

A Study on the Influence of Tiktok Live Broadcast on College Students' Purchase Intention

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Abstract. Nowadays, the society is experiencing the rapid development of the Internet, entering the era of web3.0 at the same time. From the dual perspectives of the transformation of value of short video and the realization of the flow in the consumer society, short video live delivery has become the main channel of consumption under the circumstances of streaming media. This emerging online shopping method based on platforms such as Tiktok has also become a trend dominated by college students. The main concern of this study is individual personalized characteristics and flow experience of anchors, which is based on the SOR stimulus response model theoretically. Using the research method of questionnaire survey, college students in Guangdong, Hong Kong and Macao are selected as research samples to explore what factors affect college students' purchase intention when they watch Tiktok live streaming. In addition, the study analyzes the operating mechanism and underlying logic behind these influencing factors.

The study indicates that the streamer attractiveness have a positive effect on flow experience, while flow experience has a positive effect on purchase intention, and streamer attractiveness and purchase intention are positively correlated. Moreover, flow experience has a partial mediating effect in the relationship between the two factors. Therefore, we hope that consumers would have the ability to distinguish and discriminate when watching the live videos on Tiktok, maintain a rational consumption attitude, and reasonably purchase many non-professional products on the short video platform. The study also plays a guiding role in providing consumer products and services to producers.

1. Introduction

1.1. Research Background

The rapid development of the Internet has brought about the characteristics of the data economy, which indicates that it has officially entered the web3.0 era guided by live streaming and 5G technology. Real time streaming media with 5G technology as the core continuously has caught the public's attention and became an important way of media consumption at the same time. According to the "Statistical Report on the Development of Internet in China", as of December 2021, the live streaming scale of e-commerce users in China has reached 464 million, representing an increase of 75.79 million compared to the previous year, accounting for 45% of the total proportion of internet users.

In addition, consumerism, as an attribute that cannot be ignored, quietly and uninterruptedly affects the public. In 1968, Baudrillard clarified the concept of the consumer society in his book "Consumer Society", which means that consumption has become detached from production and

life and existed independently (2021, pp. 33-38) ^[1]. Consumption has transformed towards intangible value and evolved into a culture symbol. This is literally analogous to the live broadcast e-commerce consumption, which popped up on the Internet. The entertainment and instant enjoyment of live broadcast have become a part of consumption as well. Therefore, all tangible and intangible objects can enter the category of commercialization. With the Tiktok as the research platform, this paper explores the influencing factors of college students' consumption tendency when watching short video live broadcast, and analyzes the underlying internal logic and leading factors. Analyzing the specific practical significance of the influencing factors for both consumers and producers can also generate novel perspectives and reflections on the live streaming sales industry.

1.2. Research Purposes

The reason for selecting college students as the subjects of this study is that college students are the main group of internet users currently, and they have formed the habit of watching short video live broadcasts and spontaneously

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filming. The trend of short videos is highly acceptable and recognized of this emerging purchasing method, making it suitable for research. The selection of research subjects in the Guangdong-Hong Kong-Macao Greater Bay Area is due to the rapid economic and e-commerce live shopping development as well as the strong willingness of college students for online purchases.

This study aims to explore what factors affect college students' propensity to consume when watching the TikTok live broadcast, and the underlying logic and operating mechanism of these factors; Secondly, this study considers the dual practical significance for consumers and producers, proposing the specific solutions and prospects for the future live streaming and sales industry on the analysis of the influencing factors.

1.3.Literature Review

In 2017, Tiktok officially launched the network broadcast mode. As a new type of business model, network broadcast has become a marketing method for many enterprises to carry out brand promotion, product sales and traffic realization with the characteristics of traffic exposure, fan incubation and real-time interaction. With the continuous development of live streaming ecology, anchors, as a bridge between enterprises and consumers, play an important role in enhancing product awareness and enhancing consumers' purchase intention. The current research status of Tiktok live delivery is mainly focused on marketing strategies, problems and countermeasures, and user influence, among which marketing strategy is the majority, while there are few researches in the field of user influence. Lu Mei (2020, pp. 76-78) starts with the profit model of Tiktok platform and explores how to achieve innovation in the future business model in the field of live broadcasting [2]. Li Jiyan and Li Linze (2022) take Tiktok Live broadcast as an example and find that the characteristics of e-commerce anchors have an important impact on consumers' repurchase intention [3]. This paper selects the subdivision point of "user perception and influence" to conduct in-depth research on Tiktok live streaming.

With the vigorous development of e-commerce, many scholars have applied SOR theoretical model to the study of consumer behavior in the online e-commerce environment. Eroglu and Davis (2001) divided the outlet atmosphere into high task correlation and low task correlation, and studied how the environment of online stores generates feedback on users' shopping experience with the help of the dual mediating role of consumers' emotional and cognitive states [13].

Faced with the current situation of the rise of network broadcast, some scholars have shifted their research objects from traditional online shopping behaviors to real-time consumption behaviors in live broadcast scenarios. Gong Xiaoxiao, Ye Zuoliang, Wu Yuping and Liu Jiayin (2019) found that the real-time interactive atmosphere created by livestreaming platforms affects consumers' flow experience and thus changes their consumption intention, and the mediating effect of the central flow

experience is affected by the negative adjustment of the mean thinking [4].

In summary, judging from the research status, SOR theoretical model is widely used in online shopping behavior, but there is a lack of studies that take Tiktok live streaming with goods as the consumption scene and host characteristics as the "stimulus" variable. Based on previous studies, this paper focuses on the shopping scene of Tiktok live broadcast, chooses streamer attractiveness as the independent variable of SOR model, flow experience as the intermediary variable, and consumers' purchase intention as the result variable.

2.Definitions

2.1.SOR Theoretical Model

The SOR theoretical model (stimulus-body-response) was first proposed by Mehrabian and Russell (1974) to explain the predictive influence of external environmental factors on people's inner state and subsequent behavior [12]. The model consists of three components: Stimulus, Organism and Response. "Stimulus" refers to the external environment that can affect an individual; "Organism (O)" is the mediating variable, representing the inner state of an organism in both cognitive and emotional aspects. "Response (R)" refers to the change of an individual's inner state under the effect of stimulus, and then the attitude and behavior that are finally presented.

2.2.Streamer Attractiveness

The important difference between live streaming e-commerce and traditional e-commerce is that live streaming e-commerce emphasizes that anchors sell goods through live video, and adds audio-visual output on the basis of graphic display. Streamers, on the other hand, use the short video live broadcast platform to conduct two-way communication with users at the same live broadcast site and stimulate users in a way of consumption guidance. Based on the existing literature, this study takes the streamer attractiveness as the main stimuli to consumers in the live streaming e-commerce environment, and designs a scale from five dimensions of professionalism, interactivity, credibility, attractiveness and popularity to analyze the stimulation of anchors' characteristics on consumers' emotional and cognitive states.

As an emerging marketing method, e-commerce live broadcasting has attracted more and more attention, and domestic research results are abundant. Studies show that the interaction, authenticity, professionalism and popularity of e-commerce anchors have a positive impact on consumers' perceived value, and promote consumers' purchase intention (Zhao Baoguo and Wang Yunfeng, 2021). Therefore, hypothesis 1:

H1: In Tiktok live broadcast, the stronger the streamer attractiveness, the stronger the consumer's purchase intention.

2.3.Flow Experience

Flow experience theory is one of the emerging research fields in recent years, and many scholars have conducted research in this field. The concept of flow experience was first introduced by Hoffman and Novak (1996) into the research related to the field of online shopping environment in 1996^[14]. They believe that flow experience refers to a comprehensive subjective psychological state of consumers in online shopping, such as concentration, immersion and pleasure. It may cause consumers to make unplanned purchases or increase the number of purchases beyond the actual planned amount. Gong Xiaoxiao, Wu Na and Ning Changhui (2020) showed that in the live broadcast scene, users can feel immersive through receiving instant messages delivered by the anchor, engaging in social interaction and participating in marketing activities^[8]. In the process of immersion, they will experience inner pleasure and thus stimulate more purchase intentions. Therefore, hypothesis 2 was proposed:

H2: In Tiktok live streaming, flow experience has a positive impact on consumers' purchase intention.

The role of the anchor in the live streaming e-commerce is the spokesperson of the brand or product. Liu Zhongyu, Zhao Xianghao and Long Wei (2020) found that the professionalism and interactivity of Internet celebrity information sources can strengthen consumers' sense of existence and identity, thus promoting consumers' purchasing decisions^[9]. Liu Fengjun et al. (2020) found that the attractiveness of Internet celebrities can positively and significantly affect consumers' perceived practical shopping value and perceived hedonic shopping value. Wei Jianfeng et al. (2022) found that the improvement of the popularity of anchors will promote the improvement of viewers' experience when watching live broadcasts and form positive emotional attitudes^[7]. The credibility, professionalism, interactivity, attraction, popularity and other features of live anchors can make the audience more focused on the live content, mobilize the audience's internal positive attitude and emotion, and then generate flow experience. Therefore, hypothesis 3:

H3: In Tiktok live broadcast, the streamer attractiveness has a positive impact on the flow experience of consumers.

Gong Xiaoxiao et al. (2020) incorporated the flow experience of livestreaming users based on SOR model. On this basis, the author constructs a model in this study that takes the relationship between atmosphere cues and impulse purchase intention in live broadcast scenes as the research object, and proves through experiments that flow experience plays an important mediating role in it. Therefore, hypothesis 4 is proposed:

H4: In Tiktok live broadcast, flow experience plays an intermediary role between streamer attractiveness and purchase intention.

2.4.Purchase intention

Intention is originally a psychological concept, and Chaiken (1993) pointed out in their paper that it refers to

the conscious and planned motivation of an individual before carrying out a certain behavior^[15]. Extending to the field of marketing, Dodds, Monroe and Grewal (1991) argue that purchase intention is the subjective probability or possibility of a consumer buying a particular product or service. Mullet and Karson (1985) found that generally speaking, the higher the purchase intention, the more likely the consumer will eventually take the purchase behavior^[16]. Mullet et al. (2009) believe that purchase intention has subjective properties and is the purchase idea generated by consumers when they are stimulated by merchants.

3.Research Methods

3.1.Research Model

According to the literature review, the streamer attractiveness affect flow experience through five dimensions of professionalism, interactivity, credibility, attractiveness and popularity, thus promoting the improvement of purchase intention. The research model shown in the following figure 1 is proposed. Independent variables include the characteristics of the main broadcast, including professionalism, interactivity, credibility, attractiveness and popularity. The intermediary variables are flow experience and purchase intention as dependent variables.

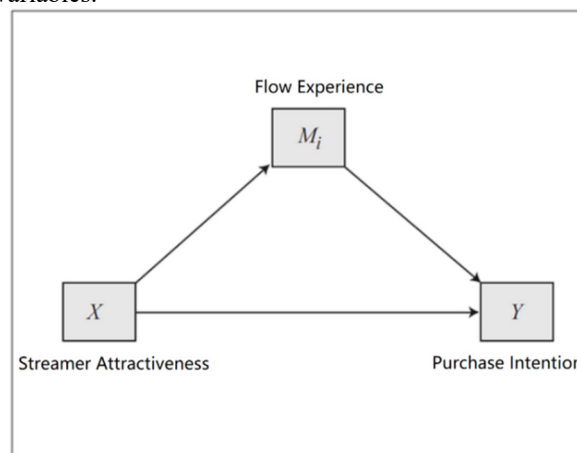


Figure.1 Research model (Data collection and statistics by authors)

3.2.Research Sample and Data Collection

The questionnaire of this study will be distributed from March to April 2023. The subjects of this study are college students who watch the live broadcast of audio tape in Guangdong, HongKong and Macao. Methods with the questionnaire survey, to investigate the impact of the streamer attractiveness of Tiktok live broadcast on consumers' purchase intention. A total of 370 questionnaires were distributed, excluding questionnaires with unclear logic and invalid responses, then it remained 294 valid questionnaires accounted for 79.46% of the whole.

The questionnaire survey used quota sampling to obtain samples. According to the national list of higher

educational institutions released by the Ministry of Education in 2020, the overall proportion of universities in Guangdong, Hong Kong, and Macao is 127:23:10. Therefore, this study distributed questionnaires to college students in the three regions, and the quantities of the obtained questionnaires are 227, 43, and 24, which is roughly equal to the proportion of universities to meet the quota sampling form. According to the frequency of watching Tiktok living in the past month, 84.69% of the respondents watched it at least once or twice a week, which improved the credibility and accuracy of this study to a certain extent.

3.3.Variable Test and Reliability Test

This paper uses the seven level Likert scale to score. The streamer attractiveness is expanded based on the scale measured by scholars Li Jiyan and Li Linze (2022) [3] for live streaming e-commerce anchor features, with a total of 5 questions. The flow experience is based on the measurement of flow experience scale proposed by Wei Jianfeng, Li Mengna, Liu Baoping (2022) [7] in the research on the influencing factors of impulse purchase intention, which is expanded to include four questions. The purchase intention refers to the scale of Liu Fengjun, Meng Lu, Chen Siyun, Duan Kun (2020) [5] on the mechanism of influencing purchase intention, consisting of three items. This paper uses SPSS25.0 software to analyze the reliability of the collected data. The Cronbach's alpha of each variable in the questionnaire is greater than 0.7 (0.888, 0.861 and 0.799 respectively), which indicates that the observable variables have good reliability, and the questionnaire has good internal consistency and stability.

3.4.Validity Test

As shown in table 1 below, the statistical value of Bartlett sphericity test is 2148.688, sig.<. 001. Under the significance level, the original hypothesis should be rejected, and it is considered that there is a significant difference between the correlation coefficient matrix and the Identity matrix. At the same time, the KMO value is 0.922. According to the KMO measurement standard provided by Kaiser, it is known that the questionnaire items are suitable for factor analysis and have good validity.

Table 1 Validity test

KMO sampling suitability quantity			0.922
Bartlett sphericity test	Approximate chi square		2148.688
	free degree		66
	sig.		0.000

4.Research Results

4.1.Descriptive Statistics

This article uses the SPSS 25.0 tool for analysis, and the results are shown in Table 2. The results shows that there

is a significant positive correlation between streamer attractiveness and flow experience ($r=0.615$, $p<.01$), which verifies H1; There is a significant positive correlation between flow experience and purchase intention ($r=0.621$, $p<. 01$), which proves H2; Similarly, H3 is verified by the result that there is a significant positive correlation between streamer attractiveness and purchase intention ($r=0.685$, $p<. 01$).

Table 2 Descriptives

Variables	M	SD	1	2	3
1 Streamer Attractiveness	4.5769	1.0852	-		
2 Flow Experience	4.5051	1.2209	0.615**	-	
3 Purchase Intention	4.2880	1.1977	0.685**	0.621**	-

4.2.Linear Regression Test

This article uses SPSS tools to conduct linear regression test on direct effects, and the research results are shown in table 3. The results indicate that the streamer attractiveness has a positive impact on the flow experience ($\beta= 0.615$, $p<0.01$), which supports H1; It proves H2 as the result of the positive effect of flow experience on purchase intention ($\beta= 0.621$, $p<0.01$); Streamer attractiveness positively affect purchase intention ($\beta= 0.685$, $p<0.01$), and H3 was verified.

Table 3 Regression analysis of streamer attractiveness, flow experience, and purchase intention

Variables	Flow Experience	Purchase Intention	
	M1	M2	M3
Streamer Attractiveness	0.615**	0.685**	
Flow Experience			0.621**
R2	0.378	0.469	0.386
$\Delta R2$	0.376	0.467	0.384
F	177.373	257.780	183.502

4.3.Mesomeric Effect Test

This article uses PROCESS for mediating variable analysis. Firstly, the flow experience (mediating variable M) is used as the outcome variable, and the variables gender and disposable income are used as control variables for model testing. When flow experience is used as the outcome variable ($R=0.6205$, $P<.01$), it has statistical significance. At this time, the path regression equation of X-M is: $M=0.8890+0.6908*X$, and the regression coefficient a (X-M)=0.6908, significantly ($P<.01$), 95% CI (0.5886, 0.7931), indicating that the parameter X has a positive correlation with the mediator variable M.

Using purchase intention (dependent variable Y) as the outcome variable and gender and disposable income as control variables, conduct model testing. When purchase intention is used as the outcome variable ($R=0.7425$, $P<.01$), it indicates that the model has statistical significance. The path regression equation for X and M versus Y is: $Y=-0.0156+0.5464*X+0.3004*M$, and the

partial regression coefficient b ($M-Y$)=0.3004, significant ($P<.01$), 95% CI (0.2032, 0.3976). Partial regression coefficient c (direct effect of X on Y)=0.5464, significant ($P<.01$), 95% CI (0.4374, 0.6553). By analyzing both a and b , it can be concluded that M has a mediating effect and $H4$ is supported.

In the test of intermediary variables, PROCESS showed that the total Effect size in the model was 0.7539, while the direct Effect size was 0.5464 and the indirect Effect size was 0.2075. It shows that the proportion of mesomeric effect was $0.2075/0.7539=27.5\%$, and 95% CI (0.1060, 0.3321), which excluded 0, so it verified the existence of indirect effects. Therefore, we believe that the mesomeric effect in this study is statistically significant, and M (flow experience) is part of the mesomeric effect.

5. Discussion

This study is based on S-O-R theoretical model to study the impact of host characteristics on consumers' purchase intention on platform. Different from previous studies, this study focused on the Tiktok platform, conducted an empirical study on the specific role of host characteristics in influencing consumers' purchase intention and behavior, and introduced flow experience as the intermediary variable of them. Overall, the results show that the proposed hypothesis can be supported.

5.1. Discussion on the influence of personalized characteristics of anchors on flow experience

Individual personalized characteristics of anchors positively affect the flow experience of consumers. On this research, the characteristics of anchors are defined as five dimensions: credibility, professionalism, interactivity, attractiveness and popularity, which play an important role in influencing the internal positive attitude and immersion perception of live viewers. This finding is consistent with the empirical results of Wei Jianfeng (2022). Consumers on Tiktok platform are not sensitive to the product information, and the main source of obtaining product information is algorithm recommendation, so as to obtain pleasant experience and fill the fragmented time. Therefore, the attractive "performance" broadcast by the host of Tiktok live streaming can effectively mobilize the positive attitude and emotion of consumers, and the perceived practical value and the perceived hedonic shopping value can be satisfied (Liu Fengjun, 2020), unconsciously extending the time spent in the broadcast room. This finding reveals the entertainment characteristics of livestreaming on Tiktok, suggesting that the feature of livestreaming ($\beta=0.615^{**}$) is a key stimulus that can significantly affect the emotional state of the audience.

5.2. Discussion on the influence of flow experience on purchase intention

Flow experience has a significant positive correlation with purchase intention. This conclusion confirms that

consumers' emotional state plays an important role in purchasing behavior, which confirms the view of Chan et al. (2017)^[17]. With interest-oriented Tiktok users who gain positive emotional value and pleasant service experience in fragmented time, it is easy to skip the "shop around" purchase link in the traditional e-commerce platform and complete the purchase behavior faster. This also shows from the side that how to maximize the fragmented time of target consumers is an issue that merchants and carriers need to pay attention to.

5.3. Discussion on the influence of the personalized characteristics of anchors on purchase intention

The personalized characteristics of anchors can have a direct impact on consumers' purchase intention, and sometimes it may influence the purchase intention by the help of the intermediary effect of flow experience. The mediating variable of flow experience plays a part of the mediating effect, accounting for 27.5%.

The characteristics of anchors can have a direct impact on consumers' purchase intention, which is consistent with the empirical conclusions of Zhao Baoguo (2021)^[6]. The possible explanations for this conclusion are as follows: (1) The credibility, professionalism, interactivity, attractiveness and popularity of anchors make consumers perceive and trust them (Zhang Le, 2022), which promotes consumers' purchase intention^[10]. (2) Tiktok users may have a tendency to make impulse purchases in the process of frequently refreshing push information, which may prompt them to obtain pleasant experience in the entertainment consumption environment and then purchase directly.

5.4. Discussion on the intermediary effect of flow experience

Flow experience plays a partial mediating role in the relationship between personalized characteristics of anchors and purchase intention. This conclusion is consistent with the empirical study by Ma Liting and Guo Meiling (2020)^[11]. As an environmental stimulus, personalized characteristics of anchors affect the emotional and cognitive state of consumption, while an emotional state of pleasure and enjoyment emerges and the individual attention can be improved, so that the purchase intention can be strengthened finally. The reason can be explained that Tik-Tok users aim for pleasure rather than efficient completion of consumption tasks during fragmented time. Therefore, they are less sensitive to factors such as price and quality of commodities, and are more likely to respond to visual and auditory stimuli provided by the host, thus willing to spend more fragmented time on interacting with the host. Finally, the willingness to consume increases in the pleasant emotional state.

6. Conclusion

This paper uses a quantitative research method, questionnaire survey, which selects college students in the Guangdong-Hong Kong-Macao Greater Bay Area for to conduct a research. The conclusions confirm that the streamer attractiveness positively affect the flow experience, and the flow experience positively affects the purchase intention. The streamer attractiveness is positively related to the purchase intention. More importantly, the flow experience has a partial mediating effect between streamer attractiveness and purchase intention.

Many problems, however, still exists in this paper, waiting to be corrected. Firstly, only college students from Guangdong-Hong Kong-Macao Greater Bay Area were considered when sampling, which probably has population and regional variation. The generalization of this conclusion to the public and the national level remains to be discussed; Secondly, when it comes to validity testing, this study do not utilize AVE and combined reliability, resulting in analyzing data incompletely; Ultimately, purchasing intention is often commodity-oriented, and many consumers would not purchase a product out of mere preferences for the anchor. Therefore, the attributes of the product itself also need to be taken into account.

In future research, consumers' purchasing tendencies can be segmented based on different product categories, such as beauty products and daily necessities, to reflect which products are more likely to stand out in the live streaming market and be generally preferred for audiences; Secondly, the study can also be combined with qualitative research, considering the symbolic meanings and language used by broadcasters to express product characteristics, promoting consumers to carefully identify the products appearing in live streaming sales, maintaining a clear and calm mind, and then establishing a correct consumption concept; Finally, the government and Tiktok platform are supposed to improve the corresponding laws and regulations, manage an enduring stable and positive market order, protect the rights and interests of consumers, and make the business model of live broadcast with goods form a virtuous circle between consumers and businesses.

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