HOW POSTGRADUATE STUDENTS ADOPT LIVESTREAM SHOPPING?: A CASE STUDY IN CHENGDU, CHINA

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Abstract

This study intends to investigate the factors influencing the choice of livestream shopping among postgraduate students in Chengdu. Seven variables are perceived ease of use, perceived usefulness, perceived enjoyment, attitude, service quality, social influence, and behavioral intention. The researcher applied the quantitative method (n=500), distributing questionnaires to postgraduate students in three designated universities in Chengdu. The Structural Equation Model (SEM) and Confirmatory Factor Analysis (CFA) were used for the data analysis, and they included model fit, reliability, and validity of the constructs. The results explicated that perceived ease of use, usefulness, and enjoyment significantly impact attitude. Attitude, service quality, and social influence positively affect behavioral intention. Eight hypotheses were completely proven to fulfill research objectives. Hence, we need to observe how the different variables influence the customers' behavioral intention and work less with a higher efficiency.

Keywords: Livestreaming Shopping, Behavioral Intention, Perceived Enjoyment, Attitude, Social Influence.

Introduction

With the advancement of computer technology and the growing use of the Internet, e-commerce has emerged as a vital component of the virtual world. Globally, the number of individuals using the Internet is rising. Many firms truly feel that the Internet has a major commercial potential, given the explosive growth in Internet users (Hoffman, 2000). The degree to which customers engage with one another in real-time while buying online is called online shopping behavior. The rise of e-commerce has brought in new customers and unintentionally altered how customers purchase goods and services. Trade barriers have been further reduced by the growth of the Internet and e-commerce. Businesses can interact directly with consumers and potential customers wherever in the world.

With the development of information technology and the increasing use of mobile devices, short video platforms have seen rapid growth in recent years. Everyone can record

or make a video for upload to internet platforms (such as Facebook Live, Twitter Live, YouTube Live, and so forth), and sharing private videos (like live streaming) has gained popularity (Sjöblom et al., 2018). The public can now access information through new channels since short videos are mobile, fragmented, short- and long-term, and they break down the barriers of geography and time associated with information distribution. Jacobson states, "Vision and hearing are the foundations of the most socialized, abundant, and appropriate symbol system in human society."

Online retailers have traditionally described their products using text and photos for the last ten years. However, live broadcasting has emerged as a new worldwide trend that allows anyone to watch anything online, anytime, anywhere—from performing to singing to dining. In 2017, 422 million people in China used live broadcasting, which accounts for more than half of the country's total Internet users, according to research published by the China Internet Network Information Center (CNNIC, 2018). The social functionality of livestream shopping—real-time cross-interaction with live broadcast anchors, viewers, and customers—is evidently one of its important features (Addo et al., 2021).

Live streaming has become increasingly popular worldwide. The global live-streaming industry is predicted to grow from USD 30.29 billion to USD 70.05 billion between 2016 and 2021 (Research & Markets, 2016). Consider TikTok, the previous amazing app for short videos, as an example of a live broadcast application. Anybody can watch various legal and compliant live broadcasts as they like, and anyone can broadcast any content at any time and from any location. The evolution of information, networks, and logistics—particularly the global COVID-19 outbreak—has altered economic activity (Barro et al., 2020). People are advised to keep their distance from others, work from home, and avoid congregating in public areas as much as possible to lower their chance of infection and stop the disease from spreading (Jones et al., 2020). In this regard, live streaming is becoming a significant industry function. Therefore, this study intends to investigate the factors influencing the choice of livestream shopping among postgraduate students in Chengdu.

Literature Review

1. Perceived Ease of Use

According to Davis et al. (1989), perceived ease of use is the extent to which a system's interaction can be understood or used clearly. This is primarily determined by how easy it is to complete required tasks using the system, how much spiritual effort is required to achieve harmonious interaction with the system, and how difficult it is to use it. How easily a system operates while using it, how little mental work is needed when using it, and how easy it is to accomplish tasks with it are all considered aspects of perceived ease of use (Ndubisi, 2003).

According to other studies, there is a link between behavioral intention and

perceived ease of use (Zhang & Mao, 2008) and between perceived ease of use and trust (Schepers & Wetzels, 2007). Furthermore, these correlations are supported by UTAUT (Venkatesh & Davis, 2000). The Davis (1989) Technology acceptability Model (TAM) has been used in numerous prior studies on Internet acceptability. It is well recognized that models of online buying behavior, which incorporate outside factors influencing perceived usefulness and ease of use, may be created from his TAM. Given this perspective, this study suggests the following hypotheses:

H1: Perceived ease of use has a significant impact on perceived usefulness.

H2: Perceived ease of use has a significant impact on perceived enjoyment.

H4: Perceived ease of use has a significant impact on attitude.

2. Perceived Usefulness

Perceived usefulness is defined as the extent to which using IT requires no effort on the user's part (Davis et al., 1989). He concluded that, after utilizing a specific system, a person's perceived usefulness (PU) is a gauge of their level of productivity (Davis et al., 1989). According to Seddon and Kiew (1996), the goal of usefulness is to maximize the product's user performance. It is a perception of how well a product performs when used. According to Kwon and Lee (2010), a positive association exists between perceived usefulness and persistent intention.

Extended TAM (UTAUT) considers social impact and cognitive tool process as drivers of user-perceived usefulness in a study by Venkatesh and Davis (2000) (Park et al., 2007). Nonetheless, recent research indicates that the perceived value of mobile social software may be a predictor or antecedent of the inclination to use particular mobile social software and trust (both social and emotional). Perceived utility and perceived ease of use are major factors in determining whether people utilize e-government services, according to research on the TAM model used in e-government (Dimitrova & Chen, 2006; Wangpipatwong et al., 2008). Given this perspective, this study suggests the following hypothesis:

H3: Perceived usefulness has a significant impact on attitude.

3. Perceived Enjoyment

The degree to which one perceives pleasure is known as perceived enjoyment, and it does not consider the outcome of employing a certain system. According to Huang et al. (2014), perceived enjoyment is the satisfaction one experiences when utilizing a system without considering any potential negative effects on performance. On the other hand, perceived satisfaction gauges how much each person enjoys using the system itself (Davis et al., 1992). To put it briefly, PE describes the extent to which using a system or product is considered enjoyable without considering any potential negative effects (Davis et al., 1992). Perceived enjoyment impacts the intention to use a mobile learning system, according to a study by Wong and Zhou (2015). To forecast users' acceptance and adoption rates of new technologies, Zhou and Ee (2012) integrated PE into the UTAUT model. Thus, this study

suggests the following hypothesis:

H5: Perceived enjoyment has a significant impact on attitude.

4. Attitude

A person's attitude reflects their emotions, whether they are positive or bad. A positive attitude will be displayed, while a negative attitude will be present. Different from the attitude of another object, attitude is a kind of inclination and a type of conduct. According to Ajzen and Fishbein (1980), attitudes are enduring positive or negative reactions to a specific item that provide motivation for continuing an action. This idea can be shown in a person's preferences, existing behavior intention, and how enticing something is to them. Typically, it relates to a person's general attitude about currently available products and their fidelity to a brand's effect and image (Fishbein & Ajzen, 1975). Thus, this study suggests the following hypothesis:

H6: Attitude has a significant impact on behavioral intention.

5. Service Quality

Service quality was defined by Hassan et al. (2013) as the extent to which a service or general state is assessed or acknowledged. According to Zeithaml et al. (2009), service quality is the given service's ability to meet or exceed the users' expectations. It is the user's assessment, judgment, and perception (SERVPERF) of the service rendered, according to Zeithaml (1988). Accordingly, "the degree of difference between customers' expectation of service and their real perception" is the standard definition of service quality.

The service quality theory by Parasuraman et al. (1988), service quality has grown in importance as a criterion for evaluating different industries. Because tourists are satisfied when the product or service level meets their expectations, many researchers in the tourism literature believe that service quality is important to tourist satisfaction and can be used as an indicator of it (Chen & Chen, 2010; Oliver, 2010; Udo et al., 2010; Zeithaml et al., 1993). Thus, this study suggests the following hypothesis:

H7: Service quality has a significant impact on behavioral intention.

6. Social Influence

According to Smith et al. (2011), social influence particularly refers to the extent to which others persuade people to alter their beliefs and behaviors. The impact of the opinions and sentiments of others who are significant to you on whether or not you use new things should be the concept of social influence. According to Lin et al. (2011), social influence is crucial to sociology and behavioral sciences like behavioral decision-making. Accordingly, social influence refers to the possibility that someone may unintentionally employ a particular tactic due to the impact and evaluation of others (Bagozzi & Dholakia, 2002). Researchers only use the degree of information acquired through social interaction to estimate the extent of social influence in the J-curve model (Greenberg, 1964). Thus, this study suggests the following hypothesis:

H8: Social influence has a significant impact on behavioral intention.

7. Behavioral Intention

According to Davis et al. (1989), there is a perspective that uses the TRA model to "measure the degree of an individual's intention" through behavioral intents. The primary factor influencing whether to carry out a certain conduct is behavioral intention, which is a subjective possibility (Ajzen & Fishbein, 1980; Yi et al., 2006). Theoretically, loyalty behaviors—also referred to as strong loyalty or recurrent purchases—usually have behavioral intents built in (Wu et al., 2018; Zeithaml & Bitner, 1996). As a result, "behavioral intention" refers to the degree to which a person is willing to carry out a specific plan or activity (Ahn & Back, 2019; Warshaw & Davis, 1985). According to Safari et al. (2020), a customer's attitude or conduct following hotel service is referred to as their behavioral intention. The definition of intention to use behavior used in this study—"the possibility of individuals using online banking services"—is fairly like that used in earlier studies.

Research Framework

Based on Venkatesh et al. (2012), enjoyment, social impact, perceived value, convenience, motivation, habits, and so on are some of its constituents. The four main components of the UTAUT model are promotion conditions, social influence, effort expectations, and performance expectations. These components have been incorporated since several studies have demonstrated their validity. Behavior of usage intent (Venkatesh et al., 2003).

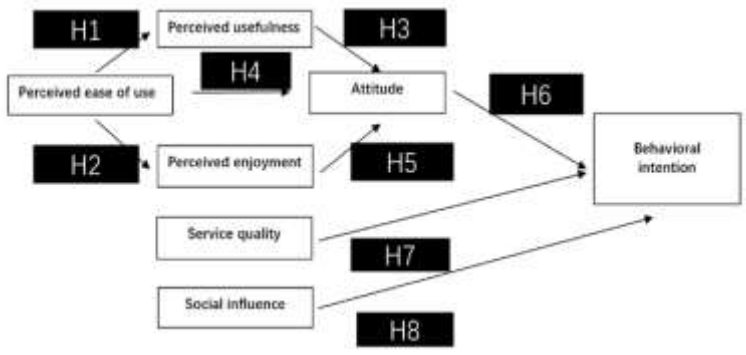

Figure 1 Conceptual Framework

The hypotheses of the research variables based on the conceptual framework are;

H1: Perceived ease of use has a significant impact on perceived usefulness.

H2: Perceived ease of use has a significant impact on perceived enjoyment

H3: Perceived usefulness has a significant impact on attitude.

H4: Perceived ease of use has a significant impact on attitude.

H5: Perceived enjoyment has a significant impact on attitude.

H6: Attitude has a significant impact on behavioral intention.

H7: Service quality has a significant impact on behavioral intention.

: Social influence has a significant impact on behavioral intention.

Research Methodology

The researchers used the quantitative method of non-probability sampling. They distributed the questionnaires through the professional survey software Questionnaire Star. The questionnaire survey was divided into the following steps. Firstly, the target group was targeted through screening questions to meet the interview conditions and become a valid answer sheet. Secondly, for each question set, a 5-point Likert scale was used to measure from "strongly disagree" (1 point) to "strongly agree" (5 points). An expert's item-objective congruence (IOC) test was conducted through a pilot test with 50 respondents. The pilot study, yielded a Cronbach's Alpha score surpassing 0.7, affirming the reliable measurement (Nunnally & Bernstein, 1994).

1. Population and Sample Size

The survey targets were the current graduate students of three universities in Chengdu. After data screening, 550 responses were received for this study. Of these, 500 valid questionnaires were used for the post-study.

2. Sampling Techniques

The researcher used a non-probability sampling method and then determined the sample size based on the number of postgraduate students enrolled in each school through the quota sampling method. Finally, the researcher used a convenience sampling method to collect data online through Question star.

Results and Discussion

1. Demographic Information

For this questionnaire, the first choice is students from the three target colleges. In the view of gender, there are 242 female respondents, accounting for 48.4%, and 258 male respondents, accounting for 51.6%; according to the grades, there are a total of 134 students in the first year of college, accounting for 26.8%, 118 students in the second year of college, accounting for 23.6%, and 155 students in the third year, accounting for 31%. There are relatively fewer participants in the fourth year of college because they have already completed all the courses. In the fourth year, there were 93 participants, accounting for 18.6%.

Table 1 Demographic Profile

Demographic and General Data (N=500)		Frequency	Percentage
Gender	Male	258	51.6%
	Female	242	48.4%
Year of Study	Year 1	134	26.8%
	Year 2	118	23.6%
	Year 3	155	31%
	Year 4	93	18.6%

2. Confirmatory Factor Analysis (CFA)

Confirmatory factor analysis (CFA) was undertaken in this study to assess the validity of the measurement model. The analysis revealed that all items within each variable were statistically significant, as indicated by their factor loadings. Specifically, the factor loadings exceeded 0.30 with a p-value of less than 0.05, demonstrating their significance. Furthermore, the construct reliability surpassed the threshold of 0.7, and the mean coefficient of variation was below 0.05. The mean-variance extracted also exceeded the recommended threshold of 0.5 (Fornell & Larcker, 1981). These findings collectively confirm the significance and reliability of all estimates in the model (Hair et al., 2006).

Table 2 Confirmatory Factor Analysis Result, Composite Reliability (CR) and Average Variance Extracted (AVE)

Latent Variables	Source of Questionnaire	No. of Items	Cronbach's Alpha	Factors Loading	CR	AVE
Perceived Ease of Use	Davis (1989)	6	0.913	0.751-0.819	0.908	0.621
Perceived Usefulness	Davis (1989)	4	0.852	0.711-0.800	0.842	0.571
Perceived Enjoyment (PE)	Davis et al. (1992)	4	0.823	0.722-0.736	0.819	0.531
Attitude (ATT)	Davis et al. (1989)	4	0.816	0.676-0.790	0.809	0.515
Service Quality (SQ)	Kotler and Keller (2014)	12	0.933	0.704-0.746	0.927	0.515
Social Influence (SI)	Wang and Zhu (2019)	3	0.833	0.722-0.802	0.822	0.607
Behavioral Intention (BI)	Fishbein and Ajzen (1975)	6	0.884	0.761-0.820	0.905	0.614

Source: Created by the author.

In the confirmatory factor analysis (CFA), various fit indices, including GFI, AGFI, NFI, CFI, TLI, and RMSEA, were employed to assess the model fit and validate subsequent structural model estimates, as detailed in Table 3.

Table 3 Goodness of Fit for Measurement Model

Index	Acceptable Values	Statistical Values After Adjustment
CMIN/DF	< 5.00 (Al-Mamary & Shamsuddin, 2015; Awang, 2012)	1.330
GFI	≥ 0.85 (Sica & Ghisi, 2007)	0.918
AGFI	≥ 0.80 (Sica & Ghisi, 2007)	0.906
NFI	≥ 0.80 (Wu & Wang, 2006)	0.912
CFI	≥ 0.80 (Bentler, 1990)	0.970
TLI	≥ 0.80 (Sharma et al., 2005)	0.975
RMSEA	< 0.08 (Pedroso et al., 2016)	0.026
Model summary		**Acceptable Model Fit**

Note: CMIN/DF = The ratio of the Chi-square value to degree of freedom, GFI = Goodness-of-fit index, AGFI = Adjusted goodness-of-fit index, NFI = Normed fit index, CFI = Comparative fit index, TLI = Tucker-Lewis index, RMSEA = Root mean square error of approximation.

In addition, the convergent validity Table 4 shows that the convergent validity and discriminant validity of this study are greater than the acceptable values. Thus, both convergent and discriminant validity are validated, and these model measurements also demonstrate discriminant validity and validation.

Table 4 Discriminant Validity

	PEU	PU	PE	ATT	SQ	SI	BI
PEU	**0.788**						
PU	0.453	**0.756**					
PE	0.439	0.289	**0.729**				
ATT	0.456	0.378	0.354	**0.718**			
SQ	0.183	0.020	0.097	0.137	**0.718**		
SI	0.340	0.137	0.229	0.225	0.121	**0.779**	
BI	0.223	0.119	0.104	0.276	0.222	0.275	**0.784**

Note: The diagonally listed value is the AVE square roots of the variable

3. Structural Equation Model (SEM)

According to the recommendation of Greenspoon and Saklofske (1998), the GFI and CFI should be higher than 0.8, while the measure of model fit should not be more than 3. In calculating the SEM, SPSS was used to adjust the model, and the results of the goodness of fit indices showed good results as shown in Table 6, which are CMIN/DF = 1.416, GFI = 0.912, AGFI = 0.901, NFI = 0.905, CFI = 0.968, TLI = 0.970, RMSEA = 0.029.

Table 6 Goodness of Fit for Measurement and Structural Model

Index	Acceptable Criterion	Statistical Values
CMIN/DF	< 5.00 (Al-Mamary & Shamsuddin, 2015; Awang, 2012)	1.416
GFI	≥ 0.85 (Sica & Ghisi, 2007)	0.912
AGFI	≥ 0.80 (Sica & Ghisi, 2007)	0.901
NFI	≥ 0.80 (Wu & Wang, 2006)	0.905
CFI	≥ 0.80 (Bentler, 1990)	0.968
TLI	≥ 0.80 (Sharma et al., 2005)	0.970
RMSEA	< 0.08 (Pedroso et al., 2016)	0.029
Model Summary		**Acceptable Model Fit**

Note: CMIN/DF = The ratio of the chi-square value to degree of freedom, GFI = Goodness-of-fit index, AGFI = Adjusted goodness-of-fit index, NFI = Normed fit index, RMSEA = Root mean square error of approximation CFI = Comparative fit index, and TLI = Tucker-Lewis index

4. Hypothesis Testing Result

The research model was calculated using regression weights for each variable and R2 significance of variance

Table 6 Hypothesis Results of the Structural Equation Model

Hypothesis	(β)	t-Value	Result
H1: PEU⟶PU	0.456	8.632*	Supported
H2: PEU⟶PE	0.443	8.129*	Supported
H3: PU⟶ATT	0.200	3.521*	Supported
H4: PEU⟶ATT	0.294	4.719*	Supported
H5: PE⟶ATT	0.168	2.937*	Supported
H6: ATT⟶BI	0.220	4.362*	Supported
H7: SQ⟶BI	0.177	3.734*	Supported
H8: SI⟶BI	0.213	4.210*	Supported

Note: * p<0.05

Source: Created by the author.

The result from Table 6 can be refined that:

H1 proves a strong correlation between PEU and PU with a T-value of 10.886, consistent with Mao and Palvia (2006) study that perceived ease of use also has a positive effect on perceived usability. It is also in line with the study of Venkatesh and Davis (2000), who argued that the easier a technology is to use, the more useful it is. This is followed by H2, with a T-value of 9.088, and a conclusion that perfectly corroborates the model of motivation for technology acceptance proposed by Deci (1975) or Davis (1989). In this model, the idea is that the more useful system is also more enjoyable (Teo et al., 1999). H3 and H2 are often important components in the same model. So, the resulting structure is consistent with previous research. As for H4, earlier research has found that PU positively affected attitudes (Lin & Lu, 2011), and thus, the hypothesis holds. H5 describes the relationship between PU and ATT, which is clearly stated in the study of Kim and Forsythe (2008), who argued that Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) together influence an individual's attitude towards the use of technology. For H6, the T-value of 4.362 indicates that attitude positively affects behavioral intention, which is in accordance with Solomon's (2004) study. He argued that attitude is an important variable influencing behavioral intention and has the greatest and most direct impact. From the result of H7, it can be seen that there is a correlation between SQ and BI with a T-value of 3.734, which is considered in Zeithaml and Bitner (1996) study that service quality unidirectionally affects behavioral intention. Finally, hypothesis H8 is strongly supported by Wang et al. (2019), who argued that social influence is an external motivator and influences technology-related behavioral intentions to a large extent.

Conclusions, Recommendations, Limitations and Future Research

1. Conclusions

Firstly, Attitude, social influence, and service quality directly influence behavioral intention; PEU, PU, and PE directly and indirectly influence Attitude. Attitude has the greatest degree of influence on the use of live shopping by the postgraduate population. This is followed by social influence and, finally, service quality. However, the influence of these two on behavioral intention must be addressed. According to Pervin et al. (2005), Attitude is a behavior and a tendency to behave, perceive, evaluate, and think in the face of things. This satisfies previous research that positive evaluations of a particular thing imply a high level of recognition by the individual, who will categorize it as their favorite thing and use it repeatedly or consistently (Han et al., 2010).

2. Recommendations

The researchers found that attitudes have the greatest and most direct impact on whether postgraduate students choose to shop via live streaming, which in turn is influenced by a combination of PEU, PU, and PE, so the root cause is whether live streaming shopping

meets the needs of the consumer well, with high quality in terms of both fun and practicality. According to Suki (2011), PE refers to an individual's satisfaction, pleasure, and enjoyment from engaging in a particular behavior. A person is unlikely to be willing to do uninteresting work but choose to continue or repeat interesting things. According to the TPB model, attitudes will have favorable or unfavorable effects on using a specific system, and different attitudes will lead to different behavioral choices. Thus, we need to see the role of attitudes in influencing, which are both influenced by other factors and, at the same time, profoundly influence behavioral intentions. In many previous studies, the results also clearly indicate that attitudes are a relatively stable mental state that has a direct predictive influence on behavioral intentions (Hsu et al., 2013).

3. Limitations and Future Research

There are three main limitations of this study: first, as far as the study population is concerned, although the scope of the study is the postgraduate student population in Chengdu, the three selected schools are geographically close to each other, and the questionnaire format relies exclusively on online, which is relatively homogeneous in form. Secondly, of the three direct influences on behavioral intention, only a one-way study was conducted to examine their respective influences on behavioral intention without exploring their influencing relationships. Finally, live shopping is an emerging thing; the rapid development of the research in the field study needs to be considered more in-depth; the reference literature is mainly focused on network technology and cannot refine the benchmark to network shopping. Therefore, in the later study stage, we can widely collect the literature in this field and construct a more complex model for in-depth analysis.

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