

移动购物购买意愿影响因素的实证研究

An Empirical Research on Factors Influencing Purchase Intention of Mobile Shopping

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基于沉浸体验理论, 本文结合感知价值理论、创新扩散理论来构建智能手机用户的购买意愿影响因素模型。本研究旨在理解沉浸体验对中国的移动购物意愿的影响。应用李克特5度量表, 本文对430位调查对象进行实

Based on the theory of Flow experience, this thesis combines the theory of perceived value with the theory of customer innovation, and constructs the influencing factor model of Smartphone users' purchase intention. The paper aims to understand

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证研究来研究此问题。通过运用SPSS 22.0和AMOS 21.0统计分析软件,对影响因素进行编码和描述性分析,最终建立结构性方程模型。结果显示,沉浸体验对移动购物的购买意愿有显著的正向影响。同时,消费者创新理论通过正向影响沉浸体验来间接影响消费者的购物意愿。最后,本研究也表明感知价值对移动购物有显著的影响。

[关键词] 移动购物;沉浸体验;技术接受模型;影响因素;创新扩散理论

the impact of Flow experience in the intention of mobile shopping in China. To address this, an empirical study with 430 subjects was carried out. It collected the data by questionnaire with 5-point Likert scale, and used SPSS.22.0 and AMOS.21 to encode and analysis the data by the method of factor analysis, descriptive statistics and structural equation modeling. The results indicate that flow experience has a significant positive effect on the purchase intention of mobile shopping, and customer innovation has a direct effect on flow experience which in turn impacts purchase intention. Furthermore, this study also reveals that perceived value influence mobile shopping deeply.

Key words: Mobile shopping; Flow theory; TAM model; Affecting factors; Diffusion of Innovations.

1. Introduction

The Internet has become a crucial part of any communication strategy because of its ability to provide information and entertainment, as well as a forum for e-shopping. People now spend ever more time on the Internet, both to access information and for online purchasing (Pires et al., 2014). The booming online sales globally provide evidence of this paradigm shift. Online shopping is not only burgeoning in developed economies, including the United States, the United Kingdom, Japan, Germany, France, and South Korea, where high Internet penetration exists and consumers tend to be more sophisticated due to higher incomes, but also in emerging economies, such as China, Russia, Chile, and Brazil, where the Internet infrastructure is still being developed. With the popularity of Smartphone and the improvement of shopping experience, mobile shopping has become a trend. In the mobile terminal business market, mobile shopping is developing rapidly, and based on I-research the mobile shopping accounted for 70.7% of the overall online shopping, overwhelming the PC online shopping, an increase of 15.3% to last year. With the online shopping becoming an ever more integral part of our lives, it is increasingly important to understand the factors which lead consumers to choose online venues for their purchases.

The mobile devices offer customers anytime, anywhere ability to communicate without being connected by wires making them ubiquitous. Additionally, the mobile device is personal which has made it not just a technological gadget, but a cultural object that is part of everyday traditions and practices. With mobile devices becoming an integral part of lives, research in the field of customer adoption has explored drivers of adoption via varied lenses. Consistent with the forces of the adoption of any technological innovation, researchers have used Innovation Diffusion Theory (Rogers, 1983), Technology Adoption Model (Davis, 1989), Unified Theory of Acceptance and Usage of Technology (Venkatesh et al., 2003) to explore adoption of mobile devices and services. While these theories essentially focused on utilitarian aspect, some of the recent work is exploring hedonic aspects of adoption in case of mobile device based services. These include Uses and Gratification theory, which focuses on non-utilitarian benefits from adoption such as expressiveness and enjoyment and Media Gratification Theory (Atkin, 1973), adopted to mobile media (Tsang, 2004) that considers customers having different motives, utilitarian or hedonic, when using mobile media. As demonstrated by Nysveen et al., mobile devices usage intentions can be driven by perceived expressiveness of the mobile device (i.e., its ability to express fashion and style), enjoyment perceptions, usefulness and usability, and social pressure. When considering the provision of online consumption experiences, scholars have highlighted the importance of flow (Chang, 2013; Gao & Bai, 2014). Flow is a state of concentration in which people are so involved that nothing else matters (Gao & Bai, 2014). Specifically, flow refers to a temporarily unaware experience in which an individual engages in a social shopping activity in a social shopping website with total concentration, control, and enjoyment (Gao & Bai, 2014). In emphasizing the importance of flow and the formation of compelling experiences, Hoffman and Novak (1996) went as far as declaring that “creating a commercially compelling website depends on facilitating a state of flow for consumers [and that] ... an important objective for marketers is to provide these opportunities” (Hoffman & Novak, 1996: 66). Zhang et al. (2014) argued that enhancing the flow experience is important for the survival of E-commerce.

The discussions above suggest that there are three key factors affecting purchase intention in general, namely user beliefs, innovative consumers and flow experience (Hsu et al., 2004). This study aims to

empirically examine the effects of user beliefs, innovative consumers, and flow experience on online shopping intention. The two research questions we will examine in this paper are: “Do user beliefs, innovative consumers affect flow experience?” and “Does the experience of online flow and perceived value affect online purchase intention?” It is vital to understand whether flow has a significant mediating impact on purchase intention because flow is considered one of the action triggers that can improve the attitudes of online consumers and give rise to behavioral intention. Our research model includes four dimensions: (1) user beliefs, including perceived usefulness and perceived ease of use; (2) innovative consumers, including the user’s perception of the quality of information, system, and service offered by websites; (3) flow experience; and (4) purchase intention as demonstrated by the sample of the online consumer population.

This study aimed to increase our understanding of the relationships between user beliefs, innovative consumers, flow experience, and purchase intention. More importantly, this paper has taken a critical step forward by detailing how flow experience affects purchase intention by means of enhancing the effect of user beliefs and innovative consumers. In order to accomplish this, the research adopt interview and server log files to collect data and my professor and I also sent questionnaires and collected 420 responses from Smartphone users in China to explore purchase decisions for mobile shopping. The data were analyzed using structural equation modeling (AMOS.21) and SPSS 22.0. The results indicate that interpersonal interaction factors and innovative consumers positively relate to flow experience and subsequently influence purchase intention. It also finds out that perceived value has huge impact on purchase intention. Hope that the findings have significance on better understanding of customers for newly built e-commerce companies and online marketing strategy making. Further, mobile shopping markets in Germany and Brazil may find some fresh idea through the findings.

2. Theoretical background and research hypotheses

2.1. Innovative consumers and flow experience

The Innovation Diffusion Theory (IDT), developed by Everett Rogers (1962) in *Diffusion of Innovations*, was designed to explain the factors that impact the way in which an innovation spreads in a specific social system through time (Bennett and Bennett, 2003). The term “innovation”

often refers to technological innovations, which consist of hardware and software portions (Sahin, 2006). IDT suggests that an individual's decision in adopting an innovation is influenced by the evaluation of several perceived attributes. Moore and Benbasat (1991) reviewed and adapted original attributes into seven perceived characteristics of IT innovations: relative advantage, ease of use, compatibility, result demonstrability, image, visibility, and voluntarily use. Innovative consumers refer to the consumer's interest and curiosity about things. Steenkamp (1999) found that Innovative consumers are significantly different from other consumer groups in terms of age, income, and educational level. They are usually easier to accept and adopt new things. And their perceived usefulness and perceived ease of use are more intense. Here we test innovative consumers by measuring the user's perception of the quality of information, system, and service offered by websites and also combined PU and PEOU. Based on these research, we can tell that in mobile shopping business if customers have more interest in knowing the new information, new technology and new products, they will be easier to enter into flow state. Accordingly, the following is hypothesized:

H1: Innovative consumers are positively related to flow

2.2. User beliefs and flow experience

The Technology Acceptance Model (TAM) was established by Davis (1989) to modify the Theory of Reasoned Action (TRA), which was developed to predict computer acceptance. Davis achieved this by replacing the belief determinants of TRA with two critical beliefs: perceived usefulness and perceived ease of use. Davis defined the former belief, perceived usefulness (PU), as "the degree to which a person believes that using a particular system would enhance his or her job performance." He defined the latter belief, perceived ease of use (PEOU), as "the degree to which using the technology will be free of effort. "These have been studied with a range of samples, and the crucial nature of their effects on Internet shopping has been well established (Hsu et al., 2004; Lin, 2007; Shin, 2009). Using the TAM, Hsu et al. (2004) showed that perceived usefulness and perceived ease of use significantly affect flow experience, which in turn affects e-loyalty. Zhang and Sun (2014) confirmed that perceived ease of use has an impact on flow experience. Hsu and Lu (2004) have demonstrated the influence of perceived ease of use on one's experience of flow, as well as

how this impinges on intention to play a game online. The key role of the user friendliness of a website interface in achieving flow experience has thus been established. Any factors which hinder ease

of use must be resolved to bring users into the pleasurable 'zone' of fully immersed user experience. Furthermore, people will undertake exploratory browsing when website usage is identified to be useful (Shin, 2009). Woodruff (1997) mentioned that people will log on to a website more often when they are in a flow state. Lin (2007) indicated that when consumers perceived the system as useful, it might lead to web flow. Based on the discussions above, our hypothesis can be stated as follows:

H2: User beliefs significantly and positively affect flow experience.

2.3. Perceived value and purchase intention

Kolter and Levy (1969) first mentioned customer perceived value during their research about customers satisfaction. They thought customer satisfaction depends on their perceived value. Furthermore, Zeithaml (1988) has suggested that perceived value can be regarded as a "consumer's overall assessment of the utility of a product (or service) based on perceptions of what is received and what is given". In this study, consumers' perceived value is defined as the overall assessment of trade-off between the perceived quality of product or service received, and the aggregated costs devoted to acquiring the product or service. Repurchase intention refers to the consumer's subjective probability of re-patronizing an online store, and is the major determinant of purchase intention. (Wu et al., 2005) Considering these theories, we expect that perceived value will positively influence repeat purchase intention. Moreover, prior research has shown that customers' perceptions of value impact their tendency to revisit a product or service provider (Walker et al., 2006). Two recent empirical studies (Wu et al., 2005) confirmed the relationship between value and repeat purchase intention in the context of online shopping. However, Vinay Kumarl and Sweeney (2001) using empirical studies showed that it is the perceived risk that obstruct the development of e-commerce company. And they listed the type of perceived risk in their study (Table 1). Given all the evidence, we provide the following hypothesis:

H3: Perceived cost (risk) significantly and negatively affect purchase intention.

Table 1: Types of perceived risk in context of online shopping

No.	Risks	Researchers & Years
1	Financial Risk	Kaplan (1974); Szybillo & Jacoby (1993)
2	Performance Risk	Novak et al. (2003)
3	Physical Risk	Gao & Bai (2014); Hsu et al. (2012)
4	Social Risk	Hsu et al. (2012)
5	Convenience/time Risk	Hoffman & Novak (1996)
6	Psychological Risk	Hoffman & Novak (1996); Koufaris (2002)
7	Source credibility Risk	Hoffman & Novak (1996)
8	Privacy Risk	Hoffman & Novak (1996)

2.4. Flow experience and purchase intention

Flow experience is a compelling experience that affects consumer behavior in online shopping (Koufaris, 2002) and social network games (Shin & Shin, 2009). Previous studies argued that flow experience leads to specific behavioral outcomes (Gao & Bai, 2014; Vasiliou, 2014). Hoffman and Novak (1996) suggested that individuals who experience flow states would have higher satisfaction and loyalty than those who do not. Koufaris (2002) posited that consumers who experience flow when visiting an online store are likely to make unplanned purchases. In social commerce, consumers who have experienced flow are likely to participate in social commerce activities, which affect customer purchase intention. Gao and Bai (2014) noted that flow experience affects consumer behavioral intention, such as the likelihood to purchase from the website. Kim et al. (2014) suggested that participants who have Flow experiences will become fully involved in their interactions in mobile shopping Apps. Building on past research, this study indicates that customers who experience a state of flow in mobile shopping Apps are likely to purchase from them.

H4: Flow experience is positively related to purchase intention in mobile shopping.

2.5. Conceptual Model

Based on the relevant literature reviewed in this section, a conceptual framework is proposed (Figure 1). The framework proposes that flow experience is a latent second order construct that is measured through customer engagement, which is Innovative consumers and user beliefs. Further, customer engagement is proposed to be an antecedent to flow experience and explains purchase intention in addition to the traditional relational constructs of perceived value in e-commerce.

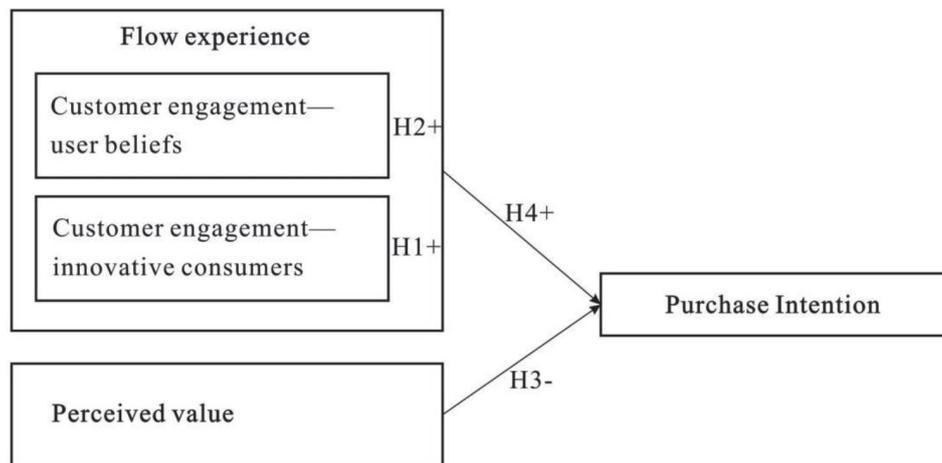


Figure 1: Conceptual Model

3. Data collection and analysis

3.1. Data collection

The survey was conducted in China. We distributed the survey as Internet-based questionnaires individually from October 9 to December 10, 2016. We used social platform, like QQ, Wechat, Weibo to send links of the questionnaires. Basically, we used an internet platform called Sojump (Wen juanxin in Chinese) to collect the data. A total of 450 responses were collected, while 420 of them were valid. The survey had a response rate of 93.3%. The demographic information of the respondents is summarized in Table 2.

Table 2: Demographic information of the respondents

		Number	Percent (%)
Gender	Male	240	57.2
	Female	180	42.8
Age	Under 18	65	15.4
	18-25	198	47.1
	26-30	100	23.8
	31-40	45	10.7
	Above 40	12	2.9
Education background	High school	55	13.1
	Undergraduate students	200	47.6
	Master students	120	28.6
	Doctoral students	45	10.7
Monthly disposable income	Under 1000 RMB	7	1.6
	1000-1999 RMB	70	16.7
	2000-2999 RMB	238	56.7
	3000-5999 RMB	105	25
Familiarity mobile phone	Very familiar	100	23.8
	Familiar	180	42.8
	Normal	98	23.3
	Not familiar	42	10

3.2. Reliability and validity measurement

(1) Reliability measurement

The study use SPSS 22.0 to test reliability. For all the variables, we can see that the Cronbach's alpha value is greater than 0.85 thereby proving that the measurement model is rather reliable.

(2) Validity measurement

In this study, SPSS22.0 was used to test the validity of the questionnaire. The general validity test was based on exploratory factor analysis. Before the factor analysis, the correlation between the variables must be tested.

The main methods are the KMO and Bartlett sphere test. The test results show: KMO coefficient is 0.884. Bartlett’s Test of Sphericity is less than 0.05. Since the result of Bartlett sphere test is significant, the sample data obtained in this study are suitable for factor analysis. The further factor analysis (via the maximum variation of the orthogonal axis) shows in Table 3.

Table 3: Rotated component matrix

Variable	Items	Loading	Variable	Items	Loading
User beliefs(UB)	UB 1	0.862	Perceived Cost(PC)	PC1	0.864
	UB 2	0.840		PC2	0.812
Innovative consumers (IC)	IC 1	0.894	Flow Experience(FE)	FE1	0.891
	IC2	0.833		FE2	0.845
	IC 3	0.875		FE3	0.770
Purchase Intention(PI)	PI1	0.876	Purchase Intention(PI)	PI 2	0.895

Based on the Table 3 all the item loadings are higher than the recommended value of 0.7, thus suggesting sufficient discriminant validity.

(3) Hypothetical Universe

This part uses the stepwise regression to tests the relationship between the influencing factors and the intention in Table 3. The results of the regression are shown in Table 4 and Table 5, respectively, with user beliefs and customer Innovation as independent variables.

Table 4: Model summary

Model	R	R square	Adjusted R square	Std. Error of the estimate	ANOVA		
					R square	F	df1
1	.723 ^a	.523	.517	.599	.523	101.79	1
2	.791 ^b	.625	.617	.534	.102	25.10	1
3	.804 ^c	.647	.635	.521	.022	5.68	1

- a. Predictors: (Constant), Innovative consumers
- b. Predictors: (Constant), Innovative consumers (User beliefs)
- c. Predictors: (Constant), Innovative consumers (User beliefs) Perceived Cost
- d. Dependent Variable: Flow experience

Table 5: Coefficients

Model B		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics
		std	Beta				Tolerance
1	(constant)	.484	.146		3.315	.001	
	Customer Innovation	.629	.062	.723	10.090	.000	1.000
2	(constant)	.115	.150		.765	.001	
	Innovative consumers	.454	.066	.522	6.929	.000	.718
	User beliefs	.363	.072	.378	5.011	.000	.718
3	(constant)	.059	.148		.397	.003	
	Innovative consumers	.390	.069	.448	5.613	.000	.609
	User beliefs	.262	.082	.273	3.181	.002	.528
	Perceived Cost	.195	.082	.216	2.384	.003	.471

We conduct regression analysis using designed two independent variables (Innovative consumers, user beliefs) to test dependent variables (flow experience). The results show that the regression analysis satisfied F test and T test for both Sig.F and Sig.t less than 0.01. Durbin-Watson test shows the value equals 1.752, close to 2, indicating that the residuals are independent of each other which means there is no significant self-correlation between the volume. On the other hand, the R-square (judgment coefficient) is 0.617 (excluding the load of perceived cost), further explained that the regression equation explains most of the variation. The study found that perceived costs had some effect on the flow experience, but not significant. The results indicate that Customer Innovation and User beliefs have positive effects on flow. Therefore, H1, H2 are supported. Meanwhile, we use coefficient analysis to test the relationship between flow and purchase intention, perceived risk and purchase intention, respectively. Flow has a significant effect on purchase intention with coefficients 0.894(sig=0.000), thus supporting H4. Perceived value has a deep effect on purchase intention with

coefficients 0.901(sig=0.000), indicating Value-driven is an important factor in the consumer's mobile shopping. It has a significant (negative) effect on the consumer's willingness to shop, thus supporting H3. The model also illustrates that 57% of the variance exists in flow, and 43.8% of the variance is related to purchase intention.

4. Conclusion and discussion

4.1. Conclusion

The path analysis shows that consumer innovation and user beliefs indirectly affect mobile shopping intentions by influencing the flow experience. Meanwhile, the flow experience has a direct and positive impact on mobile shopping intentions. Perceived costs have a negative impact on consumers' mobile shopping intentions.

4.2. Discussion

Based on the theory of Flow experience, this paper discusses the influence of consumer innovation and perceived value on consumers' intention of mobile shopping, and it puts forward the framework model which affects mobile shopping. The framework model also considers the factors that promote the mobile shopping behavior and the obstacle factors. Student-centered sample data were analyzed statistically by using SPSS 22.0 statistical software. Research will help e-commerce enterprises continue to improve the user conversion, retention and repurchase, so that the mobile terminal continued to penetrate. And to a certain extent, it will develop related marketing strategies which can guide consumers in the new mobile shopping platform for consumption.

(1) Innovative consumers significantly affect flow experience

“Early adopters” in innovation diffusion theory are the prototype of innovative consumers. They take the lead in accepting and using innovative things and are willing to take risks. They are mostly loyal participants of the existing mobile shopping. The study found that the stronger the consumer awareness of innovation, the greater the usefulness and ease of use of mobile shopping, the better the Flow experience which in turn indirectly affect the mobile shopping intention.

Therefore, the establishment of a sound enterprise-innovative consumer ecosystem is quite important. By doing this, consumers can

understand the culture of e-commerce enterprise and vision for the development which can enhance their sense of flow experience. Via the exchange of benign interaction, both company and customers can lead to a win-win situation. Such as e-commerce enterprise can send the Beta version of the newly developed mobile shopping App to the “Early adopter” to meet their Innovation Psychology as well as develop their new mobile shopping habit. Then by using their exemplary role, more Consumers will be attracted to join mobile shopping groups.

(2) Perceived value deeply affects mobile shopping intentions

Mobile shopping is based on the Internet virtual environment. Consumers cannot really feel the product when the purchase. They can only determine the value of the product by searching the information provided by the seller. The study found that the perception of the cost of searching for information significantly negative affects the purchase intention of consumers for mobile shopping, while perceived gains have a positive impact on shopping intentions. Therefore, in this virtual environment, we need fresh ideas to promote the consumer information search satisfaction. Such as simplified the operation of shopping interface, detailed real description of the goods, rewarded the former customers making comments, perfect after-sale service. All of these will increase customer satisfaction of information searching that contributes to shopping intention. Using online Live for Interactive selling, the sells volume tripled per day. This big innovation in e-commerce platform played a role model in 2015. Thus, e-commerce enterprises should fully consider the factors that affect the cost of consumer information search. It is advisable to take active strategy lower the customers perceived cost. Thereby it expands the satisfaction of consumers and then increases the mobile shopping behavior. Finally, it will become a daily routine of everyday life.

(3) Flow experience has positive impact on consumers' intention of mobile shopping

The findings of our research support all the hypotheses, thus confirming that Flow experience is a useful predictor of purchase intention in mobile shopping. We find that flow experience has a positive impact on purchase intention, which corresponds with the study of Gao and Bai (2014). Therefore, consumers entering a flow state in a mobile shopping platform will likely purchase from that website. Furthermore, Figure 4-1 and Figure 4-2 (comparison) show the differences between young and old users.

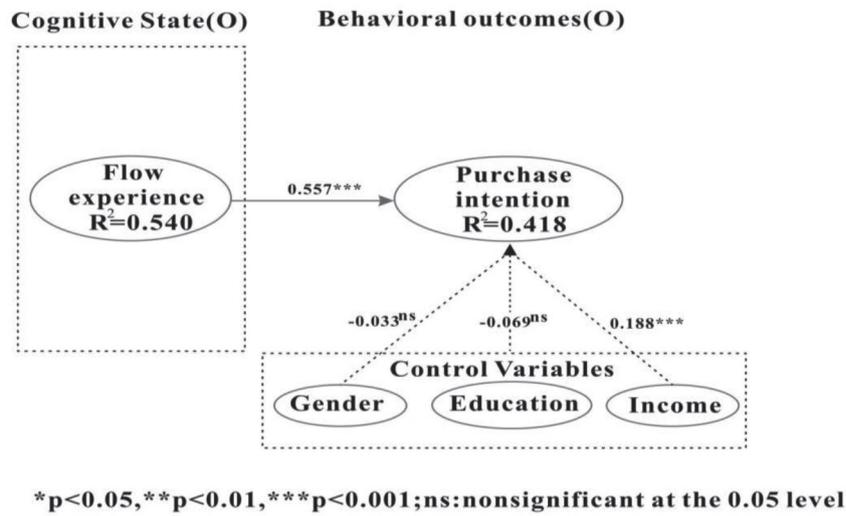


Figure 2: Results of the research model test

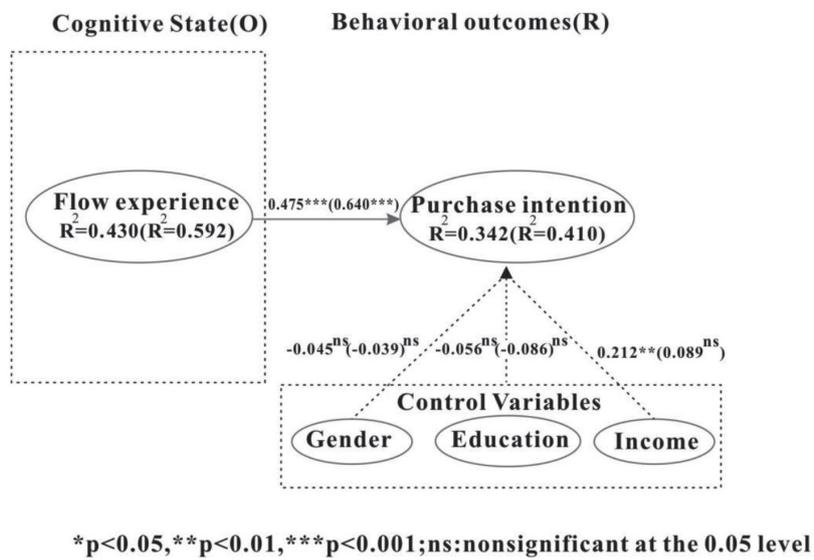


Figure 3: Results of the research model tests of young users (old users)

When respondents experience flow state, old users are more likely to purchase from social shopping sites than young users. A potential illustration is that flow experience is more important for old users than young users when

making purchase decisions. There are two methods to strengthen the Flow experience of consumers. First, it is e-commerce enterprises' job to take mobile app design and website operation process into consideration. They should take into account the characteristics of mobile devices to maximize the convenience of consumer shopping. Not only should they ensure that the product picture is clear and commodity information is comprehensive, but also try to ensure its smooth operation on the mobile. Second, they should pay attention to communication with consumers and collect consumer preferences information as well. Meanwhile, these companies should manage to increase the attractiveness of their shopping platform. In this part, Taobao makes large number of innovation, such as winning golden coin, using AR tech in Single's Day (a carnival of e-commerce) which no doubt led customers into deep flow state. With the ever-changing Internet technology, e-commerce enterprises should always keep insight of the market trend. And it is even better to increase the investment of R&D. Ultimately it will promote the consumer's purchase intention of mobile shopping via continuous innovation to enhance consumers Flow experience level.

5. Limitations and further research

While the empirical data we have gathered fundamentally support our hypotheses, the limitations of the present study and its conclusions must be acknowledged. First, this study mainly used a Web-based questionnaire to ask participants to evaluate their most online shopping experience. We suggest that future research further sub-divide participants with particular characteristics to investigate the effects of user beliefs and innovative consumer on social shopping behavior among those groups of people.

Second, the current study's empirical results may not be representative of the population of China, a large developing country with wide disparities in Internet usage among its people, or those of other countries. Thus, future research on these issues could examine whether the findings of this study hold in other developing countries or in developed countries.

Third, our empirical evidence identifies flow experience as a key factor affecting behavior while engaging in mobile shopping. It may be useful for researchers to extend this analysis to other phenomena that could affect Internet usage in the e-commerce context. We hope that the opportunities for further research arising from this study provoke others to gather additional data that may guide website designers to

focus on creating flow experiences for the ever-growing number of Internet users around the world. Finally, given that we designed our research as a snapshot study, in the future it may be useful to conduct a longitudinal study to track whether improvements in user beliefs and innovative consumers influence online purchase intention.

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