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The Factors Effect On Using Mobile Shopping Adoption, A Conceptual Framework In Vietnam

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Abstract:
About four years ago, in Vietnam, there was not a lot of people use smartphones and they seem to be the items of the rich and the connoisseur. However, at the present time, mobile phone and smartphones have become an indispensable part of daily lives. Nowadays, with the rapid development of mobile device, retailers and mobile service providers are facing up to new challenges and opportunities. This study try to clarify consumer adoption of mobile shopping as a future shopping channel. It also provides understanding into the factors driving on customers' purchase intention through mobile shopping in Vietnam. A questionnaire was constructed and data were collected from 203 users of M-shopping services in Vietnam. The results of this study will develop a conceptual framework based on using mobile shopping adoption of the people in Vietnam.

Keywords: TAM; Mobile shopping; Internet shopping; Aesthetics; Enjoyment

1. Introduction

The mobile shopping as one of the types of electronic commerce has the potential of serving customers. Based on Forrester (2001) the number of Consumer use of mobile shopping is rapidly increasing and mobile phones purchases are expected to reach 31 billion by 2016. With the explosive growth of the mobile phone population, combined with the development of wireless technologies, M-commerce is becoming increasingly important to many businesses (Hung et al., 2003). The mobile terminal will become 'the access point' for all sorts of 'anytime, anywhere' services.

In recent years, basing on Ministry of Trade and Industry (2012), the potential for mobile shopping within the local environment in Vietnam has been realized and still there are tremendous opportunities for growth. Mobile shopping (M-shopping) allows customers to shop online at any time and in any location. Research into M-shopping services (MSS) in Vietnam is still in its infancy, but what is needed is a much better

understanding of the factors that influence the adoption of M-shopping in Vietnam.

The first purpose of this research is try to identify why some of people are not interested to engage in online transaction by mobile phone despite knowing that this channel provides greater convenience, reduction in time and wider variety of sellers. The second purpose of this study is find the limitation of this channel and improve the mobile shopping systems/services in Vietnam.

- **Research Background:**

In Vietnam, mobile shopping is defined as shopping transactions using mobile devices such as cellphones, PDAs (Personal Digital Assistants), smart phones and other devices (except for laptops). It can be considered a type of Internet shopping because it requires Internet access. In this study, the theoretical background of my research is developed with the concept of literature review of the technology acceptance theories (TAM). And then this study develop Research model and all of hypothesis.

2. Theory background:

There are limitation for mobile transactions, it cannot be completed successfully if the customer cannot perform skillfully under the time constraints of its power/battery supplement and system. Mobile shopping skill is a kind of task-specific self-efficacy, it also be applied to other portable information technology adoption such as advanced mobile phones , PDAs, smart phones, etc.

- **Mobile skillfulness**:

Mobile skillfulness implies to the individual's assessment of users ability to perform a specific task when they use mobile phones. Some period studied found that the more user's capability belief will lead to the more user's intrinsic motivation (Denget al., 2004, Compeau and Higgins, 1995). Bandura (1977, p. 193), indicated that "individuals can believe that a particular course of action will produce certain outcomes, but if individuals entertain serious doubts about whether they can perform the necessary activities, such information [about outcomes] does not influence their behavior". It is one of important point to understand the effect of one's perceived level of skillfulness on the expectations of the usefulness of MSS. Basing on Staples et al., (1999); Huang and Liaw, (2005),there is the linking between a person's specific self-efficacy and a system's usefulness. Therefore, the following hypotheses are proposed:

H1: Mobile skillfulness will positively effecton Perceived Enjoyment of using mobile shopping services on M-shopping website/Application.

H2: Mobile skillfulness will positively effecton Perceived Usefulness of using mobile shopping services on M-shopping website/Application.

- **Design Aesthetic:**

In 2012, Number of 2G and 3G mobile phone subscribers in Vietnam is about 131 million (Nguyen Bac Son, 2013). This is opening up a huge chance for the retailers. However, the development of mobile shopping is dependent on a lot of effecting factors. Especially, the retailers need to find out design aesthetics factor that influence the adoption of mobile shopping. There is a well-told adage that you never have another chance to make a first impression. The first impressions are very important and you never can reverse or undo. First impression of a website is the first image and forms your opinion of a website that develops instantly and never entirely fades (F. Scott Addis, CPCU, CRA and Christin Myers, 2012). In the other hand, first impressions affect users' attitude toward using intentions of mobile shopping (First Impressions Count in Web Design, Web Site Optimization, 2006). Finally, first impression is dependent on aesthetic of website interface: appealing, professional, and meaningful or visually. Many scholars emphasize the importance of design aesthetics in mobile shopping acceptance. Based on previous studies, this study is going to propose some hypotheses:

H3: Design aesthetic will positively effecton PerceivedEnjoymentof using mobile shopping services on M-shopping website/Application.

H4: Design aesthetic will positively effect on PerceivedUsefulnessof using mobile shopping services on M-shopping website/Application.

H5: Design aesthetic will positively effect on PerceivedEase of Useof using mobile shopping services on M-shopping website/Application.

H6: Design aesthetic will positivelyeffect on Trust of using mobile shopping services on M-shopping website/Application.

- **Enjoyment:**

Enjoyment is a fundamental dimension of online and mobile shopping. Smartphone/ Advanced mobile phones provide a wide range of online

media, such as commercial flash animations, pictures, music, videos, product descriptions and advergames. Customers can have fun when they are searching for services and products with media provided by their mobile internet. Both intrinsic and extrinsic factors affect consumers' motivations to use ICT (Davis et al, 1992). Intrinsic motivation can be understood as connected to playfulness and the reward of the action itself. Game-based training study indicated that high-level intrinsic motivations bring a sustained intention to use ICT (Venkatesh's, 1999). Basing on Chu and Lu (2007), perceived playfulness served as a motivation of customers' perceptions for purchasing online music. In this research, enjoyment refers to the customers' direct

experience of joy and immediate pleasure when they use the mobile shopping service (Davis et al., 1992).

H7: Enjoyment will positively effecton Mobile Shopping Intention of using mobile shopping services on M-shopping website/Application.

- **Augmented TAM:**

Basing on Ahmad (2005), The TAM is one of the most cited models in studying use of technology and user acceptance. According to TAM, perceived ease of use and perceived usefulness are main motivation factors for using and accepting new technologies. Additionally, the TAM shows that individuals accept Information Technology if they believe in its positive performance.

Variables	Definition	Source
Perceived Usefulness	Measuring the degree to which users believes that using a system would improve their performance and effectiveness.	Davis(1989); Davis et al, (1989)
Perceived Ease of Use	Measuring the degree to which users believe that using M-shopping systems would be free and effort.	Davis et al (1989) ; Adams et al (1992)

H8: Perceived Usefulness will positively effecton Mobile Shopping Intention of using mobile shopping services on M-shopping website/Application.

H9: Perceived Ease of Use will positively effecton Mobile Shopping Intention of using mobile shopping services on M-shopping website/Application.

- **Trust:**

According to the Merriam-Webster Dictionary, trust refers to the concept of belief that someone is reliable, good, honest, and effective. In business, the customers' trust is defined that the suppliers will carry out their promises (CrosbyL.A et al., 1990;Gefen D., 2000). In addition, trust is also considered as an important factor that affect whether or not people engage in e-commerce activities. In fact, a lack of trust is a major reason why users don't accept technology (Gefen et al., 2003; Jarvenpaa, Tractinsky, &Vitale, 2000). Many researchers have developed study of trust to explore how trust can be achieved for mobile shopping. A

study showed consumer trust have a positive effect on decision making in despite of vulnerability. In the context of mobile commerce, if service provider can meet consumer expectations, customers will be more inclined to believe the mobile shopping (Gefen et al., 2003). According to Gefen (2003), trust in an e-

commerce has the effect of increasing intention to use the provider's Web site. Hence, this study hypothesizes positive linkage as follows:

H10: Trustwill positively effect on Mobile shopping intentionof using mobile shopping services on M-shopping website/Application.

3. Methodology:

The study used 7 factors: Mobile skillfulness(MoS), Design Aesthetic(DA), Enjoyment (Enj), Perceived Usefulness (PU), Perceived Ease of Use (PEU),and Trust. In order to assess the research model, a questionnaire was designed to collect data. The scales used in the questionnaire were largely built upon the scope and structure of previous studies. Constructs were measured based on seven-point Likers-scales ranging from strongly disagree (1) to strongly agree (7). The Maritime bank Vietnam assisted with this survey by make an online survey of the bank's subdomain website. The survey was conducted for 15 days in Sep 2014, gifts worth $3 were given as incentives for volunteers to fully answer the survey questions. A total of 195 responses were returned from 203 participants giving a response rate of 96.1%. Six responses were discarded due to being only partially completed. The respondents consisted of 122 males and 67 females. The descriptive statistics of the sample are shown in Table 1.

Table 1: Distribution of respondents based on demographic characteristics

Demographic profile	Frequency	Percent (%)
Gender		
Male	122	64.6
Female	67	35.6
Total	189	100
Age		
Less than 12	0	0
12-25	70	37.0
26-50	112	59.3
More than 50	7	3.7
Total	189	100
Experience of using Mobile phone		
Not yet	3	1.6
Used	186	98.4
Total	189	100
Monthly income		
Less than 100 USD	77	40.7
100-250 USD	49	25.9
250-500 USD	40	21.2

More than 500 USD	23	12.2
Total	189	100
Educational Background		
Secondary school	0	0
High school	15	7.9
Undergraduate school	145	76.7
Graduate school	29	15.3
Total	189	100

4. Results:

All of the constructs in this study were examined in terms of reliability, convergent validity, and discriminant validity. Reliability was evaluated using the composite reliability values. Convergent validity indicates the extent to which the measure of a construct that is theoretically related is also related in reality. Convergent validity can be evaluated using three criteria suggested by Fornell and Larcker (1981): all indicator factor loadings should be significant and exceed 0.70, construct reliabilities should exceed 0.80. And average variance extracted (AVE) by each construct should exceed the variance due to measurement errors for that construct. AVE should exceed 0.5 (Fornell&Larcker, 1981). Principal components Analysis with Promax rotation was first conducted to extract five factors using SPSS 22.0. The results show that all items fit their respective factors quite well. All the factor loadings are above the threshold of 0.7. As described in Table 2, the Cronbach's alpha values range from 0.828 to 0.901 are satisfied internal consistency reliability after refining scales. And Table 3, Exploratory Factor Analysis (EFA), The KMO and Bartlett's Test show that the KMO value is high (0.831> 0.5). As Hair et al.suggested that an item is significant if its factor loading is greater than 0.50; In the Eigenvalues greater than 1, there are 7 factors from 27 items with variance extracted is 65.765% (greater than 50%), it is satisfied.

Table 2. The Cronbach's alpha.

	MoS	DA	Enj	PU	PEU	Trust	MoI
Cronbach's alpha	.862	.828	.901	.887	.871	.831	.891

Table 3: The Exploratory Factor Analysis (EFA) and KMO and Bartlett's Test.

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.831
Bartlett's Test of Sphericity	Approx. Chi-Square	3041.826
	df	351
	Sig.	.000

Pattern Matrix[a]

	Component						
	1	2	3	4	5	6	7
Enj3	.881						
Enj2	.859						
Enj4	.796						
Enj1	.787						
MoI4		.872					
MoI2		.872					
MoI3		.820					
MoI1		.814					
PEU3			.955				
PEU1			.892				
PEU2			.811				
PEU4			.722				
PU2				.903			
PU1				.834			
PU4				.748			
PU3				.655			
DA2					.847		
DA1					.822		
DA3					.814		
DA4					.704		
Trust1						.881	
Trust2						.855	
Trust4						.832	
Trust3						.585	
MoS2							.939
MoS1							.929
MoS3							.929

Extraction Method: Principal Axis Factoring.

Rotation Method: Promax with Kaiser Normalization.

In the table 4, Seven common model-fit measures were used to estimate the measurement model fit: (1) chi-square/degree of freedom (v2/df), (2) comparative fit index (CFI), (3) the goodness- of-fit index (GFI), (4) the Adjusted goodness- of-fit index (GFI), (5) root mean square residual (RMR), (6) root mean square error of approximation (RMSEA), (7) Tucker Lewis Index (TLI), and (8) P of Close Fit (PCLOSE). As Table 4 shows, all the model-fit indices satisfy their respective acceptance criteria suggested in the prior literature (Hair et al., 1998). Therefore, we can conclude that the measurement model has good fit with the data collected. Table 4 also shows the common model-fit indices, recommended values, and results of the test of structural model fitness. A comparison of all fit indices with their corresponding recommended values (Hair et al., 2010) indicates a good model fit.

Table 4: Model fit indices

Model fit indices	**Cmin/df**	**CFI**	**GFI**	**AGFI**	**RMR**	**RMSEA**	**TLI**	**PCLOSE**
Recommended value	<3	>.8	>.8	>.8	<.09	<.05	>.8	>.05
Obtained	1.442	.953	.861	.826	.082	.048	.946	.590

The items that areindicators of a specific construct should converge or share a high proportion of variance in common, known as convergent validity. Several indicators for testing the convergent validity: factor loading, AVE (average variance extracted), reliability (Construct reliability).

Table 5: The measurement model

Item	Standardized factor loading	CR	AVE
MoS2	.878	.864	.680
MoS3	.821		
MoS1	.771		
DA2	.820	.829	.550
DA3	.767		
DA4	.650		
DA1	.720		
Enj3	.876	.902	.697
Enj2	.827		
Enj4	.848		
Enj1	.787		

PU2	.888	.891	.647
PU4	.873		
PU1	.839		
PU3	.664		
PEU1	.791	.872	.629
PEU3	.778		
PEU2	.809		
PEU4	.795		
Trust1	.796	.835	.561
Trust2	.840		
Trust4	.660		
Trust3	.685		
MoI4	.739	.891	.671
MoI2	.828		
MoI3	.857		
MoI1	.848		

Table 6 shows the correlation matrix, with correlations among constructs and the square root of AVE on the diagonal. In summary, the measurement model demonstrated adequate reliability, convergent validity, and discriminant validity.

Table 6: Discriminant validity

	PU	**Enj**	**PEU**	**MoI**	**MoS**	**Trust**	**DA**
PU	0.821						
Enj	-0.155	0.835					
PEU	0.322	-0.018	0.793				
MoI	0.404	0.058	0.546	0.819			
MoS	0.302	0.061	0.129	0.131	0.824		
Trust	-0.159	0.631	-0.019	0.150	0.026	0.749	
DA	-0.172	0.538	-0.152	0.109	0.109	0.448	0.742

Table 7: Structural paths assessment and hypothesis test

Hypothesis			**Path coefficient**	**C.R.**	**P**	**H-Test**
Enj	<--	MoS	.001	.005	.997	**Rejected**
PU	<--	MoS	.351	4.048	***	Supported
Trust	<--	DA	.412	5.887	***	Supported
PEU	<--	DA	-.143	-1.636	.102	**Rejected**
PU	<--	DA	-.278	-2.765	.006	Supported
Enj	<--	DA	.511	7.064	***	Supported
MoI	<--	Enj	.000	-.006	.996	**Rejected**
MoI	<--	PU	.216	4.261	***	Supported
MoI	<--	PEU	.397	5.766	***	Supported
MoI	<--	Trust	.246	2.896	.004	Supported

5. Conclusion and implication:

The purpose of our study was to evaluate mobile shopping services for Vietnamese from the perspective of affective states. The results not only verify and solidify the role of psychology in human behavior, but also provide insights into the risks and opportunities that are part of the changing environment of Vietnam mobile shopping services.

First, the study shows that Enjoyment is not affect the intention to engage in M-shopping in Vietnam. Basing on NguyenBac Son (2013), the number of Smartphones subscribers per 100 inhabitants is only 31%, there are the limitation of the user number and mobile online services. Moreover, Using Mobile phone for shopping is still quite new in Vietnam. Vietnamese users are not recognized and interested in the Enjoyment when using mobile shopping, they pay attention on the Trust, Usefulness and especially Ease of Use for the mobile shopping services.

Second, this study successfully expands the ability to all of its constructs to the mobile shopping context. This area of research is different from the prior studies that focus on the human behavior and user in Vietnam. The research shows the trend of the first period mobile shopping in Vietnam where people are familiar with cash and traditional shopping.

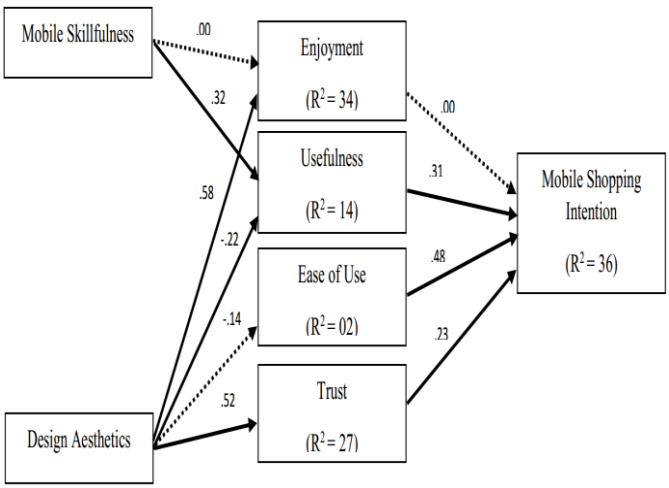

Figure 2: Research Model

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