An Exploration of Motivations for Users' Purchase Intention in Live-Streaming E-Commerce from a Perspective of Social Impact Theory

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Abstract: Live-streaming (LS) e-commerce has become popular since it appeared in China in 2019. In light of this, this research explored the motivations for people's purchase intention in LS under the theoretical framework of the Social Impact Theory (SIT). 160 questionnaires were collected and analyzed. Additionally, relevant analysis on the platform Douyin was conducted. Results showed that streamers, other customers, and the LS platform contribute to affecting people's purchase intention. Specifically speaking, the strength of streamers (how professional and popular they are) influences people's trust; the number of other customers and their comments mediated people's purchase intention; the immediacy of Douyin (how the platform makes the communication and purchase easier) also has an impact on the purchase intention.

Keywords: Live-streaming e-commerce, Social media, Social impact theory

1.   Introduction

Live streaming first appeared in 2005 in China [1-2]. In the very beginning, people mainly watched real-time dancing and singing performances using LS [3]. For the next ten years, LS in China developed more categories, including gaming, knowledge sharing, product promotion, etc. [4-5].

At the end of 2019, the Covid-19 outbreak happened in Wuhan, China. And physical movements had been gradually restricted and reduced since early 2020. The lack of offline activities could be one of the factors to stimulate the development of the LS industry, because people may have more spare time and try to look for more online activities to enrich their lives [6]. As a result, e-commerce, including LS, has grown quite fast, becoming an even greater — and essential — part of economic development in China [6]. By June 2021, just over a year after many cities were locked down for the pandemic, LS users "had reached 638 million", or roughly 2/3rds of internet users in China [6]. Half of those "significantly increased" the frequency of their use of LS [7]. In the study of Li and Li [8], the scholars emphasized the significant development of LS e-commerce using specific data: in 2020, there were more than 7 million LS e-commerce rooms, and about 388 million users watched such LS videos.

With the popularity of LS, the professionalization of LS developed. For example, Tencent cooperated with other social media platforms to sponsor full-time streamers who are the potential to be famous [5], [9].

Additionally, LS e-commerce sprung up on different types of platforms, including

e-commerce platforms, like Taobao, and social media platforms, like Douyin and Xiaohongshu [10-12]. Many studies have researched LS e-commerce on Taobao and similar e-commerce platforms [6], [10-12], but few have been done on China's social media platforms.

This study examined how LS on social media impact users' purchase intention. The researched platform was Douyin, whose LS function launched in June 2020, and became one of the top LS e-commerce platforms after one and a half years [13]. LS e-commerce on Douyin has a systematic strategy named FACT matrix, which was introduced in 2021 [14]. "F" is "field", meaning that commencers conduct LS and present their products themselves. "A" is "Alliance", referring to professional streamers with high popularity. And "C" is "Campaign", which is related to sales on Shopping Days or festivals. Finally, "T" means Top key opinion leaders (KOL), which refers to LS taken by celebrities [13-14]. The strategy indicates that product promoting effects vary from different streamers.

Additionally, when watching LS, people can make commentaries and see comments from other customers. The numbers of total customers and likes are also presented on the screen, which people can use as a reference to evaluate products. To research the influence from streamers and other customers, the researcher used a mixed method under the theoretical framework of SIT. First, a survey was used to investigate people's attitudes about streamers and other users. Then, content analysis on page design of the social media LS platform on Douyin was conducted, which explored how the features of the platform increase immediacy of communication.

2. Literature Review

2.1. Characteristics of LS

LS is a method for sellers to promote their products and for customers to learn information about their desired products. Currently, there are many LS platforms in China, including social media platforms and e-commerce platforms. For example, Taobao is a well-known e-commerce platform for LS. Additionally, Tik Tok, Weibo, and Little Red Book have also launched and developed their LS functions. These platforms have been designed with similar characteristics to enhance customers' purchase intention and behavior. From the IT affordance perspective, LS platforms own visibility affordance, metavoicing affordance, and guidance shopping affordance, which increase customers' engagement through to customers' purchase intention [11].

In research by Gong et al. [15], the page design of LS positively impacts people's self-efficacy (evaluation of their capability) and psychological ownership, contributing to customers' impulse buying. However, this research only focused on the relationship between page design and customers' impulse buying, mediating factors such as self-efficacy and psychological ownership [15]. Therefore, studies on more factors such as streamers and other customers need to be done.

2.2. Stimulus from streamers and products

Streamers play an essential role in persuading into a purchase. Huang and Suo found that interpersonal interaction — e.g., communications between customers, as well as between customers and streamers — promotes customers' impulse purchases [10]. In the research done by Huang and Suo, they used the Stimulus-Organism-Response (S-O-R) model — a model to explain human behavior through analyzing stimuli from the external environment — as a guideline [10]. They found that the streamer as a stimulus affects customers' emotions and trust. As such, customers make a purchase as a response [10].

In the same year, Ming et al. [16] also used the S-O-R framework to explore how social presence influences impulsive buying behavior. In their research, social presence was divided into three dimensions: the social presence of platforms, viewers, and streamers [16]. Ming et al. determined that

all three dimensions stimulate consumers' trust and flow state, resulting in impulsive buying behavior [16].

Other scholars have discovered that the popularity of streamers and learning of other people's opinions on the quality of products strongly correlate with customers' purchase intention [12]. Wang et al. also found that argument quality has a more substantial impact on purchase intention of utilitarian products than hedonic products, while source attractiveness has few impacts on purchase intention of utilitarian products but is strongly related to hedonic products [12].

2.3. Psychological factors of customers

Many studies focus on customers' feelings and experiences when analyzing live-stream-related topics. Most studies used quantitative analysis under related psychological and marketing theories, including Construal Level Theory (CLT), Self-determination Theory, S-O-R Theory, etc. Several factors have been regarded as significantly related to customers' purchase intention and behavior, which will be discussed in section 2.3.

2.3.1. Social Presence and Immersion

"Social presence" is a common concept in telecommunications, referring to the degree of people's perception to feel their real existence instead of virtual identity in the process of telecommunication [17]. According to Su's empirical study, social presence influences users' attitudes towards using LS platforms [17]. Through real-time interaction, users can get feedback from streamers and other customers. As a result, their LS watching experiences are enhanced and more positive attitudes are stimulated.

"Immersion" is another concept used frequently in new media research [17]. It means that people behave in the virtual environment in the same way as in the real world. According to Su's study, an "immersion" experience indirectly affects the users' behavioral intention [17]. Customers keep being presented with products and brands and then immerse in LS e-commerce. In that case, they are more likely to believe the streamer's words and make a purchase.

2.3.2. Customers' Perception

Customers' perception mainly refers to customers' perceived values [18] and perceived uncertainty of products [19].

In Wongkitrungrueng and Assarut's research, customers' perceived values were broken into three dimensions: utilitarian, hedonic, and symbolic [18]. Utilitarian values refer to products' attributes focus on "practicability and functionality" [12], such as tissues. Besides functions, hedonic products emphasize the using experiences, like movie tickets. And symbolic products always satisfy people's sense of identity, such as luxury goods. Wongkitrungrueng and Assarut's found that symbolic value relates to customers' engagement and trust directly, which leads to purchase behavior, because people are convinced that they belong to the group and need the products as they are fully immersed [18]. Moreover, utilitarian and hedonic values have indirect relationships with customers' engagement and trust as they buy those goods based on their demands. However, the research has some limitations as it is limited to small sellers on Instagram in Bangkok, Thailand, focusing on hedonic products.

Zhang et al. used Construal Level Theory (CLT) to conclude that LS e-commerce increases customers' purchase intention by reducing psychological distance and perceived uncertainty [19]. This study collected data from Taobao, the biggest e-commerce platform in China. As LS e-commerce has also launched on SNSs, more research on these platforms should be done.

2.3.3. Fan Identity Salience

Based on social identity theory, Hou et al. inferred in their research design that customers' purchase behavior may differ if they have different levels of fan identity salience [20]. Streamers' fans may buy the products introduced by the streamer to support them [20]. On the contrary, other customers watch LS just to get product information from the streamer and their purchases are mainly determined by their requirements. Effects of fan identity salience on purchase intention is a relatively new angle that has been little discussed.

2.3.4. Social Impact Theory (SIT)

SIT describes that people will be influenced by the presence of other people [21]. According to the theory, people's behavior and attitude will be impacted by the strength, immediacy, and number of other people [21]. Based on that, Kwahk and Ge found that social media positively affect normative and informational influence, increasing the visit and purchase intention of e-commerce [22]. Hence, SIT can be used as a theoretical framework when analyzing customers' attitudes about LS in SNSs.

3. Methodology

The research used SIT as its theoretical framework and explored the stimuli of people's purchase intention when watching LS videos on SNSs in China. In light of this, the study was deductive. The research adopted the survey methods and analyzed related features of Douyin. A questionnaire was released on WeChat on May 27, 2022 and closed on May 30, 2020. And 160 valid questionnaires were collected. A mixed method was implemented, which combines the merits of qualitative and quantitative methods to get a deeper understanding of a phenomenon [23].

3.1. Research Questions

RQ1: How does the strength of streamer impact users' purchase intention in LS?
RQ2: How does immediacy of the Douyin increase users' purchase intention in LS?
RQ3: How other customers impact users' purchase intention in LS?
RQ3a: Does the number of other users affect the purchase intention? RQ3b: What kind of LS room maximize users' purchase intention?
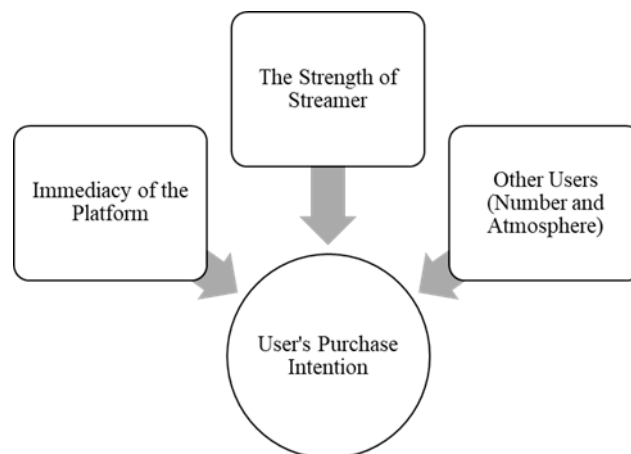
3.2. Conceptual Framework

Figure 1: Conceptual framework of the research.

3.3. Definition of Keywords

3.3.1. Live Streaming (LS) E-commerce

LS e-commerce is a kind of real-time video where online sellers introduce and sell their products [24].

3.3.2. The Strength of Streamer

The credibility, popularity and professionalization of the streamer [21].

3.3.3. Immediacy of the Platform

The page design and features of Douyin that make the communication instant [21], [24].

3.3.4. The Number of Users

The number of people in communication [21], namely the number of users in the LS room in the research.

3.3.5. User's Purchase Intention

The degree of user's purchase desire [11].

3.4. Sampling

This study used Convenience Sampling and Snowball Sampling as its methods. Although non-probability sampling has some limitations due to the researcher's subjectivity, it has proven to be useful for studies with limited time and resources [25]. The survey was released on WeChat, one of China's most popular social media platforms [26]. All the participants WERE easily accessible by the researcher as WeChat is a semi-public social media platform. All collected questionnaires were included in the research.

3.5. Survey design

The research concentrated on LS on social media platforms in China, explicitly referring to Douyin (Tiktok in China). For the first section of the questionnaire, participants were asked demographic questions. Names were not recorded to protect respondents' privacy.

The second section of the questionnaire consisted of questions about user habits, for example, participants were asked how frequently they made LS purchases. This section filtered those who have never or rarely made a live-streaming-related purchase, as well as those who have never used Douyin as their main LS watching platform. However, their opinions were also seriously considered from their answers in section three and four of the survey. For example, they were asked why they choose not to purchase in LS e-commerce or why they never used Douyin for LS. Finally, for the last part of the survey, participants were asked to tell their experiences and intentions of their past LS purchases, or their overview opinions about LS e-commerce.

The questionnaire consisted of both open-ended and close-ended questions. The questions were designed in English and translated into Chinese. Appendix 1 repeats the questionnaire.

3.6. Data Collection

The survey was released for three days of snowball sampling: from May 27 - May 30, 2022. First, the researcher published the survey on her WeChat Page, and people who could access the page participated (people who are on the friend list of the researcher). Participants of the first round

republished the survey on their WeChat pages and attracted more participants, and so on. 160 questionnaires were collected in total.

3.7. Data Analysis

This study applied statistical and content analysis. First, the researcher analyzed the surveys' quantitative and qualitative data (e.g., opinions of participants as reported). In the findings section below, the quantitative data is mainly presented in the form of percentages; the qualitative data is presented in narrative form. All analysis was under the guidance of SIT. Additionally, content analysis on Douyin was done to explore the effects of the platform. Moreover, newly discovered information was concluded using thematical analysis.

4.   Findings

4.1. Demographic Profile

Among the questionnaire (n=160) the researcher collected, about 70% of participants were females (n=113). This is because females' products are dominant in the market of LS e-commerce, like cosmetics, clothes, snacks, etc. [27]. It can also be supported by the result from the sixth question in the survey: over 60% of participants expressed that the goods they buy most frequently from LS are cosmetics.

Additionally, four out of five (n=128) of participants had Bachelor's Degree as their highest education, and three-quarters (n=122) were from 18 to 22. The results indicated that most users are millennials who are willing to accept new technology and are good at utilizing it [28]. Moreover, people who are in or completed undergraduate education should have the ability for technology usage since it is necessary for modern education [28].

The results of demography in this research aligned with the previous studies [10-12]. For example, in the research of Huang and Suo, scholars have examined factors for impulse purchase in Chinese LS, and they found that nearly 80% of 477 participants were women and over 60% were at the age of 19 to 30 [10].

4.2. Strength of the Live Streamer

Results showed that nearly half of participants trust streamers with high professionalization and popularity. And the way streamers introduce the product will affect users' purchase intention. For example, when using the Likert Scale [29] to measure how participants are dissatisfied with streamers who talk only about the merits of a product and not its flaws, five options were provided: "Fully Agree", "Agree", "Not Sure", "Disagree" and "Strongly Disagree". Half of the participants chose "Agree", and over 30% were "Fully Agree". It means that users expected the streamer to be honest and introduce the products accurately and objectively. Specific results of how the way the streamer introduces the product influence people's purchase intention shows in Table 4.1.

The results show that professionalization and popularity matter for LS users because they want to get useful and credible product information from live streamers. According to Social Impact Theory from Latane, the strength of the sources refers to "the salience, power, importance, or intensity of a given source to the target" [21]. In light of this, RQ1 can be answered by the results: the strength of streamer impact users' purchase intention in LS mainly through the level of their professionalization and popularity.

4.3. Immediacy

According to Latane, immediacy means "closeness in space or time and absence of intervening

barriers or filters" [21]. Results showed that the immediacy of the communication in LS e- commerce is affected by the design of the platform Douyin, the streamer, and other users.

First, the design of Donyin eliminates the barriers that prevent customers from getting more related information. Details about its designs show in Figures 4.2 and 4.3.

The shopping cart icon directly leads LS users to the purchase page, and the floating window guides them to the page of product detailed information. Both make related information much easier for customers to obtain, increasing the immediacy of communication in LS.

Second, LS provides opportunities for real-time communication. Therefore, closeness in time is higher. Survey results also showed that interaction with the steamer and other customers promotes users' purchase intention, which is also supported by previous studies [10], [17], [30].

Above all, for RQ2, Douyin increased customers' purchase intention by increasing closeness in time and reducing communication barriers, which are achieved through convenient platform design and immediacy of LS.

Table 1: Likert Scale for people's attitude toward different ways live streamers introduce products.

Ways live streamers introduce products	Attitudes	% (n=160)
If streamers introduce and display products comprehensively and carefully, my purchase intention will be higher.	Fully Agree	44.04%
	Agree	38.53%
	Not Sure	17.43%
	Disagree	0
	Strongly Disagree	0
Streamers' suggestive words (e.g., "Buy it!") increased my purchase intention.	Fully Agree	14.68%
	Agree	17.43%
	Not Sure	40.37%
	Disagree	20.18%
	Strongly Disagree	7.34%
The interaction with the streamers in LS increased my purchase intention.	Fully Agree	19.27%
	Agree	38.53%
	Not Sure	29.36%
	Disagree	11.93%
	Strongly Disagree	0.92%
I am dissatisfied with streamers who talks only about the merits of a product and not its flaws.	Fully Agree	33.94%
	Agree	46.79%
	Not Sure	16.51%
	Disagree	2.75%
	Strongly Disagree	0
I expected the streamer can give personalized suggestions (such as who are suitable to use the product).	Fully Agree	50.46%
	Agree	42.2%
	Not Sure	6.42%
	Disagree	0.92%
	Strongly Disagree	0

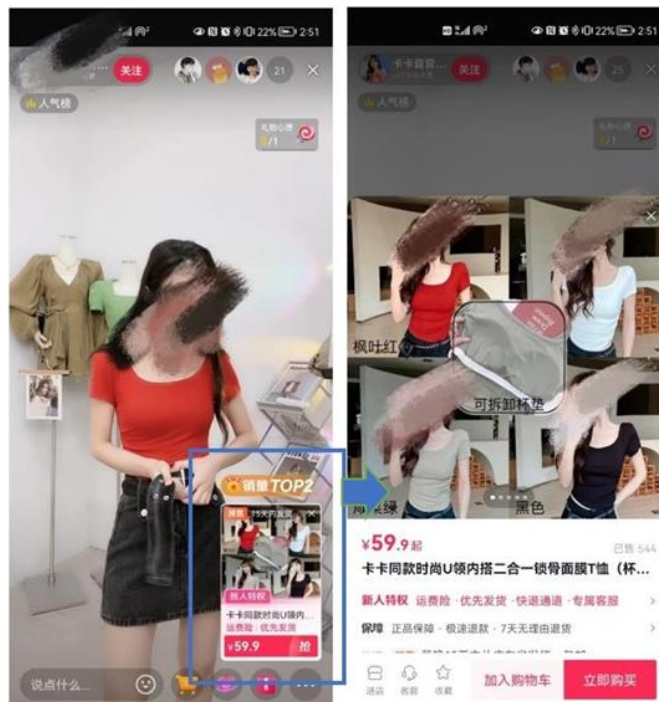Figure 2: Shopping cart icon on the page.

Figure 3: Floating window on the page.

4.4. Other LS Users

Questions 14 to 19 in the survey were set for RQ3 to examine how other customers impact users' purchase intention in LS. Results indicated that the number of other users, opinions of other users, and the atmosphere of the LS room will affect people's purchase intention. Specific data shows in Table 2.

First, more than half of the participants agreed that "the more people watch the LS, the stronger the purchase intention is". Additionally, about half of them also expressed that when the number of products is limited while there are a quite lot of other customers, their purchase intention will increase. In accordance with previous research [31], this is also often used in marketing strategy, which is called "hunger strategy".

Second, about half of the participants agreed that positive comments from other users in the LS room will motivate them to buy the product, and one-fifth fully agreed. It means that opinions from other users will impact peoples' purchase intention, which is in line with the principle of Social Impact Theory [21].

Third, 37.61% of participants prefer busy LS rooms with a large number of people, while 44.95% favor interactive LS rooms. It indicated that the atmosphere of the LS room is also influential.

Therefore, for RQ3, the number of other users affects the purchase intention, and interactive LS rooms and busy LS rooms receive more people's preference.

Table 2: Likert scale for how other customers impact users' purchase intention.

Factors from other customers	Attitudes	% (n=160)
The more people watch the LS, the stronger my purchase intention is.	Fully Agree	11.93%
	Agree	40.37%
	Not Sure	26.61%
	Disagree	20.18%
	Strongly Disagree	0
Interacting with other consumers increases my purchase intention.	Fully Agree	12.84%
	Agree	33.03%
	Not Sure	38.53%
	Disagree	11.93%
	Strongly Disagree	3.67%
While watching LS e-commerce, I can often get valid product information from other consumers.	Fully Agree	18.35%
	Agree	32.11%
	Not Sure	32.11%
	Disagree	14.68%
	Strongly Disagree	2.75%
If the number of products is limited while there are a quite lot of other customers, my purchase intention will increase.	Fully Agree	15.6%
	Agree	44.95%
	Not Sure	22.02%
	Disagree	10.09%
	Strongly Disagree	7.34%
Positive comments from other users in the LS room will motivate me to buy the product.	Fully Agree	19.27%
	Agree	49.54%
	Not Sure	23.85%
	Disagree	7.34%
	Strongly Disagree	0

5.   Conclusion

This study aimed to explore how streamers, platforms, and customers impact individuals' purchase intentions in LS e-commerce. For this purpose, the researcher released a survey to gather people's opinions relating to their support of live streamers on Douyin, one of the most popular LS social media platforms.

The findings showed that the streamers' strength (popularity and professionality), the immediacy of Douyin (how the platform makes communication and purchase easier) and the number of other customers contribute to people's purchase intention. Besides the three factors, the atmosphere of the LS room was also found impactful as nearly half of the participants expressed their preference for interactive LS rooms.

Limitations existed. First, due to limited time and resources, the sample was relatively small and only collected from the east of China. Data from more regions should be collected in future studies. Second, streamers' popularity and professionality were based on participants' understanding instead of being digitized. It might cause bias due to the difference in people's perceptions. Although there were limitations, the study has both theoretical and practical implications. For the theoretical part, this study applied SIT as the theoretical framework, extending its application into the context of new media. From a practical perspective, the research provided suggestions for the LS e-commerce industry in China. Companies and brands can improve their service from streamers, platforms, and LS rooms' atmosphere, encouraging customers' high purchase intention.

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