

# Research on Consumers' WeChat Shopping Behavior Based on TAM Model

Minghui Ma, Huajian Niu, Pengbin Gao <sup>†</sup>, Zhou Zhang

School of Economics and Management, Harbin Institute of Technology at Weihai, Shandong Weihai 264209, China

<sup>†</sup>Email: gaopengbinhit@163.com

## Abstract

In the era when online shopping economy and online economy increasingly dominate social consumption, WeChat shopping has increasingly become a way that everyone accepts and is willing to try. This study applied Technology Acceptance Model commonly used in the field of information technology and rational behavior theory to the field of consumer behavior, and used the perceived ease of use and perceived usefulness in the technology acceptance model to explain consumers' willingness to use WeChat shopping. At the same time, the moderating effect of consumer innovativeness was also studied. The empirical results show that the main effect of perceived ease of use and usefulness is significant, and the moderating effect of consumer innovativeness is not significant. Based on the research results, the study puts forward the corresponding countermeasures and suggestions.

**Keywords:** WeChat; Shopping Behavior; TAM Model; Consumer Innovativeness

## 1 INTRODUCTION

In recent years, affected by the epidemic and economic crisis, the real economy has been impacted, but with the rapid development of e-commerce, more and more consumers choose online shopping. With the formation technology and growth of the online shopping market, WeChat shopping, as a kind of online shopping mode in the era of network economy, relies on WeChat, the most popular social information platform at present, and connects products with consumers through circle of friends, WeChat single person chat and group chat. Users subscribe to the information required, and businesses can provide users' information through friends' circles or official account, and promote their products to achieve peer to peer marketing. In 2020, the emergence of COVID-19 hindered the free flow of consumers because of the barrier of space. The recession of the real economy hindered the promotion of products under the line. At that time, WeChat marketing and micro commerce shopping as an important means of online promotion, the value was more prominent. In recent years, shopping on WeChat merchant platform has increasingly become the pillar force of e-commerce procurement. According to the latest statistics of the Ministry of Industry and Information Technology, in the first half of 2020 alone, the turnover of commodities purchased by WeChat merchants reached 5.4 trillion yuan. Therefore, this study aims to analyze consumers' WeChat use behavior through Technology Adoption Model and the introduction of consumers' personality, which has certain theoretical and practical significance.

## 2 LITERATURE REVIEW

### 2.1 Consumer Online Shopping Behavior

Previous research have studied consumers' online shopping behavior and its influencing factors. Soyeon [1] believed that the difference in consumers' perception of online platform food is caused by the difference in service, convenience and online retail market price. Wong [2] used TAM model in investigating the influencing factors of consumer adoption of online payment and found that the psychological security and trust index of customers are positively related to the degree of adoption. Ye [3] used empirical analysis to investigate WeChat circle of friends

and found that appropriate WeChat advertising pricing greatly promoted the role of economies of scale in WeChat platform firms. Based on SOR model analysis, Liang [4] concluded that purchase intention is significantly positively affected by perceived diagnostic differences and perceived pleasure. The social interaction in the WeChat circle of friends has a great impact on consumers' purchase attitude, which is the conclusion drawn by Diao [5] through the questionnaire. By creating a user's online shopping demand model, Wang [6] successfully subdivided the online shopping demand into the following three dimensions: demand content, demand preference and demand state, as well as an external factor: demand situation. Feng [7] believed that customer innovation and customer product knowledge have an impact on customers' personal innovation behavior.

## **2.2 TAM Model**

Many scholars have also conducted theoretical and empirical research on the application of TAM. From the four dimensions of research theme, analysis unit, research method and theoretical application, Zhang [8] reviewed 593 papers related to technology adoption and implementation published in CSSCI, a professional journal from 1999 to 2018. He found that the research on technology acceptance model is relatively concentrated, most of which are based on "individual" questionnaires, and the research topics evolve with the development of information systems. Gao [9] reviewed the research on international information technology acceptance model, including TAM, TAM2, UTAUT and TAM3 are systematically and comprehensively analyzed, and the research object, background investigation, existing problems, conclusion induction and quantitative calculation methods of model formulation are compared and studied. Kalayou [10] conducted regression analysis based on technology acceptance model. It is considered that the technology acceptance model (TAM) can be applied to evaluate the behavior intention of health professionals to adopt e-health system in the environment of limited resources. Yin [11] established a theoretical model of the influencing factors of consumers' purchase intention of new energy vehicles based on the technology acceptance model (TAM) and verified it. Li [12] believe that based on the technology acceptance model, through the empirical analysis of the questionnaire survey data, it is found that the availability of technical services has a significant positive impact on the attitude tendency and actual behavior of technology licensing, and the technology absorption capacity and trust of enterprises have a significant positive impact on the availability of technical services.

This study uses the simplified TAM to study customers' WeChat shopping behavior (regardless of external variables), that is, perceived usefulness, the impact of perceived ease of use on the willingness to use WeChat merchants to shop, and whether there is an intermediary effect in the mechanism of ease of use affecting WeChat merchants' willingness to shop. At the same time, we hope to study whether consumers' personality characteristics, such as innovation characteristics, have a moderating effect on the use intention of WeChat shopping.

## **3 HYPOTHESIS**

### **3.1 Perceived Usefulness, Perceived Ease Use and Use Intention**

In TAM, perceived usefulness is whether consumers believe that WeChat shopping will significantly improve shopping efficiency and shopping quality. As the basic variable of technology acceptance model, it continuously determines consumers' use intention.

Perceived ease of use can be defined as whether WeChat shopping is simple, easy to operate, fast and easy in the minds of consumers. In TAM, perceived ease of use can not only directly affect the behavior intention, but also introduce the behavior intention acting on consumers' shopping by affecting perceived usefulness [13].

H1: Perceived usefulness has a significant positive impact on consumers' willingness to use WeChat shopping

H2: Perceived ease of use has a significant impact on the perceived usefulness of WeChat shopping

H3: Perceived ease of use has a significant impact on consumers' willingness to use WeChat shopping

### **3.2 The Moderating Role of Consumer Innovativeness**

A large number of studies on online shopping show that consumer innovativeness is an important moderating factor for consumer adoption behavior [14]. Consumers with innovative and cheerful characteristics are willing to try to

solve problems with fashionable and new means, while WeChat shopping is more popular in online shopping in recent years, whether it is more traditional online shopping or more traditional offline shopping, there are places in line with consumers' personality characteristics.

H4: Consumer innovativeness play a moderating role in the relationship between perceived usefulness and WeChat shopping usage intention

H5: Consumer innovativeness play a moderating role in the relationship between perceived ease of use and WeChat shopping usage intention

## **4 RESEARCH DESIGN**

### ***4.1 Data Collection***

Since anyone with the shopping ability and willingness of WeChat platform can be regarded as potential consumers, this questionnaire takes WeChat platform as the carrier. All people participating in WeChat platform have the possibility of contacting WeChat merchants and have the purchasing ability, so they can be regarded as all potential consumers. We need to ask key questions: Whether they are adults, whether there is WeChat promotion around them, and whether they have ever conducted online shopping. We believe that users whose answers are "yes", that is, the respondents who meet these three characteristics can be regarded as potential consumers of WeChat shopping, that is, the valid questionnaire in this questionnaire. As for some questionnaires and any one of these three characteristics, they will be regarded as invalid questionnaires.

A total of 110 questionnaires were obtained through WeChat circle of friends, point-to-point WeChat group sending and point-to-point single sending. We eliminated the consumers who did not choose "yes" in the first three questions at the same time, because these users are not potential WeChat shopping consumer groups, so they are not effective samples. A total of 103 valid questionnaires based on personal statements were obtained. We believed that the sample size of 103 is sufficient, so we can analyze and investigate these 103 valid questionnaires.

### ***4.2 Defining Variables***

#### *1) Dependent variable*

The intention to use the first mock exam reflects the individual's measurement of a certain pattern or system, and clearly determines the intention to use. We can make some presumed inference about the next step of the consumer's behavior. In the scale of willingness to use, the following modifications are made to the scale created by vankatesh (1996), involving two options: "I will use WeChat to shop a lot in the future" and "I prefer WeChat shopping to offline shopping".

#### *2) Independent variables*

In the technology acceptance model, perceived usefulness refers to how much improvement users subjectively evaluate their work performance during the use of information system. In this study, it can be defined as the improvement of WeChat shopping model on consumers' online shopping effect and efficiency. According to the scales designed by Davis (1989), the Likert five subscale is used and divided into three items: "WeChat shopping can provide a large number of product types", "WeChat shopping can meet my needs and preferences" and "WeChat shopping can improve the efficiency of my purchase".

Perceived ease of use refers to the degree that users think it is easy to save trouble and reduce trouble when using a system. In this study, it can be defined as that WeChat shopping is easy to master and use. According to the scales designed by Davis (1989), the Likert five subscale is used and divided into three items: "I think WeChat shopping is easier than offline shopping", "I will recommend friends to use the form of WeChat shopping" and "I can master the process of WeChat shopping".

#### *3) Moderating variable*

The previous research had a consumer innovation scale. Similarly, we improved it, which is divided into ten options,

using the Likert five sub-scales, including: “In the field of WeChat shopping, I know the characteristics of many new products and services”, “Compared with my friends, I was the first to know the news of WeChat shopping”, “There is a new WeChat shopping push in my circle of friends. I will often pay attention to see what kind of products it is”, “I like to see the product information in the push or circle of friends”, “I like and know whether the manufacturer has new promotion means”, “For unknown services and products, I will try to understand its role”, “I will often analyze my online shopping feelings”, “I like to think about the meaning of new product names”, “I like to compare the differences of new products of different brands of the same kind” and “I like to explore the advantages and disadvantages of new promotion methods of WeChat merchants to consumers”.

#### 4) Control variables

In this study, location is control variable studied. If it is included in the regression model, that is, when the demographic characteristics of these questionnaire respondents are analyzed as independent variables, dummy variables need to be processed. Linear regression analysis requires the control variables after virtualization.

## 5 RESULTS ANALYSIS

### 5.1 Reliability and Validity Analysis

Reliability is defined as the reliability of research variables, that is, the consistency of repeated measurements with the same method for the same object. The reliability in SPSS is measured by Cronbach a. The reliability coefficient (Cronbach coefficient) of the research variable is the best above 0.8, and it is acceptable between 0.7-0.8. The coefficients of the four variables are 0.915, 0.853, 0.917 and 0.98 respectively.

Validity analysis is to check whether the intention of the questionnaire designer is understood by the respondents, that is, whether the questionnaire can effectively reflect the original intention of the design. The premise of extracting common factors by factor analysis is that the original items describing each variable should have strong correlation. In this section, KMO and Bartlett test in SPSS are used to analyze the data of the questionnaire. The validity of the questionnaire is only when KMO > 0.5 and Bartlett statistical value is less than 5%. The factor load is the common factor variance, indicating that the degree to which the information extracted by the variable can be expressed by the common factor is greater than 0.7, and the degree of variable interpretation is more than 0.7, indicating that the variable measurement index is reasonable and the questionnaire structure validity is good. The validity analysis results of each variable in this study are shown in Table 1.

TABLE 1 VALIDITY ANALYSIS OF RESEARCH VARIABLES

Variable	Items	Factor load	Degree of variable interpretation	KMO	Bartlett test		
					Chi square	freedom	P-value
Perceived usefulness	Q4	0.920	0.8588	0.759	217.279	3	.000
	Q5	0.925					
	Q6	0.935					
Perceived ease of use	Q10	0.905	0.7804	0.726	139.862	3	.000
	Q21	0.879					
	Q16	0.866					
The intention to use	Q13	0.961	0.9234	0.500	126.914	2	.000
	Q7	0.961					
	Q8	0.693					
	Q9	0.747					
	Q11	0.686					
Consumer innovativeness	Q12	0.734	0.7258	0.937	968.762	45	.000
	Q14	0.782					
	Q15	0.717					
	Q17	0.728					
	Q18	0.766					
	Q19	0.648					
	Q20	0.757					

It can be seen from Table 1 that the validity of the variables in the questionnaire are good. The factor analysis of the four research variables shows that the questionnaire effect is good and can be analyzed in the next step.

## 5.2 Correlation Analysis

Before studying whether perceived ease of use, perceived usefulness and use intention have a significant impact on each other, it is necessary to determine whether the three are correlated, that is, correlation analysis should be carried out before regression analysis. Therefore, on the premise that the control variable is consumer region, we make a partial correlation analysis of perceived ease of use, perceived usefulness and behavior intention. The results are shown in Table 2.

TABLE 2 CORRELATION ANALYSIS

Variables	Perceived usefulness	Perceived ease of use	The intention to use
Perceived usefulness	1.000		
Perceived ease of use	0.782***	1.000	
The intention to use	0.780***	0.702***	1.000

Note: \*\*\* p < 0.001

The data in Table 2 show that the correlation of the three variables is significant at the level of 0.01 (two tailed), that is, there is an obvious positive correlation between two, and the correlation passes the test.

## 5.3 Regression Analysis

### 1) Mediation Effect Analysis

The regression analysis of this study is divided into three parts. The first part is whether perceived usefulness is significantly positively or negatively affected by perceived ease of use. The second part is whether the use intention is significantly positively or negatively affected by perceived ease of use. And the third part is whether the use intention is significantly positively or negatively affected by perceived usefulness.

TABLE 3 RESULTS OF THE IMPACT OF PERCEIVED EASE OF USE ON PERCEIVED USEFULNESS

Model	B	T	P
1			
Constant		2.678	0.009
@Shandong	-0.086	-1.045	0.298
@Shanxi	-0.036	-0.457	0.649
Perceived ease of use	0.784	12.482	0.000

The relationship between perceived ease of use and usefulness was analyzed by SPSS. As shown in Table 3, the results show that perceived usefulness has a significant positive impact on use intention. Suppose H1 holds.

We set perceived ease of use as the independent variable and willingness to use as the dependent variable to obtain regression model 1, and then put the second independent variable perceived usefulness to obtain regression model 2. It can be seen that the fitting degree R<sup>2</sup> increases from 0.631 to 0.648, and the fitting degree becomes higher. The results are shown in Table 4. According to the data analysis in Table 4, perceived ease of use has a significant positive impact on use intention. Suppose H2 holds.

TABLE 4 REGRESSION ANALYSIS RESULTS OF PERCEIVED USEFULNESS, PERCEIVED EASE OF USE AND USE INTENTION

Model	B	T	P
1			
Constant		0.257	0.798
@Shandong	0.017	0.200	0.846
@Shanxi	-0.008	-0.093	0.926
Perceived ease of use	0.802	12.426	0.000
2			
Constant		-0.373	0.710
@Shandong	0.038	0.455	0.650
@Shanxi	0.001	0.015	0.988
Perceived ease of use	0.611	6.045	0.000
Perceived usefulness	0.243	2.412	0.018

Perceived usefulness is set as an independent variable and willingness to use is set as a dependent variable. The relationship between perceived usefulness and behavioral intention was analyzed by SPSS. As shown in Table 4, the analysis results show that perceived usefulness has a significant positive impact on use intention. Suppose H3 holds.

At the same time, after adding perceived usefulness to the independent variable, the standardized regression coefficient of perceived ease of use has changed: it has decreased from 0.802 to 0.611, and still has a significant positive impact on behavioral intention, indicating that the perceived usefulness of the second variable plays a partial intermediary role. The decline of regression coefficient confirms some mediating effects.

## 2) Moderating Effect Analysis

The moderating effect analysis must first be made to form a product term. However, in order to prevent multicollinearity after the product term is generated, the data center processing of independent variables and moderating variables should be carried out: calculate the mean value of case data corresponding to four variables, and then subtract its mean value. We centralized perceived ease of use, perceived usefulness and consumer innovativeness, subtract their mean values respectively, and obtain new variables, which are recorded as Z perceived ease of use, Z perceived usefulness and Z consumer innovativeness. To study whether consumer innovativeness have a moderating effect on the impact of perceived usefulness and perceived ease of use on use intention, we need to test the significance of equation coefficients by SPSS.

TABLE 5 MODERATING EFFECT OF CONSUMER INNOVATIVENESS ON THE RELATIONSHIP BETWEEN PERCEIVED USEFULNESS AND USE INTENTION

Model		B	P
1	Constant		0.000
	@Shandong	0.080	0.344
	@Shanxi	0.122	0.141
	Z-Perceived ease of use	0.284	0.003
	Z-Perceived usefulness	0.596	0.000
R-Square=0.660			
Adjusted R-Square=0.646			
2	Constant		0.000
	@Shandong	0.084	0.326
	@Shanxi	0.127	0.133
	Z-Perceived ease of use	0.285	0.003
	Z-Perceived usefulness	0.594	0.000
R-Square=0.660			
Adjusted R-Square=0.643			
Z-Perceived usefulness×Z-Consumer innovativeness		0.021	0.732

TABLE 6 MODERATING EFFECT OF CONSUMER INNOVATIVENESS ON THE RELATIONSHIP BETWEEN PERCEIVED EASE TO USE AND USE INTENTION

Model		B	P
1	Constant		0.000
	@Shandong	0.080	0.318
	@Shanxi	0.098	0.217
	Z-Perceived ease of use	0.455	0.000
	Z-Perceived usefulness	0.439	0.000
R-Square=0.692			
Adjusted R-Square=0.679			
2	Constant		0.000
	@Shandong	0.088	0.280
	@Shanxi	0.105	0.191
	Z-Perceived ease of use	0.467	0.000
	Z-Perceived usefulness	0.430	0.000
R-Square=0.693			
Adjusted R-Square=0.677			
Z-Perceived ease of use ×Z-Consumer innovativeness		0.035	0.546

As shown in Table 5, in the research on the moderating effect of consumer innovativeness on perceived usefulness, after adding the product term, the fitting degree decreased from 0.646 to 0.643, and the fitting degree became worse. As shown in Table 5, the significance level sig. Value of Z usefulness \* innovativeness coefficient C 'is 0.732, which

is not significant if it is greater than 0.05. It can be concluded that in the influence mechanism of perceived usefulness on behavior intention, consumer innovativeness have no significant regulatory effect, and the hypothesis H5 is not supportable.

As shown in Table 6, in our research on the moderating effect of consumer innovativeness on perceived ease of use, after adding the product term, the fitting degree R<sup>2</sup> decreased from 0.679 to 0.677. As shown in Table 6, the significance level sig value of the product term coefficient C 'is 0.546, greater than 0.05, not significant. It can be concluded that in the impact mechanism of perceived ease of use on behavior intention, there is no significant regulatory effect on consumer innovativeness, and H4 is not supportable.

## **6 RESULTS DISCUSSION AND CONCLUSION**

### ***6.1 Results Discussion***

Perceived ease of use and perceived usefulness are the key factors affecting consumers' choice of Wechat shopping mode. Therefore, it is necessary to actively innovate products, promotion methods and marketing modes, so that consumers can feel the characteristics of convenience, easy operation and large marginal utility of products, so as to play a positive marketing effect and increase consumers' purchase intention.

The reason why consumer innovativeness has no moderating effect is that WeChat shopping is no longer a new thing in the current online shopping era. Online shopping platforms such as Pinduoduo and Taobao online store have already broken the disadvantages of traditional online shopping methods, such as high price, complex operation and low efficiency, and entered thousands of households. With the popularity of online shopping and the fact that the transaction volume of online shopping is greater than the market share of offline physical store transactions, hundreds of millions of WeChat users have long been familiar with WeChat merchant promotion and WeChat promotion, which is also related to WeChat as the largest mobile social platform in China. Therefore, whether consumers have innovative personality traits or novel ways to solve problems, novel perspectives on problems, and whether they have strong intention to use WeChat shopping are not closely related, so they can not play a moderating role in the impact of perceived usefulness and perceived ease of use on WeChat shopping.

### ***6.2 Managerial Implication***

Since perceived usefulness and perceived ease of use have a significant positive impact on consumers' willingness to use WeChat for shopping, businesses selling products and services through WeChat also need to improve consumers' perceived usefulness and perceived ease of use in order to increase shopping revenue.

#### ***1) Improve perceived ease of use***

The previous WeChat shopping model was based on mass push, single person contact and circle of friends promotion. The emergence of Pinduoduo made online shopping lovers find that online shopping can also be carried out through WeChat sharing link and Pindan. This is a positive example. Therefore, WeChat merchants can use this model to tap enlightenment and create new WeChat shopping models such as group purchase and group purchase. Or launch limited time or limited second kill and other promotion methods to move the offline promotion strategy that touches consumers to the WeChat platform.

At the same time, thanks to VR and other technologies, many traditional garment enterprises have launched transformation businesses, such as online fitting and one-to-one customization. Therefore, if WeChat merchants can make a single discussion when launching products and services, they can give consumers personalized choices and private solutions.

#### ***2) Improving perceived usefulness***

As a well-known shopping model, WeChat shopping has a low recognition. To a large extent, the reasons include that consumers are not confident enough that the quality and types of products provided by WeChat merchants can not meet their needs. Therefore, it is necessary to establish an open and formal WeChat shopping platform, similar to Taobao online store, so that consumers can have a correct understanding of the formal channels of products provided

by WeChat merchants.

At the same time, WeChat merchants should enrich their product composition and business as much as possible, including agents of different brands and the launch of products with different functions, and take a differentiated route to provide some items less involved in physical stores and ordinary online stores, so that consumers feel that buying WeChat merchants' products is indeed useful and can increase my total utility, Instead of a pile of boring advertisements and boring inferior goods.

### **6.3 Conclusion**

This study applies TAM (Technology Acceptance Model) commonly used in the field of information technology and rational behavior theory to the field of consumer behavior, and uses the perceived ease of use and perceived usefulness in the technology acceptance model to explain users' willingness to use WeChat shopping. This study simplifies the technology acceptance model and does not study whether external variables play a role. At the same time, we will combine attitude, behavior intention and system use to form WeChat shopping use intention. Study the correlation and regression relationship between the three variables. At the same time, study whether there are some personality characteristics of consumers as moderating variables to have a moderating effect on this impact mechanism. Finally, draw a conclusion, and form marketing countermeasures and suggestions based on the conclusion, so as to facilitate WeChat merchants to better accurately locate the target audience, market promotion, and improve products and services.

This study has some shortcomings. The discussion of control variables in regression analysis is too simple, and there is a lack of discussion on demographic variables such as consumer income and gender, such as whether consumer age and gender will affect the questionnaire results. At the same time, although the number of samples is sufficient, because most WeChat friends are college students of the same age with low purchasing power, it is inevitable that there will be a problem of one-sided samples, which can not reflect the situation of each subdivided consumer group.

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