

A Study on the Effect of Web Live Broadcast on Consumers' Willingness to Purchase

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Abstract

E-commerce live broadcast is a kind of video live in the e-commerce platform. As an innovation of entrepreneurial marketing in the new media era, it quickly becomes the most important marketing method for many e-commerce sellers. Based on the characteristics of web live broadcast, this paper studies the path model of relationship between live video and customers' purchase intention from the perspective of telepresence. Through the empirical analysis, it is found that the vividness, interactivity and authenticity of live video enhance consumers' purchasing intention by affecting consumers' sense of immediacy and trust. Research results affirm the rationality for e-commerce sellers to introduce live broadcast marketing. Studies of detailed influencing paths allow sellers to evaluate marketing activities from the perspective of customers' mentality, to better understand the effect of live broadcast and finally to optimize marketing strategies.

Keywords

Broadcast Characteristics, Telepresence, Trust, Purchasing Intention

1. Introduction

With the rapid development of Internet technology and the popularity of intelligent terminals, interpersonal interaction is increasingly frequent. Against the background, web live broadcast has gained favor from the vast number of users since it was born due to its vividness, interaction and realness. Live broadcast bridges sellers' needs and customers' purchasing demand, thus complementing supply and demand. The highly visualized and interactive video broadcast allows customers to see others' fitting process and their feelings. In addition, a user may communicate with host and other users through bullet screen. This interactive mode solves the credibility dilemma in the e-commerce and boosts customers' decision-making confidence. In this paper, the author firstly investigates the

path model of web live broadcast's effect on customers' purchasing intention from the perspective of sense of immediacy. Afterwards, the questionnaire data verify the path model. Lastly, efforts are focused on exploring possible webcast marketing methods that enterprises could take.

2. Literature Review and Hypothesis

2.1. Related Definitions

Purchase intention is the possibility that a consumer buys a product or service after gaining some understanding about it. According to Fishbein's behavioral intention model, the purchase behavior is the result of the purchase intention. Therefore, researches about purchase intention among online consumers are of great significance to B2C, C2C and other e-commerce merchants.

In the academic circle, there is no unified definition about webcast. However, webcast is widely seen as a kind of interactive broadcast in the Internet. Mobile Internet is its base. Mobile terminals such as cellphone and broadcast applications are technical support. It's a real-time presentation and interactive broadcast model with interest as starting point. This paper adopts the widely-accepted view that e-commerce webcast is a new kind of marketing method that features broadcast in online e-commerce platform. Currently, there are many studies about e-commerce. However, domestically, studies about webcast, a new kind of media that gradually comes into the sight of customers with the development of Internet and terminal technologies, are scarce. The web live broadcast combines text, images, sound and other various expression elements, making broadcast more intuitive and vivid, and bringing realness, interactivity and vividness characteristics. Could it play a more direct stimulating role in customers' purchasing decision-making process than dull commodity presentation on the website? The paper aims to study the problem and to further explore detailed function path.

The concept of sense of immediacy was originated from "long-distance telepresence". It was initially widely used in communication. The sense of immediacy is made up of two parts: the space telepresence and the social telepresence. The division method was first proposed by the scholar IJsselsteijn. The so-called space telepresence means an immersive feeling that users experience with the aid of a certain kind of medium. The so-called social telepresence means the user shares the same presence feelings as others.

Features such as virtuality, the separation of time and space add risks and uncertainties to online shopping in the Internet, further reducing trust, a kind of emotional bond between sellers and buyers. Existing studies of online purchasing intention reveal that trust between people and products, including customers' confidence in website, sellers, products and reputation may significantly affect purchasing intention. Different from traditional shopping environment, online shoppers can't touch products before they buy them, thus they face higher risks in their purchasing behavior. Studies show that sense of immediacy is an important element for customers to increase trust and viscosity in website.

Hence, in this paper, based on research results of predecessors, efforts are focused on studying the role and effect of video broadcast on the purchase intention of consumers during their online shopping.

2.2. The Effect of the Video Live Feature on the Sense of Immediacy and Trust

“Interactivity” is the dominant feature of webcast. Through webcast, customers can vividly feel host’s temperance, mental aura and body languages. The bullet screen allows customers to directly interact with others. The real-time interaction creates the atmosphere that all customers are present at the scene, giving them strong sense of immediacy.

Many scholars have studied the relationship between online interaction and sense of immediacy. For example, when Hoffman investigated people’s communication and interaction in the internet, he found that there existed a positive correlation between interaction and sense of immediacy. When He Miao conducted studies about online teaching, he found interaction between teachers and students or among students enhances social telepresence.

In addition, many scholars conducted many in-depth researches about their relationship in online shopping environment. For instance, Hassanein found that social telepresence can be strengthened due to text and photo design in the website [1]. Mollen’s research revealed that customers are stimulated by the online e-commerce website. The stimulation is throughout the following three links of interaction, sense of immediacy and devotion [2]. Research findings of Skadberg *et al.* confirmed that interaction level was positively correlative to customers’ virtual experience. The higher virtual experience was, the stronger sense of immediacy brought to customers [3]. Videos were more intuitive and persuasive than other expression media such as pictures and words. Besides, the real-time interaction of video broadcast was more effective.

Lee found that the professionalism and richness of information as well as the life-like nature of website environment can boost customers’ trust [4]. Tang Jiageng’ study confirmed that interaction had a significant positive impact on trust. Zhao Hongxia *et al.* found communication between customers and e-commerce sellers can enhance consumers’ trust in online shopping [5]. The assumptions are as follows:

H1: The interactive feature of webcast has a positive impact on the generation of sense of immediacy

H2: The interactive feature of webcast positively affects customers’ trust

According to the division of sense of immediacy by IJsselsteijn, detailed hypothesis is put forward as follows:

H1a: The interaction feature of webcast exerts a positive influence on space telepresence

H1b: The interaction feature of webcast has a positive impact on social telepresence

Different from the traditional TV program, real-time webcast allows no edit-

ing or other modification. It directly broadcasts what it is happening at the moment. From the perspective of information broadcast, pictures can be embellished, words can be fabricated, video can be edited. However, live video empowers watchers to have a real-time connection with the live scene and gain the most direct, real engagement experience. In addition, real-time broadcast reduces information loss during the process of multi-level transmission, thus guaranteeing the most authentic information. The realness of real-time broadcast enhances customers' engagement and trust. Ferris, Smith et al argue that the authentic perception of media content can predict individuals' recognition of the views and attitudes conveyed in the content [6]. Accordingly, the following assumptions are proposed:

H3: The realness feature of video broadcast positively influences telepresence

H3a: The realness feature of video broadcast positively influences space telepresence

H3b: The realness feature of video broadcast positively influences social telepresence

H4: The realness feature of video broadcast positively influences customers' trust

Vividness means the rich and diverse media environments, as well as various ways in which media convey information to sense organs. Web live broadcast uses many communication symbols such as texts, images, sound to convey information. It can better immerse customers to specific scenes or atmosphere compared than dull static websites. It stimulates customers' purchasing intention through the sense of immersion throughout all links. In terms of expression methods, it shares a lot of similarities with web advertisement. Beytt's research stated that the diversified expressions of web advertisement convey more information to browsers, leaving them a deep impression and stimulating their purchasing intention. According to researches of Steuer and Coyle, the vividness of web advertisement, either of its content or expression methods can bring deep and enjoyable experience for users [7] [8]. Thus, the hypothesis is as follows:

H5: The vividness of video broadcast positively affects customers' telepresence

H5a: The vividness of video broadcast positively affects customers' space telepresence

H5b: The vividness of video broadcast positively affects customers' social telepresence

H6: The vividness of video broadcast positively affects customers' trust

2.3. The Effect of the Sense of Immediacy on the Trust

Waller *et al.* argue that social telepresence is the necessary condition for the generation of trust in the virtual Interwork environment since trust is usually generated in the social environment [9]. Therefore, the rich sense of immediacy brought by online shopping environment enhances trust among customers; Gefen's research based on e-commerce service scenario reveals that social telepre-

sense affects the generation of trust in customers [10]; Song proposed that in apparel selling websites, the sense of immediacy exerts a positive influence in the generation of trust among customers [11]; Nichaya’s result finding points out that customers’ trust is not only affected by social telepresence but also by space telepresence. In addition, the sense of immediacy affects customers’ purchasing behavior through the media of trust. Skadberg *et al.* regard the sense of immediacy as one feature of “immersive experience” [3]. Many scholars verified that immersive experience can stimulate customers’ trust. Based on it, hypothesis was as follows:

- H7: Sense of immediacy positively affects customers’ trust
- H7a: Space telepresence exerts a positive influence in customers’ trust
- H7b: Social telepresence positively affects customers’ trust.

2.4. The Effect of the Sense of Immediacy and Trust on customers’ Purchasing Intention

Li argues that in three dimensional (3D) online shopping environment, customers give a high evaluation of products due to strong sense of immediacy and are more likely to purchase products; The result is confirmed by Kisoo. In previous studies, trust was chosen as an intermediate by scholars to study its role in the decision-making process when customers purchase a product. Zeithaml, Berry & Parasurama believe that when customers feel trustful of a product or an enterprise, he would generate purchasing intention; Hong *et al.* argue that customers’ trust in a brand would ultimately translate into loyalty and purchasing intention of the brand. Based on it, the hypothesis is raised as follows:

- H8: sense of immediacy positively affect customers’ purchasing intention
- H8a: space telepresence positively affects customers’ purchasing intention
- H8b: social telepresence positively affect customers’ purchasing intention
- Hypothesis H9: customers’ trust in a brand positively affects their purchasing intention.

The model was constructed as **Figure 1**.

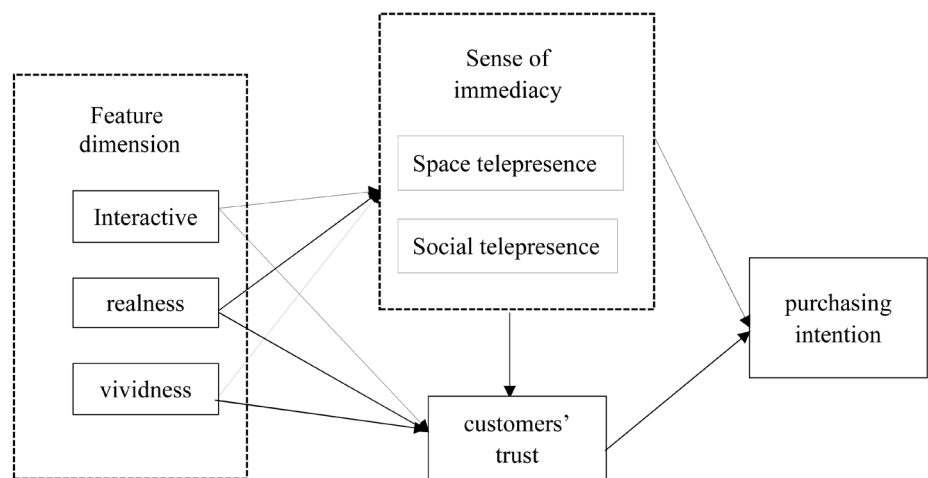


Figure 1. Research model.

3. Methodology

3.1. Questionnaire Structure and Variable Measurements

In this paper, Likert's seven-part scale is employed to measure each dimension. Measurement of interaction mainly refers to Ridings and Wu's scales. The design of interaction measurement takes account of key factors in live broadcast, namely interaction between customers and the host, as well as interaction among customers; The measurement of realness mainly refers to realness perception scale of media content compiled by Rubin [12]; Measurement of vividness refers to the scale developed by Sheng H and Walters G [13]; Measurement of sense of immediacy draws on the scale designed by Barfield, Hassanein and Zhao Hongxia; Measurement of trust refers to the research made by Kantsperger, Kunz, Hesseler and McKnight; Scale of purchasing intention mainly consults the Dodds and Andrea's survey about online purchase intention.

3.2. The Sample and Data Collection

The main research object of the questionnaire is the online shopping users, and in the course of the shopping have watched the video broadcast experience. Among questionnaire respondents, only those who have watched live video broadcast when they shop on e-commerce platforms have access to the remaining part of the questionnaire. For those who answer they haven't watched, they would directly jump to characteristic statistic. Statistics are collected from online questionnaire. A total of 367 questionnaires are collected, among which 289 questionnaires are effective, with an effective rate of 79%. The proportion of male respondents to female respondents are 52.3% to 47.7%. The age group is mainly distributed in the interval of 16 - 40 years old. The sample structure roughly corresponds to the features of online shoppers.

3.3. Methods of Data Analysis

SPSS was used to analyze the reliability and validity of the data, Cronbach α coefficient is used to test the scale reliability. Cronbach α coefficient is a commonly used reliability analysis coefficient, which is between 0 and 1, it is very suitable for analyzing the Likert scale. The larger the α coefficient, the higher the correlation coefficient between each item of the variable, and the higher the internal reliability. And then perform the validity analysis. Using AMOS statistical software to verify the fitting index of the model, If the CMIN/ DF, GFI, AGFI, IFI, CFI, RMSEA and other indicators meet the requirements, then the model is better.

4. Results Analysis

4.1. Reliability and Validity Analysis

The validity measurement examines the effectiveness and accuracy of the measurement result. First and foremost, according to sample measurement done by KMO and Bartlett, the value of KMO is greater than 0.8, which is 0.929. The

good validity and significance level of Barlett inspection ($P < 0.001$) indicate that the questionnaire's structure is effective. In terms of factor analysis, factor loads are all greater than the standard of 0.7, indicating convergent validity of variables are good. Detailed description is shown in **Table 1**.

4.2. Structural Equation Model Analysis

In this paper, structural equation hypothesis testing and the sample data statistical analysis using the software, AMOS17.0. In the model, each standardized factor loading volume is between 0.4 to 0.9, and reached the significant level. Fit indices are as follows: $\chi^2/df = 4.783$, RMSEA = 0.047 less than 0.05; AGFI =

Table 1. Reliability and validity analysis.

Variable	Question	factor loading, (FL)	Cronbach'a	KMO
Interactive IN	IN1	0.877	0.884	0.875
	IN2	0.857		
	IN3	0.849		
	IN4	0.861		
realness R	R1	0.920	0.954	0.876
	R2	0.897		
	R3	0.888		
	R4	0.862		
vividness VI	VI1	0.857	0.931	0.864
	VI2	0.852		
	VI3	0.838		
	VI4	0.793		
Space telepresencePh	Ph1	0.838	0.885	0.829
	Ph2	0.896		
	Ph3	0.879		
	Ph4	0.865		
Social telepresenceSh	Sh1	0.799	0.931	0.922
	Sh2	0.896		
	Sh3	0.891		
	Sh4	0.844		
	Sh5	0.870		
	Sh6	0.898		
customers' trust ONT	ONT1	0.892	0.953	0.875
	ONT2	0.886		
	ONT3	0.873		
	ONT4	0.864		
purchasing intention PI	PI1	0.888	0.920	0.846
	PI2	0.781		
	PI3	0.785		
	PI4	0.802		

0.802, NFI = 0.906, CFI = 0.922 greater than 0.8, Fitting index values are in line with the requirements, which indicated that model fit of the theoretical model is well. According to the above hypothesis testing, **Table 2** is as follows.

4.3. Hypothesis Testing

Table 3 shows the hypothesis testing and path coefficients. The testing result shows that in terms of hypothesis H3 that states the relationship between the realness of video broadcast and customers' telepresence, the result of sub-hypothesis H3a is significant while that of H3b is insignificant. It indicates that the realness of e-commerce broadcast has positive influences in enhancing customers' space telepresence but has insignificant influences in social telepresence; While in terms of H5 that states the relationship between vividness of live broadcast and customers' sense of immediacy, the result of sub-hypothesis H5a is significant, but that of H5b is insignificant. It indicates that vividness of e-commerce broadcast has significant effect on enhancing customers' space telepresence but little effect on social telepresence; in addition, the insignificant

Table 2. Model fitting index.

Model fitting index	reference standard	result	meet a criterion
X ² /df	<5	4.783	Yes
NFI	>0.9	0.906	Yes
IFI	>0.9	0.923	Yes
CFI	>0.9	0.922	Yes
AGFI	>0.8	0.802	Yes
RMSEA	<0.05	0.047	Yes

Table 3. Results summary of hypothesis testing.

Hypothesis	Relationship among variables	Coefficient	p	Testing results
H1a	Interactive → Space telepresence	0.319	***	Support
H1b	Interactive → Social telepresence	0.281	***	Support
H2	Interactive → customers' trust	0.137	0.009	Support
H3a	Realness → Space telepresence	0.349	***	Support
H3b	Realness → Social telepresence	0.022	0.069	Not Support
H4	Realness → customers' trust	0.169	***	Support
H5a	Vividness → Space telepresence	0.184	0.011	Support
H5b	Vividness → Social telepresence	0.036	0.074	Not Support
H6	Vividness → customers' trust	0.026	0.638	Not Support
H7a	Space telepresence → customers' trust	0.347	0.002	Support
H7b	Social telepresence → customers' trust	0.593	***	Support
H8a	Space telepresence → purchasing intention	0.281	***	Support
H8b	Social telepresence → purchasing intention	0.232	***	Support
H9	customers' trust → purchasing intention	0.544	***	Support

result of Hypothesis H6 shows that vividness exerts insignificant influences in boosting customers' trust; Other hypothesis results are all significant.

5. Discussions

5.1. Enlightenments

As a popular mode of transmission, web live broadcast has attracted attention from many enterprises and investors, as well as favor of online sellers since it was born. Like previous network communities, it becomes an important platform for sellers to promote products and cultivate fans. In this paper, efforts are focused on discussing the relationship between e-commerce broadcast and customers' purchasing intention, on putting forward detailed effectiveness paths and providing new perspectives and trains of thoughts.

This paper verifies that vividness, interaction and realness of e-commerce broadcast have positive influences in customers' purchasing intention, affirming the rationality for online sellers to introduce the broadcast marketing method.

Unlike traditional entertainment broadcast, e-commerce broadcast is a new and complementary platform. It is a new breakthrough for e-commerce. The research in this paper is conducive for sellers to make evaluation of marketing activities through customers' psychologies, to better understand the broadcast's real effect, and to optimize marketing strategies.

In addition, the effect of e-commerce broadcast affects customers' purchasing intention by enhancing customers' sense of immediacy and trust of online shopping. The influencing path further indicates the importance of sense of immediacy and trust in customers' decision-making process in the virtual Internet environment. It offers reference for sellers to adopt other marketing strategies.

5.2. Limitations and Future Work

In this paper, the research object is the increasingly overwhelming network e-commerce. Efforts are focused on investigating the influence of newly emerged webcast in customers' purchasing intention. Apart from inherent features of webcast as a new media, other features or elements of webcast affect customers' purchasing decision-making process. In addition, enterprises allow customers to have a deeper understanding of itself and its brand through webcast marketing. Therefore, research areas of future study could be further expanded, and efforts could be focused on studying other elements in webcast.

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