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Product Characteristics and Customer Purchase Intention in Live-Streaming Commerce

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Abstract

Purpose: This study investigated the relationship between product characteristics and customer purchase intention in live-streaming commerce. **Research design, data and methodology:** Six independent factors namely, scarcity, customization, discount, experimentalism, novelty, and informativeness were identified to analyze their effects on customer purchase intention in live-streaming commerce. The perceived value was accepted as a mediator between independent and dependent variables. Data were gathered from 643 respondents who experienced purchases in live-streaming commerce in China. **Results:** The results show that product characteristics strongly affect customer purchase intention, and perceived value plays an important mediating role in live-streaming commerce. Therefore, when developing a sales strategy in live-streaming commerce, product characteristics. Such as customization, discount, experimentalism, novelty, and information must be considered. **Conclusions:** The majority of live-streaming commerce research has focused on platform interactions and consumers. This study is meaningful in that it dealt with product characteristics and confirmed the mediating roles of perceived value in live-streaming commerce. The findings of this study have significant implications and offer valuable insights and practical guidance for both the academic community and practitioners engaged in the field of live-streaming commerce.

Keywords: Live-streaming commerce, Product characteristics, Immersion, Perceived value, Purchase intention

JEL Classification Code: L81, L82, M11, M13, M37

1. Introduction

The evolution of information communications is rapidly changing the business models of electronic commerce. Diverse business channels based on high-speed Internet and 5G networks are emerging. Currently, live-streaming commerce is another emerging electronic commerce channel based on the Internet and broadcasting technologies. The use of new media commerce services as an effective marketing tool to drive further growth is rapidly spreading. Accordingly, academic researchers are increasingly paying attention to live-streaming commerce. In recent years, the live-streaming commerce market in China has garnered significant attention from the government, and consumers. With its unique features and advantages, it offers consumers a wide range of product choices, providing convenience and diversity. also, the utilization of live streaming to promote local agricultural

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products has played a crucial role in fostering regional economic development (Zhou, 2022). For instance, Sandra (2003) investigated product characteristics such as brand, price, style, and packaging recognized by live-streaming commerce users. Meanwhile, Lin et al. (2005) found that presenting a limited quantity of products or implementing various promotions, such as price discount events, affects consumers' willingness to purchase. However, previous studies dealing with product characteristics comprehensively are difficult to find. Although diverse factors, such as services, influencer roles, content characteristics, and system operations, can affect customer purchase intention in live-streaming commerce, product characteristics are certainly a critical aspect to consider when developing marketing strategies. This study investigates the relationship between various product characteristics and customer purchase intentions in live-streaming commerce.

The objectives of this study are as follows. First, it outlines product characteristics based on prior research related to live-streaming commerce. Second, the empirical relationship between product characteristics and purchase intention in live-streaming commerce is analyzed. Third, the mediating effect of perceived value between product characteristics and purchase intention is investigated. Finally, marketing strategies are suggested for companies to consider based on the research results.

The rest of the paper is structured as follows. Section 2 discusses the research context. Section 3 addresses empirical research, including data collection, statistical analysis, reliability and validity, and regression analysis. Section 4 presents a summary and discussion of the paper.

2. Background

2.1. Live-streaming Commerce

Live commerce first appeared on live broadcasts in the 1990s. During the live broadcast, the host introduced and sold the product. If viewers wanted to purchase this product, they could contact the seller. Such a sales model was a commercial method by which anyone could easily purchase better products at an economical price and beyond the confines of the location (Lu & Chen, 2001). It piqued the interest of many consumers. Later, as the Internet grew in popularity, the live broadcasting sales model diversified. Live broadcasting has developed into a new business model based on mutual communication. While watching live broadcasts, consumers communicate directly with sellers. The seller also provides customized information to consumers through detailed product introductions and real-time demonstration sales. Live-

streaming commerce provides non-face-to-face services. It can be an effective tool for promoting product sales (Cai & Wohn, 2019).

Live-streaming commerce is a business model integrating e-commerce platforms and Internet broadcasting (Sun et al., 2020). Moreover, it is an online retail business model that communicates with consumers in real-time via live broadcasting technology on the Internet and offers customized sales services based on product promotion and demonstration (Cai & Wohn, 2019; Pei & Zheng, 2020). Therefore, sellers can use the live-streaming commerce platform to introduce or sell products. Moreover, viewers can use the platform to communicate with sellers and purchase their favorite products online while watching the broadcast.

2.2. Product characteristics and purchase intention

Live-streaming commerce products are becoming increasingly diverse, and customer demand is increasing. Therefore, it is critical to understand customers' perceptions of the product characteristics sold by hosts in live-streaming commerce. Moreover, we must identify the preferences and needs of consumers. Depending on how consumers perceive the characteristics of the products that hosts sell in live-streaming commerce, the seller may be able to influence the consumers' purchasing decisions, or they may be unable to sell. This study referred to previous studies on live-streaming commerce, and the product characteristics were identified with scarcity, customization, discount, experimentalism, novelty, and informativeness.

First, customers who engage in live-streaming commerce may perceive the scarcity of products as more valuable and of higher quality (Wu et al., 2011). Second, the live-streaming commerce platform enables consumers to quickly access and use customized information services that are tailored to their specific needs (Yan et al., 2016). Customers are satisfied when they receive personalized information services and products. This has a positive impact on customers' purchasing decisions (Randall et al., 2007). Third, discounted prices are an important factor influencing consumer purchasing decisions, as customers recognize prices, evaluate the value of the product, and then make purchasing decisions (Gupta, 1998). The hosts promote their products on the live-streaming commerce platform through various promotional activities. They also encourage customers to buy more products. Discounts can be an essential marketing strategy for sellers to attract consumers. Fourth, after using the product instead of the customer, live-streaming commerce hosts can explain the product in detail to customers. Hosts can demonstrate and experiment in real-time while communicating with

consumers via the chat functions within the live-streaming commerce platform. Fifth, new products attract customers' interest and increase purchase intention. According to emotion theory, customers' attraction to a new product influences their feelings and purchase intention (Verhagen & Dolen, 2011). Sixth, if the hosts provide more product information to customers, the customer understands the product better, eventually increasing the purchase intention. Product prices, brands, and other information affect customers' purchase intentions. Thus, information is vital in determining perceived value and purchase intention (Xu, 2021). The live-streaming commerce industry has recently become more competitive. Understanding the product characteristics in live-streaming commerce has become critical in this situation. Therefore, it is important to understand the relationship between product characteristics and purchase intention in live-streaming commerce, this will assist companies in developing business competitiveness and marketing strategies in the live-streaming commerce industry.

Intention refers to the subjective idea that an individual wish to accomplish a specific goal and perform a specific action (Fishbein & Ajzen, 1975). Therefore, purchase intention is defined as a customer's willingness or attitude toward purchasing a product (Dodds et al., 1991). According to (Dodds et al., 1991), customers' purchase intention is a significant quantitative indicator that predicts purchase behavior. Furthermore, perceived value may be important in explaining purchase intention (Wang et al., 2007). Thus, this study investigates the role of perceived value as a moderator in the relationship between product characteristics and purchase intention.

2.3. Building Hypothesis

Customers can easily find new products with scarcity in live-streaming commerce. However, finding rare products in general shopping malls is difficult. Customers who participate in live-streaming commerce receive discounted products and various services. It is also simple to obtain customized products that meet their specific needs. Live-streaming commerce hosts explain product experience information. Customers also watch demonstrations and experiments on the products they are interested in. In this regard, validating the research hypothesis on product characteristics, perceived value, and purchase intention in live-streaming commerce is critical.

2.3.1. Scarcity

Scarcity refers to how limited the quantity and timing of product purchases are. Resources are always scarce in people's daily lives. Due to a lack of suppliers, goods

become scarce. Ordinary customers prefer rare and difficult-to-obtain products and are drawn to them (Brock, 1968). Scarcity is explained by the concepts of possibility and finiteness. It is a cause variable that positively affects the attractiveness of a product (Aggarwal et al., 2011). In other words, scarcity positively affects perceived value and purchase intention. Customers may need more information when purchasing scarce products. This risk perception may negatively affect customers' purchasing intention by reducing their willingness to purchase (Li & Liu, 2016). Product scarcity is classified as quantity and time scarcity (Zhou, 2021). Quantity scarcity occurs when supply or purchase is limited, and time scarcity occurs when product sales time is limited. In our daily lives, we frequently encounter products with limited conditions. Customers are captivated by the product in limited circumstances and are motivated to purchase in limited situations (Lessne & Didow, 1987). Based on these previous studies, we show how product scarcity affects customers' purchase intentions in live-streaming commerce. Accordingly, we propose the following hypotheses:

H1a: Product scarcity positively affects customer perceived value in live-streaming commerce.

H1b: Product scarcity positively affects customer purchase intentions in live-streaming commerce.

2.3.2. Customization

Customization is the degree to which personalized products and information services are provided by reflecting the customers' needs. Customers in live-streaming commerce frequently purchase customized products that express their individuality. Most customers appear to prefer customized products, and they are both live-streaming commerce and e-commerce customers. Global IT companies have recently begun selling customized products. For example, Apple offers laser engraving of letters that customers request. Nike also produces sneakers with letters that individuals want. Therefore, in live-streaming commerce, customized products and services that individually reflect the various needs of customers must be provided (Meng, 2013; Zhang, 2015). Based on these previous studies, we demonstrate whether product customization affects customers' perceived value and purchase intention in live-streaming commerce.

H2a: Product customization positively affects customer perceived value in live-streaming commerce.

H2b: Product customization positively affects customer purchase intentions in live-streaming commerce.

2.3.3. Discount

A discount is defined as a price reduction or a product sales promotion (Xie et al., 2022). This means the degree to which the customer recognizes the product's low and reasonable price. A price discount strategy is an effective way to increase sales performance. This strategy can increase customers' desire to purchase (Xie et al., 2022; Han, 2005). Customers may sometimes regard price discounts as the most important factor. Many studies have shown that product prices influence customers' purchasing attitudes (Han, 2005). When trading discounted products, hosts must take appropriate measures to ensure that customers are highly aware of the value. Service providers can offer customers discounts through various channels, including designed orders, group purchases, and contract procurements. If customers recognize the received value, the purchase intention may also increase. However, excessive price discounts can sometimes cause customers to doubt the quality of the product in live-streaming commerce, although hosts have various ways to discount and sell products (Gao, 2021). Therefore, it is meaningful to continue researching the effect of price discounts on purchase intention. These previous studies show how product price discounts affect purchase intention and perceived value in live-streaming commerce. Accordingly, we propose the following hypotheses:

H3a: Discount positively affects customer perceived value in live-streaming commerce.

H3b: Discount positively affects customer purchase intentions in live-streaming commerce.

2.3.4. Experimentalism

Experimentalism is defined as the extent to which a product's role and function are demonstrated and tested (Cai & Wohn, 2019). Most traditional e-commerce displays products in images. It is difficult to effectively communicate information to customers using product photos. McQuarrie (2007) found that excessive product photo exposure limits customers' imagination and affects their purchasing decisions. On live broadcasts, hosts demonstrate their products in real-time and provide detailed product information to viewers. For example, in Li's study, hosts receive viewer questions and demonstrate and experiment with responses. The hosts interact with customers in the chat window, and viewers become immersed in live-streaming broadcasting through the hosts' various demonstrations and experiments. Therefore, customers indirectly experience the usefulness and usability of products demonstrated and tested by the hosts. Customers also receive detailed product information (Lu & Chen, 2001; Cai & Wohn, 2019; Schlosser, 2003; Zhao et al., 2014). Hosting product demonstrations is a far more creative way of selling than exposing product photos.

Customers' attention and minds are also drawn to the host's product demonstration. This positively affects customers' attitudes and purchase intentions (You, 2016). Based on these previous studies, we demonstrate the effect of product experimentation on perceived value and purchase intention.

H4a: Product experiments positively affect customer perception of value in live-streaming commerce.

H4b: Product experiments positively affect customer purchase intentions in live-streaming commerce.

2.3.5. Novelty

The degree to which one experiences a new product is defined as a novelty (Cheng, 2021). Customers should become more acquainted with new products (Nye & Shimp, 2008). Moreover, customers do not expect high-quality products that they have never experienced before or lack familiarity with (Sung et al., 2016). This means customers do not expect a new product when they buy it. Customers consider products with novel designs to be more appealing because they are unfamiliar with new products (Veryzer & Hutchinson, 1998). In live-streaming commerce, product novelty can affect purchase decisions (Cheng, 2021; Sung et al., 2016). Based on these previous studies, we demonstrate the effect of product novelty on perceived value and purchase intention.

H5a: Product novelty positively affects customer perceived value in live-streaming commerce.

H5b: Product novelty positively affects customer purchase intentions in live-streaming commerce.

2.3.6. Informativeness

Information is defined as the degree to which it provides detailed information about a product (Ma, 2021). Hosts explain the product's design, features, and content to customers. In turn, customers can find the product they want more accurately and quickly, thanks to the host's detailed product information. Moreover, customers can view detailed product photos and videos on various platforms. Traditional e-commerce generally provides photo and video content. In contrast, live-streaming commerce shows product information to viewers as a live video with commentary. Live-streaming commerce realistically provides detailed product information. Furthermore, there is a characteristic in which sellers and customers communicate in real-time (Xu et al., 2020). Accordingly, we demonstrate the effect of product information on perceived value and purchase intention.

H6a: Product informativeness positively affects customer perceived value in live-streaming commerce.

H6b: Product informativeness positively affects customer purchase intentions in live-streaming commerce.

2.3.7. Perceived Value

Perceived value is the degree to which a customer compares and evaluates the overall utility of a product's cost and benefit (Zeithaml, 1988). It mediates between gain and purchase intention. Customers are more likely to perceive the product's value and make a purchase decision if they believe the benefits are high (Wang et al., 2007; Jackie, 2004). In addition to the benefits obtained, perceived value can also be defined from multiple perspectives such as quality, cost (time and money), and social psychology. Online shopping customers are conscious of the situation and the store's edition. The criteria for determining the standing and reputation of a store are the quality and source of product information. These factors also affect the final purchase decision. It is also necessary to confirm whether perceived value mediates the relationship between product characteristics and purchase intention. Based on these previous studies, the perceived value was used to investigate the relationship in live-streaming commerce.

H7: Perceived value mediates the relationship between product characteristics and purchase intention in live-streaming commerce.

2.4. Research Model

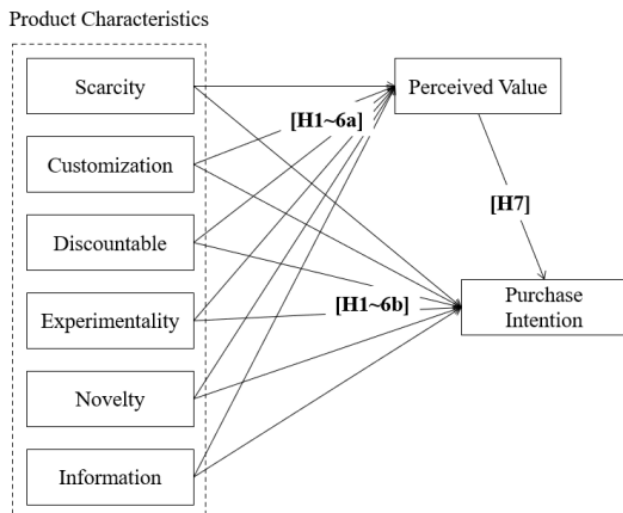


Figure 1: Research Model

3. Empirical Study

3.1. Research Methods

3.1.1. Data Collection

This study used the questionnaire survey method to collect data and validate the model. This study's questionnaire is divided into three parts. The first part inquires about customers' live-streaming commerce purchase experiences. The second part is the measurement of product characteristics variables. The third part is the demographic question, which investigates basic information from respondents, such as age, gender, education, occupation, and live-streaming commerce experience. The questionnaires were distributed at random to Chinese consumers via the Internet. The measurement variables were assessed using a 5-point Likert scale. The survey was conducted from February 23 to June 26, 2022. This study's formal investigation was done by structured questionnaires via the Internet. Finally, we analyzed the questionnaires submitted by 643 customers who have prior experience with live-streaming commerce.

3.1.2. Demographics

Table 1 shows 298 men and 345 women, accounting for 46.3% and 53.7% of the respondents, respectively. The age range of 20 to 39 years old accounts for 64.6%. In terms of academic qualifications, university students and graduates account for 77.2% of the total, with graduate students accounting for 12.9%. In the sample population, the proportion of staff is as high as 42.6%, followed by civil servants at 23.3% and self-employed at 16.2%. Table 1 displays the demographic characteristics of this study.

Table 1: Demographics

Items		Frequency (Percentage)
Gender	Male	298(46.3)
	Female	345(53.7)
Age	<20	55(8.6)
	20~29	199(30.9)
	30~39	217(33.7)
	40~49	126(19.6)
	>49	46(7.2)
Education	High school graduates	64(10.0)
	University students	187(29.1)
	University graduates	309(48.1)
	Master's or higher	83(12.9)
Occupation	Student	60(9.3)
	Staff	274(42.6)
	Civil Servant	150(23.3)
	Self-business	44(6.8)
	Housewife	104(16.2)
Experience	Other	11(1.7)
	<3	74(11.5)

(Months)	3 ~ 6	137(21.3)
	6 ~ 12	143(22.2)
	12 ~ 24	184(28.6)
	> 24	105(16.3)
Purchase frequency (Months)	< 1	49(7.6)
	2	222(34.5)
	3 ~ 5	177(27.5)
	6 ~ 10	132(20.5)
	> 11	63(9.8)
Total		643(100)

3.1.3. Reliability and Validity

This study used SPSS version 21 to confirm the research model's reliability and validity. The measurement items of scarcity, customization, discount, experimentalism, novelty, information, perceived value, and purchase intention are the main factors of this study. These measurement items were developed by referring to previously validated items and variables. Reliability indicates whether the same measured value can be obtained by repeatedly measuring the same concept, confirming the concept's accuracy and consistency. Cronbach's alpha coefficient was used to confirm the internal consistency of the items for reliability verification (Hair et al., 2006). The analysis results reveal that all Cronbach's alpha values were greater than 0.7, confirming the high consistency of the variables measured in this study.

Validity determines whether or not the concept being measured is accurately measured. Exploratory factor analysis was performed using the orthogonal (Varimax) rotation method to verify the conceptual validity of the variables' measurement items. Factor analysis was carried out with an eigenvalue of 1.0 and a factor loading of 0.5 or higher. The cumulative variance of the independent variable (the rolling sum of squares loading) had a 65.0% explanatory value. In most applications, both component analysis and common factor analysis arrive at essentially identical results if the number of variables exceeds 30 or the commonalities exceed .60 for most variables (Hair et al., 2006).

Table 2: Exploratory factor analysis

Construct and Items	F.L.*	α^{**}
<Scarcity>		
· I can get a suitable purchase path to find a specific product.	.772	.872
· It is easy for me to buy scarce products.	.776	
· I tend to be introduced to rare products.	.772	
· I have many opportunities to buy scarce products.	.787	
· I can buy rare attractive products.	.780	
<Customization>		
· I can get a variety of customized products.	.758	.853
· I can buy a lot of customized products.	.743	
· I can watch the channel I want.	.771	
· I can purchase the products I need.	.779	
· It is easy to find the products I need.	.724	

<Discount>		
· Products are cheaper.	.733	.857
· It offers many price discounts on products.	.786	
· It sells products at attractive prices.	.751	
· It offers an opportunity to buy cheap products.	.769	
· It has a variety of product discounts.	.772	
<Experimentalism>		
· The channel often demonstrates and experiments on a variety of products.	.828	.874
· It gains customer trust through demonstrations and experiments.	.754	
· It has its strength in demonstrating and experimenting with products.	.753	
· It can open new markets with product demonstrations and experiments.	.796	
· It leads the trend in the e-commerce market with product demonstrations.	.733	
<Novelty>		
· I can get new information about the product.	.756	.859
· I can get information about new trends.	.789	
· I can easily find new products.	.740	
· I can easily find new products.	.775	
· It has its strength in introducing new products.	.757	
<Information>		
· It helps to perceive the product's aesthetic and practical characteristics.	.785	.872
· It introduces the product's aesthetic and practical characteristics.	.788	
· It is advantageous for introducing a delicate aesthetic.	.761	
· It increases the product's aesthetic and practical use.	.791	
· It helps to purchase products with aesthetic and practical characteristics.	.769	
<Perceived Value>		
· I think it is worth investing time.	.747	.841
· I think I can get the information I want.	.734	
· I think I can get many benefits.	.733	
· I think it is worth experiencing.	.759	
· I can purchase valuable products.	.766	
<Purchase Intention>		
· I will purchase products.	.753	.869
· I will recommend products.	.745	
· I think it is worth buying products.	.696	
· Using live-streaming commerce is helpful for consumers' life.	.737	
· I intend to continue purchasing products.	.743	
Eigen Value		1.73 ~ 10.1
Variance(%)		4.3 ~ 25.2
Total Variance: (65.0)		

Note: * Factor Loading, ** Cronbach's α

Common method bias is a severe problem because systematic error variance occurs within structural relationships and distorts the relationship between concepts (Hair et al., 2006). According to (Podsakoff et al., 2003), systematic error variance accounts for 25% of the variance

in the metrics surveyed in social science research. Systematic error variance causes errors by contracting or expanding the structure's relationship and alleviating the problem of same method bias.

Table 3: Correlation Analysis

Constructs	Mean*	SD**	1	2	3	4	5	6	7	8
1. Scarcity	4.09	.749	1							
2. Customization	4.16	.708	.28**	1						
3. Discount	4.14	.725	.29**	.24**	1					
4. Experimentalism	4.02	.789	.33**	.25**	.30**	1				
5. Novelty	4.10	.753	.24**	.28**	.27**	.29**	1			
6. Information	4.14	.750	.25**	.28**	.29**	.26**	.26**	1		
7. Perceived Value	4.14	.733	.23**	.28**	.25**	.31**	.27**	.27**	1	
8. Purchase Intention	4.14	.751	.35**	.41**	.35**	.38**	.39**	.36**	.36**	1

Note: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.0$

Therefore, controlling the source of method bias in the questionnaire design and collection process is essential (Podsakoff et al., 2003).

In this study, the same method bias was confirmed using Harman's Single Factor Test among the methods for checking the same method bias (Podsakoff et al., 2003). If factor analysis yields only one factor with an eigenvalue of 1.0 or higher, or if the variance is concentrated on one factor, it is considered to have the same method bias (Podsakoff et al., 2003). Confirming the same method bias through the exploratory factor analysis results reveals that the eigenvalue of each factor is 1.73~10.1, and the ratio of variance explaining each factor is 4.3~25.2. This implies that the exact method bias is not a concern because the dispersion ratio is evenly distributed.

3.2. Hypothesis Test

Multiple regression analysis was performed to verify the hypothesis of this study. The analysis revealed the R^2 value of 0.131~0.354 and that all the F values are significant. The Durbin-Watson value was checked to confirm the suitability of the regression model. This value confirms the residual correlation. Results reveal the values to be 1.76~2.06, which are close to the standard value of 2 but not to 0 or 4. This means that the residuals have no correlation. Problems like the distortion of regression analysis results or inflated t-values and p-values do not exist. Therefore, the regression model used in this study was suitable, and there were no issues with multicollinearity. The tolerance limit is the reciprocal of the variance inflation factor (VIF), and a value of 0.1 or greater shows no multicollinearity problem. Moreover, if VIF is less than 10, it is assumed that there is no multicollinearity. The analysis results reveal that both the

tolerance limit and the VIF value are normal, indicating no multicollinearity problem.

The results of this research model's hypothesis identification showed that all hypotheses were accepted except H1a, based on the assumptions that scarcity, customization, discount, novelty, and information affect perceived value and purchase intention. Furthermore, perceived value influences purchase intention. Therefore, assumptions H1~H6a and H2~H6b or H7 are accepted. However, scarcity does not affect perceived value, so H1a is rejected. Scarcity has a direct impact on purchase intention. The hypothesis identification of adoption and rejection can be confirmed in Table 4.

Table 4: Hypotheses Testing Results

Hypothesis				Standard β	t	Result
H1a	Scarcity	a	Perceived Value	.055	1.37	Reject
H2a	Customization			.140	3.57***	Accept
H3a	Discount			.084	2.10**	Accept
H4a	Experimentalism			.166	4.13***	Accept
H5a	Novelty			.120	3.05***	Accept
H6a	Information			.118	3.01***	Accept
H1b	Scarcity	b	Purchase Intention	.123	3.48***	Accept
H2b	Customization			.223	6.37***	Accept
H3b	Discount			.125	3.54***	Accept
H4b	Experimentalism			.156	4.37***	Accept
H5b	Novelty			.177	5.05***	Accept
H6b	Information			.141	4.02***	Accept
H7	Perceived Value	c	Purchase Intention	.364	9.90***	Accept

Path a: $R^2=0.18$, $F=25.0(0.0)$, VIF 1.21~1.26, Durbin-Watson 1.9

Path b: $R^2=0.13$, $F=98.1(0.0)$, VIF 1.00~1.00, Durbin-Watson 1.7

Path c: $R^2=0.35$, $F=59.6(0.0)$, VIF 1.21~1.26, Durbin-Watson 2.0

Note: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

3.3. Mediating Effect

The third variable that intervenes between the independent and dependent variables is referred to as the mediating effect (Baron & Kenny, 1986). A complementary mediation is assumed to exist when both indirect and direct effects are significant and positive (Baron & Kenny, 1986; Zhao et al., 2010). This study used the Baron & Kenny's three-stage mediated regression analysis and Sobel test to verify the mediating effect of perceived value (Baron & Kenny, 1986; Sobel, 1982). Using (Sobel, 1982) proposed formula, we calculated the indirect effect and Z value using the standard error of the direct effect. Sobel (1982) The proposed formula is as follows.

$$Z = \frac{a \times b}{\sqrt{(a^2 \times SEb^2) + (b^2 \times SEa^2)}}$$

The Sobel test results are summarized into three interpretations. First, the perceived value had only a partial mediating effect rather than a full one. Second, scarcity did not mediate perceived value but only directly influenced purchase intention. Third, customization, discount, experience, novelty, and information influenced purchase intention through perceived value, and they directly affected purchase intention. Tables 4 and 5 present the detailed analysis results.

Table 5: Mediating Effect (Sobel Test)

Path	C*	Z	Result
Scarcity →Perceived Value →Purchase Intention	.02	1.36	Direct Only
Customization →Perceived Value →Purchase Intention	.05	3.37 ***	Partial Mediation
Discount →Perceived Value →Purchase Intention	.03	2.05 **	Partial Mediation
Experimentalism →Perceived Value →Purchase Intention	.06	3.82 ***	Partial Mediation
Novelty →Perceived Value →Purchase Intention	.04	2.93 ***	Partial Mediation
Information →Perceived Value →Purchase Intention	.04	2.89 ***	Partial Mediation

Note1: * p<0.1, ** p<0.05, *** p<0.01

Note2: *Coefficient

4. Summary and Discussion

This study investigated the relationship between product characteristics and customer purchase intention in live-streaming commerce. Furthermore, in live-streaming commerce, the mediating effect of perceived value was tested in the relationship between the product characteristics and customers' purchase intention. The

results of this study are summarized as follows. First, scarcity, customization, discount, experimentalism, novelty, and information positively affected customers' purchase intention. In other words, product characteristics significantly impacted customers' purchase decisions in live-streaming commerce. Therefore, when developing a sales strategy for live-streaming commerce, stakeholders must consider product characteristics. Second, customization, discount, experimentalism, novelty, and information positively affected perceived value. Customized products that reflect individual needs can increase customer perceived value. Moreover, customers value products even more when they have the opportunity to reduce the price they must pay. By demonstrating the product in live-streaming commerce, hosts make it easier for customers to understand the product's features. Hosts can also provide customers with information about product quality and details. Customers in live-streaming commerce can easily and quickly obtain detailed information about new products from hosts. According to empirical research, product characteristics increase customers' perceived value in live-streaming commerce. Product characteristics positively affected customers' purchase intentions via perceived value.

5. Conclusion

The results of this study have important implications for both academics and practitioners. First, this study surveyed Chinese customers who had used live-streaming commerce. As a result, this study provides useful information on Chinese customers in live-streaming commerce. Second, the majority of live-streaming commerce research has focused on platform interactions and consumers (Ma, 2021). Finding a study that empirically analyzes product characteristics in live-streaming commerce is difficult. As a result, the findings of this empirical analysis can be used to develop sales strategies in live-streaming commerce. It is critical to understand the impact of product characteristics in live-streaming commerce. Entrepreneurs must learn more about product characteristics in live-streaming commerce to better understand customers' needs in live-streaming commerce. Therefore, sellers in live-streaming commerce can refer to the results of this study to develop marketing strategies. Third, this study is significant because it confirmed the mediating roles of perceived value. Most live-streaming commerce studies focus on the mediating role of trust and immersion (Lu & Chen, 2001; Sun et al., 2020). However, this study aims to verify the mediating role of perceived value. In live-streaming commerce, perceived value acts as a complementary mediating factor between product

characteristics and customer purchase intention. The product characteristics indeed directly affect customers' purchase intentions in live-streaming commerce. However, the perceived value of product characteristics significantly impacted purchase intention. Therefore, to increase sales, live-streaming commerce companies must focus on essential product characteristics. Furthermore, accurate and detailed product information must be provided to customers.

This study inevitably has several limitations and suggestions for future research. First, this study summarized the product characteristics in live-streaming commerce and conducted an empirical study on Chinese customers with live-streaming commerce experience. Thus, there may be geographical and cultural constraints. Future research should address the suggested improvements and explore new ideas from various sources, overcoming geographical and cultural limitations, to obtain more generalizable results. Second, studies that empirically analyzed the relationship between product characteristics and customer purchase intention in live-streaming commerce are insufficient. Thus, the factors of scarcity, customization, discount, experimentalism, novelty, and information were extracted for product characteristics. Perceived value did not mediate between scarcity and purchase intention. According to the results of the empirical analysis, scarcity has a direct effect on purchase intention. Previous studies that empirically analyzed the relationship between scarcity, perceived value, and purchase intention are very insufficient. Therefore, future research needs to focus on the influence relationship between scarcity and purchase intention and explore more diverse product characteristics in live-streaming commerce. Third, this study only analyzed customers' perceived value as a mediating factor in live-streaming commerce. Future research should investigate the mediating effect of reliability, trust, and risk perception in the relationship between product characteristics and customer purchase intention in live-streaming commerce.

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