pISSN: 1906 - 3296 © 2020 AU-GSB e-Journal.
eISSN: 2773 – 868x © 2021 AU-GSB e-Journal.
http://www.assumptionjournal.au.edu/index.php/AU-GSB/index

Key Influencers of Attitude and Intention to Shop Online Through Live Broadcasting Platform Among Middle-Aged Consumer's in Chengdu, China

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Received: September 18, 2023. Revised: October 2, 2023. Accepted: October 7, 2023.

Abstract

Purpose: This paper mainly discusses the significant influencing factors of middle-aged consumers' attitudes and intentions toward online shopping live broadcasting platforms in Chengdu, China. The conceptual framework gives the causal relationship between variables, which include online shopping intention, attitude, perceived ease of use, perceived usefulness, trust, perceived risk, subjective norm. **Research design, data, and methodology:** This study used a non-probability analytical method to explore the factors that influence the attitudes and intentions of middle-aged consumers in Chengdu towards online shopping live streaming platforms. The authors distributed 30 questionnaires to some of the respondents who met the sample unit characteristics. After data collection, confirmatory factor analysis (CFA) was used to evaluate the convergent and discriminant validity. Then, the suitability of all hypotheses and models was tested using structural equation modeling (SEM). **Results:** The result indicates that attitude significantly impacts the intention to shop online, followed by the subjective norm. Perceived ease of use, perceived usefulness, and trust significantly impact attitude, with perceived ease of use being the most affected, followed by trust. **Conclusions:** It is recommended that online shopping live broadcasting platform operators pay attention to the shopping experience of middle-aged consumers, improve the platform's ease of use, increase consumer trust, and take further measures to attract consumers to the platform.

Keywords : Online Shopping Intention, Attitude, Trust, Perceived Risk, Subjective Norm

JEL Classification Code: E44, F31, F37, G15

1. Introduction

Under the impetus of intelligent, mobile, and other media technology and the influence of the COVID-19 epidemic, the marketing method is undergoing profound changes, which in turn has given rise to a variety of new and effective marketing tools and online shopping live broadcasting is one of them. Online shopping live broadcasting platforms have gained significant popularity in recent years, revolutionizing how people shop online. These platforms combine e-commerce and live video streaming elements, allowing retailers and influencers to showcase products in real-time and interact with viewers directly. It provides a dynamic and engaging customer shopping experience, bridging the gap between traditional brick-and-mortar retail and online shopping.

During COVID-19, China's live-streaming industry has become an important platform for economic recovery. With the rise of the "live streaming with goods" consumption model, the Chinese market has shown strong potential and vitality, accelerating the transformation of physical business to digital pace. The development of China's Internet celebrity economy and the increase in MCN institutions make China a global leader in the e-commerce live-streaming industry.

According to Imedia research data, the number of online live streaming users in China reached 660 million in 2022,

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covering game live streaming, programs, life live streaming, and e-commerce, indicating that watching live streaming has gradually become one of people's online habits.

Compared with reality TV live and game live, e-commerce live broadcasting has a clear business model. It performs better in attracting online consumers to use and purchase conversion rate, etc. It also creates interpersonal trust and a pleasant experience between merchants and users, creating a better marketing effect. However, the e-commerce platform has entered a period of steady development, the user market potential is tapped out, and the major e-commerce platforms need help finding flow and developing new users. Many merchants not only open live on the traditional e-commerce platform such as Taobao and Jingdong but also open simultaneously on the douyin, kuaishou, and other popular short video platforms.

According to iiMedia Research (IMedia Consulting) data, 70.4% of the common live streaming platforms for live streaming e-commerce are Douyin, 60.1% of the common live streaming e-commerce platforms are Taobao, 45.7% of the common live streaming e-commerce platforms are Kuaishou, and 18% of the common live streaming e-commerce platforms are Jingdong. Therefore, this paper analyzed the four most used representative live-streaming online shopping platforms: Taobao.com, owned by Alibaba Group, Douyin, Jingdong.com, and Kuaishou as study objects. Based on the theory of reasoned action technology acceptance model and social-technical theory, this paper constructs a structural equation model to investigate the key factors affecting the attitudes and intentions of Chinese users towards online live broadcasting shopping platforms and help e-commerce enterprises understand the mechanism of live broadcasting shopping platforms on consumers' online intentions and behaviors.

2. Literature Review

2.1 Perceived Ease of Use

Perceived ease of use refers to an individual's subjective assessment of how easy a particular technology or system is to use. It is a key concept in the Technology Acceptance Model (TAM), widely used in information systems research to understand individuals' acceptance and usage of new technologies. According to Tong (2010), perceived ease of use is defined as easily using new technology without requiring physical or mental effort. Research has authorized that perceived ease of use is crucial in predicting technology-based self-services (Heijden, 2000). Perceived ease of use was the degree to which comprehending, studying, and operating a technology would be effortless (Kim et al., 2009). Okasha (2019) confirmed that PEOU is the extent of consumers' confidence that would help them to shop online with less effort. Consumers would prefer to use the internet to buy goods if they can easily control the way of online shopping and do not need additional skills.

Usakli (2010) suggests that it contributes to their sense of usefulness if customers think online shopping is easy for them to use. Tong (2010) empirically demonstrated that the premise of perceived usefulness is ease of use, which indirectly affects consumers' online shopping intentions through usefulness. Aref and Okasha (2020) thought that PU positively impacts the intent to shop online, such as encouraging online shoppers to increase their views and the possibility of shopping. Davis (1989) also mentioned that perceived ease of use helps explain differences in perceived usefulness. In e-commerce and online shopping, perceived ease of use is important in determining whether individuals will engage in online shopping activities. Online shopping platforms perceived as easy to use and navigate are more likely to attract and retain customers.

H1: Perceived ease of use has a significant effect on attitude.
H4: Perceived ease of use has a significant effect on perceived usefulness.

2.2 Perceived Usefulness

Perceived usefulness was established as the consumer sense using the internet to raise the outcomes of the shopping experience (Aref & Okasha, 2020). If users perceive a shopping platform as useful, they are more likely to use it and continue using it over time. Conversely, if users perceive a shopping platform as not useful, they are less likely to use it or may abandon it after an initial trial period.

Usakli (2010) suggested that perceived usefulness is the major factor significantly influencing an individual's voluntary or mandatory adoption of it. Davis (1989) identified perceived ease of use as a fundamental determinant of acceptance of information systems. They argued that the PU refers to work effectiveness, productivity, and the relative importance of the system to an individual's work.

Existing research methods based on TAM also suggested that PU positively affects the intent to shop online (Usakli, 2010). Ruyter et al. (2004) confirmed that PU is consumers' viewpoint that using the online shopping system can raise the result of their purchasing experience. PU explained over 50% of customer differences in online shopping intentions (Usakli, 2010). Aref and Okasha (2020) thought that the PEOU positively impacts the intent to shop online, such as encouraging online shoppers to increase their views and the possibility of shopping.

Thus, designers and developers need to consider the perceived usefulness of their platform during the design process and evaluate it during usability testing and user

research to ensure that it meets the needs and expectations of its intended users.

H2: Perceived usefulness has a significant effect on attitude.

2.3 Trust

Trust is the degree to which people trust others based on their mercy, ability, and honesty (Chetioui et al., 2020). Trust is necessary for the intention of consumers to shop online to be positively affected by identity theft and online misunderstanding (Choi, 2012).

Raman (2019) showed that trust is the foundation and the important determinant of the success of online shopping. Trust has also been considered significant in forecasting consumers' intentions (Chetioui et al., 2020). Chen and Chou (2012) have found strong evidence for a significant relationship between trust and purchase loyalty. Lack of trust is a major factor preventing people from shopping online because consumers cannot confirm whether the website information is reliable (Ahmed & Akhlaq, 2014).

Attitude can influence trust, but trust is typically based on specific behaviors and experiences. For example, someone may have a negative attitude towards a particular brand or product, but if they have had positive experiences with that brand or product, they may still trust it and continue to use it. On the other hand, someone may have a positive attitude towards a person or organization, but if they have had negative experiences with them, they may not trust them and may be hesitant to use them.

H3: Trust has a significant effect on attitude.

2.4 Attitude

In marketing, attitude refers to a person's overall evaluation or feeling toward a particular object, person, or situation. Attitudes can be positive, negative, or neutral, and they can influence an individual's behavior and decision-making. One of the most popular definitions of attitudes is a tendency to make consistently favorable or unfavorable ways for a given object (Brookfield, 2005). Hsu et al. (2011) thought attitude represents people's active emotions about online shopping. It is regarded as the people's approval or disapproval (Raman, 2019). Attitude is composed of personal conviction regarding the cognitive consequences of acting (Chetioui et al., 2020).

Attitudes are often formed through personal beliefs, emotions, and experiences. Various factors, including social norms, culture, stereotypes, and media messages, can influence them. Attitudes can also be modified through persuasion, education, and new experiences or information exposure. Fishbein and Ajzen (1975) mentioned that one's attitude towards behavior includes a person's belief that behavior causes a particular result and a person's assessment of that outcome. Raman (2019) believed this attitude also determines whether the behavior is good or bad and whether a person wants to show such behavior. Hsu et al. (2014) found that attitudes and online shopping intentions were influenced by perceived ease of use, perceived usefulness, and trust in online shopping. This means that online shoppers' attitude towards a product or service is mainly influenced by perceived trust (Heijden, 2000). Understanding consumer attitudes is important for developing effective advertising and promotional campaigns in marketing. By understanding the attitudes and beliefs of their target audience, marketers can tailor their messages to be more persuasive and effective.

H5: Attitude has a significant effect on Online Shopping Intention.

2.5 Subjective Norm

Subjective norm refers to people's viewpoint of what people nearby would think if they show a certain behavior (Aref & Okasha, 2020). Previous empirical studies found that SN was crucial in affecting behavioral intention (Joshi & Rahman, 2015). Several studies have identified subjective norms as a key factor, especially at the beginning stages of innovation realization when consumer expertise is limited (Schepers & Wetaels, 2007). The behavioral intention model demonstrated the relationship between the SN and the intention to purchase (Ajzen & Fishbein, 1980). While some critics have found the direct impacts of SN on behavioral intentions, others have reported that they indirectly influence behavioral intentions over PU and PEOU (Lu et al., 2005). The researchers have found an important positive relationship between SN and intention in grocery store or non-grocery store scenarios (Hansen, 2006). Usakli (2010) thought that because online shopping provides customers privacy, comfort, information retrieval, and buying confidence, cutting down the belief in other people and pressure to obey social norms, the normative influence cannot be used as a direct factor of online shopping intention. Subjective norm tries to capsulize consumers' viewpoint of the impact of crucial referents such as family and friends. It is in connection with intention online because consumers will remember how they feel at the event after executing an activity (Raman, 2019). Therefore, understanding and addressing subjective norms is important in encouraging individuals to engage in consumer behavior actively.

H6: Subjective norm has a significant effect on online shopping intention.

2.6 Perceived Risk

Perceived risk is important in decision-making and consumer behavior, particularly in high-involvement

purchases or risky behaviors. Various factors, such as the perceived severity of the potential consequences, the level of control over the situation, the familiarity with the product or behavior, and the perceived benefits of the action, can influence it.

Perceived risk was "a combination of indeterminacy and solemnness of result concerned" (Thakur & Sriwastava, 2014). Perceived risk is the perceived probability of loss or victimization (Akroush & Al-Debei, 2015). Perceived risk refers to a "trustor's belief concerning the likelihood of gains and losses without considering the relationships with particular trustees" (Hsu et al., 2013). Thakur and Sriwastava (2014) regarded perceived risk as the expectation of loss related to a purchase that can hinder purchasing behavior. Fagih (2013) believed that perceived risk reflects the impact of consumers' favorable reception of security and privacy issues in online shopping behavior. Aref and Okasha (2020) suggested that perceived risk has a negative impact on the willingness to shop online. Some studies have also noted a negative relationship between perceived risk and attitudes (Hsu et al., 2013). Eggert (2006) believed that the perceived risk of privacy violations prevents consumers from shopping online. Ke and Wu (2015) believed that perceived risk hinders consumer shopping intentions due to poor quality, post-sales service, and invasion of privacy. Empirical studies have consistently confirmed these claims by finding that perceived risks affect consumers' willingness to buy online (Shih & Fang, 2006). Ghose and Bhatnagar (2004) argued that the perceived risk of not receiving the right product they want to buy would negatively impact shoppers' online shopping intention. Perceived risk is important for online shopping because customers will evaluate online products and services consciously and unconsciously (Forsythe, 2003).

Generally, the higher the perceived risk, the more cautious or hesitant someone may be in their decision-making or behavior. On the other hand, if the perceived risk is low, someone may be more willing to take a chance or make a decision without much hesitation. External factors, such as marketing messages or social norms, can influence perceived risk. For example, if a product is marketed as safe and reliable, consumers may perceive less risk associated with using it. Therefore, understanding and addressing perceived risk is important in designing and marketing products and services and in shaping consumer behavior and decision-making.

H7: Perceived risk has a significant effect on online shopping intention.

2.7 Online Shopping Intention

Online shopping intention refers to an individual's willingness or inclination to engage in online shopping activities. Various factors influence it, including personal attitudes, perceived usefulness and ease of use of online shopping, trust in online retailers, and subjective norms. Understanding online shopping intention is important for businesses and marketers as it helps them design effective online marketing strategies and improve customer satisfaction. Chiu et al. (2009) believed that online shopping intention is the subjective probability that a person will shop online again. Fu et al. (2020) concluded that online shopping intention is the cheerful compliance to accept recommendations from others before making decisions. Thakur and Kaur (2019) believe that online shopping intention is the basis for making customers willing to shop online.

Past literature has shown that attitudes affect customers' willingness to buy things from the same platform (Wang et al., 2018). Over the years, researchers realized that attitudes were positively correlated with the willingness to shop online (Khare & Rakesh, 2011). In TRA and TPB theory, attitude is important in predicting behavioral intention (Ajzen & Fishbein, 1980). As quoted in the TRA, attitudes lead to behavioral intention and, in turn, to actual behavior (Ajzen & Fishbein, 1980). Han et al. (2018) found that attitudes and SN positively influence the intention of cross-border online shopping. To stimulate consumer shopping intention and translate it into real shopping behavior is a crucial area for online shoppers to study (Arora & Aggarwal, 2018). They should strive to improve those elements, which significantly help form positive shopping intentions.

3. Research Methods and Materials

3.1 Research Framework

The conceptual framework of this paper is derived from previous research frameworks. Three theoretical models are utilized in this paper. Bigné-Alcañiz et al. (2008) suggested that the perceived ease of use (PEOU) as a shopping-oriented construct has a critical positive impact on the intermediary variable set, which consists of future shopping intention and the perceived usefulness (PU) as a shopping channel. Secondly, Raman (2019) found that factors such as attitude, trust, and subjective norms influence consumers' willingness to shop online, and this study showed that subjective norms have a stronger influence on intentions than attitudes. The third framework was proposed by Han and Li (2020), who analyzed the development of the rural online shopping consumer market from a social technology perspective. The results showed that farmers' intention to shop online significantly affects perceived risk, perceived ease of engaging in interpersonal communication (PEEIM), and adoption readiness. The framework of this study is presented in Figure 1.

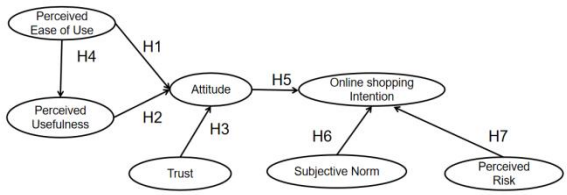

Figure 1: Conceptual Framework

H1: Perceived ease of use has a significant effect on attitude.
H2: Perceived usefulness has a significant effect on attitude.
H3: Trust has a significant effect on attitude.
H4: Perceived ease of use has a significant effect on perceived usefulness.
H5: Attitude has a significant effect on online shopping intention.
H6: Subjective norm has a significant effect on online shopping intention.
H7: Perceived risk has a significant effect on online shopping intention.

3.2 Research Methodology

This study used descriptive analysis to explore the factors influencing the attitudes and intentions of middle-aged Chinese consumers in Chengdu towards online shopping platforms. The researchers collected information in this study by distributing questionnaires to sample units. Experts first evaluated the distributed questionnaires using the Item-Objective Congruence (IOC). Then, 30 questionnaires were distributed to eligible respondents who met the characteristics of the sample units. The survey questionnaire was divided into three steps. First, screening questions were used to determine the characteristics of the respondents. Second, a 5-point Likert scale was used to measure the five proposed variables, ranging from "strongly disagree" (1 point) to "strongly agree" (5 points), to analyze all seven hypotheses. Finally, demographic information on gender and age was collected through a survey.

After testing the validity and reliability of the questionnaire, it was distributed to the target audience, and 500 acceptable responses were obtained. The researchers used SPSS AMOS 26.0 software to analyze the collected data. Then, confirmatory factor analysis (CFA) and confirmatory analysis were used to test the accuracy of convergence. The overall fit of the model was calculated by examining the given data to ensure the validity and reliability of the model. Finally, the suitability of all hypotheses and models was tested using structural equation modeling.

3.3 Population and Sample Size

The target population of this study is middle-aged consumers aged 40-50 who use the top four online shopping live broadcasting platforms in Chengdu, China. The survey was conducted on 563 respondents, and after data screening, 500 questionnaires were used in this study.

3.4 Sampling Technique

This study used a multi-stage sampling method divided into three steps. The first step is purposive sampling, which includes selecting individuals to participate in the study (Hibbert, 2012). The respondents must have experience using the top four online shopping platforms. Then, stratified sampling was conducted. This study surveyed the population aged 40-50 in Chengdu. To allocate the 500 samples to those who use the top four live online shopping platforms, the researchers collected the number of users aged 40-50 who use the top four live online shopping platforms in Chengdu. After calculation, the 500 samples in Chengdu aged 40-50 were allocated to Taobao, Douyin, Kuaishou, and JD.com, with 88, 202, 65, and 145 samples, as shown in Table 1.

Table 1: Sample Units and Sample Size

Platforms	Population Size	Proportional Sample Size
Taobao	307	88
Douyin	700	202
Kuaishou	225	65
Jingdong	503	145

Source: Constructed by author

4. Results and Discussion

4.1 Demographic Information

The demographic profile targeted 500 participants; the results are presented in Table 2. 25% of the respondents were male, and 75% were female. The majority income ranged between 150000-300000 yuan, representing 40.2%, followed by 80000-150000 yuan (30.4%), 30000-80000 yuan (18.4%), below 30000 yuan (2.4%), and above 30000 yuan (8.6%). In terms of respondents' level of education, 47% had a bachelor's degree, and 59% had a master's degree, which was lower than the 32.4% with a bachelor's degree and the 8.6% with a doctoral degree.

Table 2: Demographic Profile

Demographic and General Data (N=500)		Frequency	Percentage
Gender	Male	125	25%
	Female	375	75%
Level of Annual Income (Ten thousand yuan)	<3	12	2.4%
	3-8	92	18.4%
	8-15	152	30.4%
	15-30	201	40.2%
	>30	43	8.6%
Education	Bachelor's degree	295	59%
	Master's degree	162	32.4%
	Doctor's Degree	43	8.6%

Source: Constructed by author

4.2 Confirmatory Factor Analysis (CFA)

This study used confirmatory factor analysis (CFA) for analysis. Generally, the absolute value of factor loading should be greater than or equal to 0.30, and the p-value should be less than 0.05 (Hair et al., 2006). Cronbach's Alpha method was used to test the reliability of the survey questionnaire, and the study showed that the alpha coefficient values of all groups were greater than 0.7, indicating that all structures were reliable. We extracted the square root of the average variance extracted (AVE) to ensure that all correlations were greater than the corresponding values. The correlations are shown in Table 3.

Table 3: Confirmatory Factor Analysis Result, Composite Reliability (CR) and Average Variance Extracted (AVE)

Variables	Source of Questionnaire (Measurement Indicator)	No. of Item	Cronbach's Alpha	Factors Loading	CR	AVE
Online Shopping Intention (OSI)	Raman (2019)	3	0.738	0.741 –0.789	0.814	0.594
Attitude (ATT)	Raman (2019).	3	0.751	0.666 – 0.748	0.752	0.504
Trust (TR)	Bigné-Alcañiz et al. (2008).	3	0.755	0.680 – 0.780	0.783	0.547
Perceived Risk (PR)	Bigné-Alcañiz et al. (2008).	5	0.850	0.699 – 0.788	0.851	0.535
Subjective Norm (SN)	Raman (2019).	4	0.818	0.692 – 0.768	0.822	0.536
Perceived Ease of Use (PEOU)	Han and Li (2020).	5	0.813	0.663 – 0.732	0.815	0.469
Perceived Usefulness (PU)	Raman (2019).	5	0.863	0.717 – 0.789	0.865	0.563

The cutoff point for average variance extracted (AVE) should be greater than 0.5 (Fornell & Larcker, 1981), as shown in Table 4.

Table 4: Goodness of Fit for Measurement Model

Fit Index	Acceptable Criteria	Statistical Values
CMIN/df	< 5.00 (Al-Mamary & Shamsuddin, 2015; Awang, 2012)	2.012
GFI	≥ 0.85 (Sica & Ghisi, 2007)	0.918
AGFI	≥ 0.80 (Sica & Ghisi, 2007)	0.899
NFI	≥ 0.80 (Wu & Wang, 2006)	0.889
CFI	≥ 0.80 (Bentler, 1990)	0.940
TLI	≥ 0.80 (Sharma et al., 2005)	0.932
RMSEA	< 0.08 (Pedroso et al., 2016)	0.045
Model Summary		**In harmony with empirical data**

Remark: 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 = normalized fit index, CFI = comparative fit index, TLI = Tucker Lewis index and RMSEA = root mean square error of approximation

Additionally, in the CFA analysis, various fit indices, including GFI, AGFI, NFI, CFI, TLI, and RMSEA, were used to evaluate the model's goodness of fit. The study's convergent and discriminant validity were greater than the acceptable values, as shown in Table 5. This result ensured the validity of both convergent and discriminant validity.

Table 5: Discriminant Validity

	OSI	ATT	TR	PR	SN	PEOU	PU
OSI	**0.774**						
ATT	0.428	**0.701**					
TR	0.324	0.340	**0.785**				
PR	0.058	-0.036	0.024	**0.734**			
SN	0.350	0.361	0.315	-0.003	**0.723**		
PEOU	0.346	0.373	0.360	-0.009	0.402	**0.698**	
PU	0.316	0.348	0.347	0.041	0.348	0.400	**0.757**

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

Source: Created by the author.

4.3 Structural Equation Model (SEM)

Structural equation modeling (SEM) is a multivariate statistical analysis technique based on the covariance matrix of the variables. Structural equation modeling uses factor and path analysis to test the relationship between dominant and latent variables (Kline, 1998). The goodness-of-fit indices used to measure the fit of the Structural Equation Model (SEM) are shown in Table 6. The model fit measurement should not exceed 3 for the Chi-square/degrees of freedom (CMIN/DF) ratio, and the goodness-of-fit indices (GFI) and (CFI) should be higher than 0.8. By conducting calculations through SEM and adjusting the model using SPSS AMOS 26, the results of the fit indices can be divided into different

categories: CMIN/DF = 2.686, GFI = 0.888, AGFI = 0.867, NFI = 0.846, CFI = 0.897, TLI = 0.886, RMSEA = 0.058, as shown in table 6.

Table 6: Goodness of Fit for Structural Model

Index	Acceptable	Statistical Values
CMIN/df	< 5.00 (Al-Mamary & Shamsuddin, 2015; Awang, 2012)	2.686
GFI	≥ 0.85 (Sica & Ghisi, 2007)	0.888
AGFI	≥ 0.80 (Sica & Ghisi, 2007)	0.867
NFI	≥ 0.80 (Wu & Wang, 2006)	0.846
CFI	≥ 0.80 (Bentler, 1990)	0.897
TLI	≥ 0.80 (Sharma et al., 2005)	0.886
RMSEA	< 0.08 (Pedroso et al., 2016)	0.058
Model Summary		**In harmony with Empirical data**

Remark: 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 = normalized fit index, CFI = comparative fit index, TLI = Tucker Lewis index and RMSEA = root mean square error of approximation

4.4 Research Hypothesis Testing Result

The significance of each variable in the research model is calculated through the regression weights of each variable and the R2 variance. The results in Table 7 indicated that six hypotheses are supported and meet the significance requirement of $p<0.05$. The results show that the impact of ATT on OSI is the greatest, with a result of 0.498, followed by SN, with a results of 0.211, respectively. PEOU has a relatively large impact on ATT, with a result of 0.318, followed by TR and PU, with results of 0.276 and 0.226, respectively. PEOU also has a significant impact on PU, with a result of 0.468, as shown in Table 7.

Table 7: Hypothesis Results of the Structural Equation Modeling

Hypothesis	(β)	t-Value	Result
H1: PEOU →ATT	0.318	4.870*	Supported
H2: PU→ATT	0.226	3.712*	Supported
H3: TR→ATT	0.276	4.906*	Supported
H4: PEOU→PU	0.468	8.131*	Supported
H5: ATT→OSI	0.498	7.877*	Supported
H6: SN→OSI	0.211	4.107*	Supported
H7: PR→OSI	0.090	1.837	Not Supported

Note: * $p<0.05$
Source: Created by the author

H1: The standardized coefficient value of H1 was 0.318, which indicates that PEOU is one of the main influencing factors of PU. Research has shown that perceived ease of use is one of the key factors in predicting consumers' attitudes toward technology-based self-service (Kim et al., 2009). Akroush and Al-Debei (2015) argued that consumers' attitudes positively impact the intent to shop online. Attitude relates to the sense of the advantageousness of actual behavior, possibly forecasting whether a consumer will execute an actual behavior (Ajzen & Fishbein, 1980).

H2: Previous research suggests that PU has a crucial effect on customers' shopping intentions (Cyr et al., 2006). Mohamed et al. (2014) suggested that PU and online shopping intention have a positive relationship. This is consistent with the results of studies based on the TAM method, suggesting that PU positively impacts the intention to shop online (Hakan, 2006). Consumers believe that using the online shopping system can improve their shopping experience, and the practicality of the shopping software can help them shop.

H3: H3 illustrates the importance of TR to ATT, with standardized coefficient values of 0.276. Consumers' trust in the online shopping platform is a prerequisite for choosing the shopping platform. Lin and Lu (2011) revealed, cyberspace's increasing uncertainty and vitality make online trust a key determinant of e-shopping attitudes. Trust is the foundation and an important determinant of online shopping success, and it is also usually considered an important factor in predicting consumer willingness.

H4: The standardized coefficient value, which is 0.468 for H4, showed a significant effect of PEOU on PU. Perceived ease of use helped achieve valuable results. As the number of online users increases, the perceived ease of use is important in online applications (Mohamed et al., 2014). Hakan (2006) suggested, it contributes to their sense of usefulness if customers think online shopping is easy for them to use. If consumers find the platform easy to use, they will browse for more information, increasing the likelihood of buying goods.

H5: The results for H5 with standardized coefficient values of 0.498 reflect ATT's significant effects on OSI. Chiu et al. (2009) suggested that consumers' attitudes toward online shopping positively impact their intention to search online and buy goods. Like any other goods buying, shopping online relies on consumers' degree of satisfaction and elements that raise consumers' continuance intentions (Chen & Chou, 2012).

H6: The results for H5 with standardized coefficient values of 0.211 reflects that the subjective norm is an important factor in influencing behavioral intention. Subjective norms mainly refer to the view of consumers' influence on key references such as family and friends, which is related to the intention of the Internet because consumers will remember their feelings after performing an activity, especially the middle-aged generation of consumers, who are more willing to refer to others' evaluation.

H7: A standardized coefficient value of 0.090 indicates that perceived risk is less correlated with willingness to shop online, probably because attitude and subjective norm are more important than perceived risk. For example, some

studies did not find a significant relationship between perceived risk and online shopping intention, which may be because other factors (such as trust, convenience, etc.) have a greater influence on consumers' willingness to shop, making the influence of perceived risk relatively small.

5. Conclusion and Recommendation

5.1 Conclusion and Discussion

This study examined the factors influencing middle-aged consumers' attitudes and intentions toward using live-streaming platforms. The conceptual framework of this study included three theoretical frameworks and three core theories. The conceptual framework comprised seven variables: online shopping intention, attitude, perceived usefulness, perceived ease of use, trust, perceived risk, and subjective norm. Based on this conceptual framework, the researchers proposed seven hypotheses to validate the study's content. A total of 30 questionnaires were distributed, and the collected data underwent IOC (Index of Congruence) and Cronbach's coefficient tests to ensure reliability and validity. Subsequently, a non-probability sampling method was used to collect a sample of 500 consumers aged between 40 and 50 from Chengdu, China. Confirmatory factor analysis was then employed to assess the convergence and discriminant validity of the model. The structural equation modeling was applied to fit the model, leading to the following conclusions.

Firstly, attitude and subjective norms significantly impact online shopping intention. This is consistent with the viewpoint proposed by Thakur and Kaur (2019) that consumers' attitude positively influences their willingness to shop online-the more positive the user's attitude, the higher their shopping intention. Hansen (2006) found a positive relationship between subjective norms and online shopping intention in both online and offline shopping contexts. The online shopping environment provides customers with privacy, comfort, information retrieval, and purchase confidence, reducing the pressure of others' beliefs and compliance with social norms, making the influence of norms less significant.

Furthermore, perceived risk minimizes online shopping intention, indicating that it is given less importance than other factors. This may be because, with the improvement of legal systems and the enhancement of return and exchange policies by shopping platforms, consumers feel more secure during the shopping process, shifting their focus towards the shopping experience. These findings have important implications for developers of online live shopping platforms. They can help these platforms analyze the needs of consumers of different ages and develop targeted measures that cater to their needs. For example, they can design simpler shopping interfaces for middle-aged and elderly consumers and carry out positive and effective marketing campaigns to enhance consumers' shopping intentions.

Secondly, perceived ease of use, perceived usefulness, and trust significantly impact attitude, with perceived ease of use and trust having a greater influence, followed by perceived usefulness. This indicates that for middle-aged consumers, a user-friendly platform that offers a simple shopping experience is more likely to enhance their shopping experience and increase their willingness to continue using it. Compared to perceived usefulness, trust in the platform is more important to them.

The third finding is that perceived ease of use has a significant effect on perceived usefulness. Previous studies have found that perceived usefulness is related to perceived ease of use to determine consumer attitudes (Wen, 2009). In nature, perceived ease of use is a cost structure, and perceived usefulness is a structure of interest.

For middle-aged consumers, if an online shopping platform is easier to use, they are more likely to use it. Additionally, the more trust consumers have in an online shopping platform, the more willing they are to use it. On the contrary, if consumers find a platform difficult to use or lose trust in it, they may abandon it, even if it offers significant practical value and benefits.

Therefore, to increase the usage and attitude of middle-aged consumers towards the platform, designers need to design more user-friendly platforms based on consumer needs. They should enhance the platform's ease of use, protect consumer rights from various aspects, and increase consumer trust. These efforts will attract more consumers to use the platform.

5.2 Recommendation

The researchers proposed a conceptual framework based on this study's three core theories: TAM (Technology Acceptance Model), TRA (Theory of Reasoned Action), and socio-technical systems. Firstly, socio-technical systems were not fully confirmed in this study, as only two of the three structures were found to be related to consumers' behavioral intentions. This could be due to the sample used in this study, which focused on middle-aged consumers (40-50 years old) who may need to become more familiar with the emerging mode of live shopping, leading to a lower emphasis on risk.

Secondly, the relationships between PEOU (Perceived Ease of Use), PU (Perceived Usefulness), TR (Trust), and ATT (Attitude) were determined based on the TAM model.

The results of this study showed that consumers' PEOU, PU, and TR significantly influence their attitudes, which has been confirmed by previous research.

Lastly, the TRA model mentioned the significant impact of attitude (ATT) and subjective norm (SN) on intention. This study has also confirmed this, indicating that trust in live-streaming platforms has a greater influence on middle-aged consumers' behavioral intentions and attitudes toward the platforms.

In terms of practical significance, the study's findings indicate that consumers' attitudes and subjective norms significantly impact their behavioral intentions, suggesting that middle-aged consumers are more likely to rely on others' opinions when using live shopping platforms. Additionally, PEOU, PU, and TR influence consumers' attitudes, indicating that the practicality and usability of the platform both determine consumers' attitudes. Therefore, platform developers should make improvements based on the factors influencing middle-aged consumers' attitudes and purchase intentions to enhance competitiveness. In conclusion, platform developers should strengthen management, prioritize consumer-centric approaches, and genuinely focus on meeting consumer needs, thereby improving the platform from the consumer's perspective.

5.3 Limitation and Further Study

Firstly, this study focuses on middle-aged consumers who use the top four e-commerce live-streaming platforms in Chengdu, China. Due to regional variations, income disparities, and differences in education levels among middle-aged consumers, different samples may yield different results. Therefore, future research must compare the differences in influential factors among different regions, income levels, and educational backgrounds to address this study's limitations. Additionally, as middle-aged consumers age, the factors influencing their attitudes and behaviors may change. Therefore, the relevant variables in this study may need continuous refinement in future applications.

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