

# The Impact of Mobile Shopping Quality on Customer Satisfaction and Purchase Intentions: The IS Success Based Model

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## ABSTRACT

While the popularity of mobile phones has grown enormously in recent years, mobile shopping (m-shopping) is becoming a new marketing channel where marketers can use to display or deliver their products or service. Despite mobile shopping increasing significance, there is still a lack of research work in this filed, the objectives of this study are sought to be achieved through examining factors connected with m-shopping quality, perceived usefulness, customer satisfaction, and purchase intention. A self-administered questionnaire is used as a quantitative evaluation method for data collection. This study uses the partial least squares (PLS) analytical tool to examine the model. The results were fully supported proposed model. The implications and suggestions for the further research are also discussed in this study.

Keywords: Mobile shopping, system use, customer satisfaction, purchase intention

## 1. INTRODUCTION

The increasing popularity of mobile devices and availability of smartphones in recent years has attracted the attention of consumers. The rapid growth of mobile shopping has placed mobile retailers at consumers' fingertips, and allowed mobile phone users to shop anywhere, anytime directly from their mobile devices without ever leaving their houses and offices [1].

Consumers become increasingly sophisticated users of mobile phones in their shopping decision process to facilitate purchases while technological advance alters the nature of marketing channels. Mobile Shopping enables the consumer actively engaged and further likely to make more purchases, access services, and transact business with their business by offering consumers the convenience and flexibility of mobile services anytime and anywhere.

According to research from Brand Anywhere and Luth Research [2], 51% of consumers among 1000 respondents representative of the U. S. population are more likely to shop at retailers who have websites designed for devices like the iPhone but only 4.8% of U.S. retailers have mobile-specific websites and 22.8% of the top retail websites have mobile-specific websites. Shopping on mobile phones is therefore expected to simplify shopping experience and dramatically accelerate growth, but continue to remain a relatively small percentage of overall sales.

Mobile transaction services essentially encompass issues as diverse as privacy, data integrity, ease-of-use, and application availability. Based on the online and mobile shopping study results, Asian e-Marketing [3], an independent online publisher, reveals that the top 3 barriers to mobile shopping are small screen size (55%), security concerns (52%) and slow mobile Internet connection (42%) by studying a sample of 407 Singapore shoppers for their online and mobile shopping transactions last year to explore potential growth and respective trends in Singapore.

Despite mobile shopping increasing significance, there is still a lack of research work in this filed. Therefore, this study intends to explore the determinants of customer satisfaction and purchase intentions in mobile shopping. Considerable prior research endeavors to examine the effectiveness of IS success, evaluation and acceptance. Many researchers endeavor to explore various relationships focused on integrated the IS success model as well as extensions and tests of their model [4]. As such, this study explores possible potential influential factors on mobile shopping to see if an association exists between customer satisfaction and purchase intention.

Based on the theoretical foundation of DeLone and McLean [5] IS success models, this study examines the extent to which marketers' perception of their understanding the mobile shopping and determines how it affects consumer retention on organizational performance. The survey focuses on measuring the perception of marketers regarding the quality of mobile shopping with an understanding of consumers' expectations and how it affects consumers' purchase intention.

To achieve the above objectives, a review of the relevant literature is presented as groundwork in the next section. Section 3 describes the research model and the hypotheses to be tested. In section 4 facilitates discussion on research methodology. Section 5 explores the conclusion with limitations and solutions of current research work.

## 2. THEORETICAL BACKGROUND

Mobile shopping contains characteristics of both an innovative information system and a new marketing channel where is dramatically change the way people consuming goods and retailers have the potential to capture the evolving business. As mobile shopping continues to proliferate, retailers are clearly embracing mobile shopping as a powerful sales channel that can help retailers to target their potential consumers with offering a new level of convenience [6].

In the present study, m-shopping is considered an innovative information system aimed at offering consumers the opportunity to shop anywhere and at any time. M-shopping is defined as mobile transaction services that allow customers to browse a shop or make a purchase using their mobile handheld devices equipped with Internet access. Based on the IS success model, this study seeks to measure m-shopping implementation success. The following offers a brief discussion of the importance of the IS success model and how it measures the success or effectiveness of information systems.

### IS success model

Based on prior studies, many researchers endeavor to examine the relationships that consist of DeLone and McLean (D&M) model of IS success [7] in both individual and organizational contexts. The original model classified into six interrelated variables or components of IS success including system quality, information quality, system's use, user satisfaction, organizational impact, and individual impact. Figure 1 shows the original IS success model [7].

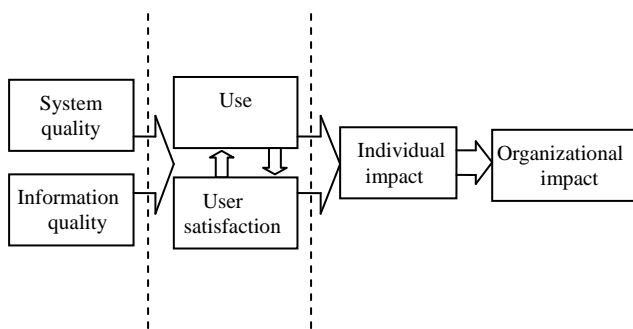


Figure 1. The original D&M IS success model (1992)

Although the original model has been widely used by researchers for measuring the dimensions of IS success, researchers evaluated the model from an IS perspective and suggested that the construct of service quality should include to the D&M model. With some limitations to this original specification, DeLone and McLean [6] revise the model based on the work of Mason's effectiveness levels [8]: The primary differences between the original and updated D&M models included the addition of services quality to reflect the changing nature of IS as required in successful e-commerce system.

The updated model is classified into six interrelated categories of success. Each of the variables describes success of an information system was consistent with one or more of the six major success dimensions of the updated model. The dimensions of success include: system quality, information quality, service quality, system use, user satisfaction, and net benefits. D&M model replaced the variables, individual impact and organizational impact, with net benefits, thereby accounting for benefits at multiple levels of analysis. This revision allowed the model to be applied to whatever level of analysis the researcher considers most relevant [4]. The updated D&M IS success model [6] is shown in Figure 2.

Prior empirical study [9] also builds on both DeLone and McLean [7] and Seddon's [10] models. These models focus on five constructs (system quality, information quality, perceived usefulness, user satisfaction and system use) and represent system quality and system use in terms of ease of use and system dependence, respectively. They view perceived usefulness as related to individual impacts because it is based on several of the constructs. This study therefore considers mobile shopping as something of an information system. The

study based on the updated D&M success model [6] to examine the relationships between m-shopping quality, perceived usefulness, consumers satisfaction, and purchase intention.

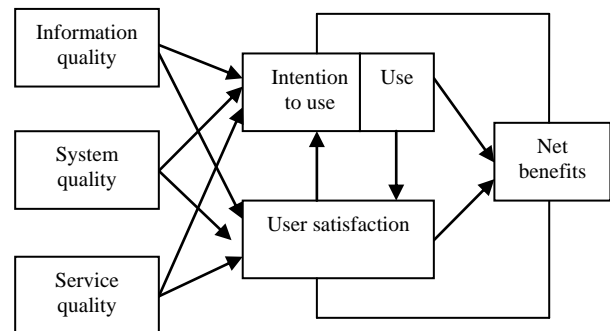


Figure 2. The updated D&M IS success model (2003)

### M-shopping quality

Many studies have proved the significant relationship between trust and mobile or any e-commerce adoption. Trust can be defined as consumers' thought, feelings, emotions, or behaviors that occur when they feel that an agent can be relied upon to act in their best interest when they give up direct control. In a mobile web context, IS quality plays an important role in obtaining IS effectiveness. Lee and Chung [11] stated that system quality is based on the productivity model, which evaluates the extent of information system resource and investment utilization. Information quality signifies the quality of information output by the system, rather than the quality of the system itself. System quality relates to the quality of mobile devices' hardware and software in terms of ability to enable information transfer.

In the DeLone and McLean [6] model, system quality is reflected in the ease of use, usability, navigability, availability, reliability, adaptability and response time of the technical system. System characteristics are represented by website interface features, such as website content, presentation attributes and system design features that may be perceived by consumers. Information quality relates to the quality of the information provided by the retailer. Information quality is defined as the degree to which information produced by IS is accurate, relevant, complete, and in the format required by the user. Service quality relates to the customer support and information reliability provided by both retailers and the system provider.

### Perceived usefulness, customer satisfaction, and retention

Lu and Su [12] analyze consumer perceptions and the factors that influence adoption of m-shopping. Their model predicts that individuals will use a system if they perceive that the useful benefits of the system are greater than the effort required to use it. In keeping with some prior research, usefulness exerts a significantly positive influence on behavioral intention to use.

As demonstrated in many studies, it is expected that m-shopping can provide beneficial information to customers, enhancing their time and cost savings, while offering the ability to support customers more efficiently. Thus, consumers will adopt m-shopping system if they believe that m-shopping will benefit them in that they are able to obtain their desired performance. Consumer retention is the crucial ingredient to get success in business and is considered an important determinant of mobile shopping behavior with significant impact on firm profitability.

### 3. RESEARCH MODEL AND HYPOTHESES

The conceptual framework related to the background and motivation of this study from a review of prior, relevant literature on mobile shopping is constructed and represented in Figure 1. As shown in Figure 1, the extensive follow-up research model is based on the IS success model to explore the identified factors affecting the adoption of mobile shopping by examining the relationships between the m-shopping quality, system use, customer satisfaction, and purchase retention. Based on the literature review, this study seeks to test the following hypotheses:

H1a: System quality positively affects perceived usefulness of m-shopping system.

H1b: System quality positively affects customer satisfaction with m-shopping system.

H2a: Information quality positively affects perceived usefulness of m-shopping system.

H2b: Information quality positively affects customer satisfaction with m-shopping system.

H3a: Service quality positively affects perceived usefulness of m-shopping system.

H3b: Service quality positively affects customer satisfaction with m-shopping system.

H4a: Perceived usefulness positively affects customer satisfaction with m-shopping system.

H4b: Perceived usefulness positively affects purchase intention with m-shopping system.

H5: Customer satisfaction positively affects purchase intention with m-shopping system.

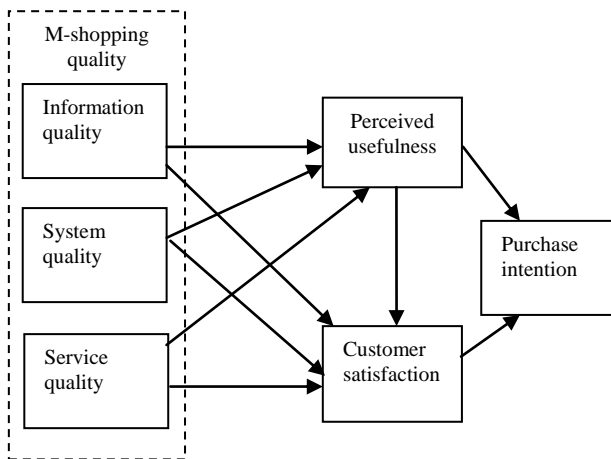


Figure 3. The research model

### 4. METHOD

#### Measures

This study builds a well-tested framework and validated scales for the measures of constructs based on previous studies. A self-administered questionnaire is used as a quantitative evaluation method for data collection. Each construct is measured with multiple items which are adapted from previous studies on a seven-point Likert scale in the questionnaire, ranging from “strongly disagree” to “strongly agree (a translation to local language is provided).

Pre-tests will carry out to verify the reliability and validity of a self-administered questionnaire in order to amend the results. Pre-test questionnaires for both marketers and consumers will

be administered to 50 professional participants who work in related research areas. The final version of the questionnaire has conducted employees at 5 major mobile commerce companies in Taiwan to provide a unique insight into mobile shopping from a buyer perspective. A total of 143 responses were gathered and 139 valid samples were obtained. Table 1 shows demographic characteristics of the study.

Table 1. Characteristics of this study

Characteristics of the sample	Frequency	Percent
Gender		
Male	78	56%
Female	61	44%
Age		
Under 30	18	13%
31~35	26	19%
36~40	38	27%
41~45	33	24%
46~50	24	17%
Over 51	-	-
Education		
High school	12	9%
Undergraduate	71	51%
Graduate	49	35%
Doctorate	7	5%
Job position		
Marketing Manager	16	12%
Marketing Specialist	31	22%
Technical Consultant	14	10%
Marketing Analyst	32	23%
Sales Representative	35	25%
Other	11	8%

#### Data analyses

After the pilot testing of revised questionnaire, this study will use the partial least squares (PLS) analytical tool to examine the model and SmartPLS 2.0 will be used to test the hypotheses of this study. PLS is an efficient statistical regression technique that is highly suited for complexity, non-normal distribution, low theoretical information, and small sample size are issues [13] [14].

In this study, the value of composite reliability is higher than 0.7 and the average variance extracted (AVE) is greater than 0.5 which indicates that convergent validity is satisfied.

For assessing the reliability of measurement, item-scale correlations were used to test the construct validity of the items with loading greater than 0.5 and Cronbach’s alpha values were greater than 0.7. Discriminant validity verifies that items had a loading higher on their respective constructs than on other constructs. The structural model was assessed by estimating the paths between the constructs in the model. The results of factor loading for AVE and CR have acceptable convergent validity as shown in table 2.

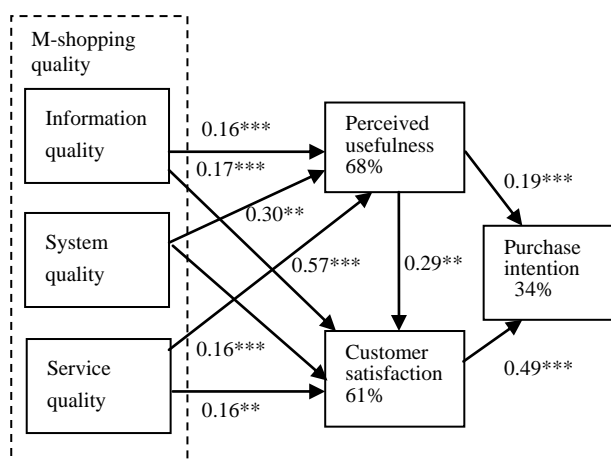
Table 2. Square root of AVE and constructs and loading for AVE and CR

Factor	SQ	IQ	VQ	PU	CS	PI	CR	AVE
SQ	0.82 <sup>a</sup>						0.91	0.67
IQ	0.64	0.85 <sup>a</sup>					0.94	0.73
VQ	0.59	0.58	0.83 <sup>a</sup>				0.93	0.69
PU	0.61	0.60	0.76	0.83 <sup>a</sup>			0.93	0.69
CS	0.68	0.62	0.66	0.70	0.86 <sup>a</sup>		0.94	0.75
PI	0.73	0.62	0.52	0.53	0.62	0.88 <sup>a</sup>	0.91	0.78

This study then was conducted with 500 bootstrap re-samples to assess the measurement and structural models for parameter estimation and inference when the sampling is restricted by the small size of the original sample. The results show that system quality had a positive effect on perceived usefulness of m-shopping system and customer satisfaction (path coefficient

of 0.16,  $p < 0.05$  and path coefficient of 0.30,  $p < 0.05$ ). Information quality had a positive effect on perceived usefulness of m-shopping system and customer satisfaction (path coefficient of 0.17,  $p < 0.05$  and path coefficient of 0.16,  $p < 0.05$ ). Service quality had a positive effect on perceived usefulness of m-shopping system and customer satisfaction (path coefficient of 0.57,  $p < 0.001$  and path coefficient of 0.16,  $p < 0.05$ ). Perceived usefulness had a positive effect on customer satisfaction and purchase intention (path coefficient of 0.29,  $p < 0.001$  and path coefficient of 0.19,  $p < 0.05$ ).

In addition, customer satisfaction had a positive effect on purchase intention (path coefficient of 0.49,  $p < 0.001$ ). As expected, the results supported the proposed research model. The model explained 68% of the variance in Perceived usefulness, 61% of the variance in consumer satisfaction, and 34% of the variance in purchase intention. All the hypotheses were fully supported. Figure 4 shows the results of the path coefficients ( $\beta$ ), path significances, and  $R^2$  values for the model using the bootstrap re-sampling method.



\* $t > 1.96$ ,  $p < 0.05$ ; \*\* $t > 2.58$ ,  $p < 0.01$ ; \*\*\* $t > 3.29$ ,  $p < 0.001$ .

Figure 4. The result of PLS

## 5. CONCLUSION

This study identified the factors encompass the mobile shopping that influence customer satisfaction and purchase retention. The results of this study provide a nascent understanding of how effectively and efficiently m-shopping delivers ubiquitous value to firms. This study further provides a dependable source and practical guidelines for the firm's decision makers to benefit long-term business model development. The results of this study facilitate sensible and effective planning of future m-shopping development and further study for both researchers and practitioners.

The study intends to summarize the critical, relevant literature to provide preliminary findings with valuable information and relevant results that will be useful reference data sources for readers. The results of the study offer assistance to firms and researchers in understanding this value-add channel—mobile shopping system that can increase customer satisfaction and retention. The contribution of this study may help to enhance consumer retention and continue purchase on mobile shopping. This study also contributes knowledge about the utilization of mobile shopping as a new marketing channel for retailers to enhance satisfaction of consumers to accept mobile shopping.

However, the sample data used for this study will distribute to marketers and consumers in Taiwan. As is apparent, the mobile shopping is still in its infancy stage, therefore, the small sample size is not a large enough sample size to be generalizable to the population. In addition, random sampling is not guaranteed to produce a sample representative of the sampling frame. Thus, the study sample may not be representative of the sampling frame or target population. The low response rate may obtain in this study, especially for conducting mail surveys and non-comparable populations.

With lower response rate, it may increase levels of response bias. Also, self-report measures are inherently subjective and validity problems. As the result, self-report bias had significant consequences for the accuracy of responses in this study. Therefore, future study should overcome these limitations. Future research should endeavor to obtain a large enough sample. The survey should focus on finding an appropriate sample and including more participants to increase the generalizability of the research while random sampling is a vital part of ensuring the generalizability of the survey results due to the particulars of a population, restrictive eligibility criteria or poor participation.

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