

Research on Chinese live broadcast marketing and sustainable consumption intention under the internet environment

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Abstract. Compared with the traditional marketing model, the live broadcast marketing model increases the role of the anchor, making it a research hotspot. Based on different types of products and different anchor modes, the impact on consumers' psychology and behavior is the focus of this paper. Through two standard experiments, spss22 0 statistical analysis found that: (1) for functional products, entertainment anchor mode significantly improves consumers' emotional identity; at the same time, it significantly reduces consumers' authority identity and knowledge identity; (2) for functional products, knowledge-based anchor mode significantly enhances consumers' authority identity and knowledge identity, and significantly reduces consumers' emotional identity; (3) In the functional product scenario, knowledge identity, authority identity and emotional identity all have a positive impact on consumers' continuous purchase intention.

Keywords. Functional products, User identity, Live streaming marketing, Sustainable purchase intention.

1 Introduction

With the development of the Internet, consumers' shopping behavior has changed greatly. Consumers can buy goods on online platforms without leaving home. In order to meet the new demands of consumers, live streaming e-commerce emerged. Live streaming e-commerce refers to the e-commerce business in which Internet celebrities and other KOLs (key opinion leaders) recommend goods for sale through livestreams and short videos and finally close the deal (Zhong, 2020) [1]. Chinese-style live streaming started on Taobao e-commerce platform in 2016. At the beginning of 2020, the sudden outbreak of the epidemic accelerated China's live streaming e-commerce industry into a blowout period. According to data released by The Qianzhan Industry Research Institute, by March 2020, the scale of e-commerce live streaming users was 265 million, accounting for 29.3 percent of the total Internet users. Among them, Taobao's live-streaming ability to bring goods

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exploded in 2020, and the growth rate of live-streaming guiding turnover was more than 150% for three consecutive years. According to Alibaba's financial report for the third quarter of fiscal year 2021, as of December 31, 2020, the GMV brought by Taobao live in 12 months exceeded 400 billion yuan. Thus, live streaming is undoubtedly one of the most popular marketing methods in the Chinese market.

Live streaming marketing is an emerging marketing method that introduces and displays products in real time and interacts with consumers in real time with the help of Internet platforms(Zhou et al.,2018)[2]. It provides marketing information to consumers through video, text and other information media, and promotes marketing effectiveness through differentiated delivery process (Zhang et al.,2017)[3]. In reality, in order to pursue consumers' sustainable purchase and increase profits, enterprises usually choose different live broadcast marketing pattern (for example, entertainment anchors mode or knowledge anchors mode) to promote and sell products according to the characteristics of live broadcast, the core concept of the brand and the characteristics of the product. According to data provided by Cass Data Agency, most of the products sold by live streaming are functional products. For example, food, beverage, beauty products and personal care products are the most popular products sold by Kuaishou Live. Furthermore, social identity theory holds that social identity consists of three basic processes: generalization, identification and comparison. Identification is the belief that one has the common characteristics of the members of the community; Comparison is to evaluate the merits, status and reputation of the community one identifies with relative to other communities(Tajfel,1982)[4]. In the Internet environment, affected by the way of live broadcast, consumers tend to perform crowd generalization, form emotion identity and produce sustainable consumption behavior according to their own needs. However, there are few studies in existing literature that combine social identity theory to study the influence of different live marketing patterns and sustainable purchase intention of functional products.

The innovation of this paper mainly focuses on five aspects. First, by introducing social identity theory, this paper integrates live broadcast marketing, user identity and sustainable purchase intention into a new conceptual framework. Starting from the live broadcast marketing of functional products, this paper expands a new perspective in the field of live broadcast research in the Internet environment. Second, based on the social identity theory, this paper deeply discusses the influence of entertainment anchor mode and knowledge anchor mode on users' knowledge identity, authority identity and emotion identity in the Internet environment, as well as the influence of different identities on consumers' sustainable purchase intention. Third, at present, live broadcasting is a research hotspot. Some scholars have divided the types of live broadcasting (Kristopherf et al.,2014)[5]. However, few studies have compared the differential impact of the anchor mode in the past. Fourth, it is an innovation of this paper to divide user identity into three core chains of knowledge identity, authority identity and emotion identity. This paper theoretically analyzes the formation mechanism of the three types of identity. Fifth, whether user identity plays a mediating effect between live broadcast pattern and consumers' sustainable purchase intention is also an innovative issue to be discussed in this paper.

2 Literature review

2.1 Live broadcast marketing of functional products

Research has shown that different considerations of consumers will map onto independent components of product evaluation and consumers' attitudes, enabling people to distinguish

between goods based on their relative hedonic or functional nature (Batra & Ahtola,1990; Mano et al.,1993)[6][7]. Although consumption of many goods involves both hedonic and functional dimensions to varying degrees (Batra & Ahtola 1990)[6], consumers describe some products as primarily hedonistic and others as primarily utilitarian. Hedonic products are characterized by emotional experience and sensory experience (Hirschman et al.,1982)[8]. Functional products refer to products that are cognitively driven in consumption, products that are instrumental-oriented and target-oriented, and products that accomplish functional or practical tasks (Strahilevitz et al.,1998)[9].

In the Internet environment, according to the mode, characteristics and definition of live streaming e-commerce, the different marketing patterns mainly focus on the changes of KOL, venue and commodity, that is, starting from the three core elements of "people", "products" and "market"(Yao,2020)[10]. Live streaming e-commerce adds the role of KOL and make it a flow center to output professional content, influence the minds of consumers, and improve the sense of entertainment and service(Zhong,2020)[1]. In the network marketing mode, consumers gathered in the same space are highly consistent and similar, which makes the role of personal and social factors no longer obvious, while the marketing role of platform anchors as carriers is more important(Wang et al., 2017)[11]. According to the selection of different types of KOLs in the live streaming marketing of functional products, they are divided into entertainment anchors and knowledge anchors. In the process of live broadcast, entertainment anchors convey appearance level, talent, interaction and social attributes, and trigger consumption experience by seamlessly connecting the live broadcast content with popular products(Kristopherf et al.,2014)[5]. Knowledge anchors explain the principles, advantages and core competitiveness of products through professional knowledge, popularize knowledge about products, and trigger consumption experience through the organic combination of professional knowledge, live broadcast and products. Based on this, in this paper, we divide live broadcast marketing pattern into two types according to different types of anchors: entertainment anchors and knowledge anchors. At present, KOLs in the live streaming e-commerce market mainly include stars, Internet celebrity anchors, shop assistants and experts. In the entertainment anchor scenario, stars and Internet celebrity anchors are mainly used, while in the knowledge anchor scenario, shop assistants and expert lecturers are mainly used. In the mode of entertainment anchor, anchors are popular groups in the Internet for continuously displaying certain characteristics and being active. Relying on emerging media to act as opinion leaders, they are characterized by a wide range of social contacts, large amount of information dissemination and strong personal influence. They can convey their feelings and attitudes towards products to fans and influence their purchasing decisions(Fu, 2017)[12]. Knowledgeable anchors are highly professional, patient and provide strong after-sales service. They can provide consumers with professional and objective analysis and recommendation through professional knowledge to reduce consumers' strangeness to products. Through the professional analysis of the goods by the anchors, consumers can quickly identify the products suitable for them(Yao,2020)[10].

2.2 The influence of live marketing mode of functional products on user identity

Since the live broadcast of functional products is directly communicated to users, advertising and live broadcast play an important role as a bridge to realize the connection between consumers and brands (Park & John, 2012)[13]. Aguirre-rodriguez et al. (2012) found that the occurrence of consumer-brand connection effect can be regulated by many factors, among which cognitive factors (such as cognitive refinement, impression formation process, product stimulus abstraction and interaction between each other) are the universal

factors that affect the realization of user-brand connection effect[14]. Therefore, different live broadcast marketing modes will bring different identity connections between consumers and brands. Specifically, in the live marketing mode of functional products, the identity connection between users and brands can be divided into knowledge identity connection, authority identity connection and emotion identity connection. Finally, the general public likes those who are similar to themselves, for example, musical similarity can strengthen social bonds (Boer et al., 2011)[15]. This connection brought by similarity can also be applied to the consumption field. When the brand image created by the anchor matches a certain feature of the consumer, it will be selected and purchased (Wattanasuwan, 2005)[16], thus bringing satisfaction and loyalty. Moreover, both hedonic products and functional products show this effect (Huang et al., 2012)[17].

Then, will the entertainment anchor mode bring stronger emotion identity and sustainable consumption willingness?

In the scenario of entertainment anchor mode, that is, when the anchors are mainly stars and Internet celebrities, the anchors convey the appearance level, talent, interaction and social attributes during the live broadcast, and trigger the consumption experience by seamlessly connecting the live broadcast content with popular products(Kristopher et al., 2014)[5]. Through in-depth experience of the product, entertainment anchors put forward opinions and feelings related to the product, which is personalized and close to the people. Some entertainment anchors use emotional strategies to create a close relationship with their fans(Cai,2018)[18]. Anchors satisfy the specific emotional needs of viewers by means of giving emotion and controlling emotion(Huang & Luo 2021)[19], which enhances consumers' sense of identity to anchors. At the same time, consumers will be provided with a social identity, which will be continuously strengthened through other members' recognition and self-recognition(Liu & Shi, 2020)[20]. The research of Huang et al. (2015) shows that the formation of consumer identity generally has two basic elements: owning the identity of a specific group and perceiving the value and emotional significance brought by this identity[21]. The identity connection formed in this way with the brand is emotion identity connection. However, due to the characteristics of entertainment anchors, there are few and shallow statements about brand production process, product technical parameters and other knowledge about the products, as well as the lack of authoritative authentication and identity, which reduces the knowledge identity connection and authority identity connection between users and brands. In general, the following hypothesis is proposed:

H1: For functional products, the entertainment anchor mode significantly enhances consumers' emotion identification with the brand; The entertainment anchor mode significantly reduces consumers' authority identity and knowledge identity of brands.

In the scenario of knowledge-based anchors, that is, when the anchors are mainly shop assistants and experts, they are good at making use of their professional knowledge related to products to conduct objective analysis, evaluation and recommendation of products, and at the same time provide more adequate answers to users' questions (Huang & Luo 2021)[19]. In this case, the strangeness between users and the brand will be eliminated, thus enhancing the knowledge identity connection between users and the brand. It has been shown that authority influences mathematical ideas to become influential and thus perceived as true by the collective(Amit & Fried,2005;Engle et al.,2014;Inglis & Mejia,2009;Kurth et al., 2002;(Langer-Osuna,2016)[22][23][24][25][26]. Similarly, the authority of the anchor will also affect the emotional perception of the product. The evaluation of the authoritative anchors on the product will be recognized by users. In order to satisfy their social status or identity needs, consumers tend to associate with brands with authoritative status (Wang & Lin, 2009; Gao et al., 2009)[27][28]. In addition, interactions around authority influence who gets attention spatially, who is likely to obtain and maintain a constant dialogue, and whose ideas are considered valuable(Engle et al.,2014;Kurth et

al.,2002)[23][25]. The interactive question-and-answer between users and authoritative anchors in the live broadcast will also be concerned and considered valuable, so as to be recognized and trusted. This is the authority identity nexus. Meanwhile, anchors with expert characteristics enjoy a certain social identity and authority in the society. In consumer research, the content analysis of communication tends to focus on inferring the source of information (Kassarjian 1977)[29]. When users know the authoritative status of the anchor, they tend to agree with his words. At the same time, does such social identity organize how users perceive and accept (or reject) identification with authority (Langer-Osuna, 2016)[26]. Their product recommendations are more likely to be considered valuable, thus enhancing the authority identity connection between users and brands. When explaining and describing the on-site experience of products and services to consumers, their performance plays an important role in users' perception of the emotion and value of products and services(Huang & Luo 2021)[19]. However, the terms used by knowledge anchors are more official and rational, and they lack experience in inciting users to perceive emotion identity, which ultimately reduces the emotion identity connection between users and brands. In general, the following hypothesis is proposed:

H2: For functional products, the knowledge anchor mode significantly enhances consumers' identity on brand authority and knowledge. The knowledge anchor model significantly reduces consumers' emotional identification with brands.

2.3 User identity and purchase intention

Normann (1984) introduced "critical moment", also known as "real moment"[30], into the theory of service management, in which the implicit assumption is that customers' recognition of products is the key factor determining customer satisfaction and long-term loyalty, which is also the key factor determining users' long-term purchase intention. The live broadcast marketing mode of functional products can bring users knowledge identity, authority identity and emotion identity respectively. "Consumption in the world system is always consumption of identity." (Friedman, 1994)[31]. Individual consumption action is not only the raw material for shaping individual identity, but also guided, dominated and influenced by individual identity(Wang ,2001)[32]. In other words, users' perception of the three identities brought by the live streaming marketing mode of functional products has an impact on the sustainable purchase intention. To be more specific, studies have proved that all other credibility categories, such as ideology, civilization, system, identity, concept, etc. are constructed and deconstructed by relevant knowledge within a certain category(Chang,2019)[33]. Therefore, after watching the live broadcast of functional products, users have knowledge identity and trust in anchors and products. Trust is the focus of improving user loyalty and satisfaction, which significantly affects users' purchase intention(Dennis et al., 2019)[34]. Furthermore, people identify with and trust an authority and may follow it, or individuals may regard authority as an important frame of reference from a rational point of view(Liu et al.,2020)[36]. After consumers have emotion identity with live streaming marketing, they are more likely to show a sense of belonging or attachment to their fan community, thus enhancing their consumption emotions. Reichheld (2000) et al. 's research shows that when consumers are dependent on specific marketers, they tend to make follow-up decisions in a relatively short time based on trust, namely purchase decisions[37]. To sum up, this paper proposes the following hypotheses:

H3a: Entertainment anchors cannot enhance users' knowledge identity, and knowledge identity further positively affects purchase intention;

H3b: Knowledge anchors cannot enhance users' knowledge identity, and knowledge identity further positively affects purchase intention;

H4a: Entertainment anchors cannot enhance users' authority identity, and authority identity further positively affects purchase intention;

H4b: Knowledge anchors cannot enhance users' authority identity, and authority identity further positively affects purchase intention;

H5a: Entertainment anchors cannot enhance users' emotion identity, and emotion identity further positively affects purchase intention;

H5b: Knowledge anchors cannot enhance users' emotion identity, and emotion identity further positively affects purchase intention;

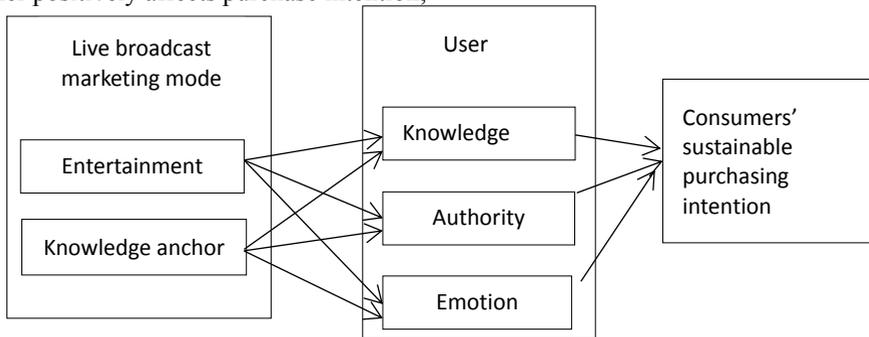


Fig. 1. Research model of direct marketing mode and consumer purchase intention of functional products.

3 Research methods

3.1 Pre-experiment and questionnaire design

The representatives of entertainment anchors and knowledge anchors are selected through the pre-experiment, which was convenient for the subjects to relate their live broadcast marketing mode and styles from the representatives, laying a foundation for the follow-up questionnaire design.

3.1.1 The experiment of live broadcast marketing mode

This experiment refers to Huang et al. (2021)'s research on the characteristics of anchors and the method of distinguishing corporate anchors from celebrity anchors. At present, there are a large number of Chinese anchors, represented by Li Jiaqi and Wei Ya. Li Jiaqi's style tends to be funny induction, while Wei ya's style tends to be informational introduction. Therefore, this pre-experiment set Li Jiaqi as an entertainment anchor and Wei Ya as a knowledge anchor. Forty subjects were invited, and they were divided into two groups. The subjects were respectively informed of the difference between entertainment anchors and knowledge anchors, and then scored the two different anchors in the scoring items of entertainment and knowledge (1= very consistent, 5= very inconsistent). The pre-experiment results showed that in group 1 (Li Jiaqi) ($M_{\text{Entertainment}}=4.65, M_{\text{Knowledge}}=2.91; F(1,19)=411.68, p<0.001$) had significant difference. In group 2 (Viya) ($M_{\text{Entertainment}}=2.75, M_{\text{Knowledge}}=4.85; F(1,19)=1521, p<0.001$) has significant difference, indicating that the setting of anchor type is effective.

3.1.2 Questionnaire design

The questionnaire consists of three parts. The first part is a survey of the basic information, which is used to understand the user's gender, age, frequency of watching live broadcast and other information. The second part is the measurement item. The scale of entertainment live broadcast and knowledge anchor for functional products is partly based on Labrecque's(2014)[38] research results. The scale of consumers' sustainable purchase intention and knowledge identity refers to the study of Moon & Kim(2001)[39]. The scale of authority identity refers to Jiang Jihai and Li Qin(2016)[40]. The scale of emotion identity comes from the studies of Kim et al.(2001)[41], Mael and Ashforth(1992)[42] and Eleanor et al. (2007) [43]. All variables were measured by multinocal Likert 5 scale(John,2008)[44]. 5 indicates a strong agreement, and 1 indicates a strong disagreement.

Questionnaires on users' perception and purchase intention through live broadcast marketing are distributed in two ways. Part of the questionnaires were distributed randomly with the help of the Wenjuanxing, a platform providing functions equivalent to Amazon Mechanical Turk, and the other part was distributed with the help of the southwest department of JD.com. The participants were all consumers with live shopping behavior, and the distribution process was random. A total of 73 questionnaires were sent out, of which 54 were valid. Women accounted for 69.86%, higher than 30.14% of men, which is basically consistent with the reality that women are more enthusiastic about live streaming e-commerce. The respondents aged between 18 and 23 accounted for the highest proportion, about 53.42%, indicating that the users who watched the live broadcast are younger. As for the frequency of users watching live broadcast selling, high frequency users accounted for 8.22%, medium frequency users accounted for 65.75%, and low frequency users accounted for 26.03%. Most of them watched live broadcast selling in a state of moderate frequency. In terms of the reliability and validity of the measurements, Cronbach's alphas were greater than the recommended cutoff value of 0.70, and combined reliability CR values were all greater than the standard 0.60, indicating that the conceptual model had high reliability. It was appropriate to carry out the validity test of the conceptual model in the next step. KMO values were all greater than 0.70, indicating that the scale had good aggregation validity. The standardized factor load was greater than 0.60, and the percentage of cumulative variance explanatory degree reached 76.66%, which was greater than 60%. AVE was all greater than 0.5, so the model had good construct validity (as shown in Table 1).

3.2 Principal effect test

3.2.1 The experiment purpose

The purpose of this experiment is to examine the influence of two dimensions of live broadcast marketing mode on consumers' sustainable purchase intention, namely, the main effect of knowledge anchor and entertainment anchor on consumers' sustainable purchase intention.

3.2.2 Hypothesis testing

Regression analysis was used to verify the main effect of live broadcast marketing mode (entertainment anchors versus knowledge anchors) on consumers' sustainable purchase intention. The results showed that (Table 2): Entertainment anchors had no significant influence on consumers' sustainable purchase intention ($\beta=0.138$, $P > 0.05$), and the 95% confidence interval was [1.778, 6.603]. Knowledge anchors have a significant influence on

consumers' sustainable purchase intention ($\beta=0.451$, $P < 0.001$), and their 95% confidence interval is [0.273, 0.630].

Table 1. Measurement scale.

Variation	Item	Factor loading	t-value	S.E	CR	AVE	Cronbach α
Knowledge Anchor	A1	0.731	16.676	0.43	0.837	0.63	0.697
	A2	0.859	27.295	0.28			
	A3	0.792	19.2462	0.38			
Entertainment Anchor	B1	0.789	20.373	0.34	0.787	0.55	0.788
	B2	0.690	38.2487	0.21			
	B3	0.755	9.92346	0.52			
Knowledge Identity	C1	0.914	33.8946	0.23	0.832	0.63	0.793
	C2	0.833	12.4348	0.46			
	C3	0.614	19.8016	0.34			
Authority Identity	D1	0.867	8.29087	0.73	0.826	0.61	0.841
	D2	0.715	22.7135	0.34			
	D3	0.759	23.9655	0.31			
Emotion Identity	E1	0.549	11.3403	0.67	0.820	0.61	0.800
	E2	0.885	14.0127	0.51			
	E3	0.858	12.6938	0.59			
Consumers' Sustainable Purchasing Intention	F1	0.881	12.4384	0.48	0.892	0.73	0.888
	F2	0.865	25.7906	0.28			
	F3	0.824	13.8162	0.45			

Table 2. Main effect model test.

Dependent variable: customer purchase intention	Constant	β	t	p	95% and confidence interval	
					lower limit	upper limit
Entertainment Anchor	2.704	0.012	5.862	0.915	1.778	6.630
Knowledge Anchor	1.848	0.451	5.707	0.000	0.273	0.630

3.2.3 Result and discussion

Through the main effect test, we find that the entertainment anchor has no significant impact on consumers' sustainable purchase intention, while the knowledge anchor has a significant impact on consumers' sustainable purchase intention. This suggests that consumers don't pay for live streaming just because it's entertaining. Even so, there may still be other variables affecting the relationship between live marketing and consumers' intention to sustainable buying. In order to further clarify the role of user identity, we further tested the mediating effect.

3.3 Mediating effect test

3.3.1 The experiment purpose

The purpose of this experiment is to explore the mediating effect of user identity

psychology on the relationship between live broadcast marketing mode and consumers' sustainable purchase intention.

3.3.2 Hypothesis testing

First, we conducted a regression analysis on the effect of live broadcast marketing mode on user identity. The results showed as followed. model 1 showed that entertainment anchors significantly reduced the effect of knowledge identity $\beta=-0.54, p<0.001$; Model 2 showed that entertainment anchor significantly reduced the role of authority identity $\beta=-0.681, p<0.001$; Model 3 showed that entertainment anchor significantly enhanced the effect of emotion identity $\beta=0.680, p<0.001$; Model 4 showed that knowledge anchors significantly enhanced the role of knowledge identity $\beta=0.863, p<0.001$; Model 5 showed that knowledge anchors significantly enhanced the role of authority identity $\beta=0.712, p<0.001$; Model 6 showed that knowledge anchors significantly reduced the role of emotion identity $\beta=-0.615, p<0.001$. It can be seen that hypothesis H1-H2 has been verified. Data display as follow. (see Table 3).

Table 3. Effects of live broadcast marketing mode on user identity.

Mode	Model 1: Knowledge identity					Model 2: Authority identity					Model 3: Emotion identity				
	β	t	p	Lower limit	Upper limit	β	t	p	Lower limit	Upper limit	β	t	p	Lower limit	Upper limit
Entertainment Anchor	-0.545	-4.617	0.000	-0.782	-0.308	-0.681	-4.937	0.000	-0.959	-0.407	0.680	6.268	0.000	0.462	0.898
Mode	Model 4: Knowledge identity					Model 5: Authority identity					Model 6: Emotion identity				
	β	t	p	Lower limit	Upper limit	β	t	p	Lower limit	Upper limit	β	t	p	Lower limit	Upper limit
Knowledge Anchor	0.863	8.713	0.000	0.664	1.061	0.712	5.878	0.000	0.469	0.599	-0.615	-4.817	0.000	-0.867	-0.362

Secondly, in order to investigate the mediating effect of user identity, the Bootstrap method is used to test the mediating effect. Data show (see Table 3) that user identity has a significant impact on consumers' sustainable purchase intention. Among the three paths of "entertainment-oriented live streaming marketing -- user identity -- consumers' sustainable purchase intention", the three paths have obvious mediating effects. Among them, Model 1 represents the influence of knowledge identity on consumers' sustainable purchase intention (indirect effect value is -0.301, $R^2=0.290, p<0.01$, and its 95% confidence interval is [-0.648, -0.041], excluding 0, indicating that in the case of entertainment anchors, knowledge identity has a significant mediating effect and significant sustainable purchase intention. Model 2 shows the influence of authority identity on consumers' sustainable purchase intention (indirect effect value is -0.132, $R^2=0.319, p<0.01$), and its 95% confidence interval is [-0.365, -0.012], excluding 0, indicating that in the case of entertainment anchors,

emotion identity has a significant mediating effect and significant sustainable purchase intention. Model 3 shows the influence of emotion identity on consumers' sustainable purchase intention (indirect effect value is 0.307, $R^2=0.430, p<0.01$), and its 95% sustainable interval is [0.090,0.649] without 0, indicating that in the case of entertainment anchors, emotion identity has a significant mediating effect and significant sustainable purchase intention. Among the three paths of "knowledge live streaming marketing -- user identity -- consumers' sustainable purchase intention", the mediating effect of the three paths is obvious. Among them, model 4 shows the influence of knowledge identity on consumers' sustainable purchase intention (indirect effect value is 0.034, $R^2=0.593, p<0.01$), and its 95% confidence interval is [-0.237,0.073], excluding 0, indicating that in the case of knowledge anchors, the mediating effect of knowledge identity is significant and the intention of sustainable purchase is obvious. Model 5 shows the influence of authority identity on consumers' sustainable purchase intention (indirect effect value is 0.282, $R^2=0.399, p<0.01$), and its 95% confidence interval is [0.115, 0.475], without 0, indicating that in the case of knowledge anchors, authority identity has a significant mediating effect and the intention of sustainable purchase is significant. Model 6 shows the influence of emotional identity on consumers' sustainable purchase intention (indirect effect value is -0.063, $R^2=0.134, p<0.01$), and its 95% confidence interval is [-0.199, -0.056], excluding 0, indicating that in the case of knowledge anchor, knowledge identity has a significant mediating effect and sustainable purchase intention. Therefore, all H3a-H5a has been verified. It can be seen that user identity plays an intermediary role between the mode of live broadcast marketing and consumers' sustainable purchase intention.

Table 4. The mediating role of user identity.

Mode	Model 1: Knowledge identity				Model 2: Authority identity				Model 3: Emotion identity			
	Indirect effect	Boot SE	Lower limit	Upper limit	Indirect effect	Boot SE	Lower limit	Upper limit	Indirect effect	Boot SE	Lower limit	Upper limit
Entertainment Anchor	-0.301*	0.152	-0.648	-0.041	-0.132*	0.091	-0.365	-0.012	0.307*	0.136	0.090	0.649
R2	0.290				0.319				0.430			
Mode	Model 4: Knowledge identity				Model 5: Authority identity				Model 3: Emotion identity			
	Indirect effect	Boot SE	Lower limit	Upper limit	Indirect effect	Boot SE	Lower limit	Upper limit	Indirect effect	Boot SE	Lower limit	Upper limit
Knowledge Anchor	0.034**	0.131	-0.237	-0.073	0.282*	0.092	0.115	0.475	-0.063*	0.063	-0.199	-0.056
R2	0.593				0.399				0.314			

* $p<0.05$, ** $p<0.01$, *** $p<0.001$

4 Conclusions

There are many researches on the influence of consumers' purchase intention in live streaming e-commerce, but the research on the influence of the change of live streaming marketing mode on consumers' purchase intention caused by the change of KOL type and

how the change affects the purchase decision in the marketing process has never been explored.

Aiming at the above relatively new topics, this paper attempts to build a research model of live broadcast marketing mode and consumers' sustainable purchase intention on the basis of analyzing the sustainable purchase behavior of consumers in live broadcast marketing of functional products. In addition, sample data were obtained by questionnaire survey to empirically investigate the influence mechanism of two direct marketing modes of functional products on consumers' sustainable purchase intention. Overall, the research results show that the knowledge-based live broadcast marketing mode can directly affect consumers' sustainable purchase intention, while the entertainment-based live broadcast marketing model cannot. Two different live streaming marketing modes can further influence consumers' sustainable purchase intention by influencing users' identity to varying degrees (knowledge identity, authority identity and emotion identity respectively).

To be specific, the subdivision conclusions of this paper are as follows: First, by introducing social identity theory, this paper integrates live broadcast marketing mode, user identity and sustainable purchase intention in the Internet environment into a new conceptual framework. From the point of view of the direct marketing of functional products, the research field of direct marketing is expanded. It is an innovation of this paper to divide user identity into three core constructs: knowledge identity, authority identity and emotion identity. This paper theoretically analyzes the formation mechanism of three kinds of identity. For functional products, knowledge anchors enhance users' knowledge identity and authority identity, but reduce users' emotion identity; The entertainment anchors enhance users' emotion identity, but reduce users' authority identity and knowledge identity. Secondly, whether user identity plays a mediating effect between live broadcast mode and consumers' sustainable purchase intention is also an innovative issue discussed in this paper. The results show that the three identities can positively influence consumers' sustainable purchase intention. Thirdly, by comparison, the emotion identity brought by entertainment-oriented live broadcast and the authority identity brought by knowledge-based live broadcast have greater commercial value in promoting the live broadcast sales of functional products.

5 Marketing implications and limitations

5.1 Marketing implications

This paper has some practical enlightenment and provides guidance for enterprises on how to enhance the effect of live broadcast.

The research results show that in the future, enterprises should formulate marketing strategies for live broadcast e-commerce according to users' needs and products in the Internet environment, and grasp the influence of knowledge identity, authority identity and emotion identity on fans' purchasing decisions of live broadcast products. To improve the quality of anchors, scientific development of online marketing strategies. First, improve the ability to explore, interpret and answer the core competitiveness of the product, learn the relevant principal knowledge of the product, improve the professional ability, and ensure that viewers of live broadcast pay constant attention to the anchor and the corresponding product and answer the questions accurately. The second is to shape personalized design and style, constantly show their health and unique personal charm, and use opinion leaders to attract and guide fans' shopping behavior. Third, expand the way of interaction, enhance the interaction with consumers through comments, lottery, bullet screen, connection and other forms, enhance the freshness and closeness of fans to the products, eliminate

strangeness and fear, and encourage consumers to buy the products recommended by anchors with sound credit.

In addition, in the Internet environment, but also in the post-epidemic era, retail and e-commerce enterprises can actively try to carry out online marketing in the form of live delivery. At the same time, attention should be paid to the key factors affecting consumers' decision making and purchase intention in the live broadcast products. Different live broadcast marketing KOLs should be selected according to the characteristics of different products, and the live broadcast modes favored by consumers should be selected or created to achieve higher economic benefits.

5.2 Limitations and prospects

The limitations of this study point to prospects for further research. One has to do with choice. In our experiment, live broadcast marketing mode was limited to two options. However, real-world choices will have greater complexity and more difficult task reality, which may lead to different decision-making processes, which may change the results of the research. In addition, this study is actually cross-sectional data, so it can only test the correlation, not strictly reveal the causal relationship. Future research could explore other research methods. Finally, we limited the category of products participating in the live broadcast to functional products. If the scope is derived from other products, the results will be uncertain, which is worth studying in the future. In addition, this study uses social identity theory to explain purchasing behavior. Is there any other theory to explain it? Are there other moderating variables? All these need to be further discussed in future studies.

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