho, 2021). However, theoretical and empirical research examining how different aspects of service quality contribute to swift relationship formation, thereby influencing purchase behaviour, is limited (Kristiani & Khoirunnisa, 2022).

Despite growing recognition of swift relationships in live streaming commerce, existing literature fails to systematically examine how distinct service quality dimensions differentially cultivate these instant connections and through what psychological mechanisms they translate into purchase intent. This study pioneers a dimensional analysis of service quality's role in swift relationship formation, advancing socio-technical theory by revealing the temporal dynamics of trust-building in technology-mediated, fast-paced shopping environments. Given the increasing reliance on live streaming as a marketing tool, it is essential to understand how service quality shapes consumer perceptions and purchase intentions through swift relationship. This study addresses the research gap by investigating the relationship between e-commerce live streaming service quality, swift relationship, and consumers' online purchase intention. The findings provide valuable insights for e-commerce platforms and sellers, enabling them to optimise service strategies, enhance consumer engagement, and improve conversion rates in live streaming e-commerce.

1.4 Research Questions

The research questions of this study are as follows:

- i. Does e-commerce live streaming technical feature have effect on purchase intention?
- ii. Does social support mediate the effect of e-commerce live streaming technical feature and purchase intention?
- iii. Does e-commerce live streaming service quality have effect on purchase intention?
- iv. Does swift relationship mediate the effect of e-commerce live streaming service quality on purchase intention?

1.5 Research Objectives

1.5.1 General Objective

The primary aim of this study is to examine how e-commerce live streaming affects consumers' online purchasing intention. Using socio-technical theory, the study investigates the impact of both technical feature and service quality of e-commerce live streaming on consumers' purchase intention.

1.5.2 Specific Objectives

The specific objectives are as follows:

- i. To measure the effect of e-commerce live streaming technical feature on purchase intention.
- ii. To evaluate the mediating role of social support between e-commerce live streaming technical feature and purchase intention.
- iii. To measure the effect of e-commerce live streaming service quality on purchase intention.

- iv. To examine the mediating role of swift relationship between e-commerce live streaming service quality and purchase intention.

1.6 Significance of the Study

As live streaming marketing systems develop in the business environment, the effect of e-commerce live streaming marketing has attracted increased scholarly attention. This study integrates consumer perspectives and socio-technical theory to investigate how e-commerce live streaming affects purchase intention and identifies the marketing impacts of key factors. By advancing relevant online marketing theories and applying them in a practical context, the study elucidates the commercial potential of live streaming.

1.6.1 Theoretical Significance

Presently, due to technological maturity and successful practice, research on live streaming has received significant attention. This study aims to verify the effect of commercial marketing of live streaming by exploring the impact of live streaming on consumers' online purchase intention. Research on consumer purchasing intention and e-commerce live streaming has theoretical significance in the following three aspects.

Firstly, this study expands the research scope of evaluating the commercial marketing model of live streaming. Based on the theoretical framework and practical research of existing digital marketing models, this study analyses the commercial marketing model and the impact of live streaming in the current online retail market. The theoretical hypothesis framework is verified by combining practical data. Based on the analysis of the core interactive system of e-commerce live streaming, this study identifies key components that may enhance business performance and conducts empirical research. The findings affirm the critical marketing role played by live streaming in enhancing sales on e-commerce

platforms (Ahn et al., 2023). The findings supplement the theoretical basis of the success of e-commerce live streaming marketing practice and qualitative research, enriching the research implications of digital marketing theory and live streaming business models.

Secondly, by focusing on the facilitating effect of e-commerce live streaming technical features on consumers' online behaviour, this study provides new perspectives for subsequent research related to new technological systems. Given the marketing effectiveness of live streaming in the online retail environment, this study focuses on the advancing effect of consumer-platform interaction efficiency on business performance, selects technical features as technical factors based on socio-technical theory, and explores the important driving role of e-commerce live streaming technical features on consumer intention from the perspective of social support based on the SOR model (Bañares et al., 2022). This study validates the relationship between e-commerce live streaming technical features and social support, as well as online purchase intention, explores the impact of different dimensions of e-commerce live streaming technical features in the process of enhancing online consumption behaviour, supplements the inadequacy of previous studies that neglected the role of platform technology, and improves the successful elements of the technical features that drive online consumption behaviour, so as to provide foundational theoretical support for the future research on technical factors.

Finally, this study explores the importance of service quality and swift relationship in e-commerce live streaming to increase online purchase intention, to enrich the research on the impact of service quality, and to expand the application context of 'relationship' research in the traditional business environment. The study focuses on the service contact process between buyers and sellers in the e-commerce live streaming interaction system,

treats service quality as a social factor according to socio-technical theories, and addresses the lack of explanatory strength of the existing service quality in the new consumer environment. By summarising the typical service characteristics of e-commerce live streaming for redefinition and effectiveness measurement, we examine the impact of service quality of e-commerce live streaming platforms on consumers' positive responses and the impact of swift relationships according to social exchange theory (Fan et al., 2020). To further consolidate the conclusion of the effectiveness of e-commerce live streaming marketing model, this study broadens the interpretation of online marketing strategies by integrating the concepts of service quality and swift relationship, and extends the forms and paths of service quality influence from the consumers' perspective by taking into account the tripartite interaction between consumers, platforms, and sellers, to validate the theoretical applicability of the 'relationship' in the e-commerce live streaming environment. We also consider the three-way interaction between consumers, platforms and sellers from the consumer's perspective to expand the forms and paths of service quality influence, and verify the applicability of the theory of 'relationship' in the live e-commerce environment.

1.6.2 Practical Significance

Firstly, the findings can help e-commerce platform sellers establish live streaming marketing and improve market competitiveness through live streaming model innovation. By analysing the development of e-commerce live streaming and the rise in product sales following its introduction on China's largest e-commerce platform, this study helps online sellers understand mainstream marketing models in today's online retail environment and supports e-commerce growth amid intense market competition (Gong, 2024). Sellers should improve their concept and awareness of live streaming marketing and meet their own urgent needs to improve online marketing effects by customising live streaming modes.

Distinguishing product types can accurately position the focus of live streaming content and maximise marketing efficiency through live streaming model innovation.

Secondly, this study provides technical guidance for e-commerce platforms to integrate shopping attributes with live streaming technology. It focuses on enhancing consumer-platform interaction by optimising the perception of technical feature. In the competitive online shopping landscape, platforms vie for consumer attention and spending potential (Shi et al., 2021). E-commerce websites and sellers must continuously capture and maintain consumer interest and approval. Ultimately, the perceived effect of a technical feature plays a crucial role in driving consumer purchasing intention.

Finally, the study seeks to improve evaluation systems for service quality among e-commerce live streaming sellers from a social perspective. This optimisation will provide a foundation for developing effective service strategies and promotional tactics within the commercial live streaming marketing model. Aiming to understand the interaction and participation intentions of buyers and sellers on e-commerce live streaming platforms, this study adopts a social perspective from socio-technical theory. The core practical elements of e-commerce live streaming service quality that affect online consumer purchase intention are discussed, helping live streaming sellers focus on consumer needs and improve service quality (Ying, 2023). Building a service quality evaluation system helps e-commerce live streaming sellers propose service standards, accurately understand consumer needs, and provide a reference for improving the service model of live commercial marketing.

1.7 Definition of Key Terms

This study focuses on e-commerce live streaming, examining its marketing effects on influencing consumers' purchase intention. It investigates the impact of both technical

feature and service quality of e-commerce live streaming and explores how these elements affect consumer intention.

1.7.1 Purchase Intention

Purchase intention is formed when consumers gather information based on their personal experiences, preferences, and the external environment, subsequently developing an evaluation plan. It characterises the psychology of consumers who decide whether to purchase after collecting and processing information evaluation (Bai, 2024).

1.7.2 E-commerce Live Streaming

E-commerce live streaming involves sellers using live video to engage with consumers in real time via PC and mobile devices to enhance brand promotion and increase product sales (Yu et al., 2025).

1.7.3 E-commerce Live Streaming Technical Feature

Live streaming technical feature of e-commerce refers to the ways online sellers utilise their website's inherent structure and content design to create distinct characteristics, thereby enhancing consumers' internal perceptions and intention responses (Joo & Yang, 2023).

1.7.4 E-commerce Live Streaming Service Quality

Live streaming service quality of e-commerce represents consumers' overall assessment of products or services offered by sellers on live streaming platforms. It includes various factors, including the host's professionalism, the clarity of product information, transaction efficiency, and customer engagement, all of which shape the overall shopping experience (Xu et al., 2024).

1.7.5 Social Support

Social support refers to the perceived or actual social resources available through formal support groups and informal relationships. It is grounded in social support theory. According to the theory, social relationships affect a person's cognition, emotion and intention (Kang et al., 2021).

1.7.6 Swift Relationship

A swift relationship is the rapid formation of interpersonal relationships between buyers and sellers based on reciprocity. The concept of the swift relationship theoretically explains the bilateral relationship between buyers and sellers. This is crucial for facilitating online transactions and significantly predicts consumers' re-purchasing intentions (Chen et al., 2023).

1.8 Scope of the Study

This study investigates the impact of e-commerce live streaming on consumers' online purchase intention. Utilising socio-technical theory, it analyses the effects of technical feature and service quality of live streaming on purchase intention from both social and technical perspectives. The study adopts social support and swift relationship as mediating variables to test their mediating relationships. The research location is China. Target respondents are consumers who have purchasing experience on e-commerce live streaming platforms.

1.9 Organization of Chapters

Following the basic scientific research process of proposing research questions, conducting a literature review, designing theoretical assumptions, collecting and analysing

data, drawing conclusions, and proposing management implications, this study explores the key factors of the impact of e-commerce live streaming on consumers' purchase intention. This study comprises five chapters as follows.

Chapter 1 presents the Introduction. This chapter presents the research background of the thesis, defines the main research subject, poses the research questions, and outlines the research significance, content, and framework. It lays the foundation for the research overview and hypotheses.

Chapter 2 presents a literature review that examines relevant research through the lens of socio-technical theory. It explores six key aspects: the concept of e-commerce live streaming, consumers' online purchase intention, technical feature, service quality, social support, and swift relationship. Chapter 2 also discusses key theoretical foundations, including the SOR model and social exchange theory. By reviewing existing studies, this chapter clarifies how the present study supplements and expands previous findings. It provides a theoretical foundation for examining the impact of e-commerce live streaming on consumers' purchase intention.

Chapter 3 details the study's methodology. It begins with the research design and paradigm, followed by the unit of analysis, population and sample, data collection methods, and survey instrument. The chapter explores the questionnaire design and pilot study. It also introduces the model analysis. Finally, Chapter 3 presents the data analysis, structural model, assessment of model fitness, validity and reliability, and testing the mediator.

Chapter 4 presents the study's data results and discussion. It begins with descriptive statistics on demographic characteristics and key constructs. The chapter evaluates the

measurement and structural models. Finally, it details the hypotheses, providing insights based on the results presented earlier.

Chapter 5 summarises the study's conclusion and recommendations. It highlights the study's contributions to the existing body of knowledge and its practical implications. The chapter addresses the research limitations and concludes with recommendations for future research.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

To establish a theoretical foundation, this chapter discusses the theories underlying the present study, and defining the proposed research models, encompassing e-commerce live streaming, purchase intention, technical feature, service quality, social support, and swift relationship. Finally, the chapter addresses gaps in the literature, formulates hypotheses, presents the research framework, and describes the variables.

2.2 Underlying Theories

2.2.1 Theoretical Background

From a theoretical standpoint, the interactions between consumers and platforms, as well as between consumers and sellers in e-commerce live streaming, align with the core principles of socio-technical theory. This theory evaluates new technologies based on technical and social factors (Cherns, 1976). E-commerce live streaming, which merges ICT with its services, can be assessed through this socio-technical lens. The technical aspect of socio-technical theory focuses on the role of information technology, while the social aspect emphasises the roles of humans. In the e-commerce live streaming context, the interaction between consumers and platforms involves evaluating how well information technology supports the transaction process, while interaction with sellers is based on the perceived quality of their online services. Consequently, both information technology and online services influence the transaction process and outcomes for consumers on e-commerce live streaming platforms (Su et al., 2020). Live sellers utilise platform information and

communication technologies to support consumers in making informed purchase decisions (Chen et al., 2023).

From a technical perspective, e-commerce live streaming offers distinct advantages over traditional e-commerce websites and other digital marketing methods. These advantages include real-time interactivity communication, spatial proximity of comments displayed on the live streaming screen, and the genuine, unedited nature of live content. These technical features are crucial for evaluating the marketing impact of e-commerce live streaming. At the same time, the success of e-commerce live streaming relies heavily on the quality of online services, which are essential for online transactions (Wongkitrungrueng & Assaru, 2020). On these platforms, consumers primarily focus on whether their information and interaction needs are met (Lee & Chen, 2021). Therefore, it is important to consider both information quality and social quality in assessing the service quality of e-commerce live streaming.

With live streaming's growing role in driving e-commerce consumption, its marketing impact warrants further exploration. However, existing research primarily focuses on the quality of live streaming, its applications in gaming and education, and viewer motivation. It often overlooks consumer intention in the context of online shopping and lacks theoretical models and empirical studies on how live streaming influences purchase intentions. Research on the impact of key factors in e-commerce live streaming is also limited (Apasrawirote & Yawised, 2022).

To address these gaps, this study constructs a theoretical framework and conducts an empirical analysis of the marketing effects of e-commerce live streaming. It further examines how two critical factors, technical feature and service quality, affect consumers' online

purchases. This research is crucial for enhancing e-commerce platform management, optimising live streaming for sellers, improving service methods, and meeting core consumer needs.

2.2.2 Socio-Technical Theory

Socio-technical theory offers a framework for understanding how new technologies can support and enhance social interactions while improving coordination in both work and personal life (Meyer & Allen, 1997). Introduced by Churns in 1976, this theory emphasises the integration of technological and social factors. Bostrom and Heinen (1977) underscored the importance of both human and technological elements within this framework. In the context of organisational development, socio-technical theory encompasses a range of concepts and models designed to analyse the interplay between social and technological components within an organisation, aiming to uncover their mutual dependencies and interactions.

The theory posits that achieving economic efficiency relies on aligning the social subsystem (social system) with the technical subsystem (technical system) (Trist, 1980). It challenges the notion that technology alone is the primary determinant of organisational performance. The term “technical system,” introduced by Hughes, an American historian of technology, examines the influence of technological components on organisational systems (Hughes, 2004). In 1980, Trist coined the term “socio-technical system” to describe the impact of technological systems on social systems, asserting that socio-technical theory offers a comprehensive approach to organisational management. Based on this perspective, productive organisations are inherently socio-technical systems, formed through the interaction between social and technical systems (Trist, 1980).

Firstly, socio-technical theory explains user information sharing and donation intention in social media. Wang et al. (2021) studied the technical feature of individual users' intention to use Weibo and the impact of network factors on users' psychology and intention through a socio-technical system framework. Wang (2021) suggests that social media operates as a socio-technical information platform. Users not only utilise these platforms for interpersonal communication but also leverage them to gain knowledge. Both social and technical feature of the platform significantly influence users' content creation activities within social media.

Moreover, socio-technical theory helps explain consumer purchase intention in both e-commerce and social commerce (Bostrom & Heinen, 1977). In the context of B2C e-commerce, Tajvidi et al. (2020) considered social commerce to be a socio-technical system. Technically, social commerce encompasses social media tools and design features that facilitate information sharing among consumers, enhancing their ability to generate and exchange information on these platforms. Mutual collaboration in the content process from a social perspective indicates that social commerce improves system content segmentation and relationship quality by establishing sharing activities. Therefore, information sharing in social commerce can affect brand co-creation by improving social support and relationship quality.

Finally, socio-technical theory explains the intention of users of other new technologies and organisational forms. Tang and Tseng (2013) believed that the commercialisation of new technologies faces both technical system risks and social system risks, which collectively increase the overall risks associated with the commercialisation process. In the context of services, Liao et al. (2024) proposed that employees'

organisational citizenship intention can be regarded as social factors, and service innovation and improvement as technical factors, which not only have a direct impact on the value perception of services, but also ultimately affect satisfaction, sustainability and Intention to use. Chen et al. (2023) believed that the knowledge sharing intention of users in virtual academic communities relies on knowledge management techniques to establish social relationships. The technical and social factors of the virtual academic community, usefulness and sociability, can enhance knowledge sharing Intention by improving users' satisfaction.

This study chooses socio-technical theory for several reasons: First, it examines both human and technological factors across the entire business process. E-commerce live streaming can be viewed as an information system that relies on technological support and innovation, encompassing both information technology and procedural advancements. Consumer interaction on these platforms is driven by technological convenience and the need for human assistance to facilitate transactions. Thus, e-commerce live streaming embodies the integration of technological and social systems, with its success dependent on both technological and social factors.

From a technological standpoint, e-commerce live streaming encompasses platform design features that allow real-time interactivity, information sharing, and display of comments, which offer social support to consumers. From a social perspective, it creates environments that provide knowledge, skills, and services. Online sellers utilise these platforms to enhance consumer purchase intention by delivering high-quality services and fostering rapid online relationships (Sun et al., 2021). Ultimately, e-commerce live streaming leverages the large online audience of e-commerce sites to attract consumers and drive successful online transactions.

E-commerce live streaming epitomizes a socio-technical system that requires the synergistic integration of both technical and social subsystems. The technical subsystem encompasses platform infrastructure elements such as streaming stability, real-time interactive features, and user interface design, which collectively reduce transactional friction and enhance operational efficiency. Concurrently, the social subsystem comprises human-centric factors including streamer authenticity, audience engagement dynamics, and perceived social support, which foster trust and relational satisfaction among participants. This study's conceptual framework operationalizes socio-technical theory by hypothesizing that: (1) technical features directly enhance purchase intention by optimizing the transactional environment, and (2) social factors strengthen consumer-platform relationships through interpersonal connections and community building. By adopting this dual-focused framework, the study advances beyond traditional siloed examinations of either technology or sociality in isolation, instead measuring their co-constitutive interaction and demonstrating how their alignment drives the success of live streaming commerce platforms. The framework consequently provides a more holistic understanding of purchase behaviour in this emerging digital marketplace.

This study categorises the technical feature of e-commerce live streaming as technical factors and platform service quality as social factors. The research employs a socio-technical approach to examine the separate effects of e-commerce live streaming's technical feature and service quality on consumers' purchase intention.

2.2.3 The Stimulus-Organism-Response Model

The stimulus-organism-response (SOR) model evolved from the earlier stimulus-response model. In this framework, stimulus refers to external signals from the environment,

while response pertains to the intentional changes and outcomes resulting from these external signals. Mehrabian and Russell (1974) introduced the SOR model within the field of environmental psychology. They proposed that various environmental stimuli influence individuals' internal states and subsequently drive their intentional responses (Mehrabian & Russell, 1974).

In the SOR model of consumer intention, a stimulus is defined as an external factor that triggers or provokes a response (Sherman et al., 1997). In a consumer decision-making context, stimuli encompass all relevant external elements that influence decisions. These decisions can involve purchase actions (the quantity, category, or brand of a product), storage choices (duration, location, and cost), and usage or abandonment. The organism represents the internal processes that mediate the effects of external stimuli on individuals. This includes emotional states and cognitive activities. Mood states are often categorised into three dimensions: pleasure versus displeasure, stimulation versus non-stimulation, and dominance versus submission (Zhang et al., 2019). Past studies suggest that mood states mediate the influence of external stimuli on consumer intention. The response encompasses the final actions or outcomes resulting from consumer interactions, including attitudes, intentions, and behaviours. Robert and John (1982) noted that consumer intentions in retail settings, such as acceptance or abandonment, are influenced by environmental assessments and emotional states. These intentions are measured through variables like purchase quantity, time spent in a store, expenditure, and preferences for the shopping environment (Robert & John, 1982).

The SOR model has been applied to study users' intentions in various contexts, including social media, social commerce, and mobile government apps (Zhang et al., 2019).

Zhang et al. (2019) explored how external stimuli and internal transformations affect users' intentions to use mobile government apps. In consumer intention research, the SOR model is frequently used to examine how internal and external stimuli influence online consumer actions (Animesh et al., 2011; Huang, 2012; Zhang et al., 2015).

Firstly, in traditional retail environments, conceptual stimuli include environmental conditions, functional and aesthetic design factors, and social influences. Research indicates that these environmental cues impact consumers' internal states and, in turn, influence their intention towards stores (Zhang et al., 2014). Baker (1986) categorised these physical retail environment stimuli into three factors: social, design, and environmental factors.

Secondly, in the online retail environment, stimuli are derived from the virtual nature of a site and its quality. Consumers' internal states, which encompass their emotional responses and virtual experiences, are typically categorised into positive and negative emotional states. Hsu and Tsou (2011) applied the SOR model to investigate how website quality—considered a stimulus—affects consumers' perceptions of information quality, system quality, and service quality, as well as its impact on purchase intentions. Researchers have further refined these perceptions, both positive and negative.

Finally, in the context of social commerce, the SOR model has been employed to examine how the technical feature of social commerce websites affect consumer purchasing intention. Lin et al. (2022) explored how interactivity, recommendations, and feedback on social commerce platforms influence the rapid development of relationships and trust between consumers and retailers, as well as their purchase intentions. Tajvidi et al. (2020) investigated the co-creation intentions of brand websites, analysing how interactions between consumers and between consumers and sellers impact the quality of the relationship.

Building upon the stimulus-organism-response (SOR) framework (Mehrabian & Russell, 1974), this study conceptualizes e-commerce live streaming as a dynamic environment where technical features operate as critical stimuli and social support mediates organismic responses. Within this paradigm: (1) Technical features (stimuli) encompass real-time interactivity tools, streaming stability, and interface design elements that directly shape the digital shopping environment (Hsu & Tsou, 2011; Lin et al., 2022). These technological stimuli parallel traditional retail's design factors (Baker, 1986) but are uniquely characterized by their dynamic, platform-mediated nature. (2) Social support (organism) emerges through streamer-audience interactions and co-viewer engagements, triggering emotional (pleasure/dominance) and cognitive (trust/credibility) states that mediate purchase intentions (Zhang et al., 2019). This dual-process mechanism reflects Tajvidi et al.'s (2020) findings in social commerce, where technical affordances amplify relationship quality through social interactions. The response component manifests not only in purchase decisions but also in platform engagement behaviours (Animesh et al., 2011), demonstrating how technical stimuli and social organisms co-constitute consumer responses in live streaming contexts. By applying this adapted SOR framework, the study advances beyond static e-commerce models to capture the real-time synergy between technological infrastructure (stimulus) and parasocial relationship-building (organism) in driving transactional outcomes (response).

While e-commerce live streaming differs significantly from traditional e-commerce platforms, the SOR model remains useful for understanding consumer intention. This model helps identify what stimuli impact consumers, how these stimuli influence their mental states, and what intentional outcomes arise. The SOR model also helps analyse the unique technical feature of e-commerce live streaming and provides a framework for understanding their

impact on purchase intention. Thus, it serves as an effective tool for studying consumer buying behaviour in this context.

2.2.4 Social Exchange Theory

Social exchange theory is a key framework in management and social psychology. It advocates for the study of social intention from the perspective of the economic input and output relationship. Economic exchanges are typically more regulated and less trusting, whereas social exchanges rely on greater trust and flexibility (Blau, 1964). Social exchange theory was developed to explain how resource exchanges shape individual intentions and social structures (Shiau & Luo, 2012). It argues that the purpose of interpersonal communication is to obtain the exchange of benefits (Lin et al., 2019; Lin et al., 2018). When individuals adhere to social norms, they often anticipate reciprocal benefits, including personal affection, trust, and financial rewards. Both people and organisations engage in interactions with the aim of maximising benefits and minimising costs (Shiau & Luo, 2012).

Social exchange theory has been widely applied to explain individual intentions across various fields, including interpersonal relationships, information technology adoption, consumer online group purchase intention and information sharing intention in virtual communities. Shiau and Luo (2012) found that consumer satisfaction, trust, and a seller's creativity jointly influence the intention to continue group buying. Reciprocity between suppliers and consumers also plays a key role in enhancing satisfaction. Chan and Asni (2022) concluded that knowledge sharing is an exchange intention, where people hope to obtain intrinsic and extrinsic benefits through sharing. Intrinsic benefits refer to the satisfaction and enjoyment derived from engaging in an activity, while extrinsic benefits include economic rewards, mutual advantages, and reputational feedback. In online communities, perceived

benefits such as self-worth, attention, reputation, and social support encourage both general and specific knowledge sharing; perceived costs, including cognitive and perceived costs, hinder such intentions. Liu et al. (2024) explored how social benefits and costs affect the quantity, depth, honesty, intention, and validity of self-disclosure on Chinese microblogging platforms. They found that relationship building, enjoyment, and trust positively influence self-disclosure, while perceived risk and anonymity negatively affect it. Zheng et al. (2013) examined how information and system quality in virtual information exchange community impact personal benefit perception, user satisfaction, and users' intentions to continue consuming and providing information, integrating social exchange theory with the information system success model.

The present study employs social exchange theory to examine how the quality of service on e-commerce live streaming platforms influences the formation of swift relationship and purchase intention. According to social exchange theory, e-commerce sellers providing live streaming services are motivated by both intrinsic and extrinsic benefits. Intrinsic benefits, such as enjoyment and social value, arise from sharing their product-related knowledge and experience with consumers. These benefits are inherently personal and challenging to quantify.

Consumers, in turn, use the knowledge and experience provided to develop clear plans for their online purchases and engage in positive intentions, e.g. following the seller's live stream, buying featured products, and sharing the broadcast. These actions enhance the seller's reputation, generate financial revenue, and strengthen online relationships with consumers, which are considered extrinsic benefits. This study specifically investigates how

perceived revenue drivers—namely, information and interactive services—offered by e-commerce sellers during live streaming affect consumers' purchase intention.

The conceptual framework derived from social exchange theory suggests that service quality operates as the primary stimulus in this exchange system. As consumers evaluate the quality of service during live streaming sessions, they make rapid judgments about the potential benefits of continuing the interaction. Positive evaluations lead to swift relationship formation, characterized by instant trust and commitment, which in turn drives purchase decisions. This mechanism highlights the unique value proposition of live streaming commerce, where high-quality service delivery can immediately translate into transactional outcomes through accelerated social exchange processes.

Furthermore, the framework emphasizes the bi-directional nature of these exchanges. While consumers benefit from superior service and product information, sellers gain through enhanced reputation, customer loyalty, and immediate sales conversions. This mutual benefit structure reinforces the ongoing exchange relationship, creating a virtuous cycle where continued high-quality service provision leads to strengthened swift relationships and sustained purchase intentions. The temporal dimension of these exchanges in live streaming contexts represents a distinctive application of social exchange theory, where traditional relationship-building timelines are compressed into immediate, interaction-based evaluations.

2.2.5 Theoretical Framework

This study investigates the overall impact of e-commerce live streaming on consumers' online purchasing intention. It examines how the technical feature and the service quality of e-commerce live streams influence consumers' purchasing intention from both technical and social perspectives, based on socio-technical theory. Figure 2.1 illustrates the theoretical framework of this study.

Based on socio-technical theory, the influence of e-commerce live streaming technical feature and service quality on online purchase intention is analysed in depth from technical and social perspectives, respectively. Based on the SOR theoretical model, this study constructs a relationship model between the technical feature of e-commerce live streaming and social support and online purchase intention. Based on social exchange theory, the study analyses the impact of service quality of e-commerce live streaming in establishing swift relationship and promoting online purchase intention.

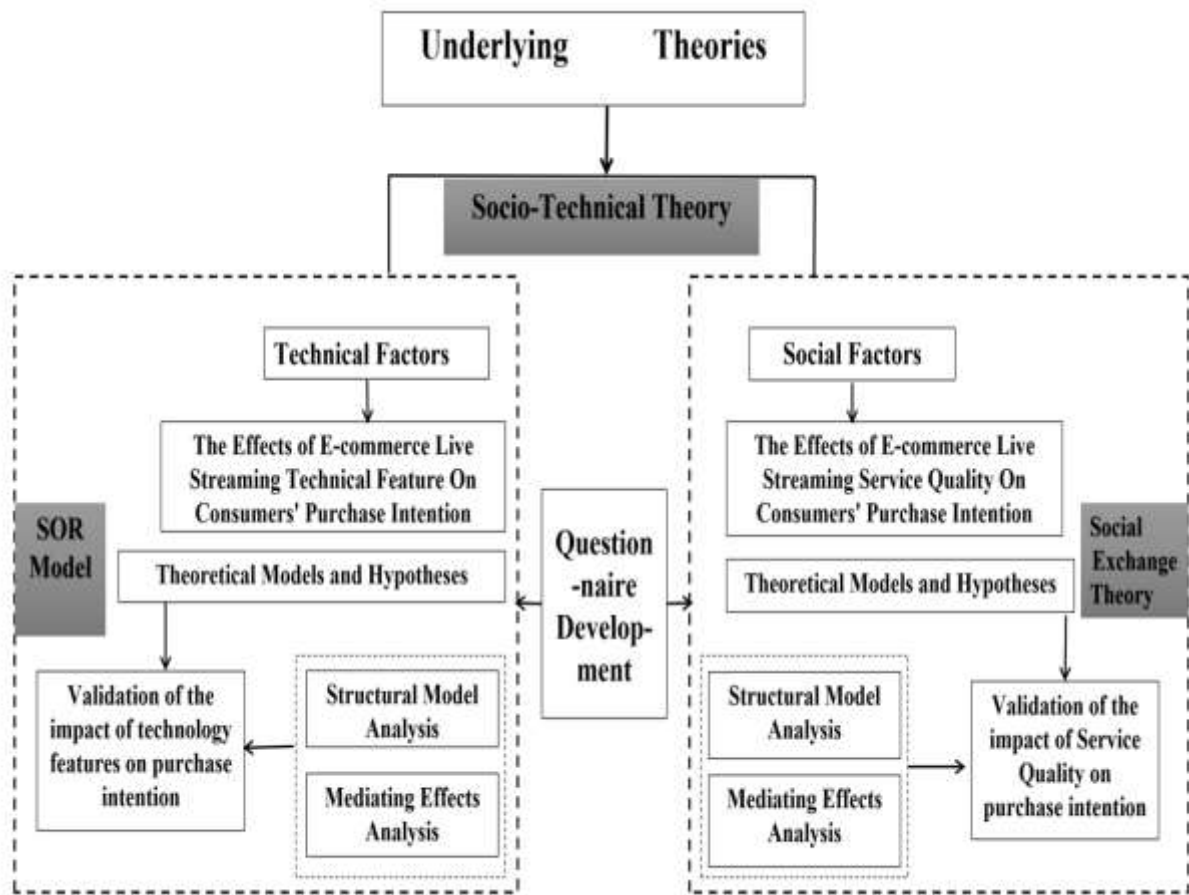


Figure 2.1: Theoretical Framework

2.3 Purchase Intention

2.3.1 Definition of Purchase Intention

Santo and Marques (2021) have distinguished intention from attitude, defining it as a mental state representing a deliberate and planned motivation to engage in specific intention. Lim et al. (2021) suggest that intention serves as a crucial precursor to intentional performance, influencing subsequent action. Singh et al. (2020) suggest that intentional will is more closely aligned with actual intention, proposing that understanding intentional will is essential before examining intention itself. This concept has led to the introduction of intention into marketing science, where it has garnered attention for its role in consumers' purchase intention.

Chan and Asni (2022) defined purchase intention as the subjective probability that consumers will buy a particular product or service, shaped by their attitudes, evaluations, and other factors. They perceive purchase intention as a key predictor of consumer intention. Pasharibu et al. (2020) emphasised that purchase intention arises from consumers' attitudes towards a product or brand, as well as certain environmental factors, reflecting their subjective inclination to choose a particular product. Lyu (2021) described consumer purchase intention as the probability and potential for consumers to buy a specific product or service. Choi and Jeon (2022) defined it as the likelihood of linking consumers' intentions with their future intentions, serving as a measure of the likelihood of purchasing a product. Kim and Park (2020) describe purchase intention as a psychological reflection before consumers make a purchase, acting as a psychological guide for choosing preferred products or services. Park and Shin (2021) argued that purchase intention forms the foundation of consumer purchase intention. Tsao et al. (2021) observed that purchase intention develops when consumers collect information based on their experiences, preferences, and external factors, which informs their decision-making process regarding a purchase.

Building on the above definitions, this study defines purchase intention as the likelihood that consumers will purchase products and services through e-commerce live streaming platforms.

2.3.2 Influencing Factors of Purchase Intention

Based on the existing literature on consumers' purchase intention, four core elements and driving forces influencing purchase intention are identified: external environmental factors, internal psychological factors, personal characteristics of consumers, and product attributes. These aspects are summarised in Table 2.1 and detailed below.

Table 2.1: Factors Influencing Purchase Intention

Factors	Variables	Findings	References
External	High task-related cues, low task-related cues	High task-related cues are more conducive to shopping goal acquisition than low task-related cues, resulting in positive online shopping intention	Sundjaja et al. (2020) Santo & Marques (2021)
External	Website design, information usefulness, transaction security, etc.	From the perspective of consumers, website quality is an important factor influencing the Intention to repeat online purchases	Wongsunopparat & Deng (2025) Yeo & Alfredo (2021)
Inner Emotions	Utilitarian value (monetary savings and convenience), hedonic value	Monetary savings, convenience and hedonic value all positively impact purchase intention	Yunus et al. (2022) Chan & Asni (2022)
Inner Emotions	Perceived risk, trust	Perceived risk reduces purchase intention by influencing trust	Ruangkanjanases et al. (2021)
Personality Traits	Gender	Gender Moderates the Relationship Between Online Service Quality and purchase intention	Sawmong (2022) Lyu (2021)
Personality Traits	Similarity, professionalism, belonging	Similarity, professionalism and sense of belonging can significantly increase purchase intention	Sawmong (2022) Park & Shin (2021)
Product Attributes	Culture, Product Type, Price	Culture and product type influence purchase intention, not price	O'Leary (2021) Choi & Jeon (2022)
Product Attributes	Product value	Product value positively and significantly affects consumers' purchase intention	Ying (2023) Tsao et al. (2021)

2.3.2.1 External Environmental Factors

Sundjaja et al. (2020) categorised website environments into two types: high task-related cues and low task-related cues. High task-related cues, such as product descriptions, website navigation aids, and sample availability, directly support consumers in achieving their shopping goals, thereby increasing purchase intention. Low task-related cues, such as font colours, link settings, and web sound or animation design, are less influential on shopping goals. Their study found that high task-related cues significantly enhance purchase intention.

Wongsunopparat and Deng (2025) identified six factors affecting website quality: shopping convenience, website design, information usefulness, transaction security, payment systems, and customer communication. Their study found that high website quality enhances repeat purchase intention by increasing consumer satisfaction, trust, and commitment. Additionally, features such as website services and social attributes can further increase purchase intention. Beyond technical website features, factors like e-commerce sellers' service quality and reputation, along with product-related factors such as online prices, brand names, and images, also affect purchase intention.

2.3.2.2 Inner Emotional Factors of Consumers

Past research has primarily focused on factors such as perceived value, perceived risk, and trust, especially in terms of intrinsic clarity. Utilitarian and hedonic values are crucial aspects of perceived value. Parahyta and Sobari (2022) further divided utilitarian value into interest savings and convenience, aligning these concepts with perceived usefulness and ease of use, respectively. Interest savings can improve practical value, while convenience enhances online shopping efficiency. Hedonic value, which adds entertainment to the shopping experience, also positively influences purchase intention. Yunus et al. (2022)

explored how perceived risk and trust affect purchase intention. They found that perceived risk, including concerns about product price, quality, website quality, and security, can undermine trust in products and websites, thus reducing purchase intention.

2.3.2.3 Personal Traits of Consumers

Current research by international scholars indicates that individuals with a higher intention to buy online tend to be younger, more feminine, and have a higher level of education. Ruangkanjanases et al. (2021) examined how online service quality moderates the relationship between gender and purchase intention. They identified three aspects of online service quality: perceived control, service convenience, and consumer service. Regarding male consumers, perceived control and service convenience enhance purchase intention; female consumers focus more on consumer service, leading to increased purchase intention as service quality improves.

Furthermore, consumer personality traits, including values, attitudes, and preferences regarding online shopping, significantly influence purchase intention. Sawmong (2022) examined how consumer personality traits influence purchase intention. The study found that attributes such as similarity, professionalism, and a sense of belonging enhance purchase intention by increasing perceived usefulness and social value.

2.3.2.4 Product Attributes

The evaluation of product attributes is the primary factor influencing consumers' purchase intention. O'Leary (2021) explored how culture, product type, and price influence the intention to purchase personalised products online. The study found that cultural factors such as individualism, uncertainty avoidance, power distance, and national culture positively affect purchase intention. Consumers were more inclined to buy personalised search

products rather than experiential ones, and product price did not impact their purchase intention (O’Leary, 2021). Similarly, Ying (2023) investigated how product features, ease of use, and reasonable pricing align with consumer expectations and affect purchase intention, excluding continuous service. The research indicates that these aspects of product value enhance purchase intention, with continuous service being the exception.

Comparable to the concept of purchase intention, online purchase intention is regarded as the likelihood of consumers making a purchase of a certain product or service after evaluating the quality of the website, conducting information search, and assessing the product in a virtual environment. It is an important predictor of actual online purchasing intention. When consumers make decisions during the online shopping process, they are also driven by the desire to purchase. However, this differs from the traditional purchase desire. The influencing factors of online purchase desire change due to variations in the purchasing environment. The technical features of the shopping website, shopping conditions, consumer perception, and product factors, among others, can all affect the online purchase desire of consumers.

2.4 E-commerce Live Streaming

2.4.1 Definition of E-commerce Live Streaming

E-commerce live streaming refers to the use of live streaming as a medium by e-commerce platform sellers to introduce and showcase products, thereby achieving sales goals (Xu et al., 2024). This marketing model serves to enhance consumers' virtual shopping experiences, and its greatest advantage is that it can facilitate “buy while watching.” During live streaming, users who are willing to purchase interact with messages on the live streaming main page, ask questions, and receive face-to-face answers. If they are satisfied,

they can directly click on the live streaming page to make a purchase. Liu et al. (2024) highlight that due to extremely high user concentrations and purchase intention on e-commerce platforms, a single live streaming event can often elicit a high conversion rate, achieving significant marketing effects. Moreover, after a live stream concludes, consumers can access replay and on-demand videos at any time, extending the reach and maximising the marketing value of the live streaming content (Liu, 2023). The cost-effectiveness and accessible nature of live streaming, combined with its efficient and widespread transmission capabilities, have popularised it among e-commerce sellers. As more sellers join live streaming platforms, webcasting is expected to become a prominent online channel.

Table 2.2: Comparing E-commerce Platforms with Live Streaming, TV Shopping, and Traditional E-commerce Websites

	E-commerce platforms with live streaming	TV shopping	Traditional E-commerce website	References
Channels	E-commerce website, platform, official brand website	TV	E-commerce Website	Xu et al. (2024) Liu et al. (2024) Liu & Kim (2021) Zhou et al. (2023)
Interactive Tools	Real-time interactivity	Telephone Interaction	User Comments, Chat Robotics	
Interactive Forms	One to One, One to Many	One to One, One to Many	One to One	
Interactive Process	Seller-Platform-Consumer	Seller-Consumer	Seller-Consumer	
Information Form	Image/Text/Video/Live Streaming	Photo/Text/Live Streaming	Image/Text/Video	
Information Source	Non-Edi Table	Edi Table	Edi Table	

Table 2.2 continued

Experience	Online Experience	Online Experience	Non-experienced	
Purchase	Buy while watching	Order while watching	Final Purchase	
Payment Method	Online Payment	Cash on	Online	
Type of Goods	Unlimited	Premiums with High margins	No Limit	
Marketing Cost	Low	High	Low	
Service Time	No Limit	Fixed	No Limit	
Marketing Content	Personalized	Fixed	Fixed	

Table 2.2 summarises the marketing characteristics of e-commerce live streaming, television shopping, and traditional e-commerce websites. The comparison reveals that e-commerce live streaming is distinct in that it leverages various methods to enhance information understanding. This improves communication efficiency through real-time interactivity and increases authenticity by providing unedited information. Additionally, the flexibility of service time during live streaming addresses the diverse needs of consumers (Zhou et al., 2023).

2.4.2 E-commerce Live Streaming Studies

Firstly, it is essential to explore users' motivations for watching and participating in live streaming. Qing and Jin (2022) highlight that social live streaming platforms offer real-time video content and interactive features, such as chat rooms, which create more dynamic user-generated content compared to traditional on-demand platforms like YouTube or

Instagram. Guo et al. (2021) characterised social live streaming services (SLSS) as a type of hedonic social media, noting that their unique feature enhance consumer enjoyment. Their study found that the real-time interactivity of social live streaming enables consumers to collectively experience and shape content, significantly affecting both active intentions (e.g. chatting) and passive intentions (e.g. viewing). However, effect perception only positively influences the hedonic aspects of active chatting; it does not facilitate passive viewing (Doug et al., 2023). Xu et al. (2024) employed the social incentive model based on uses and gratifications theory (UGT) to elucidate the social motivations that drive users to engage with Twitch live streaming. Gao et al. (2021) suggest that live streaming platforms, due to their interactive features, function like small online communities with community-like characteristics. Liu et al. (2024) applied self-determination theory to examine internal and external factors influencing users' intentions to continue engaging with live streaming platforms, such as Twitch.

Additionally, Huang and Luo (2024) investigated the impact of live streaming on consumer intentions. Studies have demonstrated that live streaming can encourage viewers to contribute more content to the platform, engage in direct interactions (Zhu et al., 2022), enhance learning performance through live streaming platforms (Addo et al., 2021), and lead to the imitation of advanced users' intentions in online live streaming communities (Lee & Chen, 2021). Xu et al. (2024) applied social identity theory (SIT) to explain viewers' intentions to continue watching live streaming using the dual identification framework, which encompasses identification with both the anchor and audience groups. Lv et al. (2021) used cognitive load theory to test the key features of Twitch in an experimental design focused on teacher-student-student interactions. Their findings suggest that novice teachers can achieve a teaching effect comparable to that of expert teachers. They also discovered

that learners' personalities moderated learning outcomes, with extroverted students benefiting more from real-time communication while finding it highly enjoyable. Guo et al. (2021) further noted that students with lower levels of neuroticism are better suited for live teaching provided by novice teachers. Joo and Yang (2023) utilised social influence theory (SIT) and an experimental design to compare the impact of live streaming on the number of new products launched by enterprises.

Merritt and Zhao (2022) highlighted that e-commerce live streaming can create lifestyle adaptation uncertainty. This means consumers may be uncertain about whether products will help them achieve broader life goals and values. This uncertainty is a key predictor of purchase intention. By combining the means-end chain of lifestyle (MECL), socialised charismatic leadership theory (SCLT), and product uncertainty theory, their study examines how e-commerce live streaming marketing services influence both uncertainty and purchase intention. Given the gaps in commercial applications and theoretical research on live streaming, it is crucial to explore its impact on consumers' online purchase intention.

2.5 E-commerce Live Streaming Technical Feature

2.5.1 Definition of E-commerce Live Streaming Technical Feature

In the context of online retail, technical feature of e-commerce refers to how retailers design different characteristics through website content and structure, thereby increasing online consumers' positive emotions and intentional responses. This not only reflects consumers' perception of the website's objective attributes, but also their perception of its subjective attributes (Huang, 2021).

Extensive literature has demonstrated that the technical feature of websites significantly affects consumers' online intentions, such as their intentions for continuous use,

purchase intentions, and participation intentions. Since 1996, there has been a growing reliance on e-commerce websites for online transactions, with much research focusing on technical feature. Johnstone and Lindh (2021) observed that both the technical feature and the overall atmosphere of a website can generate positive emotions in consumers, leading to increased browsing time and higher purchase intentions. Nalendra et al. (2021) investigated how the technical feature of social networking sites enhance consumers' co-creation experiences and subsequent purchase intentions. Their study highlighted two crucial aspects of the technical environment: information-task matching and visual appeal. These aspects positively affect consumers' co-creation experiences, including learning value, social integration value, and hedonic value, influencing future participation intentions.

Lee and Chen (2021) examined how the technical feature of social commerce websites and the characteristics of peer members affect consumers' purchase intentions. Their findings suggest that factors such as similarity, the expertise of peer members, site support for recommendations and social interaction, and a sense of belonging enhance the perceived utility and value of social commerce platforms for consumers. Similarly, Morales-Solana et al. (2021) examined how the technical feature of social commerce influence consumers' virtual experiences, with a focus on social support. Their research shows that consumers' perceptions of interaction, personalisation, and social aspects influence their virtual experience across three dimensions: social support, social presence, and flow experience. Prabawa et al. (2022) analysed how social commerce affects consumers' repeated purchase intentions, particularly emphasising the role of swift relationship. Solihin and Ahyani (2022) identified key technical feature of social commerce, including interactivity, online recommendation systems, feedback, word of mouth, and immersion, as crucial elements impacting consumer engagement.

Current research has rarely addressed the technological features of e-commerce live streaming platforms and their impact on consumer online behaviour. As a hybrid of e-commerce websites and live video services, e-commerce live streaming is characterized by three key technological features: real-time interactivity, perceived proximity, and authenticity. It enables synchronous communication through real-time video and comment functions, enhances authenticity via unedited and spontaneous content, and fosters a sense of social presence by embedding viewer interactions directly into the livestream interface. These features collectively simulate a face-to-face retail experience, potentially enhancing consumers' positive online behaviours.

2.5.2 E-commerce Live Streaming Technical Feature Classification

This study synthesises existing research on live streaming and e-commerce experiences, highlighting real-time interactivity, perceived proximity, and perceived authenticity as key technical features from the consumer perspective.

2.5.2.1 Real-time Interactivity

Interactivity is defined as the user's perception of human interaction. Taghipour (2021) described interactivity as the capability for direct communication between individuals and organisations, regardless of distance or time. Iqbal et al. (2022) expanded on this concept by integrating interpersonal relationships and machine vision, identifying five dimensions of interactivity: entertainment, choice, connectivity, information gathering, and reciprocal communication. Chou et al. (2022) emphasised the real-time aspect of interactivity, focusing on how the immediacy of user participation in the media environment affects interaction. In online environments, website functionality forms the foundation of interactivity. It enables quick responses between user input, content processing, and output.

Real-time interactivity in e-commerce live streaming is a vital aspect of a consumer's virtual shopping experience. A recent study suggests that for sellers engaging in live streaming, direct interaction with consumers creates greater authenticity and a higher level of involvement, which significantly contributes to online sales. Additionally, Alfannur and Kadono (2021) claimed that higher website interactivity enhances the online mind stream experience of website visitors, resulting in a more desirable intentional intention.

2.5.2.2 Perceived Proximity

Perceived proximity refers to how individuals perceive the closeness or distance in their relationships with others (Baqai et al., 2021; Komalasari et al., 2021). This concept is closely related to psychological distance, particularly, the social distance dimension that highlights the nature of social relationships. Perceived proximity encompasses both cognitive and affective components. The cognitive component involves assessing psychological closeness or distance, while the affective component recognises that perception of proximity is not solely based on rational evaluation (Kelly & Febriyantor, 2022). Research indicates that people generally feel closer to those who are geographically near (Ramadhan et al., 2022). However, network communication technologies can alter this perception, enabling individuals to feel connected to those who are physically distant (Xu & Cao, 2024).

The perception of proximity among live e-commerce consumers is like that of interpersonal relationships, adjusted to environments that are physically dispersed. Physical proximity is not positively proportionate to the perception of proximity (Candra et al., 2021). In contrast to contact-driven proximity in geographical space, e-commerce live streaming proximity manifests as mutual proximity within the same interface and space. The rise of live streaming as a new form of social media has extended the variety and scope of

interactions among individuals separated by distance (Kumar & Permatasari, 2021). Using computer-mediated communication technology, individuals are now capable of cultivating a stronger sense of connection, despite physical and spatial barriers (Andriani et al., 2021), a sense of connection that does not diminish with increasing physical or spatial distance.

2.5.2.3 Perceived Authenticity

Marketing success is closely related to the concept of authenticity (Fu, 2022). Despite the lack of a single, universally accepted definition, two main perspectives on authenticity are commonly discussed. The first perspective views authenticity as the true, behind-the-scenes nature of the subject being studied (Kiki & Houndji, 2020). This approach is often applied to authentic experiences such as tourist attractions (Supriadi et al., 2021) and reality shows (Ma, 2023). The second perspective views authenticity as a matter of degree (Sansern et al., 2022). Winarno and Indrawati (2022) argue that authenticity is a social construct that can vary depending on the perceptions and interpretations of different evaluators in different contexts, including locations, situations, people, and objects. Liu (2023) summarised authenticity through objectivist, constructivist, and existentialist views, suggesting that it involves the context in which personal or interpersonal emotions are engaged during an activity.

Embedded perceived authenticity is utilised across research perspectives to gauge consumer value and is considered a key competitive advantage (Ali et al., 2020). While substantial empirical research exists on authenticity in tourism (Le-Hoang, 2020), the food and restaurant industry, and the wine and winery sector (Batjo et al., 2022), its role in e-commerce, particularly within live streaming, remains underexplored. Previous studies have established authenticity as a significant factor influencing consumer motivation and experience (Pidada & Suyasa, 2021). Despite its recognised importance, empirical research

on perceived authenticity in the e-commerce domain is limited, particularly regarding its impact on online purchasing intentions. In this context, perceived authenticity refers to consumers' perceptions of the genuine nature of live e-commerce live streaming, which can shift in response to changes in consumer perspectives (Luong et al., 2022).

2.6 E-commerce Live Streaming Service Quality

2.6.1 Definition of E-commerce Live Streaming Service Quality

Quality means that goods meet specific potential needs of consumers (Kim & Limb, 2021). Service quality discussed in this study is based on the concept of quality, developed during the process of goods being consumed. In 1982, Grönroos introduced the concept of perceived service quality based on cognitive psychological theory. He defined service quality as a psychological response generated when consumers compare the actual service quality with their expected service quality. This concept has been widely accepted by the academic community and has become a fundamental theory in the field of service quality management. Similarly, Aziz et al. (2022) indicate that service quality depends on consumer perception; it is the evaluation obtained by comparing the consumer's actual service with the service they think should be provided. Vo et al. (2022) mentioned that Service Quality Benefits that service quality is a disguised investment, and service providers can maximise their returns through appropriate investments. Veybitha et al. (2021) note that service quality encompasses not only the outcome of a service, but also the entire service process.

E-commerce service quality refers to a specific type of service quality in the context of e-commerce. Mafruchah and Hartono (2023) proposed that e-commerce service quality relates to consumers' overall judgment and evaluation of service delivery in virtual markets. Chen et al. (2022) defined e-commerce service quality as the extent to which goods can be

purchased and delivered conveniently, and quickly through a website. Ermec (2022) suggests that e-commerce service quality refers to whether various business activities carried out through the network platform can be efficient and convenient, along with the degree of consumer trust and satisfaction. Nampira et al. (2022) indicate that e-commerce service quality is the result of consumers evaluating the quality of the interaction process and the quality of the outcome. Among them, the interactive interface used by consumers who are not limited to computer networks, and the service content required is not limited to online shopping.

Drawing on the dimensional classification of online service quality, this study adopts a second-order construct to measure service quality in the context of e-commerce live streaming. As online service quality is typically delivered through websites and information platforms, system quality is often considered an essential dimension. However, based on socio-technical theory—which emphasizes human participation as the core of social factors—this study does not include system quality in its measurement. Instead, it focuses on service quality dimensions more relevant to consumer behaviour. A review of existing live streaming literature reveals that information seeking and social interaction are two primary motivations for users to engage in live streaming. In e-commerce live streaming, the consumer's process of viewing and purchasing is still fundamentally driven by real-time interaction and access to product information. Therefore, this study focuses on information quality and interaction quality as the two core dimensions of service quality in e-commerce live streaming, aligning with the dimensional structure commonly found in online service quality literature.

2.6.2 E-commerce Live Streaming Service Quality Classification

The primary motivations for consumers to engage in live streaming surround information searches and social interaction (Gupta, 2023), which e-commerce sellers provide on live streaming platforms. Thus, it is essential to emphasise the dimensions of information quality and interaction quality. In this context, information quality refers to consumers' subjective assessment of the accuracy and usefulness of the information shared by live e-commerce sellers (Shaheen, 2022). The dimensions of information quality—completeness, objectivity, timeliness, utility, and comprehensibility—have been comprehensively examined within the domains of information systems and e-commerce (Shaari et al., 2020).

On live e-commerce platforms, the credibility, usefulness, and vividness of information are more engaging to consumers than the information typically found on standard e-commerce websites. Firstly, the usefulness of information refers to consumers' beliefs that using information can improve their efficiency (Anjum & Chai, 2020). On live e-commerce platforms, consumers can obtain more useful information with less time and effort, as watching videos is often more efficient than typing. The more consumers have access to useful marketing information, the more likely they are to make positive purchasing decisions (Dincer & Dincer, 2023). Secondly, consumers can obtain most of the information they need by interacting with e-commerce sellers during live streams. Due to the time constraints of live streaming and the temporary nature of virtual communities, consumers may perceive the quality of information on live streaming platforms differently from that on regular e-commerce websites. Moreover, a high degree of vividness often implies a greater variety of information (e.g. graphical displays, textual descriptions, real-time videos, and face-to-face communication) and a wider range of sensory channels (visual, auditory, etc.),

which can stimulate consumers' intuitive feelings (Isa et al., 2020). Therefore, this study takes usefulness, credibility, and vividness of information as the three dimensions of e-commerce live information quality.

In this study, interaction quality pertains to consumers' perceptions of the quality of their interactions with e-commerce sellers on live streaming platforms during service delivery (Yeh et al., 2020). Interactions can range from superficial greetings to in-depth inquiries. Past studies have delineated various dimensions of interaction quality, including responsiveness, assurance, expertise, problem-solving, personalisation, and reliability (Kim, 2020). Wisnalmawati et al. (2021) posit that heightened interactivity enhances the consumer's online mobility experience, yielding positive outcomes. Kim and Kim (2020) demonstrate that real-time online interaction significantly boosts sponsorship intentions, thereby underscoring the importance of real-time quality in live streaming. Responsiveness, defined as a service provider's willingness to assist consumers and provide prompt service (Oktavia et al., 2021), is another critical dimension. E-commerce sellers can offer immediate feedback through live streaming interactions. Empathy, which involves providing care and personalised attention (Lindh et al., 2020), enables consumers to receive tailored services from e-commerce sellers through live streams. As a result, this study identifies real-time, responsiveness, and empathy as the three key dimensions of quality during e-commerce live streaming interactions.

2.7 Social Support

Social support encompasses the social resources perceived as available or provided to individuals, with a focus on informational and emotional support (Kusumawardani & Purniasari, 2021). This concept is grounded in social support theory, which posits that social

relationships have a significant impact on cognitive, emotional, and behavioural states (Suastiari & Mahyuni, 2022). Traditionally, social support pertains to face-to-face interactions, examining how individuals experience care, responsiveness, and encouragement within their social networks (Stefanny et al., 2022). In the realm of online interactions, however, the concept lacks a universally accepted definition. Researchers have extended the notion of face-to-face social support to digital environments, referring to it as “computer-mediated communication social support” or “online social support” to capture the nature of interactions facilitated by digital technologies.

Chou et al. (2022) identified five facets of social support: respect, emotional support, network support, tangible support, and informational support. As a complex construct, social support includes various elements. Hsu et al. (2023) consolidated these facets into four principal categories: emotional support, instrumental support, informational support, and evaluative support. The development of social networks is heavily reliant on emotional and informational support. With the help of e-commerce live streaming platforms, consumers have the opportunity to receive online social support from e-commerce sellers that they may not have been aware of before. Compared to other social support communities, the social support obtained through e-commerce live streaming is more impactful in terms of both time and space. This study emphasises these two types of support—informational and emotional—to clarify how social support is utilised. Informational support refers to cognitive responses triggered by guidance or knowledge that can facilitate problem-solving. Emotional support involves experiences characterised by emotional sensitivity, such as understanding, empathy, and care

The interface of e-commerce live streaming platforms integrates quality inference features that provide both informational and emotional support. Any viewer can express support for a livestream through functions such as “like,” “share,” and “follow.” Sellers in e-commerce live streaming use a variety of communication symbols—such as images, sound, text, and other verbal and non-verbal cues—to convey information. As a result, consumers may perceive stronger informational and emotional support from the live content and atmosphere compared to other formats. Existing literature provides strong evidence that social support is associated with positive outcomes, such as improved relationship quality, increased willingness to participate in social commerce, and co-creation of brand value. However, research on the factors influencing social support in e-commerce live streaming platforms remains limited. Therefore, it is worthwhile to explore both the antecedents and outcomes of social support in this context.

2.8 Swift Relationship

In the traditional Chinese business context, interpersonal relationships are often regarded as crucial factors in determining business success (Badriah & Purnama, 2022; Lim et al., 2020). Relationships establish deeper connections between customers and retailers, encouraging purchase intention. In the Chinese business context, relationships are referred to as “guanxi,” which denotes a relationship of mutual interest and social connectivity (Barata & Coelho, 2021). Numerous studies have suggested that relationship may have a direct impact on market performance (Mostafa & Hannouf, 2022) and may also contribute to the development of trust in traditional offline business environments (Panassenko et al., 2021). In online marketplaces, relationships are typically established and maintained quickly over a short period. This is because consumers typically have no further dealings with the e-commerce seller once the transaction is completed (Dubey & Balaji, 2021). According to

Granata (2020), such relationship is referred to as “swift relationship,” which involve the rapid formation of interpersonal connections between buyers and sellers based on reciprocity. Such a swift relationship between buyers and sellers plays a crucial role in facilitating online transactions and predicting consumers' intention to make repeat purchases. The swift relationship concept theoretically explains the reciprocal nature of relationships between buyers and sellers, which is crucial for facilitating online transactions and significantly predicts consumers' inclination to make repeat purchases (D'Souza et al., 2021).

Swift relationships comprise mutual understanding, relationship reciprocity and relationship harmony. Mutual understanding refers to the shared understanding of both consumers' and retailers' respective needs (Dewi et al., 2021). Relationship reciprocity refers to the positive execution of interactions between consumers and e-commerce sellers (Ahmed et al., 2021; Isa et al., 2020). Relationship harmony refers to the mutual respect between buyers and sellers, as well as the avoidance of conflict (Liu et al., 2024). Swift relationships are predominantly achieved through online service quality, interactivity, and information support (Gashema & Alain, 2023). Past research highlights the significant influence of swift relationship in online healthcare communities, virtual communities, and ad hoc teams. Specifically, swift relationship can enhance the intention to self-report in online healthcare communities (Pennata et al., 2022), share knowledge among virtual community members, and facilitate performance-based relationship within ad hoc teams (Zhang et al., 2023). Swift relationships are crucial in the online retail industry as they significantly contribute to the success of online transactions. In an online marketplace environment, Bhati et al. (2022) investigated the impact of swift relationship on trust and repeat purchase intention. The findings show that swift relationships are a critical predictor of repeat purchase intention. Of the three dimensions of swift relationships, mutual support has the most substantial impact,

followed by relationship harmony. In the context of Chinese culture, Alfannur et al. (2021) investigated the relationship between the swift relationship and trust, uncertainty, and repurchase intention among online retailers and consumers. The authors conclude that all three dimensions of swift relationships positively impact trust and repurchase intention and negatively impact uncertainty. In the context of social commerce, Dou et al. (2023) found that the existence of a swift relationship between sellers and potential consumers. The study shows that swift relationships are more effective than traditional word-of-mouth or seller-direct marketing in recommending consumers, positively affecting social purchase intention and social sharing intentions. The three dimensions of swift relationships—mutual understanding, relationship reciprocity, and relationship harmony—positively impact purchase intention, with relationship reciprocity having the greatest effect.

According to social exchange theory, real-time interactions between e-commerce live streaming sellers and consumers represent reciprocal exchanges that benefit both parties and strengthen online relationship commitment. When consumers receive valuable information and social engagement, they are more likely to reciprocate through purchases. These swift relationships play a key role in facilitating successful online transactions. While existing research has focused on live streaming motivations such as entertainment, learning, and knowledge sharing, little attention has been paid to the swift relationships between sellers and consumers—an important driver of consumer behaviour in e-commerce live streaming.

2.9 Conceptual Framework

Figure 2.2 shows that the framework comprises three main structures, namely, the independent, dependent and mediating variables. The independent variable consists of two

constructs: e-commerce live streaming technical feature and service quality. The dependent variable is purchase intention. The mediating variables are social support and swift relationship, as discussed in Sections. The conceptual framework presented in Figure 2.2 integrates three foundational theories to explain the mechanisms through which e-commerce live streaming influences purchase intention. This multi-theoretical approach provides a comprehensive understanding of both technological and social aspects of live streaming commerce.

Theoretical Foundations of Key Constructs. The framework's independent variables draw from distinct theoretical perspectives: E-commerce live streaming technical features are grounded in Socio-Technical Theory, which posits that technological systems must be analysed in conjunction with their social contexts (Trist, 1980). These features represent the technical subsystem that enables platform functionality and user engagement. Service quality reflects the social subsystem in socio-technical systems, emphasizing human interactions that complement technical capabilities. This construct is further supported by Social Exchange Theory, which views service quality as resources exchanged in buyer-seller relationships (Blau, 1964).

Mediating Mechanisms and Theoretical Support. The framework incorporates two key mediators with distinct theoretical rationales: Social support operates as an organismic variable in the S-O-R model, representing the internal psychological state (O) that mediates between technical features (stimulus, S) and purchase intention (response, R). This aligns with Mehrabian and Russell's (1974) proposition that environmental stimuli influence behaviour through cognitive and affective evaluations. Swift relationship mediation is explained through Social Exchange Theory, which suggests that high-quality services

facilitate rapid trust formation through reciprocal benefit exchanges (Shiau & Luo, 2012). The time-compressed nature of live streaming accelerates traditional relationship-building processes.

Theoretical Integration in Path Relationships. The framework's hypothesized paths reflect theoretical integration: Paths from technical features to mediators are justified by Socio-Technical Theory, demonstrating how technological capabilities enable social interactions. Paths involving service quality draw from Social Exchange Theory, showing how service investments create relational value. Mediated paths to purchase intention combine both S-O-R and Social Exchange perspectives.

Theoretical Contribution. This framework advances theoretical understanding by: Applying Socio-Technical Theory to a novel context (live streaming commerce). Extending the S-O-R model with digital-specific technical stimuli. Adapting Social Exchange Theory to explain accelerated relationship dynamics. Demonstrating how these theories interact in temporary digital environments. The framework not only identifies key variables but also specifies their interrelationships through established theoretical mechanisms, providing a robust foundation for hypothesis development and empirical testing.

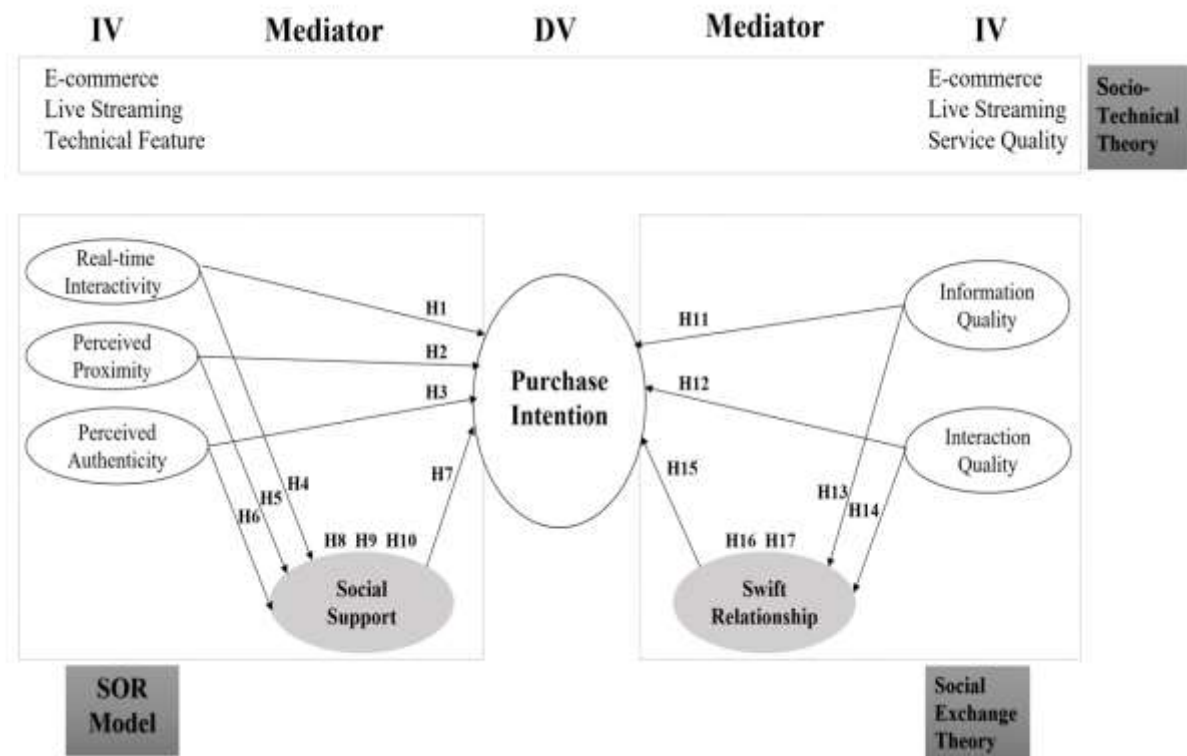


Figure 2.2: Conceptual Framework

2.10 Hypotheses Development

2.10.1 E-commerce Live Streaming Technical Feature and Purchase Intention

2.10.1.1 Real-time interactivity and Purchase Intention.

A significant body of research confirms that the technical features of websites influence consumers' online intentions, such as their willingness to continue using the site, make purchases, and engage with online content. Kolesar and Wayne (2020), using an experimental methodology, examined the relationship between website technical features and user intentions. Their findings revealed that elements such as payment methods, information on specials and discounts, and real-time interactivity significantly affect consumers' use of the website and their willingness to purchase. Similarly, McCarthy and Aronson (2021) highlighted that information presentation, richness, speed of feedback, and

the real-time interactive nature of website design are key drivers of consumers' repeat visits and engagement.

Further supporting this perspective, Jebarajakirthy et al. (2022) found that real-time interactive features can evoke positive emotions in consumers, leading to increased time spent browsing and a greater willingness to purchase online. Hsu et al. (2023), through a large-scale survey, demonstrated that three technical features—readability, real-time capabilities, and information richness—play a significant role in influencing users' continued use of a website. Drawing on these findings, this study argues that similar technical characteristics in e-commerce live streaming platforms may shape consumer behaviour and proposes the following hypothesis accordingly.

H1: Real-time interactivity positively affects purchase intention.

2.10.1.2 Perceived Proximity and Purchase Intention

Research into perceived proximity—the sense of psychological closeness created by technical features—has become a well-developed stream within social commerce studies. Huang (2022) showed that three interactive affordances of social media platforms—active control, two-way communication, and perceived proximity—differentially enhance users' cognitive involvement, affective immersion, and “mind-flow” states; these richer experiential outcomes, in turn, elevate intentions to purchase virtual goods. Extending this line of inquiry, Hu et al. (2021) demonstrated that perceived proximity can be strengthened by cues such as peer similarity, community expertise, and platform support for recommendations and social interaction, all of which increase consumers' propensity to engage in social commerce. Complementing these findings, Zhang et al. (2022) found that perceived proximity, along with perceived personalisation and sociability, intensifies

consumers' virtual experience of social support and social presence—both critical drivers of online purchasing behaviour.

Taken together, this body of evidence underscores the pivotal role that perceived proximity plays in shaping consumers' experiential states and behavioural intentions within social commerce environments. By fostering a feeling of “being together” despite physical separation, platforms can amplify social support, heighten engagement, and ultimately stimulate purchasing decisions. Building on these insights, the present study contends that similar proximity-inducing design elements in e-commerce live-streaming interfaces will exert a positive effect on consumer behaviour, and therefore advances the following hypothesis.

H2: Perceived proximity positively affects purchase intention.

2.10.1.3 Perceived Authenticity and Purchase Intention

With the widespread adoption of live streaming services, the perceived authenticity associated with live streaming's technical features has garnered increasing academic attention. Fan et al. (2020) highlight that elements such as pop-up interactions, pseudo-synchronicity, and content synchronicity contribute to perceived authenticity and significantly influence consumers' consumption intentions—whether positive, negative, or interactive—by shaping their co-creation experiences, including engagement, cognitive communication, and emotional resonance. In the context of e-commerce live streaming, authenticity is further enhanced through real-time integration of video and comment functions. As Chen et al. (2022) observe, consumers can post comments during the livestream that are instantly visible to both the seller and other viewers, enabling synchronized communication and reinforcing a sense of authenticity.

Moreover, live streaming offers viewers access to genuine product demonstrations and behind-the-scenes insights, often presented in a spontaneous, unedited format. Wu et al. (2021) argue that this raw, real-time nature leads to a stronger sense of perceived authenticity than pre-recorded videos or static product images. The integration of live comments within the video interface also fosters a sense of spatial authenticity, allowing consumers to feel the presence of others in the digital environment. This simulated face-to-face interaction, despite physical separation, contributes to a heightened sense of realism and trust. As Guo et al. (2021) suggest, such authentic and synchronous experiences can positively influence consumers' online purchase intentions. Building upon these insights, this study proposes the following hypothesis.

H3: Perceived authenticity positively affects purchase intention.

2.10.2 Mediating Effect of Social Support between E-commerce Live Streaming Technical Feature and Purchase Intention

2.10.2.1 Real-time interactivity and Social Support

Real-time interactivity is essential for the e-commerce live streaming experience. Live streaming enables consumers and sellers to exchange comments immediately during a broadcast. This interaction allows consumers to control the content and format of the information they provide and receive, offering immediate feedback from sellers and other viewers. This timely exchange supports consumers in processing information quickly and making purchase decisions. Task technical fit theory suggests that the functional attributes and task relevance of interactive interfaces enhance the clarity of online task steps. This enables consumers to complete information searches more efficiently and gain better information support (Attar et al., 2020). Additionally, synchronous interaction on e-commerce platforms positively affects consumers' flow experience (Sulthana & Vasantha,

2021), suggesting that the real-time interactivity feature of live streaming can evoke strong emotional responses from consumers.

Previous studies have demonstrated that real-time interactivity, such as those provided by Skype in the health sector, enhance social support for participants (Kumar & Chandra, 2020). Similarly, Samudro and Widyastuti (2020) found that real-time interactivity in online education improve perceived informational support by offering timely feedback. Real-time interactivity in live streams not only boost consumers' perception of informational support but also facilitate emotional support. E-commerce sellers' direct engagement, immediate responses, and assistance from other consumers in live streaming can heighten consumers' emotional support perception. Based on the above, the following hypothesis is proposed.

H4: Real-time interactivity positively affects social support.

2.10.2.2 Perceived Proximity and Social Support

Consumers develop a sense of perceived proximity not only with the e-commerce seller hosting a live stream but also with other viewers participating in the broadcast, which fosters both informational and emotional support (Clara, 2023). Perceived proximity in this context involves two layers: individual-to-individual connections between consumers and sellers, and individual-to-group connections among viewers. In computer-mediated communication, this sense of proximity is especially important as it shapes users' perception of visibility—how “seen” or “unseen” they feel—ultimately influencing their intentions and behaviours. E-commerce live streaming differentiates itself from traditional video formats by embedding live comments directly into the video interface, rather than displaying them

separately. This design feature creates a more immersive and socially rich viewing environment, enhancing perceived proximity and encouraging active participation.

The integration of real-time feedback mechanisms makes consumers feel more engaged, socially present, and emotionally connected within the virtual community. Azam et al. (2021) found that heightened perceived proximity in online groups can amplify group influence on individual emotions and decision-making processes. In the context of live-stream shopping, this dynamic becomes particularly impactful, as consumers' purchase decisions are often shaped not only by the seller's presentation but also by the reactions and interactions of fellow viewers. The collective presence and interaction of others during the live broadcast create a virtual community whose influence can increase trust, reduce uncertainty, and drive purchasing behaviour. Based on this understanding, the following hypothesis is proposed.

H5: Perceived proximity positively affects social support.

2.10.2.3 Perceived Authenticity and Social Support

Authenticity is widely recognized as a cornerstone of modern marketing strategies (Putra & Kalvin, 2020). When consumers question the reliability of product-related information—such as its origin, materials, or production process—they tend to perceive the purchase as risky (Oliveira et al., 2021). To address these concerns, web-based visualization technologies have emerged as valuable tools that help consumers assess product quality more accurately and reduce perceived risk in online environments (Halim & Karami, 2020). Within e-commerce live streaming, authenticity is conveyed through a combination of real-time demonstrations, seller narratives, and unedited interactions with the product.

Consumers often rely on these elements—along with social cues from other viewers—to evaluate the trustworthiness and credibility of the product being showcased.

A higher level of perceived authenticity not only reinforces the consumer's confidence in product information but also enhances their perception of receiving emotional and informational support from both the seller and fellow viewers. Authentic marketing content fosters empathy, strengthens the psychological connection between consumers and brand representatives, and significantly increases engagement (Herzallah et al., 2021). E-commerce live streaming, with its spontaneous, real-life presentation of products and seller interactions, serves as a powerful medium for building emotional bonds. These bonds often translate into deeper engagement behaviours, such as continued viewing, active participation in the comment section, and a greater likelihood of purchasing products recommended during the livestream. Based on this theoretical foundation and empirical evidence, the following hypothesis is proposed.

H6: Perceived authenticity positively affects social support.

2.10.2.4 Social Support and Purchase Intention

Social support plays a vital role in promoting active participation within online environments (Kirillov et al., 2020). In the context of e-commerce live streaming platforms, consumers benefit from both informational and emotional support. During livestreams, sellers provide real-time, detailed product information that helps consumers make informed decisions—this constitutes informational support. Beyond factual information, sellers often share personal insights, usage tips, and product demonstrations, enhancing consumers' understanding and trust. These real-time interactions also serve as opportunities for emotional engagement, as sellers communicate in a more personal, relatable manner. This

engagement fosters a stronger psychological connection between consumers and sellers, while also encouraging a sense of belonging within the viewing community—an essential element of emotional support (Choi, 2020).

Research increasingly highlights the significance of virtual experiences in shaping user behaviour and intentions. Aboulilah et al. (2023) found that immersive, interactive experiences in digital environments significantly influence users' intentions to engage or make purchases. Within e-commerce live streaming, effective communication and the dynamic exchange of information create a supportive and participatory atmosphere. When consumers feel both well-informed and emotionally connected, they are more likely to develop trust and confidence in the seller, which boosts their intention to purchase. Accordingly, the dual dimensions of social support—informational and emotional—are key drivers of consumer behaviour in live commerce settings. Based on these insights, the following hypothesis is proposed.

H7: Social support positively affects purchase intention.

2.10.2.5 Mediating effect of Social Support between Real-time interactivity and Purchase Intention

Addo et al. (2021) emphasize that person-centred communication plays a crucial role in fostering emotional support and promoting positive consumer intentions. Traditional e-commerce environments, largely reliant on static content and asynchronous communication, often fall short in delivering emotional engagement due to the absence of direct, human interaction. Guo et al. (2021) argue that this lack of face-to-face contact in online settings reduces the ability to establish trust and emotional resonance, thereby limiting the effectiveness of human-computer interaction. However, the advent of live streaming

technology offers a solution to this challenge by enabling real-time, face-to-face-like communication between buyers and sellers. This interactive medium reintroduces social presence into the digital environment, allowing for more meaningful and emotionally engaging experiences.

Live streaming not only facilitates synchronous communication but also enables sellers to deliver highly personalized services in both one-to-one and one-to-many formats. Such interactions enhance the quality of engagement by addressing individual consumer needs and preferences in real time. As Liu et al. (2024) note, personalized live interactions help dismantle social barriers that typically exist in online environments, fostering stronger emotional connections and a deeper sense of support. This enhanced interaction quality contributes to a more immersive shopping experience and can positively influence consumer attitudes and behaviours. Based on these insights, this study proposes the following hypothesis.

H8: The impact of Real-time interactivity on purchase intention is mediated by social support.

2.10.2.6 Mediating effect of Social Support between Perceived Proximity and Purchase Intention

Information support typically refers to the provision of helpful advice, recommendations, and knowledge that assist individuals in making informed decisions (Choi & Jeon, 2022). In contrast, emotional support—marked by feelings of trust, empathy, and psychological security—is more often experienced within close-knit social groups rather than among strangers (Febriyantoro, 2020). Social proximity, which reflects the perceived closeness between individuals, plays a critical role in facilitating both informational and

emotional exchanges. In intimate or well-established relationships, such as those between family members or partners, this proximity enhances the flow of support, making interactions more meaningful and influential in shaping attitudes and decisions.

Within the context of e-commerce live streaming, similar dynamics can emerge as consumers and sellers develop interpersonal relationships through repeated, real-time interaction. These connections foster a sense of familiarity and closeness, which enhances consumers' perception of support. The social proximity formed in these online settings enables more effective communication and trust-building, ultimately contributing to consumers' confidence in their purchase decisions. As these supportive online relationships deepen, they play a significant role in the success of live-streamed transactions by encouraging positive consumer behaviours. Based on this understanding, the following hypothesis is proposed.

H9: The impact of perceived proximity on purchase intention is mediated by social support.

2.10.2.7 Mediating effect of Social Support between Perceived Authenticity and Purchase Intention

The concept of online community is often defined by the dynamics of information sharing and interpersonal communication among users (Xu et al., 2024). In the context of e-commerce live streaming, sellers have the ability to form temporary yet interactive online communities during live broadcasts. Within these communities, the authenticity of the information presented becomes crucial, as it directly influences consumers' willingness to engage, share, and trust the content. High levels of perceived authenticity not only foster

more meaningful interactions but also contribute to increased consumer confidence, thereby enhancing their intention to make online purchases.

Yu and Zheng (2021) further emphasize that the virtual transaction environment can be significantly improved by incorporating both corporate branding elements and the personal presence of sellers. These factors work together to enhance consumers' perception of authenticity and trustworthiness. As discussed in the preceding sections, real-time interactivity, perceived proximity, and perceived authenticity each contribute to strengthening both informational and emotional support within the live streaming environment. These supportive factors, in turn, positively influence consumers' purchase intentions. Based on these interrelated dynamics, the following hypothesis is proposed.

H10: The impact of perceived authenticity on purchase intention is mediated by social support.

2.10.3 E-commerce Live Streaming Service Quality and Purchase Intention

2.10.3.1 Information Quality and Purchase Intention

Research consistently shows that information quality is a key determinant of consumers' purchasing intentions. Lee and Kozar (2022), through experimental studies, demonstrated that online reviews containing more visually appealing images can significantly enhance consumers' intention to purchase. Similarly, Ahn et al. (2023) revealed that brand connection moderate consumers' reactions to negative information: individuals with strong brand attachment tend to exhibit heightened impulse buying intentions even when exposed to negative content, whereas those with weaker connections tend to experience a reduction in impulse buying when faced with the same information.

Beyond consumer-generated content, the quality of information provided by livestream anchors has also been identified as a critical factor influencing consumer behaviour. Scholars have increasingly focused on anchor characteristics, particularly their effectiveness as credible sources of product information. Bai (2024) emphasized that anchors' ability to deliver high-quality, trustworthy information plays a pivotal role in shaping consumer trust, purchase intentions, and overall engagement. Given the central role of information quality in both user-generated and anchor-delivered content, this study proposes the following hypothesis.

H11: Information quality positively affects purchase intention.

2.10.3.2 Interaction Quality and Purchase Intention

Interaction is one of the most fundamental elements of interpersonal communication and has gained increasing importance across domains such as marketing, public service, and digital media. As interaction quality becomes a focal point of research, scholars have emphasized its critical role in shaping user experiences and outcomes. Chiu et al. (2021) highlighted that high-quality interaction between employees and customers constitutes a key component of service delivery, forming the foundation for perceived service value, overall service quality, and customer satisfaction. They further noted that such interactions positively impact not only customer satisfaction but also employee efficiency and engagement.

In the digital context, interaction quality has also shown significant influence on user behaviour and platform engagement. Hellier and Geursen (2020) examined live streaming from a psychological perspective and found that interactive features enhance users' satisfaction and willingness to continue using the platform by improving their experience

and sense of identification. Building on this, Li et al. (2021) categorized interaction quality within online communities into three dimensions: informational, interpersonal, and human-computer interaction. Their findings indicate that all three types contribute meaningfully to fostering consumer loyalty. Collectively, research on interaction demonstrates that interaction quality plays a crucial role in enhancing user satisfaction, loyalty, and ultimately, purchase intention. Based on these insights, this study proposes the following hypothesis.

H12: Interaction quality positively affects purchase intention.

2.10.4 Mediating Effect of Swift Relationship between E-commerce Live Streaming Service Quality and Purchase Intention

2.10.4.1 Information Quality and Swift Relationship

In the online marketplace, consumers increasingly prefer to engage in transactions through efficient and responsive service systems (Liao et al., 2024). However, the negative effects of information technology—such as excessive information channels, inconsistent content, and information overload—can impair consumer judgment and decision-making. Faced with a wide range of sellers, consumers often rely on interpersonal relationships to guide their purchasing decisions. Information exchange plays a critical role in forming and maintaining these relationships. Through online communication, consumers interact with e-commerce sellers and other users, gradually building trust and rapport. The quality of information provided by sellers is a determining factor in how much consumers rely on them. High-quality, relevant information accelerates the formation of swift relationships between consumers and sellers by fostering credibility and trust.

E-commerce live streaming, in particular, offers sellers a unique advantage in delivering such high-quality information. By leveraging real-time communication, sellers can provide immediate responses to consumer inquiries, offer valuable advice, and clearly

explain product features and purchasing procedures. This enhances consumers' ability to make informed decisions efficiently, while also fostering a sense of connection and trust (Su et al., 2020). From the perspective of social exchange theory, trust is essential for building and sustaining long-term relationships (Chen et al., 2023). Furthermore, live streaming allows for the personalization of information services, including tailored responses to individual needs related to product details, transaction processes, and post-sale support (Wongkitrungrueng & Assarut, 2020). This not only meets consumers' specific expectations in a timely manner but also improves the overall decision-making experience. Meanwhile, sellers benefit from receiving feedback and insights through these interactions, enabling them to refine their offerings. As such, the quality of information shared during e-commerce live streaming plays a vital role in cultivating strong online relationships between consumers and sellers. Based on this reasoning, the following hypothesis is proposed.

H13: Information quality positively affects swift relationship.

2.10.4.2 Interaction Quality and Swift Relationship

Online interactions represent a virtual form of social relationships and are vital to their formation and maintenance (Lee & Chen, 2021). For instance, teacher-student online interactions have been found to enhance educational environments and learning outcomes (Xu et al., 2024). Similarly, mobile-based interactions can offer college students a sense of security and belonging, supporting the development of positive interpersonal relationships (Apasrawirote & Yawised, 2022). However, the absence of physical presence in online environments underscores the importance of high-quality interaction to establish meaningful and positive connections. This is particularly relevant in online retail settings, where consumers often face uncertainty about the virtual environment and must rely on their interactions with platforms or sellers to determine their purchase decisions. In this context,

the quality of interaction between service providers and consumers becomes a key determinant of trust and consumer behaviour (Lin et al., 2022).

E-commerce live streaming enhances this interaction dynamic by shifting it from traditional two-way exchanges to more dynamic, multi-way real-time communication. This transformation facilitates more direct, synchronised exchanges, helping to build swift relationships. Social exchange theory suggests that when consumers perceive care and attention from live stream sellers, they tend to reciprocate with positive intentions in proportion to the perceived value of that care (Zhang & Liu, 2023). As such, when consumers experience high-quality interactions during live streams—characterised by responsiveness, empathy, and relevance—they are more likely to develop stronger connections with sellers (Shang et al., 2024). In the context of social commerce, interactivity is thus central to enhancing relationship quality (Dong et al., 2023). According to Ko and Chen (2024), such swift relationships are made possible by interactive engagements in online marketplaces (Ma et al., 2023). Therefore, interaction quality is crucial for fostering strong and trusting relationships between consumers and e-commerce sellers. Based on these insights, the following hypothesis is proposed.

H14: Interaction quality positively affects swift relationship.

2.10.4.3 Swift Relationship and Purchase Intention

Swift relationships play a pivotal role in the context of live e-commerce, as consumers are more inclined to engage in transactions with sellers who establish a personal and trustworthy social connection. This connection helps reduce the perceived uncertainty and risk that typically accompanies online transactions (Merritt & Zhao, 2022). A growing body of research indicates that swift relationships between buyers and sellers can lead to

favourable outcomes such as increased repeat purchase intention in digital commerce environments. Within the realm of social commerce, swift relationships are positively associated not only with continued usage intentions but also with consumers' willingness to contribute knowledge and participate more actively in the community (Carolina et al., 2024). One of the essential foundations of a swift relationship is mutual understanding, which facilitates effective communication and fosters appreciation between both parties (Ma et al., 2023). This mutual understanding also lays the groundwork for smoother interactions in areas such as price negotiations, product delivery, and after-sales services.

Additionally, relational reciprocity is a key element in building interpersonal connections, particularly in live-streaming e-commerce. Reciprocity—where both parties offer and receive benefits—can significantly increase the likelihood of successful transactions. For example, live-streaming sellers frequently offer exclusive discounts or free gifts to viewers, which can trigger consumers to respond with favourable transactional behaviours. According to social exchange theory, such reciprocity fosters harmonious relationships that are vital for repeated and sustainable exchanges (Bai, 2024). In contexts like China, where relational harmony plays an important cultural role, such relationships help to mitigate conflicts, reduce transaction costs, and smooth over potential dissatisfaction (Joo & Yang, 2023). Even when a product does not fully meet consumer expectations, the presence of mutual understanding, relational harmony, and reciprocity can still drive transaction completion. In live-streaming environments, these relational dynamics encourage consumers to exhibit immediate and positive transactional intentions, such as impulse buying or future engagement with the seller (Lv et al., 2021). Therefore, the following hypothesis is proposed.

H15: Swift relationship positively affects purchase intention.

2.10.4.4 Mediating effect of Swift Relationship between Information Quality and Purchase Intention

In the context of online transactions, swift relationships are considered a vital mediating factor in the influence of service quality on consumers' online purchase intentions (Kang et al., 2021; Kim & Limb, 2020). Research suggests that when consumers perceive high levels of service quality, it can generate positive emotions during the online shopping experience, leading to stronger relational harmony between buyers and sellers. This sense of harmony further reinforces the importance of reciprocity, which is a fundamental element of social exchange theory, thereby stimulating favourable consumer attitudes and increasing the likelihood of repeat purchases (Santo & Marques, 2021). In addition, service quality reflects the reliability and consistency of the e-commerce platform's performance, which not only meets consumers' expectations but also enhances satisfaction and promotes continued engagement with the platform (Lim et al., 2021).

The most distinctive value of e-commerce live streaming lies in its ability to foster temporary yet highly interactive online communities, through which swift relationships between consumers and sellers can be quickly formed and stabilized. During live broadcasts, consumers' information needs and interaction expectations are met through real-time communication and personalized responses, enabling sellers to establish trust and build rapport. These swift, trust-based relationships serve as a foundation for shaping consumers' online purchase intentions. Furthermore, the dynamic information exchange that occurs during live streaming—both between sellers and consumers and among consumer groups—strengthens consumers' confidence in their purchasing decisions and increases their

willingness to engage in transactions. Based on these insights, the following hypothesis is proposed.

H16: The impact of information quality on purchase intention is mediated by swift relationship.

2.10.4.5 Mediating effect of Swift Relationship between Interaction Quality and Purchase Intention

Buyer-seller and consumer-consumer interactions serve as key mechanisms for generating co-creation value in e-commerce environments. Through mutual understanding, reciprocity, and relational harmony, these interactions contribute to the development of more meaningful and trust-based relationships between stakeholders (Chan & Asni, 2022). For consumers, this co-creation experience fosters a sense of agency and control over the purchasing process, which is crucial in enhancing their willingness to make online purchases. Information quality, in particular, plays a critical role in this dynamic. When consumers receive accurate, relevant, and timely information from e-commerce sellers, they are better able to assess products and services, resulting in faster and more confident decision-making. High-quality information also enables consumers to form positive perceptions of the seller, strengthening interpersonal bonds and building trust that supports repeat purchases and brand loyalty (Lim et al., 2021).

This relational and informational dynamic becomes even more pronounced in the context of e-commerce live streaming. The immediacy and interactivity of live broadcasts allow sellers to respond to consumer inquiries in real time, creating a more immersive and engaging shopping experience. The similarity of service quality attributes between general online retail and live streaming commerce underscores the significance of both information

delivery and social interaction in facilitating buyer-seller relationships. Moreover, swift relationships—those formed quickly through trust, reciprocity, and shared understanding—have emerged as a decisive factor in influencing consumers' online decision-making. As such, when high-quality information and interactive engagement are present, consumers are more likely to develop swift relationships that lead to increased purchase intention. Therefore, this study proposes the following hypothesis.

H17: The impact of interaction quality on purchase intention is mediated by swift relationship.

Table 2.3: Summary of Hypothesis

Hypothesis	Hypothesis Statements	Research Objectives	Research Questions
H1	Real-time interactivity positively affects purchase intention.	RO1	RQ1
H2	Perceived proximity positively affects purchase intention.		
H3	Perceived authenticity positively affects purchase intention.		
H4	Real-time interactivity positively affects social support.	RO2	RQ2
H5	Perceived proximity positively affects social support.		
H6	Perceived authenticity positively affects social support.		
H7	Social support positively affects purchase intention.		
H8	The impact of Real-time interactivity on purchase intention is mediated by social support.		
H9	The impact of perceived proximity on purchase intention is mediated by social support.		
H10	The impact of perceived authenticity on purchase intention is mediated by social support.		

Table 2.3 continued

H11	Information quality positively affects purchase intention.	RO3	RQ3
H12	Interaction quality positively affects purchase intention.		
H13	Information quality positively affects swift relationship.	RO4	RQ4
H14	Interaction quality positively affects swift relationship.		
H15	Swift relationship positively affects purchase intention.		
H16	The impact of information quality on purchase intention is mediated by swift relationship.		
H17	The impact of interaction quality on purchase intention is mediated by swift relationship.		

2.11 Gaps in the Literature

Firstly, lack of a Systematic Theoretical Framework for E-Commerce Live Streaming Marketing. Existing research on e-commerce live streaming (ECLS) remains fragmented. Choi and Jeon (2022) focus on behaviours like viewership and sharing, Chen and Lin (2023) examine streamer charisma effects, and Xu et al. (2022) explore social presence—all using distinct theoretical lenses and none integrating technological affordances (e.g., interactivity, transparency) and social constructs (e.g., trust, relational bonds) in a unified framework. Recent work by Ding et al. (2025), applying the Elaboration Likelihood Model (ELM), brings a dual-path trust-building perspective, but still treats technological cues and streamer cues separately, without embedding them within a socio-technical model. Similarly, Qi and Masrom (2024) identify social engagement and entertainment as predictors of purchase intention, but omit systematic integration of

interactivity or platform transparency. These gaps signal a need for a comprehensive socio-technical theoretical model.

Quantitative studies remain narrow in scope. For instance, Songliang Guo (2023) models perceived value dimensions but doesn't examine interactions between technology and social variables. Mustikasari et al. (2024) validate the mediating role of trust and satisfaction, yet focus solely on continuity rather than initial purchase intent. Moreover, Fortuna et al. (2024) look at perceived value effects on repurchase via trust on TikTok Live, but again focus on social value dimensions without pairing technological attributes.

Most studies use SEM or cross-sectional surveys without testing complex interactions. Songliang Guo (2023) uses SEM to analyse perceived value but doesn't add moderation or multi-group analysis. Mustikasari et al. (2024) deploy SEM but assess static mediators only. Fortuna et al. (2024) use structural modelling but don't integrate cross-platform comparisons or methodological procedures to control for common method bias.

Study contribution. This study will construct a socio-technical framework synthesizing technological attributes (e.g., interactivity, presentation) and social factors (e.g., service quality, trust) and empirically examine their joint effects on initial purchase intention.

Secondly, limited Understanding of Different Forms of Consumer Interaction. Though Zhao et al. (2022) conceptualise multi-party engagement (consumer-seller-platform), most work still treats consumer interaction monolithically. Guo et al. (2021) focus on consumer-host interaction's role in trust, and Chen et al. (2023) examine host consumer loyalty, but both neglect consumer-platform interaction like recommendation algorithms or platform responsiveness. Xu and Pratt (2023) explore platform responsiveness but ignore

how that differs from host interaction. Ding et al. (2025) show separate trust pathways via product vs. streamer cues yet don't frame them in platform interactivity vs. social interaction.

Quantitative evidence disentangling types of interaction remains scant. Wong et al. (2023) and Park and Lin (2022) measure interactivity perceptions but don't separate host vs. platform aspects. Ding et al. (2025) distinguish central vs. peripheral cues but apply them to trust rather than purchasing pathways.

Interactive effects have largely been tested via surveys; Liu et al. (2022) experiment with interaction quality but in artificial contexts. There's no study combining behavioural data and survey metrics to differentiate interaction type effects. This study operationalises consumer–platform interaction through technological attributes and consumer–seller interaction via service quality, empirically testing their distinct influence mechanisms.

Thirdly, insufficient Exploration of Social Support and Swift Relationship as Mediators. Live streaming offers strong social dimensions—support from hosts and peers, and swift relationship formation—but few studies integrate these theoretically. While the SOR model (Mehrabian & Russell, 1974) and social exchange theory (Blau, 1964) offer useful frames, existing research—e.g., studies focusing only on trust (Chen et al., 2023)—fails to model both social support and swift relationship as complementary mediators.

Evidence linking live streaming to social support and rapid trust formation is limited. Studies by Sun et al. (2022) and Zhao et al. (2023) cite peer recommendation or guidance effects, but don't test them simultaneously or explicate their differential pathways. Most research uses self-reported measures cross-sectionally—insufficient to capture rapid trust dynamics. No reported longitudinal or behavioural tracking study exists on how social support or swift relationship within a stream mediates purchase. By combining SOR and

social exchange theory, this study models dual mediation—where technological features foster social support, and service quality promotes swift relationships—and empirically tests their unique contributions to purchase intention.

2.12 Summary

This chapter has outlined the key variables used in this study. E-commerce live streaming technical feature and service quality are identified as the independent variables. Purchase intention is the dependent variable. Social support and swift relationship serve as mediating variables. The chapter also introduces relevant theories, including socio-technical theory, the SOR model, and social exchange theory, which support the proposed research framework. Additionally, it highlights gaps in the existing literature while presenting the theoretical framework and hypotheses development. The following chapter will detail the research methodology and procedures employed in this study.

CHAPTER 3

METHODOLOGY

3.1 Introduction

This chapter outlines the approach for the study's analysis. In this chapter, all the methodological aspects will be covered. The chapter begins with an explanation of the study methodology and information on sampling. The population, sample size, sampling procedure, unit of analysis, data analysis, and model analysis methods are discussed. The chapter also addresses the research design, study type, data collection method, and sample population. This is a quantitative research study. The methods used involve surveys with structured questionnaires. Finally, the data and model analysis detail the statistical analysis used to understand the data and model.

3.2 Research Design

In the context of online purchases made by Chinese customers, this study examines the influence of e-commerce live streaming on consumer purchase intention. Since this is a quantitative study, the primary research tool is a survey questionnaire. Hypothesis testing is also used to examine the theoretical framework and variables. This section concentrates on the research type, analytical unit, sample and population, data collection, questionnaire, and data analysis. It provides a thorough overview of the study design, as illustrated in Figure 3.1.

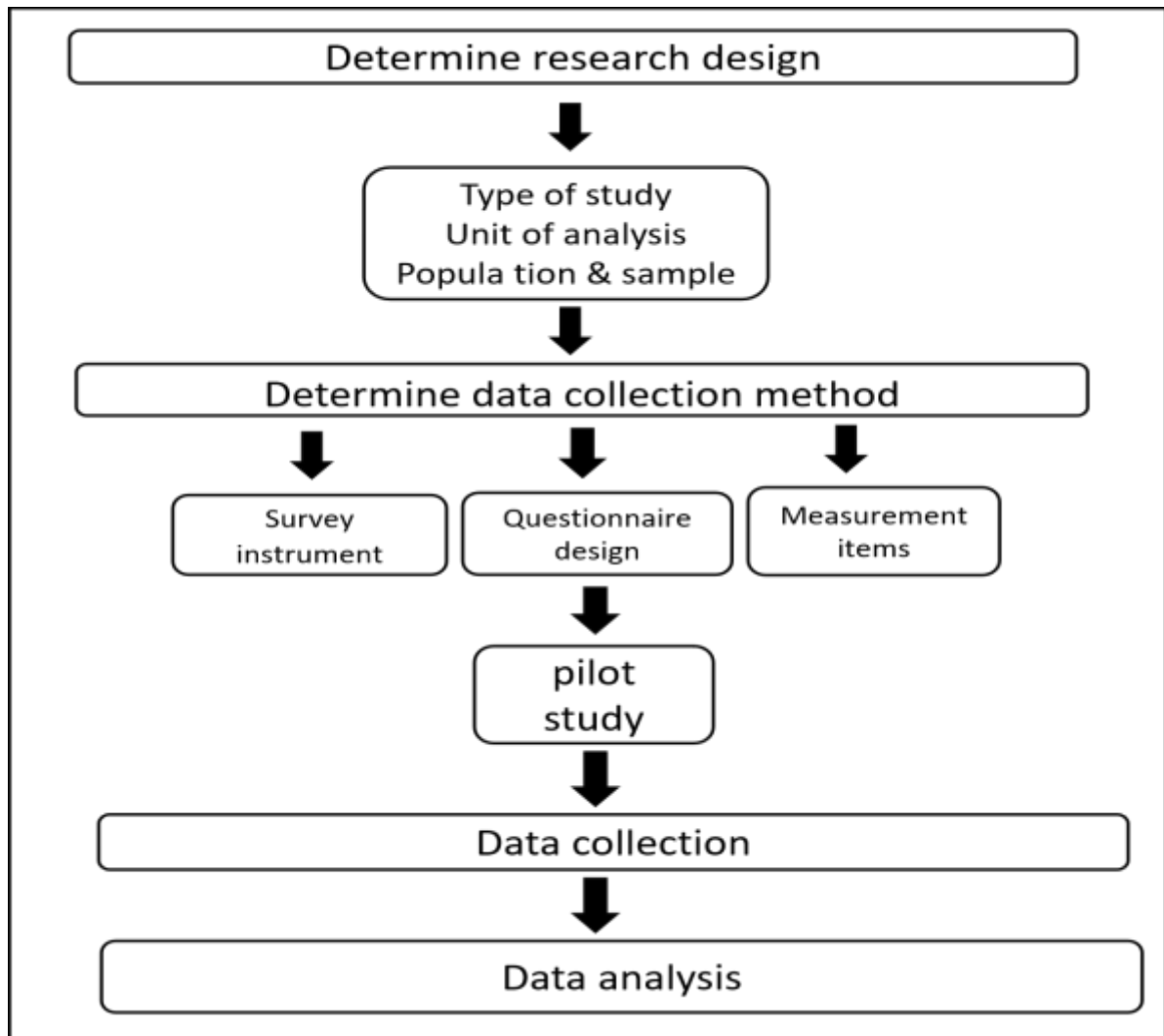


Figure 3.1: Research Design Flow Chart

3.3 Research Paradigm

The research methodology utilised in this study is based on the Research Onion by Saunders et al. (2012) to achieve the goals stated in the thesis. The inside layer of the Research Onion structure comprises the outside layer. The Research Onion, with its numerous layers, served as a reference during the study process. Before the study conception and data collection strategy, several considerations were taken (Figure 3.2). Consequently, each layer of the Research Onion structure is defined by the points below.

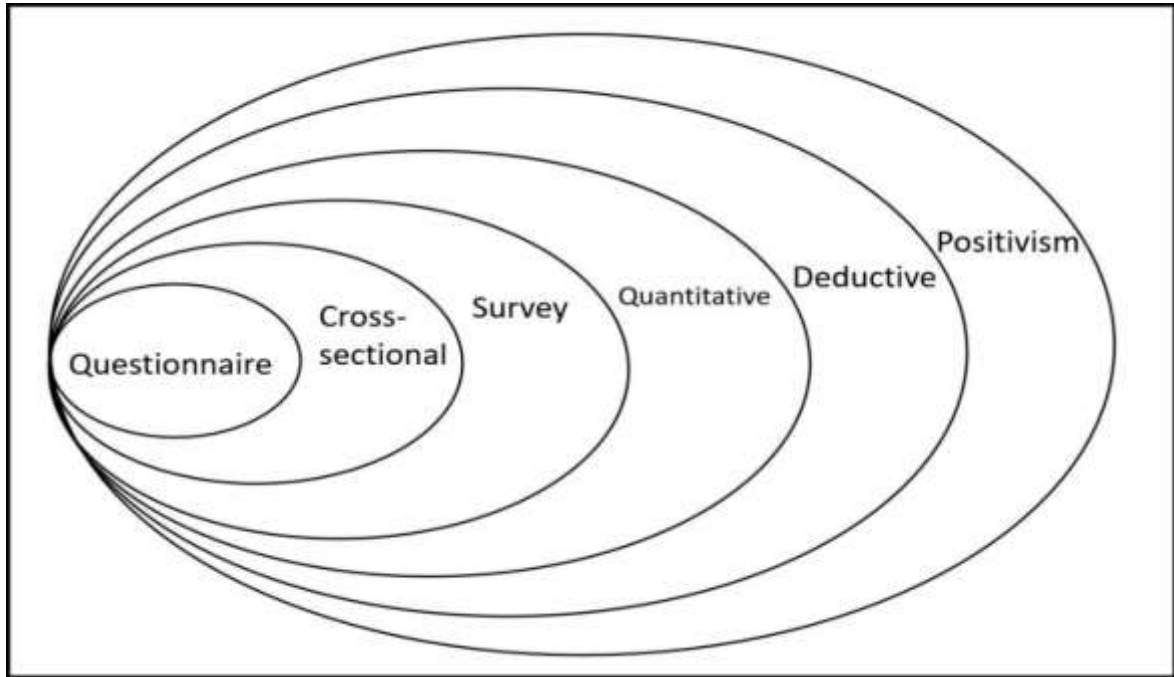


Figure 3.2: Research Onion Diagram
Source: Adopted from Saunders et al. (2012, p. 128).

3.3.1 Research Philosophy

A research philosophy is profoundly influenced by the development, existence, and sources of knowledge and information (MacKinnon, 2008). Since the goal of this study is to investigate e-commerce live streaming and its impact on purchase intention, the authors observed that each researcher contributes to the growth of knowledge. This section covers the research methodology used in the present study. According to Frank (2021), researchers attempt to comprehend theory in a variety of ways, which aids in establishing and identifying the theoretical techniques used for research. This process assists researchers in clarifying their general analytical strategy.

Saunders et al. (2012) recognised three main research philosophies: positivism, interpretivism, and realism. According to Ajzen and Driver (1992), positivism is the logical search for universal rules and causes. At the same time, realism represents an outward reality, which has a predetermined essence and shape. Comparatively, interpretivism seeks to

understand how humans see the world to arrive at reasonable meaning (Ajzen & Driver, 1992).

This study adopts the perspective that objectivism, as well as the ontological and epistemological viewpoints that underlie this analysis, are essential. According to Cepeda-Carrion et al. (2017), ontological positivism employs a quantitative model, deductive inference (explanations), and measurement of truth independent of human experience to acquire knowledge. Chin (2009) indicates that positivists seek linkages between a system's causes and effects.

Positivist philosophy emphasises factual presumptions on a social reality that is individually based in character rather than universal. According to Thornhill (2012), positivists concur that this task may be performed without the researcher's involvement. Based on theoretical research, academic literature, and empirical findings, this study took this approach to be impartial and external to the setting under examination. In contrast to interpretivism, this study seeks to understand and interpret the subjective reality of the phenomena under investigation via the lens of its function as social actors (Thornhill, 2012). Cepeda-Carrion et al. (2017) disavows interpretative researchers' the positivist conviction in the existence of truth. It was formerly thought that reality was created collaboratively by people who could each be acknowledged and changed independently.

According to Creswell et al. (2007), interpretivist and positivist perspectives may be linked to fully understand a person's social phenomena. Cepeda-Carrion et al. (2017) suggest that interpretive research examines how humans conceptualise the environment and processes that operate within it. Ajzen (1991) indicates that realism is a research ethos. This also entails a value-exchange between positivism and interpretivism. Realists acknowledge

the existence of a truth that is unaffected by the opinions and deeds of people. Thornhill (2012) suggests using focus groups and in-depth interviews to collect data to assess realism.

This study used survey questionnaires to gather data based on the research philosophy. Positivism can support or reject new concepts by formulating hypotheses and accumulating data. Large quantities of quantitative data are utilised in this approach (Lewis, 2012). Cepeda-Carrion et al. (2017) suggest that positivists analyse causal hypotheses between latent conceptions and scientific data using deductive reasoning. This method is used in the present study to achieve the research goals that were deduced from the study's questions, which sought to predict consumers' purchase intention. According to Neuman (2011), positivist researchers advocate for value-free science and seek trustworthy objective testing. This involves verifying the evidence supporting the causal hypothesis and emphasising the value of repeating research.

3.3.2 Research Approach

Ajzen and Driver (1992) identify three primary research methodologies: deductive, inductive, and abductive. The authors suggest that although the inductive technique aids in the development of new ideas and generalisations, the deductive method examines the veracity of assumptions. In addition, Baron and Kenny (1986) suggest that the qualitative research inductive approach is sufficient for testing hypotheses. Saunders et al. (2012) indicate that a deductive approach begins with a hypothesis or theory and ends with a change to or validation of an existing theory. Since a conceptual framework based on hypotheses was developed rather than a novel theory, and since theories were evaluated using a testing technique, the current study used a deductive approach.

Using the deductive method, researchers can identify a theory and connect it to the study's questions and objectives. Additionally, it enables data collection utilising a survey approach to uncover causal links between variables and answer research questions (Fishbein et al., 1975). According to Creswell et al. (2007), quantitative researchers use literature deductively to support or refute research questions or ideas, which in this study have been applied to and experimentally assessed regarding Chinese consumers.

The literature contains conceptual deductive assumptions with variables and constructs that must be quantitatively operationalised, i.e. the problem is broken into its constituent parts (Creswell et al., 2007). To clearly define the research objectives in the context of Chinese users, most variables were analysed with a particular focus on purchase intention, e-commerce live streaming, technical feature, service quality, and swift relationship, social support as mediators.

3.3.3 Research Selection

Hair et al. (2014) note that quantitative approaches, often aligned with positivism, aim to gather factual data to examine how conditions and interactions relate to hypotheses and previous findings. Creswell et al. (2007) describe mono-method research as being conducted by “purists” who adhere strictly to one dominant paradigm. This has led to the development of two main paradigms: quantitative and qualitative approaches. According to Hair et al. (2014), quantitative research is well-suited for this study as it aims to establish direct causal relationships between the variables identified in the theoretical model.

Hayes (2009) suggests that qualitative research should focus on information closely related to the research phenomena of interest. In contrast, Imada and Hakel (1977) introduce mixed-methods research, which integrates quantitative and qualitative approaches. In

qualitative research, the researcher is the primary instrument for data collection, without relying on statistical analysis (Johnstone & Lindh, 2021). Hayes (2009) supports this perspective, noting that a mixed-method approach allows for comparing results from different research strategies to gain a more comprehensive understanding.

According to Creswell et al. (2007), mixed-methods research must aim to balance thinking and hence justify the necessity of combining qualitative and quantitative data first. However, Jones (1980) hypothesised that different study paradigms and procedures do not mix well. This raises the issue of proportionality as well as the potential challenge of incorporating different research philosophies in a mixed-methods approach. Since two distinct decisions are regarded as separate paradigms with different epistemological commitments, there is no apparent advantage for this research to employ the quantitative option using qualitative methods (Judd & Kenny, 1981).

The study objective, in which quantitative methods are utilised to examine the hypotheses, is consistent with a positivist approach. According to Kala and Chaubey (2021), statistical methods are used to examine the relationship between the indicators that are quantitatively evaluated in quantitative research. Experiments and surveys are examples of quantitative research regarding this topic. To gather information and analyse it to respond to the research questions pertinent to the study variables, this study used a questionnaire.

3.3.4 Research Strategy

When employing an interview method, respondents' answers to the questionnaire may be influenced by the interviewee's personality and characteristics; furthermore, utilising an observation strategy may not provide a clear picture of how people behave because they may act differently when they are aware that they are being watched. Archival and historical

techniques are not considered a viable strategy for the current study because it is not concerned with current occurrences. According to Kahneman and Tversky (1979), each research strategy can be used regardless of the study's goals.

According to Kahneman and Tversky (1986), questionnaire data collection enables researchers to gather quantitative data for analysis, description, or prediction of outcomes regarding a sample population, as well as analysis based on descriptive and inferential statistics. When working with a big sample, a survey technique is more straightforward, laid-back, and yields significant data in comparison to observation, secondary data, and interviews (Kell, 2016). To answer the research questions and achieve the research objectives, the current study employed the self-administered survey approach in accordance with the guidelines presented in the preceding subsections. Surveys are commonly used because they enable cost-effective data collection from a sizable population while allowing for quantitative analysis using clear and inferential statistics (Kelly & Febriyantoro, 2022).

This study used a survey approach to collect primary data from respondents to evaluate and ascertain their opinions, feelings, and impressions of a particular circumstance (Kelly & Febriyantoro, 2022). Stock et al., however, assert that this research technique may have certain limitations, such as limited depth and knowledge range that can be gleaned from the survey results or the potential for respondents not replying fully or adequately. The survey approach, however, aligns with the study's objective. Therefore, a survey questionnaire was developed to gather information regarding consumers' purchasing intentions in China.

3.3.5 Research Time Horizon

Kock (2015) indicates that there are two temporal research perspectives: cross-sectional and longitudinal. A time horizon indicates the amount of time needed to finish a report, project, or submission both transversally and longitudinally. Given the short time available, the authors note that the cross-sectional time horizon technique is the one that academic researcher utilise most frequently. In contrast, data can be gathered over time during longitudinal studies to conduct lengthy research initiatives (Lee & Tan, 2013). The cross-sectional time horizon is used in this study since the investigation is constrained to a specific period. Data were collected between September 1 and December 31, 2024, indicating that the investigation was transversal, before data input and analysis were completed. Furthermore, this study does not strive to understand how a phenomenon develops over time. Thus, investigating this topic in an given time frame is suitable.

The five stages of the Research Onion in this study can be summarised as follows. A deductive reasoning was used in the research technique, a quantitative method was used for the survey strategy, and a cross-sectional temporal horizon was used. The positivist research philosophy was also used. Firstly, it implies that fundamental rules and regulations govern how events take place in the world. The research was unbiased, as the search process ensured that the researchers did not influence the respondents. In the end, well-defined and supported statistical approaches were employed in the data analysis, as discussed in Chapter 4. These techniques combat prejudice and speculative thinking. This research collected data at a single point in time, employing a cross-sectional design. The goal was to identify how independent factors influencing e-commerce live streaming affect purchase intention in China.

3.4 Unit of Analysis

Lewis (2013) defines the unit of analysis as the level at which collected data is aggregated during analysis, such as individuals, dyads, groups, organisations, machines, or other entities. In this study, the unit of analysis is the individual consumer, specifically those who use e-commerce live streaming platforms to watch sessions and make purchases. Selecting this unit of analysis ensures that respondents are able to provide responses to the questionnaire items based on their own direct experiences. To ensure that the sampling frame aligns with the research objectives and accurately represents the target consumer segment for assessing swift quality, swift relationship, and purchase intentions, specific inclusion and exclusion criteria were established.

The inclusion criteria for this study specify that participants must be individuals aged 18 years or older who have watched at least one e-commerce live streaming session within the past six months, have made at least one purchase through such platforms during the same period, and possess the ability to read and comprehend the language used in the questionnaire. Conversely, the exclusion criteria eliminate individuals under the age of 18, those who have never watched an e-commerce live streaming session, those who have not made any purchases via e-commerce live streaming platforms in the past six months, and individuals employed by e-commerce platforms, live streamers, or related marketing agencies whose professional involvement may bias their responses.

These criteria ensure that all participants are directly relevant to the research context and can provide valid, experience-based responses, thereby enhancing the reliability and applicability of the study's findings.

3.5 Population and Sample

The research location for this study is China. The target respondents are consumers who have had purchase experiences on e-commerce live streaming platforms. This study employed voluntary sampling, a form of convenience sampling, to collect data. Convenience sampling was deemed appropriate for several reasons.

First, it offers practical efficiency in terms of time, cost, and accessibility, particularly when targeting populations that are difficult to reach through random sampling methods (Etikan et al., 2016). For instance, placing questionnaires in restaurants or distributing them on airplanes allows researchers to gather data from diverse yet readily available participants without the logistical challenges of randomized selection.

Second, convenience sampling is widely used in exploratory research where the primary goal is to identify preliminary trends, perceptions, or behaviors rather than to generalize findings to a broader population (Bryman, 2016). In this study, the voluntary participation of diners, airline passengers, and web-based respondents provided valuable insights into their immediate attitudes or experiences, which aligns with the study's objectives.

Third, web-based surveys—a key component of this study's methodology—leverage the ubiquity of digital platforms to reach a large and varied pool of voluntary respondents efficiently. While self-selection bias is a recognized limitation, the trade-off between rigor and feasibility was justified given the study's scope and the need for timely data collection (Bai, 2024).

Voluntary sampling based on convenience sampling was used in this study. Voluntary samples are not randomly drawn but are composed of subjects who have volunteered to be surveyed. For example, in some restaurants, questionnaires are placed in the centre of the table, which diners can fill in voluntarily. On aeroplanes, from time to time, flight attendants distribute questionnaires to passengers, who voluntarily participate in the survey. Web-based surveys are another example of constructing a voluntary sample, in which surveyors paste questionnaires onto web pages with relevant content, and online readers can participate voluntarily (Bai, 2024).

Added a live streaming service and a dedicated live streaming page in 2016. Consumers can now find product categories on the live streaming platform. The live streaming process on the platform includes the following steps. Firstly, the e-commerce seller develops the time, main content and anchor for a live stream and submits a request to the website. Secondly, the live streaming platform displays a countdown to live streams and a synopsis of the content in the announcement section before the live stream is launched. This is located on the store's home page, and in the anchor's dynamics. Third, when a live stream is launched, e-commerce sellers are transferred to the “ongoing live streaming” area, where sellers can select all or part of the products in the online store for live streaming. All web users can watch the live stream. Registered users can communicate with e-commerce sellers and other users who are watching the same live video while they are logged in. Users can order their favourite products through the buy button at the bottom of the live video window on the interface. Therefore, e-commerce live streaming strategies can help consumers experience a new way of purchasing through “watch and buy,” similar to the consumption mode of physical stores. Fourthly, at the end of the live stream, the live video will be saved on the website. This allows users to watch previous videos by clicking the

replay button and makes purchases through product links. The rest of the transaction process is the same as the general online purchasing procedure. Figure 3.3 presents the evolution of the shopping relationship.

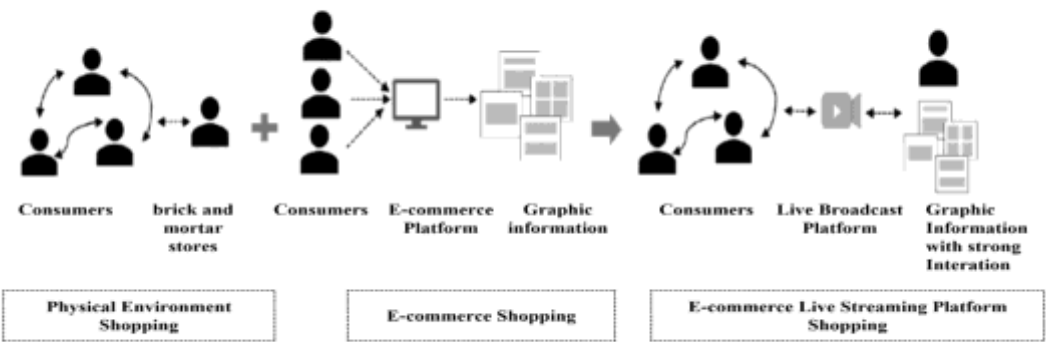


Figure 3.3: Evolution of the Shopping Relationship
Source: China E-Commerce Research Report (2024).

According to Sekaran et al. (2009), a sample size ranging from 30 to 500 is generally considered sufficient for academic research. To determine the minimum sample size for this study, several methods were employed: (i) a formula for calculating the minimum sample size (Hair et al., 2014), (ii) the “10 times” rule (Barclay & Smith, 1995), and (iii) G*Power 3.1.9.7 software (Faul et al., 2019).

Firstly, a formula developed by Hair et al. (2014) was adopted to calculate the minimum sample size. The formula is as follows (Equation 3.1):

The minimum sample size is

Variate Value = WnXn

Equation 3.1

Where,

W_n = Observation (Weight determined by the multivariate technique)

X_n = Observed variable

Hence, = 10 x 7 variables

Variate value = 70 respondents

Next, the “10 times” rule was used to determine the minimum sample size to provide enough power to estimate the relationships using a partial least squares (PLS) analysis. As suggested by Pieper et al. (2012), this study used a minimum sample size of ten times the maximum number of independent variables in the outer and inner models. Thus, the minimum sample size of this study was 70 (7 x 10 times = 70).

This study also used G*power 3.1.9.7 software (Faul et al., 2009) to calculate the minimum sample size. The impact size for the three predictors for endogenous variables of e-commerce live streaming was calculated at 0.15 (medium) based on the a priori power analysis. The results indicate that a minimum of 103 respondents was required to test the model, as shown in Figure 3.4 [$f^2 = 0.15$ (medium); $\alpha = 0.05$; number of predictors = 7; power = 80%].

Finally, there are typically between 300 and 500 respondents in studies of users in China. This includes research by Liu et al. (2024; 382 respondents), Qing and Jin (2022; 324 respondents), and Ma et al. (2023; 424 respondents). Thus, the present study sought to collect 300 or more questionnaires to ensure data validity and reliability.

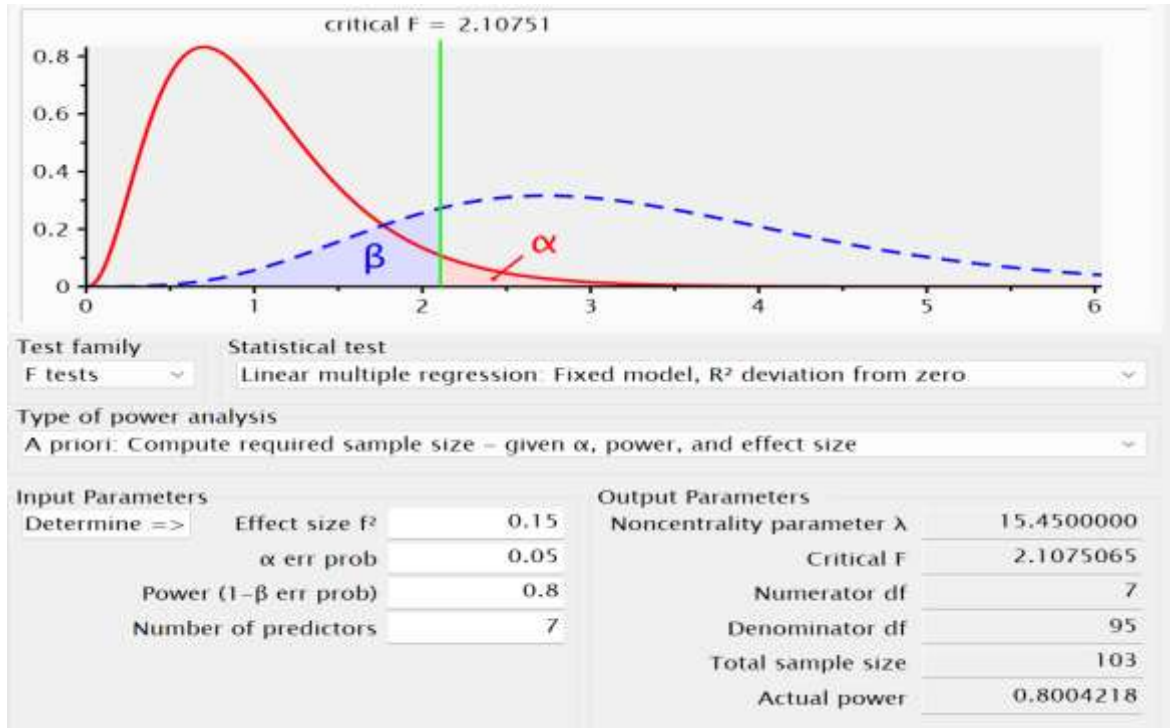


Figure 3.4: Sample Size Calculation using G*Power 3.1.9.7
Source: G*Power 3.1.9.7

3.6 Data Collection Method

In the present study, the data collection period was from September 2024 to December 2024. This study adopted the method of empirical research to explore the influence of e-commerce live streaming on consumers' purchase intention. Data samples were obtained through a questionnaire method. The questionnaire survey method is a cost-effective and efficient approach for data collection in empirical research. This study employed a rigorous survey questionnaire to examine the impact of e-commerce live streaming's technical feature and service quality on consumers' purchase intention. The survey process comprised two stages, detailed below.

Pre-survey: During the initial stage, the questionnaire is reviewed by experts, scholars, and a small sample of respondents to refine its grammar, context, and overall

structure. This ensures the questionnaire's rigor and reliability, resulting in a standardised measurement scale tailored to the study's content.

In the expert review phase of questionnaire design, this study formed a review panel consisting of 2-3 experts, including scholars in the relevant research field, industry practitioners, and methodologies with extensive questionnaire design experience. The expert review process adopted a systematic evaluation framework, conducting rigorous examination of the questionnaire from four key dimensions:

First, regarding clarity, experts focused on assessing whether the wording of each item was concise and easy to understand, whether there was semantic ambiguity or inappropriate use of technical terms, ensuring the questionnaire language matched the cognitive level of target respondents. Second, in terms of relevance, experts verified that all questions aligned closely with the research objectives while checking for any omission of critical dimensions to ensure content completeness. Third, examining logical flow, experts evaluated whether the question sequence followed a progressive principle from general to specific, from objective facts to subjective attitudes, and from non-sensitive to sensitive questions to maintain response fluency. Finally, regarding bias control, experts paid special attention to identifying any wording or question design that might unintentionally lead respondents toward biased answers.

During the review process, each expert provided detailed written evaluation comments. The research team then consolidated and analysed this feedback to make targeted revisions to the questionnaire, including but not limited to: rephrasing ambiguous items, adjusting question sequence to optimize logical flow, deleting redundant questions with insufficient relevance to research objectives, and modifying potentially biased question

formulations. Through this rigorous multi-round cycle of expert review and revision, the study ultimately ensured the questionnaire met academic research standards in terms of content validity. For details, please refer to the appendix section of the paper.

Formal Survey: The second stage involves distributing the refined questionnaire to users with experience in e-commerce live streaming. This phase aims to gather data on the technical feature, service quality of live streaming, and factors influencing purchase intention. The collected data are analysed using statistical software to test the hypothesised model through structural equation modelling and path analysis.

Data collection was conducted via the online research platform QuestionStar, a professional service in China specialising in survey questionnaires, assessments, and polling. The platform offers user-friendly tools for survey design, data collection, and generating customised reports. With over 6.2 million registered users and an average of 10 million daily respondents, the platform can potentially reach nearly 300 million users per month. To ensure data quality, two key measures were implemented:

Sample Quality Control. All participants were sourced from the QuestionStar sample pool, where users have voluntarily completed previous surveys and agreed to participate in future research. The respondents must be consumers who have experience of watching or purchasing on e-commerce live streaming platforms. The questionnaire was created using the Questionnaire Star platform and then distributed to respondents via WeChat or email. Participants were also provided with detailed instructions and precautions for completion.

The formal questionnaire survey was conducted from September to December 2024. To ensure data quality, a screening question— “Do you have experience purchasing goods through live streaming e-commerce platforms?”—was placed at the beginning of the survey.

Only respondents who passed this question were invited to proceed, while those who did not were automatically redirected, ending the survey.

3.7 Survey Instrument

This study empirically tested the research model through a survey questionnaire. Based on a review and synthesis of existing literature, a theoretical model was developed to examine how e-commerce live streaming technical feature and service quality influence consumers' purchase intention.

To assess the impact of e-commerce live streaming technical feature and service quality on consumers' purchase intention, the questionnaire measures several dimensions. Technical features include real-time interactivity, perceived proximity, and perceived authenticity, alongside information and emotional support dimensions of social support.

For service quality, the questionnaire evaluates dimensions such as credibility, usefulness, and vividness of information quality; responsiveness, real-time, and empathy of interaction quality; mutual understanding, relational reciprocity, and relational harmony within swift relationships.

The questionnaire is divided into three sections as follows.

Introduction and Screening: This section provides an overview of the questionnaire and includes screening questions to ensure respondents have relevant experience. A specific question, such as “Do you have experience purchasing goods through live streaming e-commerce platforms?” is used to filter out those without such experience.

Demographic Information: This section collects basic respondent information, including gender, age, education level, monthly income, occupation, and frequency of engaging with e-commerce live streaming.

Variable Measurement: This section comprises detailed questions that measure the variables of interest. Respondents rate their agreement with each statement on a 7-point Likert scale, ranging from 1 (strongly disagree) to 7 (strongly agree).

A total of 67 scale items were used to measure the research constructs. A summary of the purpose and measurement is presented in Table 3.1.

Table 3.1: Summary of the Questionnaire Section

Section	Purpose	No. Of Measurement Items	Source
A	Preliminary Questions	1	-
B	Socio Demographic Profile	6	-
C	Purchase Intention	3	Chen et al. (2022)
D	E-Commerce Live Streaming Technical Feature		
	Real-time interactivity	5	Ermecc (2022)
	Perceived Proximity	4	Huang et al. (2023)
	Perceived Authenticity	3	Yu & Zheng (2021)
E	E-Commerce Live Streaming Service Quality		
	Credibility	4	Chai et al. (2021)
	Usefulness	4	Easa & Kaakour (2021)
	Vividness	5	Zhu et al. (2022)
	Responsiveness	4	Addo et al. (2021)
	Real-time	5	Ermecc (2022)
	Empathy	4	Guo et al. (2021);
F	Social Support		
	Information Support	3	Zhang (2023)

Table 3.1 continued

	Emotional Support	4	Zhang (2023)
G	Swift Relationship		
	Mutual Understanding	5	Oliveira et al. (2021)
	Relationship Reciprocity	4	Oliveira et al. (2021)
	Relationship Harmony	3	Oliveira et al. (2021)

To ensure the validity of the questionnaire, this study adhered to the following principles during its design. Firstly, in selecting the measurement scales, this study referenced well-established domestic and international scales while integrating the unique context of e-commerce live streaming. To ensure relevance and accuracy, discussions were conducted with experienced viewers, streamers, and consumers who have made purchases through live streaming platforms. Based on their insights, key variables were defined, and questionnaire items were carefully refined and adjusted to better align with the study's objectives.

Secondly, regarding the scales used in this study, most were adapted from established international literature and required translation. To ensure accurate translation, the reverse translation method was employed. Initially, the original items were translated into Chinese. Then, these Chinese translations were re-translated back into English and compared with the original versions. Any discrepancies found were addressed and corrected to ensure the fidelity of the scale items.

3.8 Questionnaire Design

In this study, each construct has a corresponding measure for the proposed research framework.

3.8.1 Purchase Intention

To ensure consistency in the outcome variables, the questions on consumers' purchase intention were adapted from a study comprising three measurement items (Chen et al., 2022). Table 3.2 shows the purchase intention items.

Table 3.2: Purchase Intention

Item Code	Original Items	Adapted Items
PI1	I would be happy to buy from this e-commerce live seller.	I would be happy to buy from e-commerce live seller.
PI2	I will recommend my friends and relatives to buy from this e-commerce live seller.	I would recommend my friends and relatives to buy from e-commerce live seller.
PI3	If I need, I will choose to buy from this e-commerce seller.	If I need to buy an item, I will choose to buy from e-commerce seller.

3.8.2 E-Commerce Live Streaming Technical Feature

The Technical Feature Scale for the real-time nature of e-commerce live interactions was adapted. It investigates the impact of real-time interactivity on consumer patronage intention, and aligns with the present study with a total of five measurement items (Ermeç, 2022). Perceived proximity items were adapted to explore the role of symbol use in communication in increased perceptions of proximity. It consists of four measurement items from a set of 12 items that aligned with this study's content (Chen et al., 2023). Perceived authenticity items were taken from studies that measured branding and merchandising authenticity, respectively; three of the most relevant measurement items were selected for this study (Yu & Zheng, 2021). All question items were modified according to the contextual characteristics of e-commerce live streaming, as shown in Table 3.3.

Table 3.3: E-Commerce Live Streaming Technical Feature

Item Code	Original Items	Adapted Items
Real-time interactivity		
RI1	I can interact with sellers and get information on the live stream.	I can interact with the seller in the live stream to get information.
RI2	I can complete my interaction needs in live streaming.	I can fulfill my interaction needs in live streaming.
RI3	I can find the information I need via live streaming.	I can easily find the information I need without having to call the seller via live streaming.
RI4	I can find the information if I need without having to use a chat program.	I can find the information I need without having to use a chat program.
RI5	My interactions with sellers are very efficient in live streaming.	My interactions with sellers are efficient in live streaming.
Perceived Proximity		
PP1	My relationships with live streaming sellers are not affected by actual physical distance.	The relationship between me and the seller in the live stream is not affected by the actual physical distance.
PP2	I feel close to the seller in live streaming.	I feel close to the seller in live streaming.
PP3	The seller gave me a warm feeling during the live broadcast.	The seller gives me a warm feeling in the live stream.
PP4	Although I was not in the same place with the seller, I felt close to the seller during the live stream.	I feel close to the seller in the live stream even though I am not in the same place as the seller.
Perceived Authenticity		
PA1	During the live broadcast, I got objective information about the product.	I get objective information about the product during the live streaming.
PA2	I can observe the seller's real personality traits in the live broadcast.	I can observe the real character traits of the seller in the live streaming.
PA3	Live streaming sellers are able to make solid promises.	The seller in the live stream is able to make reliable promises.

3.8.3 E-Commerce Live Streaming Service Quality

3.8.3.1 E-Commerce Live Streaming Information Quality

Based on the vast amount of literature on measuring information quality, this study conceptualises information quality in the context of live streaming as a second-order constitutive variable comprising three dimensions: credibility, usefulness, and vividness. The four items regarding credibility were developed based on past studies, and the wording was modified to adapt to the characteristics of e-commerce live streaming (Chai et al., 2021). Four question items on usefulness were derived from the maturity scale (Easa & Kaakour, 2021). Five question items for vividness were selected from studies and modified to fit the context of this study (Zhu et al, 2022). Table 3.4 shows the information quality items.

Table 3.4: E-Commerce Live Streaming Information Quality

Item Code	Original Items	Adapted Items
Credibility		
CRE1	The broadcast provided me with accurate product information.	This live stream provides me with accurate product information.
CRE2	The broadcast provides me with accurate product information.	The live stream provides me with accurate product information.
CRE3	The broadcast provides me with persuasive product information.	The live stream provides me with persuasive product information.
CRE4	The broadcast provides me with product information that I can use in my purchasing decision.	The live stream provides me with product information that I can use in my purchasing decision.
Usefulness		
USE1	The broadcast can provide me with useful product information.	This live stream can provide me with useful product information.

Table 3.4 continued

USE2	The broadcast provides me with valuable product information.	This live stream provides me with valuable product information.
USE3	The broadcast provides me with meaningful product information.	The live stream provides me with meaningful product information.
USE4	The broadcast provides me with information that can help me make better purchasing decisions.	The live stream provides me with information that can help me make better purchasing decisions.
Vividness		
VIV1	Watching the broadcast, I can get specific product information.	By watching the live streaming, I can get specific product information (detailed feature, etc.).
VIV2	Watching the broadcast, I can see the real product display and sales scene.	By watching the live streaming, I can see the real product display and sales scene.
VIV3	Watching the broadcast, I can get colourful product information.	By watching the live streaming, I can get colourful product information (pictures, videos, etc.).
VIV4	Watching the broadcast, I can get clear product information.	By watching the live streaming, I can get clear product information.
VIV5	Watching the broadcast, I can get information from visual and auditory aspects.	By watching the live streaming, I can get information from visual and auditory aspects (seeing and hearing).

3.8.3.2 E-Commerce Live Streaming Interaction Quality

Interaction quality in the context of e-commerce live streaming is a second-order constitutive variable comprising three dimensions: responsiveness, real-time, and empathy. The responsiveness measurement question items were adapted from previous studies (Addo et al., 2021). The real-time measurement question items were adapted from the Real-time Conceptual Scale (Ermeç, 2022). The empathy measurement question items were adapted

from Guo et al. (2021). All question items were modified to reflect the live e-commerce context, as shown in Table 3.5.

Table 3.5: E-Commerce Live Streaming Interaction Quality

Item Code	Original Items	Adapted Items
Responsiveness		
RES1	When I interacted with the e-commerce seller via live streaming, he was willing to answer my questions.	The e-commerce seller was willing to answer my questions when I interacted with him via live streaming.
RES2	When I interacted via live streaming, the e-commerce seller was willing to help me solve my problem.	The e-commerce seller was willing to help me solve my problem when I interacted via live streaming.
RES3	When interacting via live streaming, the e-commerce seller able to provide me with service as quickly as possible.	The e-commerce seller was able to provide me with service as quickly as possible when interacting via live streaming.
RES4	When interacting via live streaming, if the e-commerce seller is busy, he/she will tell me when he/she is available to serve me.	When interacting via live streaming, the e-commerce seller will tell me when he/she is available to serve me if he/she is busy.
Real-time		
RTI1	In live streaming, real time improves the efficiency of my communication with e-commerce sellers.	In live streaming, real-time performance improves the efficiency of communication between me and e-commerce sellers.
RTI2	I can get relevant information through real-time communication with e-commerce sellers.	In live streaming, I can obtain relevant information through real-time communication with e-commerce sellers.
RTI3	In live streaming, my real-time communication with e-commerce sellers can meet my information needs.	In live streaming, real-time communication between me and e-commerce sellers can fulfill my information needs.

Table 3.5 continued

RTI4	Through live interaction, I can find the information I need without making phone inquiries.	Through live streaming interaction, I can find the information I need without having to consult on the phone.
RTI5	Through live interaction, I can find the information I need without consulting the chat software.	Through live interaction, I can find the information I need without consulting chat software.
Empathy		
EMP1	In interacting through livestreams, e-commerce sellers are able to focus on my personal needs as much as possible.	When interacting via live streaming, the e-commerce seller was able to pay as much attention as possible to my personal needs.
EMP2	When interacting through live streaming, e-commerce sellers are able to understand my specific needs.	When interacting via live streaming, the e-commerce seller is able to understand my specific needs.
EMP3	When interacting through live streaming, e-commerce sellers can customize their services according to my needs.	When interacting via live streaming, the e-commerce seller is able to tailor the service to my needs.
EMP4	The service time of the live broadcast is flexible and convenient.	Live streaming has flexible and convenient service hours (the ability to provide personal service according to my schedule).

3.8.4 Social Support

The two dimensions of social support—information support and emotional support scales—were derived from past research exploring the effect of social support on socialised business intention (Zhang, 2023). This study modified the measurement items to align with the live streaming e-commerce context. The information support and emotional support sections contained three and four measurement items, respectively, as shown in Table 3.6.

Table 3.6: Social Support

Item Code	Original Items	Adapted Items
Information Support		
IS1	When I have a problem, others in the live room help me analyze why.	When I have problems, others on the air help me analyse the reasons.
IS2	When I have a problem, others in the living room give me useful information.	When I have a problem, others on the air give me useful information.
IS3	When I have a problem, others in the live room give me advice.	When I have a problem, others on the air give me advice.
Emotional Support		
ES1	When I'm in trouble, other people on the radio pay attention to me.	when I was in trouble, others on the live streaming pay attention to me.
ES2	Other people on the plane comforted and encouraged me when I was in trouble.	when I was in trouble, Others on the live streaming comforted and encouraged me.
ES3	When I am in trouble, other people on the radio will express their opinions.	when I was in trouble, Others on the live streaming express their opinions.
ES4	When I was in trouble, everyone else on the plane cared about me e.	when I was in trouble, Others on the live streaming express concern for me.

3.8.5 Swift Relationship

First defined the concept of swift relationship and developed a scale for measuring swift relationship in virtual environment, which includes three dimensions, namely, mutual understanding, relationship reciprocity and relationship harmony. This is recognised by a wide range of scholars and is currently the most widely used scale (Oliveira et al., 2021). The present study adopted this scale to measure the swift relationship of e-commerce live streaming platforms, as shown in Table 3.7.

Table 3.7: Swift Relationship

Item Code	Original Items	Adapted Items
Mutual Understanding		
MU1	On the live stream, the e-commerce seller and I could hear (and see) each other talking.	On the live streaming, e-commerce sellers and I can hear (and see) each other conversing.
MU2	On the live stream, the e-commerce seller and I can track each other's conversations.	On the live streaming, e-commerce sellers and I can follow each other's conversations.
MU3	On the live stream, e-commerce seller and I can understand each other's point of view.	On the live streaming, e-commerce sellers and I can understand each other's perspectives.
MU4	On the live stream, e-commerce sellers and I show interest in each other's perspectives.	On the live streaming, e-commerce sellers and I show interest in each other's perspectives.
MU5	On the live streaming, e-commerce seller and I can understand each other's needs.	On the live streaming, e-commerce sellers and I can understand each other's needs.
Relationship Reciprocity		
RR1	If I buy from an e-commerce physical seller, he/she may give me a discount.	If I buy from being an e-commerce live seller, he/she may give me a discount.
RR2	E-commerce real sellers and I may provide each other with positive reviews or comments.	The e-commerce live seller and I can provide each other with positive ratings or reviews.
RR3	The e-commerce Real Seller and I may help each other.	The e-commerce live seller and I can help each other.
RR4	The e-commerce Real Seller and I build a friendly relationship by supporting each other.	The e-commerce live seller and I build a friendly relationship by supporting each other.

Table 3.7 continued

Relationship Harmony		
RH1	While watching live or interacting, the e-commerce seller and I were able to coordinate with each other.	When watching or interacting live, the e-commerce seller and I are able to harmonize with each other.
RH2	I and the e-commerce seller able to avoid conflict with each other when watching live or interacting.	When watching or interacting live, the e-commerce seller and I are able to avoid conflict with each other.
RH2	I and the e-commerce seller able to avoid conflict with each other when watching live or interacting.	When watching or interacting live, the e-commerce seller and I are able to avoid conflict with each other.
RH3	E-commerce sellers and I are able to respect each other when watching live streams or interacting.	When watching or interacting live, the e-commerce seller and I are able to respect with each other.

3.9 Pilot Study

Once the questionnaire was finalised, a pre-survey was conducted to identify any design issues. The goal of this pre-survey is to identify and address issues while enabling targeted revisions. This process enhances the clarity, coherence, and ease of understanding of the questionnaire, improving its reliability and quality.

This study recruited 50 undergraduate students for the pre-survey. The pre-survey was conducted primarily through the distribution of paper questionnaires, where participants completed the questionnaires. After face-to-face communication, participants were asked to indicate any unreasonable questions and request modifications. It was determined that the questionnaire data had excellent reliability and validity upon examination of the pre-survey data. Most respondents stated that the questionnaire was straightforward to understand and that they were able to effectively answer all the questions, conjuring memories of their own

online purchasing experiences. The pre-survey questionnaire, however, still uncovered the following issues.

Firstly, certain words in the questionnaire lacked the required context and were overly specialised. Secondly, the questionnaire contained several questions with a high degree of similarity, causing the pre-test participants to become easily bored. Thirdly, the questionnaire contained too many questions, which could lead to a low response rate.

Based on the feedback provided during the pre-survey, the researcher made the following adjustments in response to these issues. Since the measured items of the same variable convey similar meanings, deleting or modifying the statements cannot fully eliminate the issue of excessive similarity. This study solved this issue by randomly dispersing the over-similarity of the measured items: by distributing the excessively similar questions among the other items. By eliminating items that are not as pertinent to the study subject, the issue of having too many items was addressed.

3.10 Model Analysis

This study employs a reflective-formative construct for technology adoption, following Qalati et al. (2021) and Bagheri et al. (2019). The analysis follows a two-stage approach, first assessing the first-order model (Figure 3.5) and then the second-order model (Figure 3.6), as outlined by Qalati et al. (2021) and Hair et al. (2014).

Building on past research in e-commerce and related fields, this study conceptualises information quality, interaction quality, social support, and swift relationship as second-order formative constructs. Information quality is defined by three first-order reflective indicators: credibility, usefulness, and vividness. Interaction quality is reflected by

responsiveness, real-time engagement, and empathy. Social support consists of informational and emotional support as its first-order reflective constructs, while swift relationships are represented by mutual understanding, relational reciprocity, and relational harmony.

The first-order model in this study represents lower-level variables measured through questionnaire items. As noted by Ahmad (2023), these variables correspond to survey responses. For example, in terms of technical feature factors, Real-time interactivity is measured as RI1–RI5, perceived proximity as PP1–PP4, and perceived authenticity as PA1–PA3. For the service quality factor, credibility is measured as CRE1–CRE4, usefulness as USE1–USE4, vividness as VIV1–VIV5, responsiveness as RES1–RES4, real-time as RTI1–RTI5 and empathy as EMP1–EMP4. Purchase intention is measured as PI1–PI3.

The second-order model encompasses variables from the first-order model, which influence their respective indicators (Ahmad, 2023). For example, for the social support factor, this includes information support (IS) and emotional support (ES). For the swift relationship factor, this includes mutual understanding (MU), relationship reciprocity (RR) and relationship harmony (RH). For the information quality factor, this includes credibility (CRE), usefulness (USE), and vividness (VIV). For the information quality factor, this includes responsiveness (RES), real-time (RTI) and empathy (EMP).

To enhance accuracy, Qalati et al. (2021) recommend testing both the first- and second-order models. Therefore, Figures 3.5 and 3.6 are provided to facilitate the reader's understanding. The mediating effects of social support on the relationship between independent variables (RI, PP, PA) and the dependent variable (PI), as well as the mediating

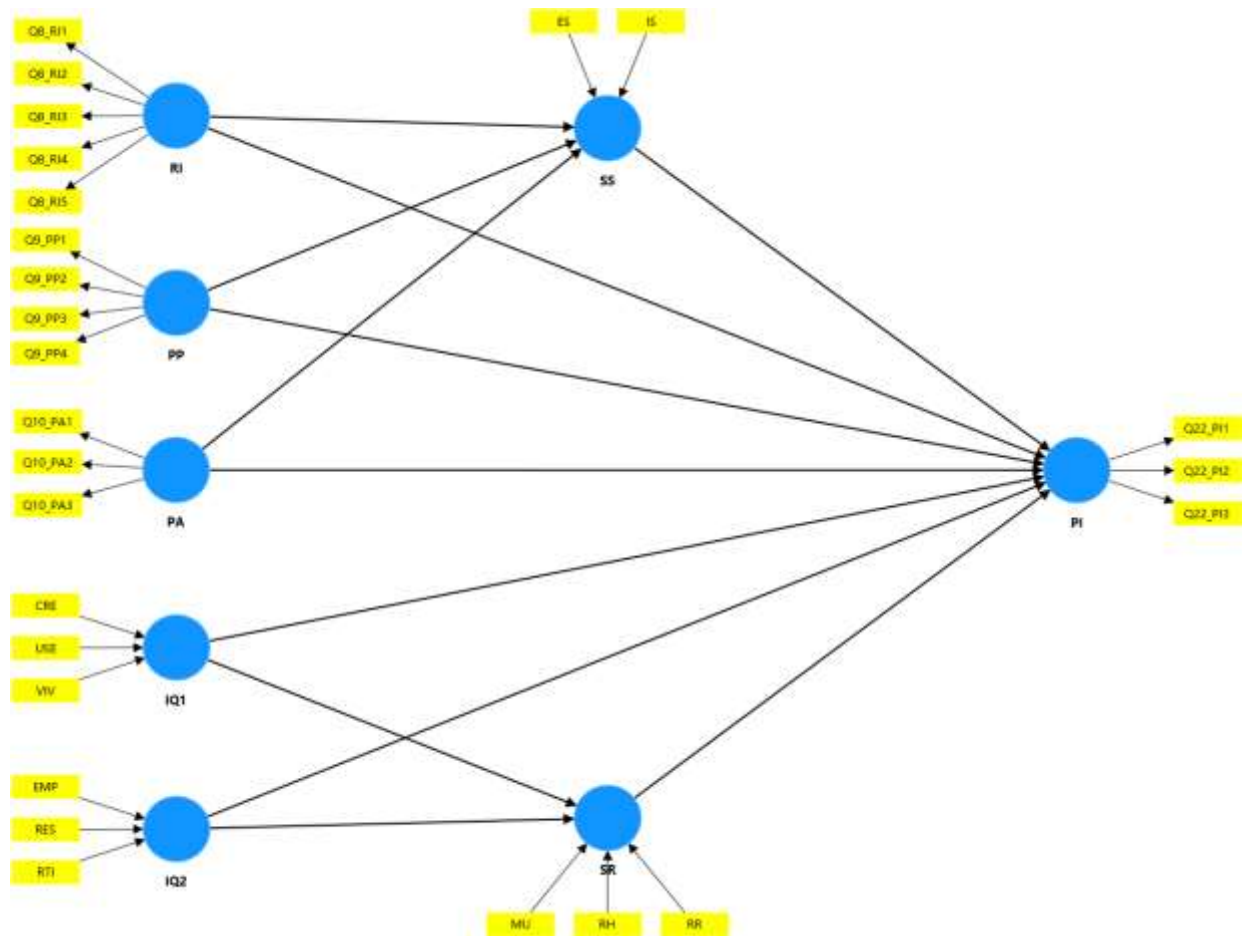


Figure 3.6: Second-Order Model

3.11 Data Analysis

In this study, data analysis was conducted using SPSS version 30 for Microsoft Windows and SmartPLS version 4.0. SPSS 30 to analyse demographic profiles, including descriptive statistics such as the mean, standard deviation, maximum, and minimum values. Additionally, it was used for multicollinearity analysis, reliability and validity testing, and exploratory factor analysis (EFA). Smart PLS 3.0 was utilised for confirmatory factor analysis of the measurement models and hypothesis testing of the structural models. The study also used smart PLS is a partial least squares (PLS) method for component-based structural equation modelling, which is particularly useful for exploratory theory development.

3.11.1 Descriptive Statistics

This study employed descriptive statistics to summarise respondents' demographic characteristics, using frequency, percentages, mean, and standard deviations for analysis. Key demographic factors included age, gender, education level, monthly income, occupation, and viewing frequency. These statistical measures provided a comprehensive overview of the respondents' profiles, ensuring a clear understanding of the sample distribution.

3.11.2 Reliability Analysis

This study performed reliability analysis to measure the stability and internal consistency of the items when measuring the study constructs (Haque & Khatibi, 2005). It is essential to verify the scales this study employed to ensure that they were unambiguous, free of random error, and that all items measured the exact underlying dimensions. Cronbach's coefficient alpha is a common measure to assess the internal consistency of items (Cronbach, 1951). The coefficient values that are closer to 1 indicate higher internal consistency reliability (Cronbach, 1951). As suggested by Sekaran (1992), the ideal coefficient alpha is 0.7. Nunally and Bernstein (1994) also suggest that a coefficient alpha less than 0.60 should be considered poor; values between 0.61 and 0.79 are deemed acceptable; any value more than 0.80 is considered good. Hence, the present study followed the coefficient alpha of 0.7 (Sekaran, 1992) as the minimum acceptable level of reliability. This ensured that the multi-item scales developed in the questionnaire consistently reflected the constructs and concepts being measured.

3.11.3 Kaiser-Meyer-Olkin and Bartlett's test

The study's measurement model was evaluated using the Kaiser-Meyer-Olkin (KMO) test in SPSS Version 30, assessing sampling adequacy and data suitability (Qalati et al.,

2021). The KMO test measures the strength of partial correlations among variables, indicating how well they interrelate. Values close to 1.0 are ideal, while those below 0.5 are considered inadequate. Many researchers suggest a minimum threshold of 0.80 for factor analysis (International Business Machines Corporation, 2021).

This study considered a KMO value above 0.50 sufficient for exploratory factor analysis; values between 0.50 and 0.90 are considered reliable, aligning with Qalati et al. (2021) and Bagheri et al. (2019). Table 3.8 presents the KMO values from Meseguer-Artola et al. (2020) as a reference for data analysis in this study.

Table 3.8: Tabular for KMO

KMO Measure	Interpretation
$KMO \geq 0.90$	Marvellous
$0.80 \leq KMO < 0.90$	Meritorious
$0.70 \leq KMO < 0.80$	Average
$0.60 \leq KMO < 0.70$	Mediocre
$0.50 \leq KMO < 0.60$	Terrible
$KMO < 0.50$	Unacceptable

Source: Meseguer-Artola et al. (2020)

Bartlett's test of sphericity was conducted in SPSS Version 29 to assess whether the correlation matrix is an identity matrix, indicating that the variables are unrelated and unsuitable for factor analysis (Qalati et al., 2021). A significant result ($p < 0.05$) rejects the null hypothesis, confirming interrelationships between variables (International Business Machines Corporation, 2021).

3.11.4 Multicollinearity Statistics

Multicollinearity can impact the standard error of partial regression coefficients in multiple regression analysis, occurring when independent variables are highly correlated (Meyer & Allen, 1997). This study assessed collinearity using tolerance values and variance inflation factor (VIF) analysis. Hair et al. (2014) suggest that in the context of partial least square (PLS), the cut-off point of tolerance value of 0.20 or lower and a VIF value of ≤ 3.3 indicate that the measurement used for each of the variables was valid and free from collinearity (Hair et al. 2014). Comparatively, Neter et al. (1996) recommend that VIF values below 10 indicate the absence of multicollinearity among constructs. Therefore, this study performed a multicollinearity analysis to address the issue of multicollinearity.

3.11.5 Structural Equation Modelling – Partial Least Square (SEM-PLS)

Structural equation modelling (SEM) is an advanced multivariate analysis technique used to test complex causal relationships among variables (Haenlein & Kaplan, 2004; Fan et al., 2020). Unlike first-generation methods such as multiple regression or ANOVA, SEM can simultaneously examine the interactions between various independent and dependent constructs (Haenlein & Kaplan, 2004). Initially based on path analysis, SEM later integrated factor analysis to address the evolving needs of social sciences (Wright, 1921). SEM primarily utilises two types of analysis: path analysis and confirmatory factor analysis. Path analysis quantifies relationships among variables, while confirmatory factor analysis assesses latent variables through correlated variations in the data (Byrne, 2013).

SEM has gained popularity for being one of the most widely used methods in various fields such as analysing intentional data in information systems (Bodoff & Ho, 2016), tourism research, ecological studies (Fan et al., 2020), as well as in business and social

sciences (Henseler et al., 2015). Structural equation modeling (SEM) can be broadly classified into two main approaches: (i) covariance-based SEM (CB-SEM) and (ii) component-based SEM (PLS-SEM).

CB-SEM focuses on assessing how well the observed covariance matrix aligns with the hypothesised covariance model. It evaluates a model's overall fit. Common software for CB-SEM includes LISREL, AMOS, EQS, and Mplus.

PLS-SEM is used primarily for explaining data variance. This approach is beneficial for exploratory research and predictive analysis. Software tools for PLS-SEM include PLS-Graph, VisualPLS, WarpPLS, and SmartPLS, with SmartPLS and WarpPLS being among the most widely used.

PLS-SEM analysis is conducted in two main steps: evaluating the measurement model and the structural model to assess the proposed research framework (Roldán & Sánchez-Franco, 2012; Real et al., 2014; Felipe et al., 2016). Firstly, the measurement model in this study was assessed using the PLS algorithm to evaluate item reliability, convergent validity, and discriminant validity (Roldán & Sánchez-Franco, 2012). Following Real et al. (2014), item loadings should exceed 0.50 to ensure internal consistency (Chin, 2009). Convergent validity is confirmed if composite reliability (CR) is above 0.70 (Chin, 2009) and the average variance extracted (AVE) meets or exceeds 0.50 (Fornell & Larcker, 1981). Discriminant validity is assessed using the Fornell-Larcker criterion, which involves comparing correlation ratios (Henseler et al., 2015). A model meeting these thresholds ensures reliability, convergent validity, and discriminant validity. Secondly, regarding the structural model, once the measurement model is validated, the structural model is analysed

to test hypothesised relationships. This involves evaluating path coefficients, R^2 values, and the significance of relationships to determine the model's explanatory power.

To evaluate the structural model, bootstrapping with 5,000 resamples was conducted to calculate the standard errors, p-values, and t-statistics for the proposed hypotheses. Since this study uses one-tailed hypothesis testing, the t-values should exceed 1.645 for significance at $p < 0.05$ or 2.33 for $p < 0.01$. Additionally, R^2 values for the endogenous constructs were reported to assess the model's explanatory power. Recent research suggests that Q^2 should also be determined to evaluate the predictive relevance of the model (Roldán & Sánchez-Franco, 2012). Thus, this study employed a blindfolding procedure (Chin, 2009). Tables 3.9 and 3.10 detail the criteria for evaluating the measurement and structural models in this study.

Table 3.9: Assessing the Measurement Models

Criterion	Description
Composite Reliability ρ_c	$\rho_c = (\sum \lambda_i)^2 / [(\sum \lambda_i)^2 + \sum \text{Var}(\epsilon_i)]$, where λ_i is the outer (component) loading to an indicator and $\text{Var}(\epsilon_i) = 1 - \lambda_i^2$ in case of standardized indicators. The composite reliability is a measure of internal consistency and must not be lower than 0.6.
Indicator reliability	Absolute standardized outer (component) loadings should be higher than 0.7.
Average variance extracted (AVE)	$\text{AVE} = (\sum \lambda_i^2) / [\sum \lambda_i^2 + \sum \text{Var}(\epsilon_i)]$, where λ_i^2 is the component loading to an indicator and $\text{Var}(\epsilon_i) = 1 - \lambda_i^2$ in case of standardized indicators. The average variance extracted should be higher than 0.5.
Fornell-Larcker criterion	In order to ensure discriminant validity, the AVE of each latent variable should be higher than the squared correlations with all other latent variables. Thereby, each latent variable shares more variance with its own block of indicators than with another latent variable representing a different block of indicators

Table 3.9 continued

Cross-loadings	Cross-loadings offer another check for discriminant validity. If an indicator has a higher correlation with another latent variable than with its respective latent variable, the appropriateness of the model should be reconsidered.
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Sources: (Henseler et al., 2015).

Table 3.10: Assessing the Structural Models

Criterion	Description
R^2 of endogenous Latent variables	R^2 values of 0.67, 0.33, or 0.19 for endogenous latent variables in the inner path model are described as substantial, moderate, or weak by Chin (1998, p.323).
Estimates for path coefficients	The estimated values for path relationships in the structural model should be evaluated in terms of sign, magnitude and significance (the latter via bootstrapping).
Prediction relevance (Q^2 and q^2)	The Q^2 is calculated based on the blindfolding procedure: $Q^2 = 1 - (\sum DSSD) / (\sum DSSOD)$. D is the omission distance. SSE is the sum of squares of prediction errors and SSO is the sum of squares of observations. Q^2 – values above zero give evidence that the observed values are well reconstructed and that the model has predictive relevance (Q^2 –values below zero indicate a lack of predictive relevance). In correspondence of f^2 , the relative impact of the structural model on the observed measures for latent dependent variables can be assessed: $q^2 = (Q^2 \text{ included} - Q^2 \text{ excluded}) / (1 - Q^2 \text{ included})$.

Sources: (Henseler et al, 2015).

3.11.5.1 Average Variance Extracted (AVE)

Average variance extracted (AVE) measures convergent validity by assessing the proportion of variance in the indicators relative to measurement errors (Fornell & Larcker, 1981; Barclay & Smith, 1995). According to Bagozzi and Yi (1988), an AVE value of at least 0.50 is considered acceptable. Values below this threshold indicate that more variance is due to measurement error than to the indicators themselves. The AVE is calculated as shown in Equation 3.2 (Fornell & Larcker, 1981) as follows:

$$AVE = \frac{(\sum \lambda_i^2)}{[\sum \lambda_i^2 + \sum Var(\varepsilon_i)]} \quad \text{Equation 3.2}$$

Note: λ_i indicates the loading of indicator variable i of the latent variable.

ε_i indicates the measurement error of the indicator variable i .

Thus, in the present study, the average variance extracted (AVE) for each variable was calculated to ensure that all AVE values were above the minimum cut-off point of 0.50.

3.11.5.2 Composite Reliability (CR)

To assess the internal consistency of a measurement scale, this study adopted composite reliability (CR) to examine whether the items were free from random errors (Chin, 2009). Churchill (1979) proposed that CR values can range from 0 to 1; however, the higher the CR value, the more reliable it is. The minimum cut-off point for CR is varied among researchers. Nunally and Bernstein (1994) suggest that the CR value should be above 0.60, whereas Churchill (1979) indicates that a minimum of 0.70 is considered an ideal CR value (Fornell & Larcker, 1981; Chin, 2009). The calculation of the CR (Equation 3.3) in the present study is as follows (Fornell & Larcker, 1981:

$$\text{Composite reliability} = \frac{(\sum \lambda_i)^2}{[(\sum \lambda_i)^2 + \sum Var(\varepsilon_i)]} \quad \text{Equation 3.3}$$

Note: λ_i indicates the loading of indicator variable i of a latent variable.

ε_i indicates the measurement error of the indicator variable i .

j represents the flow index across all reflective measurements.

models

The present study calculated the composite reliability (CR) for each variable to ensure that all CR values were above the minimum cutoff point of 0.70, thereby achieving internal consistency of the measurement scale.

3.11.5.3 Cronbach's Alpha

Cronbach's alpha coefficient value is a classical index in reliability analysis to assess the SEM measure of internal consistency (Esposito et al., 2008). The Cronbach's alpha coefficient value should be larger than 0.70 to achieve confirmatory levels (Cronbach, 1951; Henseler et al., 2015). However, McNeish (2017) has argued that there is no longer a need to assess the coefficient alpha. In contrast, Raykov and Marcoulides (2019) propose that there is still a need to measure coefficient alpha as a reliability index under certain empirically examinable conditions. Thus, this study deemed it to be important to measure Cronbach's coefficient alpha. The calculation for Cronbach's alpha (Equation 3.4) in this study is as follows (McNeish, 2017):

$$\text{Cronbach's alpha: } \alpha = \left(\frac{N}{N-1} \right) * \left(1 - \frac{\sum_{i=1}^n \sigma_i^2}{\sigma_t^2} \right) \quad \text{Equation 3.4}$$

Note: N is equivalent to the number of indicators assigned to the factor.

σ_i^2 is the variance of indicator i .

σ_t^2 is the variance of the sum of all the assigned indicator's scores.

Thus, in the present study, the Cronbach's alpha for each of the variables was calculated to ensure that all the CR values were above the minimum cut-off point of 0.70 to achieve confirmatory levels.

3.11.5.4 Convergent Validity

Regarding convergent validity, this study used composite reliability (CR) and average variance extracted (AVE) to measure the reliability of both indicators and the construct reliability. The minimum cut-off point should be 0.70 and 0.50, respectively, for CR and AVE (Fornell & Larcker, 1981; Teo & Koh, 2010). This rule was applied to the present research study to ensure that the framework passed the convergent validity test.

3.11.5.5 Discriminant Validity

Discriminant validity was assessed using the Fornell-Larcker criterion to evaluate how well constructs are distinguished and to analyse correlations among potentially overlapping variables (Fornell et al., 1982). This method compares the square root of each construct's AVE with its correlations with other constructs (Fornell et al., 1982). Discriminant validity is confirmed if the square root of a construct's AVE exceeds its correlations with other constructs in the matrix (Chin, 2009). This study applied the Fornell-Larcker criterion to ensure the research framework meets the required discriminant validity standards.

3.11.5.6 Coefficient of Determination (R^2)

The coefficient of determination (R^2) was reported to evaluate the model's explanatory power (Hair et al., 2014). According to Bagozzi and Yi (1988), an R^2 value of 0.67 signifies a substantial model, while an R^2 of 0.33 indicates a moderate model. An R^2 value of 0.19 is considered weak. This study used R^2 values to classify the model as substantial, moderate, or weak based on its explanatory strength.

3.11.5.7 Predictive Relevance (Q^2)

To assess the predictive relevance (Q^2) of the research model, this study conducted a blindfolding procedure. According to Hair et al. (2014), the Q^2 value should be reported

alongside the R^2 to evaluate a model's predictive relevance. A Q^2 value greater than zero indicates good predictive relevance. Therefore, this study used blindfolding to calculate the Q^2 and determine the model's predictive power.

3.11.6 Testing the Mediator

Introduced by Baron and Kenny (1986), the causal steps approach is one of the most widely used methods for testing indirect effects. Judd and Kenny (1981) suggest that mediation analysis involves estimating three key regression models: (1) regressing the mediator on the independent variable, (2) regressing the dependent variable on the independent variable, and (3) regressing the dependent variable on the independent variable and the mediator.

Judd and Kenny (1981), Baron and Kenny (1986), and MacKinnon, Fairchild, and Fritz (2007) outlined the following conditions for mediation: The independent variable must have a significant correlation with the dependent variable. The independent variable must be significantly associated with the mediator. When both the independent variable and mediator are included as predictors, the mediator must have a significant effect on the dependent variable. The absolute value of the independent variable's effect on the dependent variable should be greater before testing the mediator.

Mediation refers to structural relationships between antecedent and outcome variables, indicating their correlation, which can lead to multicollinearity. This reduces statistical power when regressing the dependent variable on both the independent variable and the mediator (Baron & Kenny, 1986). Therefore, Baron and Kenny (1986) emphasised the importance of assessing both the significance and absolute magnitude of the coefficients.

Beyond the causal steps approach, the Sobel test (Sobel, 1982) directly measures indirect effects rather than inferring them from separate analyses (Hayes, 2009). It assesses whether the indirect effect significantly differs from zero, with the p-value derived from the standard normal distribution. However, a key limitation of the Sobel test is its assumption that the sampling distribution of the indirect effect is normal, while in practice, the distribution of ab is often asymmetric (Hayes, 2009).

Beyond the causal steps approach and the Sobel test, bootstrapping is a robust method for testing mediating effects (Bollen & Stine, 1990). This technique estimates the sampling distribution of the indirect effect by repeatedly resampling the original dataset with replacement, treating it as a proxy for the sample population. For each resample, path coefficients (a and b) are calculated, and their product is recorded (Hayes, 2009).

Hayes (2009) highlighted several advantages of bootstrapping for testing indirect effects. Unlike the Sobel test, bootstrapping does not assume a specific shape for the sampling distribution, as it directly approximates the indirect impact. Additionally, it does not require a standard error for inference. Finally, bootstrapping is a versatile approach applicable to any mediation model, regardless of complexity or the number of paths between X and Y .

3.12 Summary

This chapter begins with an overview of the study location, data collection procedures, and the adaptation and development of measurement items, followed by a pre-test of the questionnaire. Statistical analyses were conducted using two main software tools: SPSS version 30 and SmartPLS version 4.0. SPSS was used to analyse the demographic profiles of the respondents, while SmartPLS facilitated a two-step analysis process. This

included using the PLS algorithm to evaluate the measurement models and the bootstrapping procedure to assess the structural models.

CHAPTER 4

RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the data collection for the present study, including the demographic characteristics and descriptive statistics. Next, it presents the model estimation results for the assessments of (1) the measurement model that cover the validity, reliability, and VIF of the constructs and (2) the structural model with the goodness of estimation, hypotheses testing that includes direct effects, and the mediating effects. The following sections outline the discussions related to hypothesis testing. Finally, a summary of the chapter and a discussion based on the data analysis are presented. In this chapter, the questionnaire survey method, SPSS and SmartPLS statistical software are presented regarding the data analysis. The influence of technical factors and service quality on purchase intention is comprehensively explored.

4.2 Data Cleaning

A systematic data cleaning protocol was implemented to ensure data quality and reliability throughout the study. The five-stage cleaning process followed established methodological standards with rigorous operational criteria.

During the initial data screening phase, completeness checks were conducted, and questionnaires with more than 20% missing values were excluded (Schafer & Graham, 2002). Response patterns were carefully examined to identify and remove random responding behaviours, including straight-lining (selecting identical responses throughout) and speeded

responding (completion time significantly shorter than normal duration). These measures effectively ensured baseline data quality.

For missing data treatment, differentiated strategies were adopted based on variable importance. Critical variables with missing values exceeding 5% were handled using listwise deletion. For continuous variables with less than 5% missing values, mean imputation was applied (American Psychological Association, 2020). Questionnaires with minimal and randomly distributed missing values were retained to maximize usable data while maintaining quality standards.

The outlier detection process employed multiple statistical methods (Aguinis et al., 2013). Univariate outliers were identified using z-scores (absolute value > 3.29), while multivariate outliers were detected through Mahalanobis distance ($p < 0.001$). All identified outliers underwent sensitivity analysis, with appropriate treatments (deletion, winsorization, or retention) determined case-by-case to ensure analytical robustness.

To validate data integrity, comprehensive verification was conducted, including: (1) logical consistency checks for contradictory responses, (2) range verification against expected parameters, and (3) proper skip pattern validation. These meticulous procedures established a reliable foundation for subsequent analyses.

In the final quality assurance stage, 5% of cases were randomly selected for re-examination, with particular attention to proper coding of reverse-scored items. The complete dataset structure was verified before formal analysis. All cleaning decisions and procedures were thoroughly documented to ensure full transparency and reproducibility. This systematic approach not only enhanced the validity and reliability of the current study but also established a replicable framework for future research.

Each participant received compensation of 3 RMB upon completion. A total of 682 respondents participated, with 534 (78.3%) passing the screening question, confirming their experience with e-commerce live streaming. To further ensure data reliability, responses were reviewed based on completion time, response patterns, and completeness of information. Questionnaires completed in an unreasonably short time (less than four minutes, as indicated by the platform's data), those with uniform responses across all items, or those with missing answers were excluded. Following this data screening, 493 valid questionnaires were retained, resulting in a valid response rate of 92.3%.

4.3 Demographic Statistics

Demographic characteristics are essential elements in research that provide an accurate picture to policymakers and managers regarding the characteristics of respondents. Stavrou (1999) argued that without demographic characteristics, research findings cannot be generalised because policymakers and readers are unaware of the respondents' profile. Several scholars also endorsed the notion that demographic characteristics influence behavioural factors (Jensen & Zajac, 2004; Marques et al., 2012). There were six demographic items in the questionnaire that retrieved basic personal information about the samples, including gender, age, education level, monthly income, occupation, and viewing frequency. Based on the above survey and the questionnaire demographic variables for the samples, Table 4.1 shows the basic characteristics of the respondents counted.

Table 4.1: Demographic Variables for Samples

S/N	Demographic Variables	Frequency (N = 493)	Valid %
1	Gender		
	Male	222	45.0
	Female	271	55.0
2	Age		
	under 18 years old	14	2.8
	19 to 25 years old	198	40.2
	26 to 30 years old	43	8.7
	31 to 35 years old	128	26.0
	36 years old and above	110	22.3
3	Education Level		
	High school and below	45	9.1
	Specialist	156	31.6
	Undergraduate	230	46.7
	Graduate and above	62	12.6
4	Monthly Income		
	below 3000 RMB	150	30.4
	3000 to 4999 RMB	132	26.8
	5000 to 7999 RMB	113	22.9
	more than 8000 RMB	98	19.9
5	Occupation		
	Student	237	48.0
	Company employee	133	27.0
	Institution worker	37	7.5
	Freelance worker	54	11.0
	Other	32	6.5

Table 4.1 continued

6	Viewing Frequency		
	Several times a day	47	9.5
	Once a day	55	11.2
	Several times a week	181	36.7
	Once a week	98	19.9
	Several times a month	67	13.6
	Once a month	45	9.1

Gender of the survey sample. Among survey respondents, 45.0% were male and 55.0% were female who had watched or purchased on e-commerce live streaming platforms, representing more female than male respondents. Based on the 2023 China Live E-commerce Industry Report, the number of female consumers who like to shop online, especially receiving online services, is greater than the number of male consumers (Imedia Research, 2024).

Age profile of the survey sample. The survey showed that respondents were under 18 years old (2.8%), 19 to 25 years old (40.2%), 26 to 30 years old (8.7%), 31 to 35 years old (26.0%) and 36 years old and above (22.3%). Nearly 80% of the respondents in the study sample were under the age of 35, with approximately 50% falling between the ages of 19 and 30. This indicates that the respondents comprised a large portion of younger age groups. Based on the China Online Shopping Market Research Report (CNNIC, 2024), the audience with the highest participation rate for live shopping is younger generations under the age of 30.

The survey sample's education level. Among the respondents, the breakdown was as follows: high school and below (9.1%), specialist (31.6%), undergraduate (46.7%), and

graduate and above (12.6%). Specialist and undergraduate qualifications accounted for more than 70% of the total number of respondents, with only a few having high school or lower qualifications. This finding suggests that e-commerce live shopping as a mode of consumption can be quickly accepted by the highly educated group.

Occupation and monthly income of the survey sample. The survey data shows that the respondents had a monthly income below 3000 RMB (30.4%), 3000 to 4999 RMB (26.8%), 5000 to 7999 RMB (22.9%), and more than 8000 RMB (19.9%). Among the respondents were students (48.0%), company employees (27.0%), institution workers (7.5%), freelance workers (11.0%), and others (6.5%). In this survey, the proportion of students was the largest, followed by company employees and freelance professionals. Due to the lower income levels of students, most respondents reported a monthly income of less than 3,000 RMB. The distribution of occupation and income aligns with the overall age demographics, ensuring a reasonable and representative sample structure.

The survey results provide a clear overview of respondents' live streaming viewing frequency on e-commerce platforms. The distribution is as follows: several times a day (9.5%), once a day (11.2%), several times a week (36.7%), once a week (19.9%), several times a month (13.6%), and once a month (9.1%). Overall, most respondents engage with live streaming at least once a week or several times a week. Given its entertainment value, some individuals watch at a higher frequency, reaching once a day or even multiple times a day. The statistical distribution indicates a balanced proportion of both frequent and infrequent viewers, ensuring the survey results are reasonable and representative.

4.4 Descriptive Statistics

To assess the suitability of the questionnaire for in-depth analysis, the survey data were first examined using descriptive statistics. This analysis primarily focused on the mean and standard deviation of each item. The mean value indicates the central tendency of the responses, with an optimal range close to the midpoint to avoid bias in the analysis results (Jones, 1980). The standard deviation measures the dispersion and variability of responses relative to the mean, with a general threshold of at least 0.5 for survey research. A lower standard deviation suggests minimal differentiation among respondents; a higher standard deviation indicates greater variability in responses, confirming the questionnaire's discriminatory power (Kell, 2016).

Table 4.2 presents key descriptive statistics for the constructs examined in this study. The study includes 15 variables: real-time interactivity (RI), perceived proximity (PP), perceived authenticity (PA), information support (IS), emotional support (ES), credibility (CRE), usefulness (USE), vividness (VIV), responsiveness (RES), real-time (RTI), empathy (EMP), mutual understanding (MU), relationship reciprocity (RR), relationship harmony (RH), and purchase intention (PI). Table 4.2 presents the statistical results for the mean and standard deviation of the measurement items. The mean values range from 4.40 to 4.70, with standard deviations exceeding 1, indicating no extreme mean values in respondents' ratings. This reflects substantial response variability, enabling meaningful data extraction. Overall, the questionnaire design and collected data exhibit strong reliability and validity, supporting further measurement and structural model analyses.

Table 4.2: Descriptive Statistics

Variables	N	Items	Mean	Std. Deviation
Real-time interactivity (RI)	493	RI1	4.63	1.064
		RI2	4.69	1.045
		RI3	4.67	1.079
		RI4	4.69	1.056
		RI5	4.66	1.073
Perceived Proximity (PP)	493	PP1	4.57	1.052
		PP2	4.63	1.054
		PP3	4.67	1.007
		PP4	4.59	1.108
Perceived Authenticity (PA)	493	PA1	4.58	1.120
		PA2	4.57	1.081
		PA3	4.56	1.086
Information Support (IS)	493	IS1	4.45	1.094
		IS2	4.59	1.070
		IS3	4.52	1.114
Emotional Support (ES)	493	ES1	4.55	1.119
		ES2	4.50	1.097
		ES3	4.59	1.058
		ES4	4.58	1.047
Credibility (CRE)	493	CRE1	4.52	1.092
		CRE2	4.55	1.071
		CRE3	4.60	1.091
		CRE4	4.53	1.090
Usefulness (USE)	493	USE1	4.46	1.107
		USE2	4.60	1.096
		USE3	4.48	1.109
		USE4	4.51	1.107
Purchase Intention (PI)	493	PI1	4.59	1.107
		PI2	4.44	1.146
		PI3	4.51	1.130

Table 4.2 continued

Vividness (VIV)	493	VIV1	4.59	1.092
		VIV2	4.50	1.126
		VIV3	4.53	1.104
		VIV4	4.62	1.061
		VIV5	4.62	1.153
Responsiveness (RES)	493	RES1	4.69	1.106
		RES2	4.50	1.147
		RES3	4.54	1.157
		RES4	4.65	1.103
Real-time (RTI)	493	RTI1	4.53	1.013
		RTI2	4.54	1.982
		RTI3	4.60	1.978
		RTI4	4.63	1.976
		RTI5	4.59	1.960
Empathy (EMP)	493	EMP1	4.56	1.116
		EMP2	4.63	1.060
		EMP3	4.47	1.091
		EMP4	4.51	1.098
Mutual Understanding (MU)	493	MU1	4.68	1.025
		MU2	4.57	1.079
		MU3	4.59	1.086
		MU4	4.53	1.105
		MU5	4.63	1.053
Relationship Reciprocity (RR)	493	RR1	4.60	1.038
		RR2	4.48	1.113
		RR3	4.59	1.074
		RR4	4.49	1.114
Relationship Harmony (RH)	493	RH1	4.63	1.044
		RH2	4.50	1.099
		RH3	4.55	1.103

4.5 Measurement Model Assessment

To ensure data validation, this study follows the approach of Qalati et al. (2021) by applying a reflective-formative construct for technology adoption. Data validation is conducted using SPSS Version 30, where the Kaiser-Meyer-Olkin (KMO) test and Bartlett's test are performed to assess sampling adequacy. Additionally, reflective measurement is evaluated in SmartPLS 4.0 through Cronbach's alpha, composite reliability (CR), convergent validity, and discriminant validity using the Fornell-Larcker criterion (Fornell & Larcker, 1981). For formative measurement, collinearity is assessed using the variance inflation factor (VIF) in SmartPLS 4.0.

4.5.1 Kaiser-Meyer-Olkin and Bartlett's test

The measurement model evaluation in this study was the Kaiser-Meyer-Olkin (KMO) test and Bartlett's Test of Sphericity to assess sampling adequacy and data suitability, as shown in Table 4.3 (Qalati et al., 2021). The KMO values for key variables were as follows: real-time interactivity (0.885), perceived proximity (0.862), perceived authenticity (0.809), information quality (0.894), interaction quality (0.870), social support (0.820), swift relationship (0.864), and purchase intention (0.826). All values exceeded 0.80, meeting the threshold recommended by Rodríguez-Ardura and Meseguer-Artola (2020) for conducting factor analysis. These scholars suggest that KMO values between 0.80 and 0.90 are considered meritorious, while values above 0.90 are deemed outstanding. This aligns with findings from Qalati et al. (2021), indicating that KMO values above 0.50 are suitable for explanatory factor analysis. Similarly, Bagheri et al. (2019) regard KMO values between 0.50 and 0.90 as reliable, with values approaching 1.0 being optimal.

Table 4.3: Kaiser-Meyer-Olkin and Bartlett's test

Items	KMO	Bartlett's Test
Real-time interactivity	0.885	<.001
Perceived Proximity	0.862	<.001
Perceived Authenticity	0.809	<.001
Information Quality	0.894	<.001
Interaction Quality	0.870	<.001
Social Support	0.820	<.001
Swift Relationship	0.864	<.001
Purchase Intention	0.826	<.001

Similarly, the Bartlett's Test of Sphericity results in this study were all highly significant ($p < 0.001$), well below the 0.05 threshold. This result confirms the suitability of the data for factor analysis, as shown in Table 4.3. These findings align with the pilot test results and prior research by Qalati et al. (2021) and Bagheri et al. (2019). According to these studies, a significance level below 0.05 is desirable, as it rejects the null hypothesis, indicating that the correlation matrix is not an identity matrix and that interrelationships exist among the variables (Qalati et al., 2021; Bagheri et al., 2019).

4.5.2 Construct Reliability

Cronbach's alpha (α) is a widely recognised measure of internal consistency reliability, assessing the degree of intercorrelation among observed indicators (Qalati et al., 2021). A Cronbach's alpha value above 0.7 is generally considered acceptable for reliability (Qalati et al., 2021). This standard is also supported by Bagheri et al. (2019), Cortina (1993), and Cronbach (1951) in evaluating the reliability of higher-order constructs. Additionally,

Arilaha et al. (2021) suggest that a reliable Cronbach's alpha typically falls within the range of 0.60 to 0.95.

Based on the model analysis in Table 4.4, the Cronbach's alpha for the independent variable real-time interactivity (RI) was 0.918, perceived proximity (PP) was 0.892, perceived authenticity (PA) was 0.854, information support (IS) was 0.846, emotional support (ES) was 0.898, credibility (CRE) was 0.876, usefulness (USE) was 0.904, vividness (VIV) was 0.919, responsiveness (RES) was 0.877, real-time (RTI) was 0.906, empathy (EMP) was 0.900, mutual understanding (MU) was 0.912, relationship reciprocity (RR) was 0.900, relationship harmony (RH) was 0.862 and purchase intention (PI) was 0.862. These values confirm the construct's reliability within the model.

Table 4.4: Reliability Test

Variables	Cronbach's alpha	No. of items
Real-time interactivity (RI)	0.918	5
Perceived Proximity (PP)	0.892	4
Perceived Authenticity (PA)	0.854	3
Information Support (IS)	0.846	3
Emotional Support (ES)	0.898	4
Credibility (CRE)	0.876	4
Usefulness (USE)	0.904	4
Vividness (VIV)	0.919	5
Responsiveness (RES)	0.877	4
Real-time (RTI)	0.906	5
Empathy (EMP)	0.900	4
Mutual Understanding (MU)	0.912	5
Relationship Reciprocity (RR)	0.900	4
Relationship Harmony (RH)	0.862	3
Purchase Intention (PI)	0.862	3

4.5.3 Convergent and Discriminant Validity

This study conducted confirmatory factor analysis to establish convergent validity, ensuring that measurement instruments designed to assess the same construct were strongly correlated (Sekaran & Bougie, 2010). Convergent validity (CV) was evaluated using factor loadings, average variance extracted (AVE), and composite reliability (CR) (Fornell & Larcker, 1981; Hair et al., 2014).

According to Hair et al. (2014), AVE represents the average variance explained by the items, with a value above 0.50 indicating sufficient construct representation. A valid research model requires standardised factor loadings above 0.7 and composite reliability of at least 0.7 (Bagozzi & Yi, 1988). As stated by Qalati et al. (2021) and Bagheri et al. (2019), composite reliability must exceed 0.70 to ensure the findings are highly reliable and the data are suitable for further analysis.

Table 4.5 shows that all the items for constructs have individual factor loadings that are higher than the recommended level of 0.7. Furthermore, the overall constructs have AVE values greater than 0.5 and high composite reliability, with values exceeding 0.7. Therefore, the results show evidence of convergent validity (CV).

Table 4.5: Convergent Validity

Variables	Items	Outer loadings	AVE	Composite reliability
Real-time interactivity (RI)	RI1	0.871	0.752	0.938
	RI2	0.840		
	RI3	0.877		
	RI4	0.847		
	RI5	0.863		

Table 4.5 continued

Perceived Proximity (PP)	PP1	0.854	0.755	0.925
	PP2	0.874		
	PP3	0.866		
	PP4	0.849		
Perceived Authenticity (PA)	PA1	0.884	0.774	0.911
	PA2	0.887		
	PA3	0.878		
Information Support (IS)	IS1	0.895	0.765	0.907
	IS2	0.860		
	IS3	0.866		
Emotional Support (ES)	ES1	0.862	0.766	0.929
	ES2	0.858		
	ES3	0.885		
	ES4	0.869		
Credibility (CRE)	CRE1	0.865	0.729	0.915
	CRE2	0.867		
	CRE3	0.847		
	CRE4	0.838		
Usefulness (USE)	USE1	0.873	0.776	0.933
	USE2	0.883		
	USE3	0.873		
	USE4	0.885		
Vividness (VIV)	VIV1	0.866	0.756	0.939
	VIV2	0.861		
	VIV3	0.862		
	VIV4	0.887		
	VIV5	0.861		
Responsiveness (RES)	RES1	0.850	0.731	0.916
	RES2	0.846		
	RES3	0.867		
	RES4	0.865		

Table 4.5 continued

Real-time (RTI)	RTI1	0.835	0.726	0.930
	RTI2	0.862		
	RTI3	0.841		
	RTI4	0.843		
	RTI5	0.855		
Empathy (EMP)	EMP1	0.903	0.770	0.931
	EMP2	0.857		
	EMP3	0.891		
	EMP4	0.865		
Mutual Understanding (MU)	MU1	0.851	0.740	0.934
	MU2	0.861		
	MU3	0.856		
	MU4	0.844		
	MU5	0.869		
Relationship Reciprocity (RR)	RR1	0.875	0.769	0.930
	RR2	0.858		
	RR3	0.869		
	RR4	0.896		
Relationship Harmony (RH)	RH1	0.870	0.783	0.916
	RH2	0.893		
	RH3	0.879		
Purchase Intention (PI)	PI1	0.890	0.783	0.916
	PI2	0.878		
	PI3	0.887		

Discriminant validity assesses the extent to which measurement items in a scale are distinct from those in other scales within a reflective measurement model. It ensures that each set of items captures a unique construct and does not overlap with others in representing distinct phenomena.

Moreover, discriminant validity is assessed using the AVE, which should exceed the squared correlations between constructs (Fornell & Larcker, 1981). Table 4.6 shows that the AVE for each construct surpasses its corresponding squared inter-scale correlation, confirming discriminant validity.

Table 4.6: Discriminant Validity

	CRE	EMP	ES	IS	MU	PA	PI	PP	RES	RH	RI	RR	RTI	USE	VIV
CRE	0.854														
EMP	0.452	0.879													
ES	0.397	0.436	0.869												
IS	0.423	0.443	0.424	0.874											
MU	0.415	0.469	0.5	0.494	0.856										
PA	0.446	0.479	0.434	0.492	0.443	0.883									
PI	0.478	0.498	0.488	0.491	0.535	0.442	0.885								
PP	0.471	0.447	0.496	0.309	0.454	0.421	0.44	0.861							
RES	0.517	0.434	0.391	0.442	0.465	0.453	0.483	0.4	0.857						
RH	0.447	0.477	0.438	0.4	0.501	0.458	0.493	0.548	0.413	0.881					
RI	0.462	0.524	0.535	0.479	0.459	0.48	0.472	0.423	0.411	0.448	0.86				
RR	0.449	0.564	0.533	0.479	0.574	0.418	0.537	0.452	0.496	0.526	0.447	0.875			
RTI	0.418	0.452	0.405	0.471	0.443	0.438	0.421	0.441	0.386	0.434	0.491	0.468	0.847		
USE	0.419	0.413	0.437	0.402	0.495	0.482	0.473	0.415	0.408	0.453	0.382	0.458	0.431	0.878	
VIV	0.515	0.398	0.428	0.376	0.38	0.419	0.469	0.538	0.462	0.522	0.471	0.474	0.446	0.43	0.868

Notes: CRE= Credibility, EMP= Empathy, ES= Emotional Support, IS= Information Support, MU= Mutual Understanding, PA= Perceived Authenticity, PI= Purchase Intention, PP= Perceived Proximity, RES= Responsiveness, RH= Relationship Harmony, RI= Real-time interactivity, RR= Relationship Reciprocity, RTI= Real-time, USE= Usefulness, VIV= Vividness

4.5.4 Multicollinearity

The variance inflation factor (VIF) is used to assess the extent of multicollinearity in a regression analysis. According to Freund and Littell (2000), VIF measures how multicollinearity would impact the instability of the coefficient estimates. Kock (2015) suggests that if the VIFs of the inner model, obtained through a full collinearity test, are 3.3 or lower, the model can be regarded as free from common method bias (CMB). Since information quality, interaction quality, social support, and swift relationship are formative indicators, it is necessary to test their dimensions for multicollinearity.

Table 4.7: Formative Variance Inflation Factors Results

Formative Construct	Items	Outer Weight	t-value	VIF
Information Quality	CRE	0.412	6.281	1.464
	USE	0.431	5.980	1.346
	VIV	0.401	5.970	1.476
Interaction Quality	RES	0.417	6.461	1.338
	RTI	0.364	5.857	1.320
	EMP	0.482	7.632	1.394
Swift Relationship	MU	0.361	6.498	1.645
	RR	0.456	8.717	1.603
	RH	0.387	6.869	1.509
Social Support	IS	0.567	9.396	1.259
	ES	0.604	9.942	1.259

Table 4.7 presents the variance inflation factor (VIF) results for assessing the second-order formative latent variables in this study. The findings indicate that all VIF values range from 1.259 to 1.645, confirming that common method bias (CMB) is not a concern.

Therefore, this study validates that information quality, interaction quality, social support, and swift relationship can be conceptualized as formative indicators.

4.6 Structural Model Assessment

The measurement model results confirm the validity and reliability of the reflective and formative models. This section focuses on evaluating the structural model, i.e. the inner model assessment, by examining its predictive capabilities and the significance of relationships between constructs. Following Hair et al. (2014) and Henseler et al. (2015), the evaluation considers the direction and strength of path coefficients (β values), their significance levels through bootstrapping, the R^2 values of endogenous latent variables, and t-values.

4.6.1 Direct Effects Testing

Table 4.8 presents the path coefficients and hypothesis testing results for the direct relationships in H1–H7 and H11–H15. Path coefficients range from -1 to +1, with values closer to +1 indicating strong positive associations (Qalati et al., 2021; Bagheri et al., 2019). While high coefficients generally suggest statistical significance, this study further verifies significance through bootstrapping. A path coefficient is considered significant if it meets the 0.05 threshold, following the criteria established by Qalati et al. (2021) and Bagheri et al. (2019); this requires a t-value above 1.96 and a p-value below 0.05 in a two-tailed test.

Table 4.8: Testing of Direct Effect Hypotheses

Hypotheses	Paths	Path coefficient	Mean	Standard Error	T-statistics	P-values
H1	RI→PI	0.132	0.130	0.063	2.079	0.038*
H2	PP→PI	0.120	0.119	0.054	2.211	0.027*
H3	PA→PI	0.133	0.132	0.062	2.147	0.032*
H4	RI→SS	0.316	0.317	0.046	6.898	0.000**
H5	PP→SS	0.205	0.205	0.051	4.046	0.000**
H6	PA→SS	0.355	0.355	0.050	7.109	0.000**
H7	SS→PI	0.156	0.155	0.070	2.214	0.027*
H11	IQ1→PI	0.136	0.138	0.068	2.006	0.045*
H12	IQ2→PI	0.047	0.052	0.072	0.659	0.510
H13	IQ1→SR	0.358	0.361	0.056	6.449	0.000**
H14	IQ2→SR	0.474	0.475	0.057	8.358	0.000**
H15	SR→PI	0.213	0.212	0.077	2.745	0.006**

Notes: Significant at 0.01** Significant at 0.05*

The path coefficient for H1 from RI to PI was 0.132. The path coefficient for H2 from PP to PI was 0.120. The path coefficient for H3 from PA to PI was 0.133. The path coefficient for H4 from RI to SS was 0.316. The path coefficient for H5 from PP to SS was 0.205. The path coefficient for H6 from PA to SS was 0.355, The path coefficient for H7 from SS to PI was 0.156, The path coefficient for H11 from IQ1 to PI was 0.136. The path coefficient for H12 from IQ2 to PI was 0.047. The path coefficient for H13 from IQ1 to SR was 0.358. The path coefficient for H14 from IQ2 to SR was 0.474. The path coefficient for H15 from SR to PI was 0.213.

The p-value for H1 was 0.038, H2 was 0.027, H3 was 0.032, H4 was 0.000, H5 was 0.000, H6 was 0.000, H7 was 0.027, H11 was 0.045, H12 was 0.510, H13 was 0.000, H14

was 0.000, and H15 was 0.006. The results confirm that all variables are statistically significant at $p < 0.05$, except H12 (IQ2→PI). Additionally, the mean values are 0.130 for H1, 0.119 for H2, 0.132 for H3, 0.317 for H4, 0.205 for H5, 0.355 for H6, 0.155 for H7, 0.138 for H11, 0.052 for H12, 0.361 for H13, 0.475 for H14, 0.212 for H15, with low standard deviations of 0.063, 0.054, 0.062, 0.046, 0.051, 0.050, 0.070, 0.068, 0.072, 0.056, 0.057 and 0.077, respectively. The low standard deviations indicate data reliability as they are close to the mean. Therefore, hypothesis testing supports the model for H1 to H7, H11, H13 to H15, but it does not support H12.

4.6.2 GoF, R² and Q²

Hair et al. (2014) define the structural model as a path framework linking independent and dependent variables. Established theories and guidelines help researchers determine the impact of independent variables on the dependent variable. This study assesses the structural model through path analysis to evaluate path coefficients and goodness-of-fit (GoF). Bootstrapping is used to determine the coefficient of determination (R²), and the blindfolding procedure is employed to calculate Stone-Geisser's Q² for predictive relevance, ensuring rigorous hypothesis testing.

This study assessed model fit using the goodness-of-fit (GoF) measure, with the standardised root mean square residual (SRMR) as a key indicator of the absolute mean covariance residuals (Qalati et al., 2021). The SRMR converts both the sample and predicted covariance matrices into correlation matrices, allowing for a comparison between observed and expected correlations to assess model fit. An SRMR value of ≤ 0.08 indicates a good fit, while a value of 0 represents a perfect fit, helping identify and address model misspecifications (Qalati et al., 2021; Bagheri et al., 2019). Table 4.9 shows that the SRMR

for this study was 0.037, well below the 0.08 threshold, confirming a good model fit. Furthermore, the normative fit index (NFI) was 0.885, where values closer to 1 indicate a better fit (Smeulders, Crama, & Spieksma, 2022).

Table 4.9: GoF (SRMR-NFI)

Model fit	Saturated Model	Estimated Model
SRMR	0.037	0.054
NFI	0.885	0.875

This study evaluated the significance and relevance of structural model relationships using the PLS-SEM bootstrapping procedure. Following the recommendations of Qalati et al. (2021) and Bagheri et al. (2019), 5,000 bootstrap samples were generated to enhance the robustness of the results. Prior research advocates using the percentile method to construct confidence intervals for parameter estimates, typically assuming a symmetrical bootstrap distribution (i.e. a normal distribution) as the default setting. The model's predictive accuracy was assessed through the coefficient of determination (R^2), which quantifies the variance in the endogenous construct explained by all associated exogenous constructs, ranging from 0 to 1. Higher R^2 values indicate greater predictive power. According to Qalati et al. (2021) and Chin (2009), R^2 values are classified as substantial (>0.60), moderate (0.33), and weak (0.19). Table 4.10 shows that the R^2 for SS was 0.487, the R^2 for SR was 0.589, and the R^2 for PI was 0.568, indicating that the model explains all variance in the construct. This confirms that the models in this study are valid and accepted.

This study further evaluated the predictive relevance of the path model using the blindfolding procedure, a widely adopted technique for assessing predictive accuracy. This method is particularly suitable for endogenous constructs with reflective measurement

models; lower prediction errors signify higher predictive accuracy. Qalati et al. (2021) advocate using the cross-validated redundancy (CVR) approach to estimate the structural model's predictive capability. Following Qalati et al. (2021) and Ramadhan et al. (2022), Stone-Geisser's Q^2 predictive relevance (Q^2) values greater than 0 ($Q^2 > 0$) confirm that exogenous constructs contribute to predicting the endogenous construct. Table 4.10 presents the Q^2 values for SS (0.474), SR (0.575), and PI (0.511), all of which exceed 0, thereby confirming the predictive relevance of the inner model. These findings validate the model's predictive power and overall acceptability.

Table 4.10: Coefficient of Determination (R^2) and (Q^2)

Variables	R^2	Q^2
Social Support (SS)	0.487	0.474
Swift Relationship (SR)	0.589	0.575
Purchase Intention (PI)	0.568	0.511

4.6.3 Mediation Analysis

A mediating effect occurs when a third variable influences the relationship between an independent and dependent variable (Cepeda-Carrion et al., 2017). This study took social support (SS) and swift relationship (SR) as the mediating variables.

Bootstrapping was conducted to test the indirect or mediating effects in this study. This method is preferred for inferential testing of mediators, as it is more valid and statistically powerful than other approaches (Bollen & Stine, 1990; MacKinnon, 2008). Bootstrapping, a non-parametric inferential technique, involves repeatedly drawing random subsamples with replacement from the original dataset (Cepeda-Carrion et al., 2017). This method was applied to assess mediating effects by examining the indirect relationship

between the independent variable and the mediator (path a), as well as the mediator and the dependent variable (path b). The mediation effect was evaluated based on the product of these paths ($a \times b$).

This study examined five indirect effects. The first explored the mediating role of social support (SS) in the relationship between real-time interactivity (RI) and purchase intention (PI). The second assessed the mediation of SS in the link between perceived proximity (PP) and PI. The third investigated how perceived authenticity (PA) influences PI through the mediating effect of SS. The fourth analysed the role of swift relationship (SR) as a mediator between information quality (IQ1) and PI. Finally, the fifth examined SR's mediation in the relationship between interaction quality (IQ2) and PI.

The path coefficient results and model hypothesis testing indicate an indirect relationship (mediating effects), as presented in Table 4.11. Thus, the path coefficients for H8 to H10 and H16 and H17 are supported, indicating positive relationships, with values of 0.049, 0.032, 0.055, 0.076, and 0.101, respectively (Qalati et al., 2021; Bagheri et al., 2019). Additionally, all hypotheses are statistically significant at $p < 0.05$. Additional analysis shows that the mean values for H8 to H10 and H16 and H17 were 0.050, 0.031, 0.055, 0.077, and 0.101, respectively, with low standard deviations of 0.025, 0.016, 0.026, 0.031, and 0.038. This suggests that the data are reliable, as they are closely clustered around the mean. The bias-corrected 95% confidence interval [LLC, ULC] does not include 0, indicating the presence of a mediating effect. Therefore, hypothesis testing confirms the support for H8 to H10 and H16 and H17 in the model with mediation effects.

Table 4.11: Indirect Effects from Bootstrapping

Hypotheses	Paths	β	Mean	S.D	T-statistics	P-values	LLC	ULC
H8	RI→SS →PI	0.049	0.050	0.025	1.988	0.047*	0.005	0.101
H9	PP→SS →PI	0.032	0.031	0.016	2.043	0.041*	0.004	0.064
H10	PA→SS →PI	0.055	0.055	0.026	2.104	0.035*	0.006	0.109
H16	IQ1→SR →PI	0.076	0.077	0.031	2.456	0.014*	0.020	0.141
H17	IQ2→SR →PI	0.101	0.101	0.038	2.638	0.008**	0.028	0.177

Notes: Significant at 0.01** Significant at 0.05*

Since the mediating effects were statistically significant, Table 4.12 presents the types of the two hypotheses. The results indicate that the direct impact of two variables (IQ2 → PI) was not significant, suggesting full mediation by the swift relationship (SR). Full mediation occurs when the indirect effect ($a \times b$) is significant, while the direct effect (c) is not (Cepeda-Carrion et al., 2017). This means that the relationship between the independent and dependent variables exists only through the mediator.

Table 4.12: Validation of Mediation Hypotheses

Hypotheses	Direct effects	Indirect effects	Mediation
H12	IQ2→PI $\beta = 0.047$ $p = 0.510$		
H17		IQ2→SR→PI $\beta = 0.101$ $p = 0.008^{**}$	Full

4.7 Discussion on Hypothesis

This study examined 17 hypotheses. The five dimensions of e-commerce live streaming encompass real-time interactivity, perceived proximity, perceived authenticity, information quality, and interaction quality. With social support and swift relationship serving as mediators.

4.7.1 H1: Real-time interactivity positively affects purchase intention

The findings indicate that Real-time interactivity encourages purchase intention. This aligns with Hsu et al. (2023), who suggested that interactive real-time features of websites play a crucial role in shaping consumer experiences by evoking positive emotions. This leads to prolonged browsing time and a greater willingness to make online purchases. These features enhance user engagement by creating a dynamic and immersive environment that fosters interactivity and responsiveness.

Similarly, consistent with McCarthy and Aronson (2021), three key technical attributes—readability, real-time capabilities, and information richness—have been identified as significant factors influencing users' continued engagement with a website. Readability ensures that information is easily accessible and comprehensible, real-time capabilities enhance user interaction and responsiveness, and information richness provides comprehensive and detailed content that meets users' needs. These features collectively contribute to a more engaging and satisfying online experience.

4.7.2 H2: Perceived proximity positively affects purchase intention.

This study establishes that perceived proximity has a positive impact on purchase intention, consistent with the findings of Hu et al. (2021) and Zhang et al. (2022). Hu et al. (2021) explored the role of perceived proximity, a key technical feature of a website, in

shaping consumers' purchase intention. Their study revealed that several factors contribute to enhancing the perceived utility of social commerce platforms. These factors include similarity among users, the expertise of peer members within online communities, website-supported recommendation systems, and interactive social features. By fostering a sense of closeness and relevance, these elements encourage user engagement and positively influence purchasing decisions.

Zhang et al. (2022) indicates these factors play a crucial role in enhancing both the virtual experience of social support—where users feel assisted and connected within the online community—and the sense of social presence, which fosters a stronger connection between users and the platform. Collectively, these insights highlight the importance of website design and technical feature in driving user engagement, fostering trust, and shaping consumer behaviour within the context of social commerce.

4.7.3 H3: Perceived authenticity positively affects purchase intention.

This study establishes that perceived authenticity plays a significant role in enhancing purchase intention. This finding aligns with the findings of Guo et al. (2021), who emphasised the impact of real-time comments integrated into live video interfaces. These interactive features create a sense of spatial authenticity by allowing consumers to perceive the presence of others, fostering a more engaging and immersive shopping experience.

Despite the physical distance between online sellers and consumers, e-commerce live streaming bridges this gap by simulating real-world interactions. The synchronous nature of live streaming, combined with instant viewer engagement, enhances the realism of the shopping process. Consumers can ask questions, receive immediate responses, and observe product demonstrations in real time, which helps build trust and confidence in their purchase

decisions (Wu et al., 2021). This heightened sense of authenticity strengthens consumer engagement and positively influences their intention to make online purchases.

4.7.4 H4: Real-time interactivity positively affects social support

The study finds that real-time interactivity enhances social support. The Real-time interactivity features of e-commerce live streaming are essential in fostering social support, highlighting its significance as a key determinant of social connectedness in online shopping environments. Through real-time engagement, consumers can exchange valuable information, seek advice, and share experiences, creating a supportive and interactive community (Sulthana & Vasantha, 2021).

Moreover, live interactions enhance consumers' understanding of sellers' products, brands, and services by providing instant feedback, detailed demonstrations, and direct communication with both sellers and other viewers. This dynamic exchange not only enriches the shopping experience but also builds trust and confidence in purchasing decisions. Thus, the ability to engage in real-time conversations fosters a sense of belonging and social reassurance, reinforcing the role of interactive live streaming in enhancing social support within e-commerce platforms (Kumar & Chandra, 2020).

4.7.5 H5: Perceived proximity positively affects social support

The study finds that perceived proximity enhances social support, aligning with the findings of Clara (2023). Perceived proximity in live e-commerce streaming is a key factor in fostering social support, highlighting its crucial role in enhancing consumer engagement. The perception of closeness between buyers, sellers, and other viewers creates a more immersive and interactive shopping environment, strengthening social connections and trust.

One of the primary drivers of perceived proximity is the integration of real-time comments within a live video interface. These interactive features make consumers feel present within the selling environment, simulating the dynamics of in-person shopping. By enabling instant communication, consumers can quickly obtain product information, ask questions, and receive immediate feedback, enhancing their overall shopping experience. Furthermore, the ability to engage with both sellers and fellow shoppers fosters a sense of belonging and shared experience, further reinforcing social support (Azam et al. 2021).

4.7.6 H6: Perceived authenticity positively affects social support

This study shows that perceived authenticity encourages social support. The results support previous studies (Putra & Kalvin, 2021). The perceived authenticity of e-commerce live streaming plays a significant role in enhancing social support, highlighting its importance in creating a more engaging and trustworthy shopping environment. A strong sense of authenticity fosters consumer confidence, encouraging greater interaction and participation within the live streaming community. As a result, it serves as a key predictor of improved social support in live e-commerce settings.

When consumers perceive live streaming as genuine and transparent, they are more likely to engage with both sellers and fellow shoppers, actively seeking and sharing information, asking questions, and offering recommendations (Oliveira et al., 2021). This interactive exchange not only enhances the shopping experience but also strengthens social bonds, creating a sense of community and mutual support.

4.7.7 H7: Social support positively affects purchase intention

The findings of this study suggest that social support has a positive impact on purchase intention, aligning with the findings of Choi (2020). In the context of e-commerce

live streaming, information support and emotional support play crucial roles in shaping consumers' online purchase intention. Social support in this environment reflects the degree to which consumers feel acknowledged, valued, and understood while interacting, engaging, and making transactions on live streaming platforms.

Current consumers' emotional experience needs during online purchasing are gradually being enhanced with technological advancements; whether they are willing to transact with e-commerce live streaming sellers primarily depends on the consumers' emotional experience, followed by the information acquisition experience (Aboulilah et al., 2023). Therefore, this study contributes to an in-depth understanding of the two dimensions of social support and their impact on consumers' willingness to purchase online in the context of e-commerce live streaming.

4.7.8 H8: The impact of real-time interactivity on purchase intention is mediated by social support

The study emphasises that real-time interactivity during live streaming influences consumers' purchase intention through the mediating role of social support, aligning with the findings of Liu et al. (2024). The interactive and immediate nature of live streaming fosters emotional support, which strengthens consumer engagement and increases their likelihood of making a purchase.

Emotional support, reflected in trust and reliance, enhances a sense of connection between consumers, streamers, and fellow viewers. When consumers feel supported within the live streaming environment, they are more inclined to trust the recommendations and make purchasing decisions. This effect is more pronounced within close-knit communities, where shared interests and stronger interpersonal bonds create a greater sense of belonging

(Guo et al., 2021). Overall, the findings suggest that the effect of live streaming on driving consumer behaviour extends beyond product presentation. It is deeply tied to social and psychological dynamics that build trust, engagement, and emotional reassurance, ultimately shaping purchase intention.

4.7.9 H9: The impact of perceived proximity on purchase intention is mediated by social support.

This study highlights that perceived proximity plays a crucial role in shaping consumers' purchase intention, with social support serving as a key mediating factor. This finding aligns with Febriyantoro (2020), reinforcing the notion that social proximity—defined as the closeness of interpersonal relationships—facilitates the exchange and sharing of information. When individuals share strong connections, such as in close personal relationships, this proximity fosters a greater sense of support, trust, and mutual influence.

In the context of e-commerce live streaming, the development of online interpersonal relationships between buyers and sellers is particularly significant. These interactions create a sense of familiarity and emotional connection, which strengthens social support. As consumers feel more supported and engaged within the live streaming environment, their trust in the seller and confidence in their purchasing decisions increase (Choi & Jeon, 2022). This heightened sense of connection and reassurance ultimately enhances transaction success. It also demonstrates that the impact of live streaming extends beyond product promotion to include critical social and psychological factors that drive consumer behaviour.

4.7.10 H10: The impact of perceived authenticity on purchase intention is mediated by social support.

This study emphasises that perceived authenticity affects purchase intention through the mediating role of social support, aligning with the findings of Yu and Zheng (2021). In

the e-commerce live streaming context, sellers can create temporary online communities where the authenticity of shared information is key to enhancing consumer engagement and interaction.

When consumers perceive the information presented during a live streaming session as authentic, they are more likely to trust the seller and actively participate in discussions. This heightened interaction strengthens social support within the community, reinforcing consumers' confidence in their purchasing decisions (Xu et al., 2024). As a result, greater perceived authenticity not only enhances engagement but also increases the likelihood of online purchases, underscoring the importance of trust and social connection in driving consumer behaviour in live streaming e-commerce.

4.7.11 H11: Information quality positively affects purchase intention

This study highlights the critical role of information quality in shaping consumer purchase intention, aligning with the findings of Chiu et al. (2021). Notably, consumer responses to negative brand information vary depending on their level of brand connection. Those with a strong emotional or cognitive attachment to a brand tend to exhibit an even greater impulse to purchase despite exposure to negative information, possibly as a form of brand defence or psychological reassurance. In contrast, consumers with a weaker brand connection are more likely to suppress their impulse purchase intention when encountering negative brand-related content, as they lack the same level of commitment or emotional investment in the brand.

Furthermore, prior research has emphasised that when assessing the impact of anchor traits on consumer behaviour, the quality of information presented by anchors serves as a crucial determinant of purchase intention. High-quality information enhances consumer trust,

engagement, and confidence in decision-making, ultimately increasing their likelihood of making a purchase. Conversely, poor information quality can lead to scepticism, hesitation, and reduced purchase intention, regardless of other influencing factors (Li et.al. 2021). These findings underscore the importance of both brand attachment and anchor information quality in shaping consumer purchasing behaviours in digital and live streaming commerce environments.

4.7.12 H12: Interaction quality positively affects purchase intention

The findings do not support a strong relationship between interaction quality and purchase intention. In recent years, research indicates that the direct effect of interaction quality and purchase intention has often been found to be low (Li et al., 2022). Interaction quality often indirectly influences consumers' purchase intention through mediating variables (e.g. social support, swift relationship, emotional resonance) rather than directly contributing to purchase decisions. For example, while high-quality interactions may enhance consumers' trust in brands or anchors, the key factors that ultimately lead to purchase are still product quality, price, and information credibility.

Zhou and Zhang (2023) had similar results. High-quality interactions (e.g. timely feedback from anchors, personalised recommendations) may enhance consumers' shopping experience, making them more willing to continue to follow or participate in interactions; however, this does not necessarily mean immediate purchase behaviour. Consumers may view interactions more as an information-gathering or entertainment process than as a key factor in making an immediate spending decision.

4.7.13 H13: Information quality positively affects swift relationship

This study highlights the critical role of information quality in shaping consumer swift relationship, aligning with the findings of Liao et al. (2024). It explores how e-commerce sellers can enhance information quality to quickly build relationships with consumers on live streaming platforms. Consumers' perceptions of information credibility, usefulness, and vividness are positively linked to the formation of swift relationship. Providing detailed product information through multiple sensory channels and interactive prompts increases the likelihood of consumers establishing quick connections with sellers.

Additionally, live streaming platforms enable sellers to better understand consumer expectations for online products. When sellers offer helpful information, consumers can efficiently find what they need, fostering mutual understanding while strengthening relationships (Chen et al., 2023). Aligned with social exchange theory, trustworthy information enhances consumer trust in online marketplaces, which positively influences the rapid development of consumer-seller relationships.

4.7.14 H14: Interaction quality positively affects swift relationship

This study highlights the critical role of interaction quality in fostering swift consumer relationships, consistent with the findings of Lin et al. (2022). The findings confirm that high interaction quality in e-commerce live streaming enhances rapid consumer-seller connections. Moreover, the results support previous research emphasising the significance of interaction in online community engagement.

Real-time is a defining feature of live streaming, while prior studies indicate that it significantly enhances sponsorship intentions. The present study supports these findings and further explores how swift relationship develop in the live streaming context. E-commerce

sellers can strengthen consumers' perception of interaction quality by offering prompt responses and demonstrating empathy (Zhang & Liu, 2023). According to social exchange theory, sellers' cooperative intentions encourage reciprocity, fostering mutually beneficial exchanges. High-quality interactions not only fulfil consumers' information needs but also drive product sales, enhancing the overall effect of live e-commerce.

4.7.15 H15: Swift relationship positively affects purchase intention

The empirical results of this study confirm that swift relationship play a crucial role in shaping consumers' willingness to purchase in live e-commerce, consistent with previous findings (Bai, 2024). When consumers experience strong mutual understanding, reciprocity, and relationship harmony, they develop greater trust and emotional connection with sellers.

This sense of connection enhances engagement, reduces uncertainty, and boosts confidence in purchase decisions, leading to a higher likelihood of positive purchasing behaviour (Joo & Yang, 2023). These findings highlight the importance of fostering swift relationship as a key strategy for e-commerce sellers to strengthen consumer trust and drive discussion during live streaming commerce.

4.7.16 H16: The impact of information quality on purchase intention is mediated by swift relationship

This study emphasises that the effect of information quality on purchase intention is mediated by swift relationship, aligning with the findings of Kang et al. (2021). When consumers perceive high online service quality, it enhances their shopping experience by evoking positive emotions, strengthening buyer-seller relationships, and reinforcing the sense of reciprocity. These factors contribute to greater consumer trust, fostering more

favourable attitudes towards purchases while increasing the likelihood of repeat purchasing behaviour.

The core marketing value of e-commerce live streaming lies in building online relationships. By leveraging the temporary communities formed during live sessions, sellers can establish swift and effective buyer-seller connections (Lim et al., 2021). Meeting consumers' needs for information and interaction further fosters engagement, ultimately driving online purchase intention.

4.7.17 H17: The impact of interaction quality on purchase intention is mediated by swift relationship

This study underscores that the impact of interaction quality on purchase intention is mediated by swift relationship, consistent with the findings of Chan and Asni (2022). Swift relationships are essential in shaping online decision-making. By establishing quick rapport and mutual understanding, consumers feel more secure in their choices, reducing hesitation and increasing their willingness to purchase. This highlights the importance of integrating high-quality service, seamless communication, and interactive engagement to enhance consumer relationships and drive conversions in e-commerce live streaming.

Given the shared service quality attributes between online transactions and e-commerce live broadcasts, both information delivery and social interaction play a crucial role in strengthening buyer-seller relationships. Effective information dissemination enhances consumer trust and confidence in purchasing decisions, while real-time social interaction fosters engagement and emotional connections (Santo & Marques, 2021).

4.8 Overall Hypotheses Results

This study explored 17 hypotheses, analysing their implications and relationships within the research framework. The overall results of the hypothesis testing are presented in Table 4.13, providing a comprehensive summary of the findings and their significance.

Table 4.13: Results of Hypotheses Testing

Hypothesis	Hypothesis Statements	Results	Support
H1	Real-time interactivity positively affects purchase intention.	$\beta = 0.132$ $t = 2.079$ $p = 0.038^*$	Yes
H2	Perceived proximity positively affects purchase intention.	$\beta = 0.120$ $t = 2.211$ $p = 0.027^*$	Yes
H3	Perceived authenticity positively affects purchase intention.	$\beta = 0.133$ $t = 2.147$ $p = 0.032^*$	Yes
H4	Real-time interactivity positively affects social support.	$\beta = 0.316$ $t = 6.898$ $p = 0.000^{**}$	Yes
H5	Perceived proximity positively affects social support.	$\beta = 0.205$ $t = 4.046$ $p = 0.000^{**}$	Yes
H6	Perceived authenticity positively affects social support.	$\beta = 0.355$ $t = 7.109$ $p = 0.000^{**}$	Yes
H7	Social support positively affects purchase intention.	$\beta = 0.156$ $t = 2.214$ $p = 0.027^*$	Yes
H8	The impact of real-time interactivity on purchase intention is mediated by social support.	$\beta = 0.049$ $t = 1.988$ $p = 0.047^*$	Yes

Table 4.13 continued

H9	The impact of perceived proximity on purchase intention is mediated by social support.	$\beta = 0.032$ $t = 2.043$ $p = 0.041^*$	Yes
H10	The impact of perceived authenticity on purchase intention is mediated by social support.	$\beta = 0.055$ $t = 2.104$ $p = 0.035^*$	Yes
H11	Information quality positively affects purchase intention.	$\beta = 0.136$ $t = 2.006$ $p = 0.045^*$	Yes
H12	Interaction quality positively affects purchase intention.	$\beta = 0.047$ $t = 0.659$ $p = 0.510$	No
H13	Information quality positively affects swift relationship.	$\beta = 0.358$ $t = 6.449$ $p = 0.000^{**}$	Yes
H14	Interaction quality positively affects swift relationship.	$\beta = 0.474$ $t = 8.358$ $p = 0.000^{**}$	Yes
H15	Swift relationship positively affects purchase intention.	$\beta = 0.213$ $t = 2.745$ $p = 0.006^{**}$	Yes
H16	The impact of information quality on purchase intention is mediated by swift relationship.	$\beta = 0.076$ $t = 2.456$ $p = 0.014^*$	Yes
H17	The impact of interaction quality on purchase intention is mediated by swift relationship.	$\beta = 0.101$ $t = 2.638$ $p = 0.008^{**}$	Yes

Notes: Significant at 0.01** Significant at 0.05*

4.9 Summary

This chapter systematically examined descriptive statistics, model assessment, hypothesis testing, and the overall research findings. The survey results indicate that most respondents were female, with the majority holding a bachelor's degree. To ensure the scientific rigor and reliability of the measurement tools, the study conducted a thorough assessment of the reliability and validity of all model constructs. The results demonstrated that each construct met acceptable reliability and validity standards, confirming the robustness of the measurement instruments.

Regarding hypothesis testing, the study found that real-time interactivity, perceived proximity, perceived authenticity, and information quality all had significant positive effects on purchase intention, with statistical support at a 95% confidence level. However, the direct effect of interaction quality on purchase intention was not statistically significant. Additionally, in the mediation analysis, social support and swift relationship were identified as significant mediators, with their statistical significance further validated through the bootstrapping method, highlighting their critical roles in the influence.

CHAPTER 5

CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

With the advancement of information technology, live streaming has become a prominent social media format and is widely adopted. E-commerce platforms have incorporated live streaming services, transforming online interactions and shopping behaviours. As competition in the digital marketplace intensifies, attracting consumers and enhancing their purchasing intentions have become key priorities for e-commerce sellers. By integrating with e-commerce platforms, live streaming has evolved into a crucial marketing tool that influences consumer purchasing decisions. Therefore, exploring its impact on online purchase intention carries significant practical value.

This chapter summarises the study's conclusions, the contribution of the research, and the practical implications. It also addresses the study's limitations and proposes directions for future research.

5.2 Conclusion

This study investigates four key research questions: (1) How does technical feature of e-commerce live streaming influence consumers' online purchase intention? (2) How does technical feature impact purchase intention through the mediating role of social support? (3) How does service quality in e-commerce live streaming affect consumers' online purchase intention? (4) How does service quality influence purchase intention via the mediating role of swift relationship? Together, these interrelated questions form a comprehensive research

framework that examines the impact of e-commerce live streaming on consumer purchasing behaviour.

To address these four research questions, this study first constructs a theoretical model based on a comprehensive literature review to examine how the technical feature of e-commerce live streaming influence consumers' online purchase intention. Through a survey questionnaire, the study confirms that three key technical features—real-time interactivity, perceived proximity, and perceived authenticity—positively impact purchase intention. Secondly, the findings indicate that these three technical features further enhance purchase intention through the mediating effect of social support. Thirdly, an extensive literature review identifies first-order indicators for two dimensions of e-commerce live streaming service quality: information quality and interaction quality. Measurement items are established, and a theoretical model is developed to analyse their impact on purchase intention. Survey results indicate that information quality has a positive influence on purchase intention, whereas interaction quality does not. Finally, the study confirms that both dimensions of service quality—information quality and interaction quality—affect consumers' online purchase intention through the mediating role of swift relationship. The key findings are summarised as follows:

5.2.1 E-commerce live streaming technical feature (real-time interactivity, perceived proximity, and perceived authenticity) positively affects purchase intention

According to socio-technical theory, the impact of new technologies should be evaluated from both technical and social perspectives. As a growing social media format, live streaming has a significant effect on consumer experiences in e-commerce, where both dimensions influence engagement and purchasing decisions.

From a technical standpoint, e-commerce live streaming is characterised by real-time interactivity, perceived proximity, and perceived authenticity. Real-time interactivity enables instant communication between hosts and viewers, allowing for immediate responses and engagement. Perceived proximity cultivates a sense of closeness, enhancing trust and connection. Perceived authenticity reinforces credibility by making content appear genuine and unscripted.

Empirical research findings indicate that all three technical characteristics—interactive real-time communication, perceived proximity, and perceived authenticity—have a significant positive influence on consumers' online purchase intention. The dynamic and immersive nature of live streaming fosters deeper consumer engagement, builds trust, and enhances the perceived credibility of product recommendations, driving higher purchase intention.

5.2.2 The impact of e-commerce live streaming technical feature (real-time interactivity, perceived proximity, and perceived authenticity) on purchase intention is mediated by social support

Social support serves as a mediator between the technical feature of e-commerce live streaming and online purchase intention. Specifically, real-time interactivity, perceived proximity, and perceived authenticity influence purchase decisions by shaping consumers' perception of social support.

Among these features, real-time interactivity plays a pivotal role in meeting consumers' information needs through instant communication with sellers. Higher communication efficiency, quicker responses, and seamless synchronisation enhance consumer satisfaction, enabling them to access valuable information promptly. This strengthens their connection with sellers and facilitates informed purchasing decisions.

Perceived proximity further enhances social support by enabling consumers to observe and engage with other buyers. Live streaming platforms provide insights into audience behaviours—such as watching, subscribing, interacting, and purchasing—which influence consumer decision-making.

Perceived authenticity also contributes to social support and purchase intention. Given the uncertainty of virtual shopping, authenticity is a key concern. The spontaneity and unedited nature of live streaming foster a sense of realism, which in turn leads to consumer trust and reassurance.

The strong link between social support and purchase intention suggests that beyond transactions, consumers seek emotional connections in online shopping. In an era of information overload, they value not just product details but also a sense of belonging and confidence. Live streaming e-commerce nurtures these connections through personalised services and direct interactions, ultimately strengthening consumer trust and encouraging purchases.

5.2.3 E-commerce live streaming service quality (information quality and interaction quality), information quality positively affects purchase intention, and interaction quality negatively affects purchase intention

In socio-technical theory, social factors primarily emphasise human behaviour. A review of previous studies on live streaming highlights that consumers are primarily driven by information search and social interaction. Additionally, information quality and interaction quality are widely acknowledged as critical dimensions of service quality. Based on these insights, this study incorporates these two factors to evaluate the quality of e-commerce live streaming services.

As a new form of social media and online marketing, e-commerce live streaming differs significantly from traditional e-commerce in terms of information delivery and interaction formats. Existing measurement scales for information and interaction quality fail to capture their unique characteristics. To address this gap, this study redefines and validates the variables and question items for these dimensions by integrating established scales with the specific feature of live commerce.

Ultimately, information quality in e-commerce live streaming is categorised into usefulness, credibility, and vividness, while interaction quality comprises responsiveness, real-time, and empathy. Empirical findings suggest that information quality has a positive influence on consumers' online purchase intention, whereas interaction quality has a negative impact.

5.2.4 The impact of e-commerce live streaming service quality (information quality and interaction quality) on purchase intention is mediated by swift relationship

The swift relationship acts as a mediator, meaning information quality and interaction quality enhance online purchase intention by strengthening the connection between e-commerce sellers and consumers. In live stream e-commerce, swift relationships remain a key factor influencing consumer purchasing behaviour.

In terms of information quality, consumers value rich and diverse content formats, with video delivering information more efficiently than images or text, thereby improving decision-making efficiency. Regarding interaction quality, consumers prioritise seller attentiveness and emotional connection, reinforcing the role of emotional support in driving purchase decisions, which is consistent with findings on the impact of live streaming's technical feature.

From a swift relationship perspective, social exchange theory suggests that transactions on live streaming platforms function as reciprocal exchanges. A successful transaction is more likely when buyers and sellers establish mutual trust and strong interpersonal bonds, fostering reciprocity and enhancing purchase outcomes.

5.3 Contribution of Study

Firstly, this study constructs and empirically validates a theoretical model examining how e-commerce live streaming influences consumers' online purchase intention through a survey questionnaire. As a rapidly growing social media format, live streaming has gained global traction, attracting a vast number of users. Numerous e-commerce platforms have integrated live streaming into their services, enabling sellers to leverage it as a new online marketing strategy. By combining the strengths of traditional and online marketing, e-commerce live streaming creates an interactive, "face-to-face" shopping experience in a virtual environment. Despite its widespread adoption on e-commerce platforms, limited research has examined its actual marketing effect. This study identifies key factors in e-commerce live streaming that impact consumer purchase intention, providing empirical evidence of its success as a marketing model.

From a theoretical perspective, the findings not only reaffirm previous studies that highlight interactivity and real-time engagement as critical drivers of purchase intention (Chen & Lin, 2018; Wongkitrungrueng & Assarut, 2020) but also extend them by positioning these factors within a unified framework that incorporates socio-technical theory, the SOR model, and social exchange theory. The results confirm the SOR proposition that environmental stimuli trigger cognitive and affective responses, which subsequently influence behavioural outcomes (purchase intention). By empirically validating these

linkages in the context of live streaming, the study contributes to filling a gap in digital marketing evaluation frameworks, where live streaming has been under-theorised despite its explosive growth. Furthermore, the results suggest that e-commerce live streaming is not merely a supplementary channel but a distinct socio-technical system in which the integration of technological affordances and social interactions creates a synergistic marketing effect.

Secondly, this study validates the applicability of socio-technical theory in the context of e-commerce live streaming, integrating it with the stimulus-organism-response (SOR) model and social exchange theory to assess its marketing effect. Extensive research exists on the relationship between marketing strategies and consumer behaviour in both traditional and digital environments, forming a well-established research framework. Socio-technical theory suggests that the effect of new technologies depends on both technical and social factors. In the context of e-commerce live streaming, platform design factors are driven by technical features, while social factors stem from human interactions. Thus, technical features represent the technological aspect, while seller-provided service quality reflects the social dimension.

The empirical findings confirm that both technical features and service quality significantly enhance consumers' online purchase intention, reinforcing socio-technical theory's claim that optimal performance emerges from the joint optimisation of social and technical subsystems. Compared with prior research that has largely studied these factors separately, this study demonstrates their combined influence within a live streaming ecosystem. This also aligns with social exchange theory, where high service quality (social factor) fosters reciprocal trust and loyalty, while technical efficiency (technical factor)

reduces perceived transaction costs and increases perceived value—both of which strengthen purchase intention. In extending the literature, this study highlights that live streaming’s technical stimuli do more than facilitate transactions; they actively enhance perceived social support, thereby amplifying the consumer’s emotional engagement and willingness to buy. This dual-path effect has received limited attention in past studies and represents an important theoretical advancement.

Finally, this study examines the factors influencing online purchase intention during e-commerce live streaming, using social support and swift relationship as mediators. Through a survey questionnaire, the research confirms that social support mediates the relationship between live streaming’s technical features and purchase intention. By focusing on two key dimensions—information support and emotional assurance—this study clarifies how social support functions in e-commerce live streaming, further enriching its conceptual framework. Additionally, the study validates that swift relationship mediates the link between service quality and purchase intention, enhancing the explanatory power of live streaming marketing’s impact on consumer behaviour.

The findings are consistent with earlier work (Li et al., 2021; Zhao et al., 2022) that positions social support as a critical enabler of online trust and transaction readiness, but they extend this by embedding the construct into the SOR framework as an “organism” that channels the effect of technical stimuli into behavioural responses. Likewise, swift relationship—conceptualised as rapid formation of trust and rapport between seller and buyer—confirms social exchange theory’s view that interpersonal bonds can develop quickly when the perceived rewards outweigh the risks. This extends prior literature by evidencing that such relationships are not only possible but strategically impactful in a real-

time, high-interaction environment like live streaming. By integrating these mediators, the study offers a more nuanced explanation of the psychological mechanisms that bridge the gap between technological affordances, social engagement, and purchase behaviour, thereby filling a notable gap in both e-commerce and social commerce research.

5.4 Practical Implications

The findings of this study offer valuable practical insights for e-commerce sellers seeking to maximise the marketing impact of live streaming and enhance consumer engagement in online shopping. The practical implications are explored from three key perspectives: consumers, e-commerce sellers, and e-commerce platforms.

Firstly, the implications for consumers are as follows. As online shopping continues to dominate due to variety, speed, and cost advantages, consumers face increased uncertainty in a virtual sales environment. Reducing information asymmetry and improving shopping efficiency are critical concerns. E-commerce live streaming addresses these challenges by offering real-time product demonstrations and direct interactions with sellers. Consumers should utilise live broadcasts to verify product authenticity, engage in Q&A sessions, and make more informed purchasing decisions. This is especially important for experiential products, such as clothing, where live try-ons provide valuable purchasing insights. Since live content is unedited, it enhances transparency, minimising misleading claims and potential fraud. With live streaming emerging as a key consumer engagement channel, e-commerce sellers should recognise its value as a strategic marketing tool to build trust, credibility, and competitive advantage in the online marketplace.

Secondly, the implications for e-commerce sellers are as follows. In the fiercely competitive online marketplace, capturing consumer attention and driving sales conversions

are top priorities for e-commerce sellers. As live streaming significantly boosts purchase intention, it has become an essential marketing tool. To maximise its impact, sellers must understand the key influencing consumer decision-making and strategically leverage live streaming to enhance engagement and attract buyers. Live streaming fosters swift relationship and emotional connections by enabling real-time and personalised engagement. This fosters trust and reciprocity, resulting in smoother transactions. To sustain consumer interest, sellers should prioritise consistent, high-quality, and differentiated content, extend streaming duration, and ensure professionalism in their presentations. Moreover, social support plays a crucial role in consumer engagement. Actively responding to messages, acknowledging feedback, and fostering interactive discussions help build stronger emotional bonds. Providing detailed product information, enhancing real-time communication, and incorporating promotional incentives—such as discounts, coupons, interactive games, and giveaways—can further elevate service quality and stimulate purchase intent. Ultimately, delivering engaging, informative, and interactive live streams is key to building brand credibility, increasing sales, and fostering long-term customer loyalty.

Finally, the implications for e-commerce platforms are as follows. Live streaming is a key driver for e-commerce platforms to attract consumers and boost traffic. In a highly competitive digital market, where platforms compete for user engagement, live streaming provides an effective solution by introducing new shopping experiences and enhancing traffic monetisation. The effect of live streaming depends on three core elements: platform technical support, a strong consumer base, and competent sellers. To maximise its impact, platforms should continuously refine their infrastructure, ensuring seamless streaming experiences. This includes optimising live streaming interfaces, enhancing interactive features, and leveraging unique platform capabilities to drive consumer participation and

conversions. Seller expertise is equally critical, as it influences content quality and service standards. Platforms should establish seller training programs, set quality benchmarks, and promote professionalism in live streaming. A seller's credibility and product knowledge directly influence consumer trust and brand perception, ultimately impacting both sales and the platform's reputation. Additionally, platforms should enhance service quality by prioritising user retention, product quality control, and seller performance management. By cultivating a high-quality live streaming ecosystem, e-commerce platforms can enhance consumer trust, boost engagement, and gain a competitive advantage in the online retail landscape.

5.5 Limitations of the Study and Future Research

This study examines the impact of e-commerce live streaming technical feature and service quality on online purchase intention. While it provides valuable insights, limitations exist due to time constraints, environmental factors, and the scope of the research. These limitations also highlight potential future research directions, as outlined below.

5.5.1 Limitations of Data Sources

Firstly, regarding data collection, this study primarily relied on survey questionnaires to analyse the relationship between e-commerce live streaming and consumer purchasing behaviour. To enhance the accuracy of the results, future research could integrate multiple data sources, such as platform analytics and transaction records, thereby expanding the dataset and providing a more comprehensive perspective.

Secondly, regarding sample representation, the survey sample primarily consisted of young consumers, with college students the largest proportion of respondents. To improve generalisability, future studies should include a broader demographic range, encompassing

different age groups and diverse cultural backgrounds, to examine varying consumer responses to e-commerce live streaming.

Thirdly, there are temporal limitations. Survey responses capture consumer attitudes at a single point in time, limiting insights into the long-term effects of e-commerce live streaming on purchasing behaviour. Future research could employ longitudinal studies, including follow-up interviews and panel data analysis, to better understand how consumer behaviour evolves.

5.5.2 Limitations of Variable Selection

Firstly, the broad scope of socio-technical theory can act as a limitation. This study applies socio-technical theory, considering technical feature as the technical factor and service quality as the social factor to examine their impact on online purchase intention during e-commerce live streaming. However, technical and social factors encompass a wide range of elements. Prior research has examined both technical and social factors, including network size, competition, and expertise, as well as social factors such as identity, information value, and attachment. Future studies could integrate additional variables to offer a more comprehensive understanding of consumer decision-making in live stream e-commerce.

Secondly, is the influence of human factors. Beyond technical and service-related aspects, human factors such as host characteristics, consumer personality traits, and live streaming scenarios may significantly impact consumer purchase decisions. Exploring these psychological and contextual factors in future studies could offer deeper insights into consumer engagement and behaviour.

The third limitation surrounds the behavioural measurement. This study primarily measures consumer behaviour through purchase intention, which, while strongly correlated with actual purchases, remains a subjective indicator. To provide a more objective and multidimensional perspective, future research could integrate behavioural metrics such as view counts, interaction frequency, and actual purchase data to better assess consumer responses during e-commerce live streams.

5.5.3 Limitations in Research Depth

This study, based on socio-technical theory, examines the impact of technical feature and service quality in e-commerce live streaming on online purchase intention as separate factors. However, it does not explore their interconnections or combined influence on consumer behaviour.

This study, based on socio-technical theory, examines the impact of technical feature and service quality in e-commerce live streaming on online purchase intention as separate factors. However, it does not address their interconnections or combined influence on consumer behaviour.

Future research could delve deeper into the interplay between technical and social factors, examining how these factors interact to shape consumer purchasing decisions. A more integrated approach within a unified theoretical framework would provide a broader perspective on the driving consumer engagement and purchasing behaviour in e-commerce live streaming.

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APPENDICES

Appendix A: Questionnaire

English Version



Universiti Malaysia Sarawak

94300 Kota Samarahan

Sarawak Malaysia

Dear Respondent,

Thank you very much for your participation in this questionnaire survey, which aims to understand your intention and motivation to spend money on e-commerce live streaming. Your enthusiastic assistance will be of great help to us in this research.

Warm tips: 1. The experiment consists of four parts, please read the scenario carefully and fill in the questionnaire according to the instructions, the questionnaire is all anonymous, don't worry about your information leakage. 2. There is no right or wrong answer, your true feelings are the best answer.

.

Yours sincerely,

Mrs. QI MENGJIA

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Supervisor(s):

Dr Janifer anak Lunyai

Section 1: Preliminary Questions		
Code	Questions	Options
A1	Do you have experience purchasing goods through live streaming e-commerce platforms?	A. Yes B. No (If you choose B, you will not have to continue.)
Section 2: Socio Demographic Profile		
Code	Questions	Options
B1	What is your gender?	A. Male B. Female
B2	What is your age?	A. under 18 years old B. 19 to 25 years old C. 26 to 30 years old D. 31 to 35 years old E. 36 years old and above
B3	What is your education level?	A. High school and below B. Specialist C. Undergraduate D. Graduate and above
B4	What is your average monthly income?	A. below 2000 RMB B. 2000 to 3999 RMB C. 4000 to 5999 RMB D. more than 6000 RMB
B5	What is your occupation?	A. Student B. Company employee C. Institution worker D. Freelance worker E. Other
B6	How often do you watch e-commerce live streaming?	A. Several times a day B. Once a day C. Several times a week D. Once a week E. Several times a month F. Once a month
Section 3: E-commerce Live Streaming Technical Feature		
Code	Questions	Options
Real-time interactivity		

RI1	I can interact with the seller in the live stream to get information.	Strongly disagree	Strongly agree
		1 2 3 4	5 6 7
RI2	I can fulfill my interaction needs in live streaming.	Strongly disagree	Strongly agree
		1 2 3 4	5 6 7
RI3	I can easily find the information I need without having to call the seller via live streaming.	Strongly disagree	Strongly agree
		1 2 3 4	5 6 7
RI4	I can find the information I need without having to use a chat program.	Strongly disagree	Strongly agree
		1 2 3 4	5 6 7
RI5	My interactions with sellers are efficient in live streaming.	Strongly disagree	Strongly agree
		1 2 3 4	5 6 7
Perceived Proximity			
PP1	The relationship between me and the seller in the live stream is not affected by the actual physical distance.	Strongly disagree	Strongly agree
		1 2 3 4	5 6 7
PP2	I feel close to the seller in live streaming.	Strongly disagree	Strongly agree
		1 2 3 4	5 6 7
PP3	The seller gives me a warm feeling in the live stream.	Strongly disagree	Strongly agree
		1 2 3 4	5 6 7
PP4	I feel close to the seller in the live stream even though I am not in the same place as the seller.	Strongly disagree	Strongly agree
		1 2 3 4	5 6 7
Perceived Authenticity			
PA1	I get objective information about the product during the live streaming.	Strongly disagree	Strongly agree
		1 2 3 4	5 6 7

PA2	I can observe the real character traits of the seller in the live streaming.	Strongly disagree	Strongly agree
		1 2 3 4 5 6 7	
PA3	The seller in the live stream is able to make reliable promises.	Strongly disagree	Strongly agree
		1 2 3 4 5 6 7	
Section 4: Social Support			
Code	Questions	Options	
Information Support			
IS1	When I have problems, others on the air help me analyse the reasons.	Strongly disagree	Strongly agree
		1 2 3 4 5 6 7	
IS2	When I have a problem, others on the air give me useful information.	Strongly disagree	Strongly agree
		1 2 3 4 5 6 7	
IS3	When I have a problem, others on the air give me advice.	Strongly disagree	Strongly agree
		1 2 3 4 5 6 7	
Emotional Support			
ES1	when I was in trouble, others on the live streaming pay attention to me.	Strongly disagree	Strongly agree
		1 2 3 4 5 6 7	
ES2	when I was in trouble, Others on the live streaming comforted and encouraged me.	Strongly disagree	Strongly agree
		1 2 3 4 5 6 7	
ES3	when I was in trouble, Others on the live streaming express their opinions.	Strongly disagree	Strongly agree
		1 2 3 4 5 6 7	
ES4	when I was in trouble, Others on the live streaming express concern for me.	Strongly disagree	Strongly agree
		1 2 3 4 5 6 7	
Section 5: E-commerce Live Streaming Service Quality			
Code	Questions	Options	

Credibility											
CRE1	This live stream provides me with accurate product information.				Strongly disagree				Strongly agree		
					1	2	3	4	5	6	7
CRE2	The live stream provides me with accurate product information.				Strongly disagree				Strongly agree		
					1	2	3	4	5	6	7
CRE3	The live stream provides me with persuasive product information.				Strongly disagree				Strongly agree		
					1	2	3	4	5	6	7
CRE4	The live stream provides me with product information that I can use in my purchasing decision.				Strongly disagree				Strongly agree		
					1	2	3	4	5	6	7
Usefulness											
USE1	This live stream can provide me with useful product information.				Strongly disagree				Strongly agree		
					1	2	3	4	5	6	7
USE2	This live stream provides me with valuable product information.				Strongly disagree				Strongly agree		
					1	2	3	4	5	6	7
USE3	The live stream provides me with meaningful product information.				Strongly disagree				Strongly agree		
					1	2	3	4	5	6	7
USE4	The live stream provides me with information that can help me make better purchasing decisions.				Strongly disagree				Strongly agree		
					1	2	3	4	5	6	7
Vividness											
VIV1	By watching the live streaming, I can get specific product information (detailed feature, etc.).				Strongly disagree				Strongly agree		
					1	2	3	4	5	6	7

VIV2	By watching the live streaming, I can see the real product display and sales scene.	Strongly disagree 1 2 3 4	Strongly agree 5 6 7
VIV3	By watching the live streaming, I can get colourful product information (pictures, videos, etc.).	Strongly disagree 1 2 3 4	Strongly agree 5 6 7
VIV4	By watching the live streaming, I can get clear product information.	Strongly disagree 1 2 3 4	Strongly agree 5 6 7
VIV5	By watching the live streaming, I can get information from visual and auditory aspects (seeing and hearing).	Strongly disagree 1 2 3 4	Strongly agree 5 6 7
Responsiveness			
RES1	The e-commerce seller was willing to answer my questions when I interacted with him via live streaming.	Strongly disagree 1 2 3 4	Strongly agree 5 6 7
RES2	The e-commerce seller was willing to help me solve my problem when I interacted via live streaming.	Strongly disagree 1 2 3 4	Strongly agree 5 6 7
RES3	The e-commerce seller was able to provide me with service as quickly as possible when interacting via live streaming.	Strongly disagree 1 2 3 4	Strongly agree 5 6 7
RES4	When interacting via live streaming, the e-commerce seller will tell me when he/she is available to serve me if he/she is busy.	Strongly disagree 1 2 3 4	Strongly agree 5 6 7
Real-time			

RTI1	In live streaming, real-time performance improves the efficiency of communication between me and e-commerce sellers.	Strongly disagree	Strongly agree
		1 2 3 4	5 6 7
RTI2	In live streaming, I can obtain relevant information through real-time communication with e-commerce sellers.	Strongly disagree	Strongly agree
		1 2 3 4	5 6 7
RTI3	In live streaming, real-time communication between me and e-commerce sellers can fulfill my information needs.	Strongly disagree	Strongly agree
		1 2 3 4	5 6 7
RTI4	Through live streaming interaction, I can find the information I need without having to consult on the phone.	Strongly disagree	Strongly agree
		1 2 3 4	5 6 7
RTI5	Through live interaction, I can find the information I need without consulting chat software.	Strongly disagree	Strongly agree
		1 2 3 4	5 6 7
Empathy			
EMP1	When interacting via live streaming, the e-commerce seller was able to pay as much attention as possible to my personal needs.	Strongly disagree	Strongly agree
		1 2 3 4	5 6 7
EMP2	When interacting via live streaming, the e-commerce seller is able to understand my specific needs.	Strongly disagree	Strongly agree
		1 2 3 4	5 6 7
EMP3	When interacting via live streaming, the e-commerce seller is able to tailor the service to my needs.	Strongly disagree	Strongly agree
		1 2 3 4	5 6 7

EMP4	Live streaming has flexible and convenient service hours (the ability to provide personal service according to my schedule.	Strongly disagree	Strongly agree
		1234567	
Section 6: Swift Relationship			
Code	Questions	Options	
Mutual Understanding			
MU1	On the live streaming, e-commerce sellers and I can hear (and see) each other conversing.	Strongly disagree	Strongly agree
		1234567	
MU2	On the live streaming, e-commerce sellers and I can follow each other's conversations.	Strongly disagree	Strongly agree
		1234567	
MU3	On the live streaming, e-commerce sellers and I can understand each other's perspectives.	Strongly disagree	Strongly agree
		1234567	
MU4	On the live streaming, e-commerce sellers and I show interest in each other's perspectives.	Strongly disagree	Strongly agree
		1234567	
MU5	On the live streaming, e-commerce sellers and I can understand each other's needs.	Strongly disagree	Strongly agree
		1234567	
Relationship Reciprocity			
RR1	If I buy from being an e-commerce live seller, he/she may give me a discount.	Strongly disagree	Strongly agree
		1234567	
RR2	The e-commerce live seller and I can provide each other with positive ratings or reviews.	Strongly disagree	Strongly agree
		1234567	

RR3	The e-commerce live seller and I can help each other.	Strongly disagree 1 2 3 4	Strongly agree 5 6 7
RR4	The e-commerce live seller and I build a friendly relationship by supporting each other.	Strongly disagree 1 2 3 4	Strongly agree 5 6 7
Relationship Harmony			
RH1	When watching or interacting live, the e-commerce seller and I are able to harmonize with each other.	Strongly disagree 1 2 3 4	Strongly agree 5 6 7
RH2	When watching or interacting live, the e-commerce seller and I are able to avoid conflict with each other.	Strongly disagree 1 2 3 4	Strongly agree 5 6 7
RH3	When watching or interacting live, the e-commerce seller and I are able to respect with each other.	Strongly disagree 1 2 3 4	Strongly agree 5 6 7
Section 7: Purchase Intention			
Code	Questions	Options	
PI1	I would be happy to buy from e-commerce live seller.	Strongly disagree 1 2 3 4	Strongly agree 5 6 7
PI2	I would recommend my friends and relatives to buy from e-commerce live seller.	Strongly disagree 1 2 3 4	Strongly agree 5 6 7
PI3	If I need to buy an item, I will choose to buy from e-commerce seller.	Strongly disagree 1 2 3 4	Strongly agree 5 6 7

Questionnaire completed, thank you for your support!

Appendix B: Expert Validation Rubric

电子商务直播在线购买意愿调查问卷 E-commerce Live Streaming Purchase Intention Questionnaire

专家评分工具 Expert Validation Rubric

尊敬的专家您好:

感谢您参与本次研究工具的内容效度评估工作! 本研究旨在开发一份科学、严谨且具备良好效度的问卷。特邀请您依据以下标准进行评分:

①题目目标明确; ②题目表达格式恰当; ③题目字体大小恰当; ④题目陈述清晰, 无歧义; ⑤题目指引清晰; ⑥题目尺度(选项数量)是恰当。

请按上述这些标准, 对本调查问卷的每一题项进行评估, 并且在“不符合标准”“部分符合,需较大修改”“较大符合,仅需小幅修改”“符合标准, 无需修改”中进行选择, 如有必要请填写您的修改意见, 如无修改意见请留空白。

Dear Expert,

Thank you for participating in the content validity assessment of this research instrument. This study aims to develop a scientifically rigorous and valid questionnaire. Please assess the questionnaire based on the following criteria: (1) the question's objective is clear; (2) the wording is appropriate; (3) the font size is appropriate; (4) the question is clearly stated and unambiguous; (5) the instructions are clear; and (6) the response scale (number of options) is appropriate. For each question in the survey, please evaluate it according to these criteria and select one of the following options: Does not meet the criteria, partially meets the criteria (requires major revision), largely meets the criteria (requires minor revision), or meets the criteria (no revision needed). If you have any revision suggestions, please provide your comments; otherwise, you may leave the space blank. We sincerely appreciate your valuable time and support!

签名: 黄克安 · 陈鸿雁

Signature: Professor Ke'an Huang, Professor Hongyan Chen

第一部分：调查对象筛选

Section 1: Preliminary Questions

	不符合标准 Totally does not meet standard	部分符合, 需较大修改 Requires large modifications	较大符合, 仅需小幅修改 Requires minor modifications	符合标准, 无需修改 No modifications needed	修改意见 Suggestions for Revision
A1.Do the websites you see have live streaming capabilities A.Live Website B. Non-live website? A1.您是否有过通过电子商务直播平台（天猫直播/淘宝直播/京东直播等）浏览或购买商品的经验? A.是 B.否			√		Do you have experience purchasing goods through live streaming e-commerce platforms? A. Yes B. No (If you choose B, you will not have to continue.)

第二部分：基本信息

Section 2: Socio Demographic Profile

	不符合标准 Totally does not meet standard	部分符合, 需较大修改 Requires large modifications	较大符合, 仅需小幅修改 Requires minor modifications	符合标准, 无需修改 No modifications needed	修改意见 Suggestions for Revision
B1.What is your gender? B1.您的性别是?				√	
B2.What is your age? B2.您的年龄是?				√	
B3.How often do you watch e-commerce live streaming? B3.您的受教育水平是?				√	

B4.What is your education level? B4.您每月的平均收入为?				√	
B5.What is your average monthly income? B5.您的职业是?				√	
B6.What is your occupation? B6.观看频率?				√	

第三部分：电子商务直播技术特征(尺度：7 点评分，尺度 1 是非常不同意，尺度 7 是非常同意)

Section 3: E-commerce Live Streaming Technical Feature (Scale: 7-point rating, Scale 1 is strongly disagree, Scale 7 is strongly agree)

	不符合标准 Totally does not meet standard	部分符合, 需较大修改 Requires large modifications	较大符合, 仅需小幅修改 Requires minor modifications	符合标准, 无需修改 No modifications needed	修改意见 Suggestions for Revision
RI1.I can interact with the seller in the live stream to get information. RI1.在直播中我可以与卖家互动获取信息。				√	
RI2.I can fulfill my interaction needs in live streaming. RI2.在直播中我的互动需求能够得到满足。				√	
RI3.I can find the information I need via live streaming. RI3.通过直播，我无需向卖家致电就能轻松找到所需信息。			√		I can easily find the information I need without having to call the seller via live streaming.
RI4.I can find the information I need without having to use a chat program. RI4.通过直播，我无需使用聊天软件就能轻松找到所需信息。				√	
RI5.My interactions with sellers are efficient in live streaming. RI5.在直播中我与卖家之间的互动是高效的。				√	

PP1.The relationship between me and the seller in the live stream is not affected by the actual physical distance. PP1.直播中我与卖家之间的关系不会受到实际物理距离的影响。				√	
PP2.I feel close to the seller in live streaming. PP2.直播中我感觉与卖家很亲近。				√	
PP3.The seller gives me a warm feeling in the live stream. PP3.直播中卖家给我一种温暖的感觉。				√	
PP4.Although I was not in the same place with the seller, I felt close to the seller during the live stream. PP4.在直播中尽管我与卖家不在同一个的地方，但感觉很接近。			√		I feel close to the seller in the live stream even though I am not in the same place as the seller.
PA1.I get objective information about the product during the live streaming. PA1.直播中我能了解到客观的产品信息。				√	
PA2.I can observe the real character traits of the seller in the live streaming. PA2.直播中我能观察到卖家真正的性格特点。				√	
PA3.The seller in the live stream is able to make reliable promises. PA3.直播中的卖家能够做出可靠的承诺。				√	

第四部分：社会支持 (尺度：7 点评分，尺度 1 是非常不同意，尺度 7 是非常同意)

Section 4: Social Support (Scale: 7-point rating, Scale 1 is strongly disagree, Scale 7 is strongly agree)

	不符合标准 Totally does not meet standard	部分符合， 需较大修改 Requires large modifications	较大符合， 仅需小幅修改 Requires minor modifications	符合标准， 无需修改 No modifications needed	修改意见 Suggestions for Revision
--	---	--	---	--	----------------------------------

IS1.When I have problems, others on the air help me analyse the reasons. IS1.当我遇到问题时，直播中的其他人会帮我分析原因。				√	
IS2.When I have a problem, others on the air give me useful information. IS2 当我遇到问题时，直播中的其他人会给我提供有用信息。				√	
IS3.When I have a problem, others on the air give me advice. IS3.当我遇到问题时，直播中的其他人会给我提供建议。				√	
ES1.when I was in trouble, others on the live streaming pay attention to me. ES1.当我遇到困难时，直播中的其他人会关注到我。				√	
ES2.Other people on the plane comforted and encouraged me when I was in trouble. ES2.当我遇到困难时，直播中的其他人会安慰并鼓励我。			√		when I was in trouble, Others on the live streaming comforted and encouraged me.
ES3.when I was in trouble, Others on the live streaming express their opinions. ES3.当我遇到困难时，直播中的其他人会表达他们的看法。				√	
ES4.when I was in trouble, Others on the live streaming express concern for me. ES4.当我遇到困难时，直播中的其他人表达对我的关心。				√	

第五部分：电子商务直播服务质量 (尺度：7 点评分，尺度 1 是非常不同意，尺度 7 是非常同意)

Section 5: E-commerce Live Streaming Service Quality (Scale: 7-point rating, Scale 1 is strongly disagree, Scale 7 is strongly agree)

	不符合标准 Totally does not meet standard	部分符合, 需较大修改 Requires large modifications	较大符合, 仅需小幅修改 Requires minor modifications	符合标准, 无需修改 No modifications needed	修改意见 Suggestions for Revision
CRE1.This live stream provides me with accurate product information. CRE1.该直播能为我提供准确的产品信息。				√	
CRE2.The live stream provides me with accurate product information. CRE2.该直播能为我提供无误的产品信息。				√	
CRE3.The live stream provides me with persuasive product information. CRE3.该直播能为我提供具有说服力的产品信息。				√	
CRE4.The live stream provides me with product information that I can use in my purchasing decision. CRE4.该直播提供的产品信息能被我用于购买决策中。				√	
USE1.This live stream can provide me with useful product information. USE1.该直播能为我提供有用的产品信息。				√	
USE2.This live stream provides me with valuable product information. USE2.该直播能为我提供有价值的产品信息。				√	
USE3.The live stream provides me with meaningful product information. USE3.该直播能为我提供有意义的产品信息。				√	
USE4.The live stream provides me with information that can help me make better purchasing decisions.				√	

USE4.该直播提供的信息能够帮助我做出更好的。					
VIV1.By watching the live streaming, I can get specific product information (detailed feature, etc.). VIV1.通过观看直播, 我能获得具体的产品信息(细节特征等)。				√	
VIV2.By watching the live streaming, I can see the real product display and sales scene. VIV2.通过观看直播, 我能看到真实的产品展示和销售场景。				√	
VIV3.By watching the live streaming, I can get colourful product information (pictures, videos, etc.). VIV3.通过观看直播, 我能获得丰富多彩的产品信息频。				√	
VIV4.By watching the live streaming, I can get clear product information. VIV4.通过观看直播, 我能获得清晰的产品信息。				√	
VIV5.By watching the live streaming, I can get information from visual and auditory aspects (seeing and hearing). VIV5.通过观看直播, 我能从视觉和听觉方面获取信息。				√	
RES1.The e-commerce seller was willing to answer my questions when I interacted with him via live streaming. RES1.通过直播进行互动时, 电子商务卖家愿意回答我的提问。				√	
RES2.The e-commerce seller was willing to help me solve my problem when I interacted via live streaming.				√	

RES2.通过直播进行互动时，电子商务卖家愿意帮我解决问题。					
RES3.The e-commerce seller was able to provide me with service as quickly as possible when interacting via live streaming. RES3.通过直播进行互动时，电子商务卖家能尽快为我提供服务。				√	
RES4.If the e-commerce seller is busy, he/she will tell me when he/she is available to serve me. RES4.通过直播进行互动时，假如电子商务卖家当时较忙，他/她会告诉能为我提供服务的时间。			√		When interacting via live streaming, the e-commerce seller will tell me when he/she is available to serve me if he/she is busy.
RTI1.In live streaming, real-time performance improves the efficiency of communication between me and e-commerce sellers. RTI1.在直播中，实时性能提高我与电子商务卖家之间的沟通效率。				√	
RTI2.I can get relevant information through real-time communication with e-commerce sellers. RTI2.在直播中，我可以通过与电子商务卖家的实时沟通获取相关信息。			√		In live streaming, I can obtain relevant information through real-time communication with e-commerce sellers.
RTI3.In live streaming, real-time communication between me and e-commerce sellers can fulfill my information needs. RTI3.在直播中，我与电子商务卖家的实时沟通能满足我的信息需求。				√	
RTI4.Through live streaming interaction, I can find the information I need without having to consult on the phone. RTI4.通过直播互动，我可以不用电话咨询就能找到所需信息。				√	

RTI5.Through live interaction, I can find the information I need without consulting chat software. RTI5.通过直播互动,我可以不用聊天软件咨询就能找到所需信息。				√	
EMP1.In interacting through livestreams, e-commerce sellers are able to focus on my personal needs as much as possible. EMP1.通过直播进行互动时,电子商务卖家能够尽量关注到我的个人需要。			√		When interacting via live streaming, the e-commerce seller was able to pay as much attention as possible to my personal needs.
EMP2.When interacting via live streaming, the e-commerce seller is able to understand my specific needs. EMP2.通过直播进行互动时,电子商务卖家能够了解我的具体需求。				√	
EMP3.When interacting via live streaming, the e-commerce seller is able to tailor the service to my needs. EMP3.通过直播进行互动时,电子商务卖家能够根据我的具体需求提供服务。				√	
EMP4.Live streaming has flexible and convenient service hours (the ability to provide personal service according to my schedule). EMP4.直播具有灵活便利的服务时间(能根据我的时间提供个人服务)。				√	

第六部分：快速关系(尺度：7 点评分，尺度 1 是非常不同意，尺度 7 是非常同意)

Section 6: Swift Relationship (Scale: 7-point rating, Scale 1 is strongly disagree, Scale 7 is strongly agree)

	不符合标准 Totally does not meet standard	部分符合, 需较大修改 Requires large	较大符合, 仅需小幅修改 Requires	符合标准, 无需修改 No modifications	修改意见 Suggestions for Revision
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		modificatio ns	minor modifications	needed	
MU1.On the live streaming, e-commerce sellers and I can hear (and see) each other conversing. MU1.在直播中, 我和电子商务卖家可以听到(看到)彼此对话。				√	
MU2.On the live streaming, e-commerce sellers and I can follow each other's conversations. MU2.在直播中, 我和电子商务卖家可以跟上彼此对话的节奏。				√	
MU3.On the live streaming, e-commerce sellers and I can understand each other's perspectives. MU3.在直播中, 我和电子商务卖家可以了解彼此的观点。				√	
MU4.On the live streaming, e-commerce sellers and I show interest in each other's perspectives. MU4.在直播中, 我和电子商务卖家会对彼此的观点表现出兴趣。				√	
MU5.On the live streaming, e-commerce sellers and I can understand each other's needs. MU5.在直播中, 我和电子商务卖家可以了解彼此的需求。				√	
RR1.If I buy from being an e-commerce live seller, he/she may give me a discount. RR1.如果我从正在电子商务直播卖家那里购买, 他/她可能会给我一个折扣。				√	
RR2.E-commerce real sellers and I may provide each other with positive reviews or comments.			√		The e-commerce live seller and I can provide each other with positive ratings or reviews.

RR2.我和电子商务直播卖家可以互相提供正面评价或评论。					
RR3.The e-commerce live seller and I can help each other. RR3.我和电子商务直播卖家可以互相帮助。				√	
RR4.The e-commerce live seller and I build a friendly relationship by supporting each other. RR4.我和电子商务直播卖家通过互相支持建立友好关系。				√	
RH1.When watching or interacting live, the e-commerce seller and I are able to harmonize with each other. RH1.观看直播或进行互动时, 我和电子商务卖家能够和谐相处。				√	
RH2.When watching or interacting live, the e-commerce seller and I are able to avoid conflict with each other. RH2.观看直播或进行互动时, 我和电子商务卖家能够避免冲突。				√	
RH3.When watching or interacting live, the e-commerce seller and I are able to respect with each other. RH3.观看直播或进行互动时, 我和电子商务卖家能够彼此尊重。				√	

第七部分：在线购买意愿(尺度：7 点评分，尺度 1 是非常不同意，尺度 7 是非常同意)

Section 7: Purchase Intention (Scale: 7-point rating, Scale 1 is strongly disagree, Scale 7 is strongly agree)

	不符合标准 Totally does not meet standard	部分符合, 需较大修改 Requires large	较大符合, 仅需小幅修改 Requires minor	符合标准, 无需修改 No modifications needed	修改意见 Suggestions for Revision
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		modificatio ns	modifications		
PI1.I would be happy to buy from e-commerce live seller. PI1.我愿意从这个电子商务直播卖家购买商品。				√	
PI2.I would recommend my friends and relatives to buy from e-commerce live seller. PI2.我愿意推荐亲戚朋友从这个电子商务直播卖家购买 商品。				√	
PI3.If I need to buy an item, I will choose to buy from e- commerce seller. PI3.如果我需要购买商品，我会选择从这个电子商务卖 家购买。				√	

Appendix C: Questionnaire Amendment After Expert Validation

Section 1: Preliminary Questions		
Code	Before expert validation	After expert validation
A1	Do the websites you see have live streaming capabilities A. Live Website B. Non-live website?	Do you have experience purchasing goods through live streaming e-commerce platforms? A. Yes B. No (If you choose B, you will not have to continue.)
Section 2: Socio Demographic Profile		
Code	Before expert validation	After expert validation
B1	What is your gender?	What is your gender?
B2	What is your age?	What is your age?
B3	What is your education level?	What is your education level?
B4	What is your average monthly income?	What is your average monthly income?
B5	What is your occupation?	What is your occupation?
B6	How often do you watch e-commerce live streaming?	How often do you watch e-commerce live streaming?
Section 3: E-commerce Live Streaming Technical Feature		
Code	Before expert validation	After expert validation
Real-time interactivity		
RI1	I can interact with the seller in the live stream to get information.	I can interact with the seller in the live stream to get information.
RI2	I can fulfill my interaction needs in live streaming.	I can fulfill my interaction needs in live streaming.

RI3	I can find the information I need via live streaming.	I can easily find the information I need without having to call the seller via live streaming.
RI4	I can find the information I need without having to use a chat program.	I can find the information I need without having to use a chat program.
RI5	My interactions with sellers are efficient in live streaming.	My interactions with sellers are efficient in live streaming.
Perceived Proximity		
PP1	The relationship between me and the seller in the live stream is not affected by the actual physical distance.	The relationship between me and the seller in the live stream is not affected by the actual physical distance.
PP2	I feel close to the seller in live streaming.	I feel close to the seller in live streaming.
PP3	The seller gives me a warm feeling in the live stream.	The seller gives me a warm feeling in the live stream.
PP4	Although I was not in the same place with the seller, I felt close to the seller during the live stream.	I feel close to the seller in the live stream even though I am not in the same place as the seller.
Perceived Authenticity		
PA1	I get objective information about the product during the live streaming.	I get objective information about the product during the live streaming.
PA2	I can observe the real character traits of the seller in the live streaming.	I can observe the real character traits of the seller in the live streaming.
PA3	The seller in the live stream is able to make reliable promises.	The seller in the live stream is able to make reliable promises.
Section 4: Social Support		
Code	Before expert validation	After expert validation

Information Support		
IS1	When I have problems, others on the air help me analyse the reasons.	When I have problems, others on the air help me analyse the reasons.
IS2	When I have a problem, others on the air give me useful information.	When I have a problem, others on the air give me useful information.
IS3	When I have a problem, others on the air give me advice.	When I have a problem, others on the air give me advice.
Emotional Support		
ES1	when I was in trouble, others on the live streaming pay attention to me.	when I was in trouble, others on the live streaming pay attention to me.
ES2	Other people on the plane comforted and encouraged me when I was in trouble.	when I was in trouble, Others on the live streaming comforted and encouraged me.
ES3	when I was in trouble, Others on the live streaming express their opinions.	when I was in trouble, Others on the live streaming express their opinions.
ES4	when I was in trouble, Others on the live streaming express concern for me.	when I was in trouble, Others on the live streaming express concern for me.
Section 5: E-commerce Live Streaming Service Quality		
Code	Before expert validation	After expert validation
Credibility		
CRE1	This live stream provides me with accurate product information.	This live stream provides me with accurate product information.
CRE2	The live stream provides me with accurate product information.	The live stream provides me with accurate product information.
CRE3	The live stream provides me with persuasive product information.	The live stream provides me with persuasive product information.

CRE4	The live stream provides me with product information that I can use in my purchasing decision.	The live stream provides me with product information that I can use in my purchasing decision.
Usefulness		
USE1	This live stream can provide me with useful product information.	This live stream can provide me with useful product information.
USE2	This live stream provides me with valuable product information.	This live stream provides me with valuable product information.
USE3	The live stream provides me with meaningful product information.	The live stream provides me with meaningful product information.
USE4	The live stream provides me with information that can help me make better purchasing decisions.	The live stream provides me with information that can help me make better purchasing decisions.
Vividness		
VIV1	By watching the live streaming, I can get specific product information (detailed feature, etc.).	By watching the live streaming, I can get specific product information (detailed feature, etc.).
VIV2	By watching the live streaming, I can see the real product display and sales scene.	By watching the live streaming, I can see the real product display and sales scene.
VIV3	By watching the live streaming, I can get colourful product information (pictures, videos, etc.).	By watching the live streaming, I can get colourful product information (pictures, videos, etc.).
VIV4	By watching the live streaming, I can get clear product information.	By watching the live streaming, I can get clear product information.
VIV5	By watching the live streaming, I can get information from visual and auditory aspects (seeing and hearing).	By watching the live streaming, I can get information from visual and auditory aspects (seeing and hearing).

Responsiveness		
RES1	The e-commerce seller was willing to answer my questions when I interacted with him via live streaming.	The e-commerce seller was willing to answer my questions when I interacted with him via live streaming.
RES2	The e-commerce seller was willing to help me solve my problem when I interacted via live streaming.	The e-commerce seller was willing to help me solve my problem when I interacted via live streaming.
RES3	The e-commerce seller was able to provide me with service as quickly as possible when interacting via live streaming.	The e-commerce seller was able to provide me with service as quickly as possible when interacting via live streaming.
RES4	If the e-commerce seller is busy, he/she will tell me when he/she is available to serve me.	When interacting via live streaming, the e-commerce seller will tell me when he/she is available to serve me if he/she is busy.
Real-time		
RTI1	In live streaming, real-time performance improves the efficiency of communication between me and e-commerce sellers.	In live streaming, real-time performance improves the efficiency of communication between me and e-commerce sellers.
RTI2	I can get relevant information through real-time communication with e-commerce sellers.	In live streaming, I can obtain relevant information through real-time communication with e-commerce sellers.
RTI3	In live streaming, real-time communication between me and e-commerce sellers can fulfill my information needs.	In live streaming, real-time communication between me and e-commerce sellers can fulfill my information needs.

RTI4	Through live streaming interaction, I can find the information I need without having to consult on the phone.	Through live streaming interaction, I can find the information I need without having to consult on the phone.
RTI5	Through live interaction, I can find the information I need without consulting chat software.	Through live interaction, I can find the information I need without consulting chat software.
Empathy		
EMP1	In interacting through livestreams, e-commerce sellers are able to focus on my personal needs as much as possible.	When interacting via live streaming, the e-commerce seller was able to pay as much attention as possible to my personal needs.
EMP2	When interacting via live streaming, the e-commerce seller is able to understand my specific needs.	When interacting via live streaming, the e-commerce seller is able to understand my specific needs.
EMP3	When interacting via live streaming, the e-commerce seller is able to tailor the service to my needs.	When interacting via live streaming, the e-commerce seller is able to tailor the service to my needs.
EMP4	Live streaming has flexible and convenient service hours (the ability to provide personal service according to my schedule).	Live streaming has flexible and convenient service hours (the ability to provide personal service according to my schedule).
Section 6: Swift Relationship		
Code	Before expert validation	After expert validation
Mutual Understanding		
MU1	On the live streaming, e-commerce sellers and I can hear (and see) each other conversing.	On the live streaming, e-commerce sellers and I can hear (and see) each other conversing.

MU2	On the live streaming, e-commerce sellers and I can follow each other's conversations.	On the live streaming, e-commerce sellers and I can follow each other's conversations.
MU3	On the live streaming, e-commerce sellers and I can understand each other's perspectives.	On the live streaming, e-commerce sellers and I can understand each other's perspectives.
MU4	On the live streaming, e-commerce sellers and I show interest in each other's perspectives.	On the live streaming, e-commerce sellers and I show interest in each other's perspectives.
MU5	On the live streaming, e-commerce sellers and I can understand each other's needs.	On the live streaming, e-commerce sellers and I can understand each other's needs.
Relationship Reciprocity		
RR1	If I buy from being an e-commerce live seller, he/she may give me a discount.	If I buy from being an e-commerce live seller, he/she may give me a discount.
RR2	E-commerce real sellers and I may provide each other with positive reviews or comments.	The e-commerce live seller and I can provide each other with positive ratings or reviews.
RR3	The e-commerce live seller and I can help each other.	The e-commerce live seller and I can help each other.
RR4	The e-commerce live seller and I build a friendly relationship by supporting each other.	The e-commerce live seller and I build a friendly relationship by supporting each other.
Relationship Harmony		
RH1	When watching or interacting live, the e-commerce seller and I are able to harmonize with each other.	When watching or interacting live, the e-commerce seller and I are able to harmonize with each other.

RH2	When watching or interacting live, the e-commerce seller and I are able to avoid conflict with each other.	When watching or interacting live, the e-commerce seller and I are able to avoid conflict with each other.
RH3	When watching or interacting live, the e-commerce seller and I are able to respect with each other.	When watching or interacting live, the e-commerce seller and I are able to respect with each other.
Section 7: Purchase Intention		
Code	Before expert validation	After expert validation
PI1	I would be happy to buy from e-commerce live seller.	I would be happy to buy from e-commerce live seller.
PI2	I would recommend my friends and relatives to buy from e-commerce live seller.	I would recommend my friends and relatives to buy from e-commerce live seller.
PI3	If I need to buy an item, I will choose to buy from e-commerce seller.	If I need to buy an item, I will choose to buy from e-commerce seller.