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Research on the Influence of Webcast on Consumer Purchasing Decision

Jianan Li[1,*]

[1]*School of Economics and Management, China University of Mining and Technology, Xuzhou, China*
[*]*Corresponding author: lijianan2023@gmail.com*

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Abstract: This paper mainly studies the influence of webcast delivery on consumers' purchase intention. Taking webcast delivery and consumers' purchase behavior as research variables, this paper deeply analyzes the influence of webcast delivery on consumers' purchase behavior. First, the specific variables of the research question are clearly defined, and the conceptual model of consumers' purchase intention is constructed. Secondly, SPSS was used to analyze the reliability and validity of the questionnaire data, and the central tendency, dispersion degree and distribution characteristics of the main variables were statistically described. Finally, regression analysis of the questionnaire data were carried out by using analytical tools, and the hypotheses were statistically inferred and tested. This paper provides theoretical support and practical guidance for promoting the development of webcast delivery, optimizing marketing strategy, and improving the sales performance of merchants.

1. Introduction

In today's society, online shopping has become a common way of shopping, consumers can get more information when buying goods through the Internet, and easily complete the purchase process at home. At the same time, as a new way of shopping, network live delivery is also gradually attracting the attention and love of consumers. Therefore, it is of great theoretical and practical significance to conduct in-depth research on the influence of webcast delivery on consumer purchasing behavior.

Based on the results of 86 valid questionnaires, this paper analyzes the influence of online live delivery on consumers' purchase behavior, including purchase intention, purchase frequency, purchase amount, purchase channels and purchase decision factors. Through questionnaire survey, statistical analysis and other methods, this paper deeply studies the psychological and behavioral changes of consumers in the process of online live shopping and reveals the influence mechanism of online live shopping on consumers' purchasing behavior, so as to provide theoretical and practical support for the development of online live shopping.

2. Research design

By combing through a large amount of related literature, we constructed a conceptual model with

consumer purchase intention as the dependent variable, anchor influence, product preference attribute and live entertainment attribute as the independent variables, and trust and perceived value as the intermediate variables, and put forward various research hypotheses through certain theoretical analyses. The specific research hypotheses and their theoretical basis are as follows.

2.1 Anchor influence

Anchor's influence includes anchor's popularity, professionalism, and charisma. Popularity refers to the public's familiarity with the anchor and the social influence of the anchor, etc. Tanner et al. empirically demonstrated that celebrities significantly affect consumer trust, which in turn affects consumers' purchase intention [1]. Scholars Liu Zhongyu and Zhao Xianghao (2020) used the Grounded theory to prove that the professionalism of webcasters significantly and positively affects consumers' purchase intention [2]. Therefore, this study takes "anchor influence" as one of the measurement variables. Accordingly, the following hypotheses are proposed.

Hypothesis H1: The influence of webcasters in the process of webcasting has a positive effect on consumers' purchase intention.

Hypothesis H1a: The influence of the anchor in the process of webcasting bandwagon has a positive effect on consumer trust.

Hypothesis H1b: The influence of the anchor in the process of webcasting with goods has a positive effect on the perceived value of consumers.

2.2 Commodity preference attributes

The attribute of commodity discount refers to the behavioral activities of product discounts and promotions taken by anchors to motivate consumers to make purchases in the process of live broadcasting, such as full discounts, pre-sales, price reductions in live broadcasting, and time-limited seconds. However, Mingxiao, Wu Feng (2016) used an empirical study to verify that product discounts in live webcasting would have a positive stimulating effect on consumers' purchase intention [3]. Therefore, this study takes the "attribute of commodity discount" as one of the measurement variables. Accordingly, the following hypotheses are proposed.

Hypothesis H2: The preferential attributes of products in the process of webcasting have a positive influence on consumers' purchase intention.

2.3 Live entertainment attributes

The live entertainment attribute refers to the pleasure value that consumers feel during the process of watching live webcasts. New technologies make online shopping activities richer and enhance the entertainment in the process of online consumption, which will arouse the interest of consumers and affect their purchase intention and purchase behavior. Guo Rong et al. (2020) empirically analyzed that e-commerce live streaming entertainment positively affects consumers' purchase intention [4]. Therefore, this study takes "live entertainment attribute" as one of the measurement variables. Accordingly, the following hypotheses are proposed.

Hypothesis H3: Live entertainment attributes during webcast banding positively affect consumers' purchase intention.

Hypothesis H3a: Live entertainment attributes during webcast bandwagoning will positively affect consumer trust.

Hypothesis H3b: Live entertainment attributes in the process of webcasting with goods will have a positive effect on consumers' perceived value.

2.4 Trust

Trust is the overall evaluation of fans' perception of the anchor's ability, goodwill, and honesty in the process of webcasting. Consumers' word-of-mouth after using the product and daily communication with fans have a great degree of influence on the anchor's trust. Scholars Zhou Shouliang et al. (2019) used trust as a mediating variable, and the empirical results showed that anchor professionalism affects consumers' purchase intention by influencing their trust [5]. Therefore, this study takes "trust" as one of the mediating variables. Accordingly, the following hypotheses are proposed.

Hypothesis H4: Consumers' trust in anchors in the process of webcasting will positively affect their purchase intention.

2.5 Perceived value

Perceived value refers to the consumer's total evaluation of a product because of perceived costs and benefits, and perceived cost refers to the total amount of time, energy, and money that the consumer can perceive that he or she has paid for acquiring the product. Wang et al. (2019) empirically demonstrated that perceived value has a positive effect on consumers' purchase intention in a study of IWOM, perceived value and consumers' purchase intention [6]. Therefore, this study takes "perceived value" as one of the mediating variables. Accordingly, the following hypotheses are proposed.

Hypothesis H5: Perceived value has a positive effect on consumers' purchase intention during webcasting.

2.6 Purchase intention

Willingness to buy is the possibility of consumers to buy a certain product, which is a kind of psychological will that occurs before the purchase behavior and can predict the purchase behavior. When consumers consume behavior, the first to produce a kind of intention to buy goods, that is, the willingness to buy, and the purchase behavior is the action response to the willingness to buy.

3. Questionnaire design

Table 1: Variable measurement and acquisition

Variable	Lower-level indicator	Variable type	Collection mode
Anchor influence	Visibility	Qualitative	Questionnaire and data query
	Professional	Qualitative	Questionnaire
	Personality charm	Qualitative	Questionnaire
Commodity preference attributes	-	Qualitative	Questionnaire
Live entertainment attributes	-	Qualitative	Questionnaire
Trust	-	Qualitative	Questionnaire
Perceived value	-	Qualitative	Questionnaire
Purchase intention	-	Qualitative	Questionnaire
Purchasing behavior	Purchasing frequency	Quantitative	Questionnaire
	Purchase quantity	Quantitative	Questionnaire
	Purchase amount	Quantitative	Questionnaire

Considering the stability of the survey and the validity of the measurement results, the questionnaire adopts a five-level scale to score each dimension, among which 1-5 points correspond to strongly disagree, disagree, neutral, agree and strongly agree respectively. The variables to be measured and the collection method are shown in the Table 1.

4. Data analysis and processing

In this study, online and offline channels were used to distribute questionnaires to college students, fresh graduates and employees from all walks of life. The survey groups were located in Wuxi, Nanjing, Xuzhou, Suzhou, Yangzhou, Jinan, Qingdao, Shanghai and other places, covering a wide range of areas. The survey questionnaires were distributed from May 8 to May 12, 2023, and 100 questionnaires were recovered, with a total of 86 valid questionnaires.

4.1 Reliability test

This study used SPSS26 software to implement the reliability analysis process. Reliability test results are the main method to reflect whether the questionnaire scale is true and reliable. Generally, internal consistency is used to test the reliability of the questionnaire scale. In this study, the commonly used Cronbach α coefficient method [7] is used to measure the reliability of the scale. If the α coefficient is higher than 0.8, the reliability is good. If the α coefficient is higher than 0.9, it indicates excellent reliability, and if the α coefficient is less than 0.6, it indicates poor reliability. According to the reliability analysis results in the Table.2, it can be seen that the α coefficient of each variable is higher than 0.9, indicating that the reliability of the research data is excellent and can be used for further research.

Table 2: Cronbach α coefficient reliability test

Variable	Cronbach α coefficient
Anchor influence	0.977
Commodity preference attributes	0.977
Live entertainment attributes	0.975
Trust	0.989
Perceived value	0.987
Purchase intention	0.977

4.2 Validity analysis

This study utilized SPSS version 26 to conduct the process of validity analysis. The validity test is mainly used to reflect whether the data set can effectively measure the content of this study. Factor analysis [8] was primarily employed in this study to assess the validity of the data. As shown in the Table.3, the examination data indicates that the KMO value is 0.94, close to 1. Moreover, the corresponding P value of Bartlett's sphericity test is extremely close to 0.00, less than 0.05 and 0.01, indicating the good validity of the data.

Table 3: KMO and Bartlett tests

KMO (Kaiser-Meyer-Olkin) sampling adequacy measure	0.94	
Bartlett's sphericity test	Approximate chi-Square	4351.479
	Degrees of freedom	171
	Significance	0

4.3 Descriptive Statistics

This study provided a statistical description of the central tendency, dispersion, and distribution characteristics of the key variables, as shown in Table. 4.

Table 4: Descriptive statistical analysis of key variables

			Anchor influence	Commodity preference attributes	Live entertainment attributes	Trust	Perceived value	Purchase Intention
Central tendency	Average value		3.13	3.06	2.94	2.87	2.93	2.93
	Median		3. 20	3. 33	3.00	3.00	3. 00	3.00
	Percentile	25	3. 00	2.75	3.00	2.33	2. 67	2.33
		75	4.00	4.00	4.00	4.00	4.00	4.00
	Mode		3.00	4.00	3.00	3. 00	3. 00	3.00
Dispersion	Standard deviation		1. 49	1.51	1.48	1. 51	1. 51	1.51
	Variance		2.21	2.29	2. 19	2.28	2.29	2.28
	Minimum value		0.00	0.00	0.00	0.00	0.00	0.00
	Maximum values		5. 00	5.00	5.00	5.00	5.00	5.00
	Range		5.00	5.00	5.00	5.00	5.00	5.00
Distribution characteristics	Skewness		-1.08	-0.95	-0.83	-0.67	-0.75	-0.72
	Kurtosis		0.33	-0.02	-0.09	-0.37	-0.29	-0.28
	Alienation rate		76%	74%	65%	65%	69%	72%

(1) Central tendency. The questionnaire used a five-point Likert scale to rate various dimensions, where scores of 1-5 corresponded to "strongly disagree," "disagree," "neutral," "agree," and "strongly agree," respectively, while a score of 0 indicated that the respondent had no experience with live streaming shopping. This study utilized mean, median, percentiles, and mode to describe the central tendency of the main variables.

(2) Degree of dispersion. Standard deviation, variance, and range were used in this study to describe the dispersion of the variables. All variables had a maximum value of 5, a minimum value of 0, and a range of 5, indicating that the survey questionnaire had a wide range of participant selection, significant variability, and respondents placed varying degrees of importance on the variable items.

(3) Distribution characteristics. Skewness coefficient, kurtosis coefficient, and heterogeneity ratio were employed in this study to describe the distribution characteristics of the variables. Taking the variable "influence of the host" as an example, its skewness coefficient was -1.08, and kurtosis coefficient was 0.33, indicating a left-skewed peaked distribution of the variable data.

5. Statistical inference and hypothesis testing

5.1 Regression analysis of the dimensions of webcast bandwagon and purchase intention

In order to test the causal relationship between the various dimensions of online live delivery and purchase intention in this study, five factors of online live delivery: anchor influence, commodity preference attribute, entertainment attribute, trust and perceived value are taken as independent variables, and purchase intention is taken as dependent variables for regression analysis. The linear

regression analysis results in the Table 5 are obtained.

Table 5: Linear regression analysis results

Variable	Unnormalized coefficient B	Standardization coefficient Beta	Standardized coefficient β	t	Significance
(constant)	-0.01	0.105		-0.098	0.922
Anchor influence	0.234	0.085	0.23	2.752	0.007
Commodity preference attributes	-0.062	0.101	-0.062	-0.614	0.541
Live entertainment attributes	0.286	0.107	0.28	2.669	0.009
Trust	0.217	0.121	0.217	1.804	0.074
Perceived value	0.32	0.125	0.32	2.565	0.012

At significance levels of 0.05 and 0.01, only three independent variables—anchor influence, entertainment attributes, and perceived value—can significantly influence the purchase intention of the audience watching live streaming for product promotions. Furthermore, the regression coefficients for these variables are all positive, indicating a positive impact of the independent variables on the dependent variable. Therefore, a multiple linear regression equation can be derived as follows: Purchase Intention = 0.234 * Anchor Influence - 0.062 * Sample Discount Attributes + 0.286 * Entertainment Attributes + 0.271 * Trust + 0.32 * Perceived Value - 0.01. The regression coefficients indicate the average change in the dependent variable caused by a change in a particular independent variable.

Table 6: Model summary

Model	R	R^2	Adjusted R^2	Errors in standard estimates
1	1.958[a]	0.917	0.913	0.446249747

Predictor Variables: (Constants), Perceived Value, Product Discount Attributes, Host Influence, Entertainment Attributes, Trust. Dependent Variable: Purchase Intention.

As shown in Table 6, the adjusted R-squared of the regression model is 0.913, indicating a good fit. This means that the independent variables can explain 91.3% of the variance in the dependent variable. In other words, 91.3% of the purchase intention of the audience watching live streaming shopping is influenced by the dimensions of host influence, product discount attributes, entertainment attributes, trust, and perceived value.

Table 7: ANOVA

Model		Sum of squares	Degree of freedom	Mean square	F	Significance
1	Regression	207.281	5	41.456	208.177	.000[b]
	Residual error	18. 719	94	0.199		
	Total	226	99			

Dependent Variable: Purchase Intention. Predictor Variables: (Constants), Perceived Value, Product Discount Attributes, Host Influence, Entertainment Attributes, Trust.

As shown in Table 7, the F-test of the equation is significant at the 0.01 and 0.05 levels, indicating a significant linear relationship between the independent and dependent variables.

5.2 Regression analysis of the dimensions of webcast bandwagon with trust and perceived value

In order to test the influence of the three factors of online live broadcasting on trust, the influence of the anchor, the attribute of product preference, and the attribute of entertainment are taken as independent variables, and trust is taken as the dependent variable to establish a regression analysis, as shown in Table 8.

Table 8: Linear regression analysis results

Variable	Unnormalized coefficient B	Standardization coefficient Beta	Standardized coefficient β	t	Significance
(constant)	-0.047	0.131		-0.362	0.718
Anchor influence	0.239	0.1	0.235	2.389	0.019
Commodity preference attributes	0.236	0.122	0.236	1.923	0.057
Live entertainment attributes	0.493	0.12	0.484	4.121	0

The P-values of the variables anchor influence and entertainment attributes in the model are less than 0.05, which means that the relationship between the independent variables and the dependent variable is significant. At the same time, the regression coefficients are greater than zero, which indicates that hypotheses H1a and H3a are valid.

In order to test the effect of the three factors of online live broadcasting on the perception, the influence of the anchor, the attribute of product preference, and the attribute of entertainment were used as independent variables, and the perceived value was used as the dependent variable to establish a regression analysis, as shown in Table 9.

Table 9: Linear regression analysis results

Variable	Unnormalized coefficient B	Standardization coefficient Beta	Standardized coefficient β	t	Significance
(constant)	-0.019	0.126		-0.153	0.878
Anchor influence	0.332	0.097	0.326	3.436	0.001
Commodity preference attributes	0.1	0.118	0.1	0.843	0.401
Live entertainment attributes	0.545	0.116	0.534	4.713	0

The p-values corresponding to the variables anchor influence and entertainment attributes in the model are less than 0 .05, indicating that the influence relationship between the independent variables and the dependent variable is significant. At the same time, the regression coefficient is greater than zero, and this analysis shows that hypotheses H1b and H3b are valid.

To analyze the relationship between trust and perceived value on the dependent variable purchase intention, the data is shown in Table 10.

The p-value corresponding to each variable in the model is less than 0 .05, which indicates that the relationship between the effect of independent variables and dependent variables is significant. Meanwhile, the regression coefficients are greater than zero, and the results of this analysis indicate that hypotheses H4, H5 are valid.

Table 10: Linear regression analysis results

Variable	Unnormalized coefficient B	Standardization coefficient Beta	Standardized coefficient β	t	Significance
(constant)	0.164	0.109		1.507	0.135
Trust	0.588	0.126	0.589	4.663	0
Perceived value	0.365	0.126	0.364	2.886	0.005

Based on the regression analysis method, to examine the impact of three factors of live streaming shopping on trust and perceived value, host influence, product discount attributes, and entertainment attributes are taken as independent variables, while trust or perceived value is taken as the dependent variable for regression analysis. Finally, the analysis examines the impact of the independent variables, trust, and perceived value on the dependent variable, purchase intention. The results of testing the 5 main research hypotheses and 4 subsidiary research hypotheses are as follows: during the process of live streaming shopping, the influence of the host has a positive impact on consumers' purchase intention, trust, and perceived value; the entertainment attributes during live streaming shopping have a positive impact on consumers' purchase intention and perceived value; consumers' trust in the host and perceived value during the live streaming shopping process positively impact their purchase intention. All other hypotheses are not supported.

6. Conclusions

Firstly, based on extensive literature support and empirical investigation, this paper conducted a comprehensive analysis of the relevant factors involved in live streaming shopping, and constructed a conceptual model of consumer purchase intention, providing a model foundation for questionnaire design and statistical testing.

Secondly, using a five-level scale design method and a combination of online and offline delivery, extensive research was conducted on the survey subjects and survey areas, with a total of 86 questionnaires collected. Subsequently, reliability and validity analyses were conducted on the questionnaire data, and statistical descriptions were made from three aspects: the central tendency, dispersion, and distribution characteristics of the main variables.

Finally, based on the multiple linear regression method, the 5 main research hypotheses and 4 subsidiary research hypotheses were validated, resulting in 8 correct hypotheses.

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