

## Exploring the Determinants of Users' Satisfaction in Mobile Commerce

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### Abstract

*The present study aims to identify the determinants of mobile commerce users' satisfaction in the Sri Lanka context. In addition, it aims to assess the degree mobile commerce users' satisfaction and the degrees of Trust, Social influence, Perceived usefulness, Mobility, Perceived enjoyment and Customization in relation to mobile commerce in the Sri Lanka context. To achieve these objectives, a questionnaire was developed with items that capture the dimensions: Trust, Social influence, Perceived Usefulness, Mobility, Perceived Enjoyment, Customization and Customers' satisfaction. Questionnaires were conveniently distributed to the two hundred and fifty undergraduates of mobile commerce users in Sri Lanka. Reliability analysis was performed to measure the internal consistency of the items used to measure the dimensions considered in the study. Univariate analysis was performed to assess the degrees of the dimensions and the multiple linear regression analysis was applied to identify the factors affecting the mobile commerce users' satisfaction. The results indicated that Trust, Perceived usefulness, Mobility, Perceived enjoyment, Customization and Users' satisfaction for the mobile commerce are at high level whereas the degree of social influence for mobile commerce is at moderate level among the undergraduates in Sri Lanka. Trust, Perceived usefulness, Mobility, Perceived enjoyment and Customization are the significant determinants of mobile commerce users' satisfaction and among these determinants Trust is the most influential predictor of mobile commerce users' satisfaction followed by Perceived usefulness, Perceived enjoyment, Customization and Mobility. The findings of this study assist the mobile commerce providers, academics and practitioners to develop and implement the users' satisfaction in relation to mobile commerce.*

**Keywords:** mobile commerce, user satisfaction, customization, social influence, mobility

## Introduction

Commerce is one of the domains that continue to substantially benefit from the growth of internet technologies. Indeed, commerce has evolved from the traditional way of buying and selling to launching online transactions from browsers and lately, hand held mobile devices. Thus, the shift is from commerce to E-commerce and now M-commerce.

M-commerce, which stands for mobile commerce, is defined as buying and selling of goods and services through wireless handheld devices such as cellular telephone and personal digital assistants (PDAs) (Chong, 2013a). Thus, the e-commerce

transactions, conducted through mobile devices (e.g., cellular phones, handheld or palm-sized computers, and even vehicle mounted interfaces), using wireless telecommunication networks and other wired e-commerce technologies, are termed mobile commerce (M-commerce). A new business service model, that is, M-commerce, is growing quickly at a global scale today. It has become popular because of the increased use of handheld devices, fast internet connections and ability to connect people in different geographic locations.

In the Sri Lankan context, M-commerce is relatively in its infancy stage and nowadays mobile commerce services offered for consumers can be categorized as mobile banking, mobile money transfer, mobile ticketing, mobile marketing and mobile purchasing etc. In addition to that, the internet penetration in Sri Lanka is growing, and granting more people access to the World Wide Web. Recent statistics show around 30 percent of the population have access to the internet. This is mainly attributed to the growth of Sri Lanka's mobile industry. The country now has a mobile penetration of 115 percent, with the accessibility of smartphones growing rapidly. With the growth of smartphone usage, M-Commerce is expected to grow rapidly in the near future.

The potential for using M-commerce applications led many organizations to spend substantial resources on these technologies to deliver value added, interactive and location-based mobile services, such as, banking, content download, emergency/roadside assistance, etc., in order to provide the convenience services and to gain a competitive advantage by strengthening relationships with key customers. With the growth in m-commerce, the competitions among m-commerce retailers are also growing intensively. In this environment, retaining customers is essential for M-commerce retailers to ensure profitable repeat business as attracting new customers is considerably more expensive than for comparable, traditional, brick-and-mortar stores (Lin & Wang, 2006).

The importance of customer satisfaction for each organization to get competitive advantage resulting in repeat-purchase intention and customer retention has been recognized in marketing literature for many years. However, little is known about the factors involved in generating customer satisfaction in a M-commerce context and most of the researches have paid the attention to the customer's adoption of M-commerce or customer's intention to accept m-commerce (Lin & Wang, 2006; Zhang et al., 2012, Chong et al., 2012; Wei et al., 2009). Although examining the user behavioural intention towards the adoption of a technology is common, it is also important to understand the customer satisfaction for the retention of customers in M-commerce context (Chong, 2013).

In Sri Lanka also, a gap remains in the relatively little-investigated literature on the degree of M-commerce users' satisfaction and the predictors of users' satisfaction in M-commerce and there is no extant published researches in this context, because it has only been in existence for a relatively short period of time.

Therefore, this paper aims to bridge the gap by assessing empirically the degree of M-commerce users' satisfaction and examining the factors empirically that influence users' satisfaction in M-commerce in the Sri Lanka context by integrating the constructs: Trust, Social influence, Perceived Usefulness, Mobility, Perceived Enjoyment and Customization. In this line, the research objectives formulated for the study are: 1) to assess the degrees of Trust, Social influence, Perceived usefulness, Mobility, Perceived enjoyment and Customization in relation to M-commerce 2) to assess the degree of M-commerce users' satisfaction, 3) to identify the extent to which Trust, Social influence, Perceived Usefulness, Mobility, Perceived Enjoyment and Customization impact on M-commerce users' satisfaction, 5) to identify the determinants that affect significantly M-commerce users' satisfaction. Based on the findings, M-commerce marketers should be able to justify expenditures that promote increased mobile customer satisfaction.

Therefore, this study sought to provide a better empirical understanding of the determinants of M-commerce users' satisfaction in the Sri Lanka context. The rest of this study is organized as follows: the next literature review, followed by methodology, data analysis and results, and conclusion.

## **Literature Review**

### ***Customer Satisfaction in Mobile Commerce***

Satisfaction is a customer's post-purchase evaluation and affective response to the overall product or service experience. It is considered as a strong predictor for behavioural variables such as repurchase intentions, word-of-mouth recommendations, retention, or loyalty (Lin & Wang, 2006). Wang and Liao (2007) define m-commerce user satisfaction as "a summary affective response of varying intensity that follows mobile commerce activities, and is stimulated by several focal aspects, such as information quality, system quality and service quality"

The conceptualization of customer satisfaction adopted, therefore, corresponded to the summary affective response or feeling of a customer in relation to her/his experience with all aspects developed by an m-service to market its products and services.

### ***Attributes affecting Mobile Commerce Customer Satisfaction***

Many researchers have studied influential factors on customer satisfaction and loyalty in current electronic commerce (e-commerce), while the mobile commerce satisfaction (M-satisfaction) research is still in its infancy. However, mobile commerce succeeded many attributes from electronic commerce success model.

Analyzing past studies have found that various models have been considered to find out the factors affecting users' satisfaction in M-commerce context (see Table 1).

Table 1: M-commerce users' Satisfaction Models

Researchers	Factors/Dimensions
Lin H.H. & Wang Y.S. (2006)	Perceived Value, Trust
Yung S.H & Yung M.Li (2009)	Vendor's Website Quality: Interactivity & Customization Mobile Technology Quality: Usefulness & Ease of Use Vendor Quality: Responsiveness & Brand Image
Weng O.L & Lai S.W. (2016)	Efficiency, System Availability, Fulfillment, Privacy
Veljko M. & Zoran K. (2017)	Trust, Social Influence, Perceived Usefulness, Mobility, Perceived enjoyment, Customization

Based on the published literature on the M-commerce context (Lin H.H. & Wang Y.S. (2006), Yung S.H & Yung M.Li (2009), Veljko M. & Zoran K. (2017)), this study identifies Trust, Social Influence, Perceived Usefulness, Mobility, Perceived enjoyment, and Customization are the major determinants of the M-commerce users' satisfaction.

### ***Trust***

Customer trust is crucial for the growth and success of mobile commerce. Bailey et al (2002) define trust from the consumer's viewpoint as "the perception of the degree to which an exchange partner will fulfil their transactional obligations in situations characterized by risk or uncertainty." This view emphasizes the role of the trustee, the vendor. However, vendor-based trust is just one of different trust types. Hence the more neutral definition of trust as "the objective quality governing the degree to which transactional obligations will be fulfilled in situations characterized by risk or uncertainty" is used.

Many empirical studies found that trust has significant and positive impact on m-commerce customer satisfaction (Zhou, 2011; Lin & Wang, 2006; San-Martin and Lopez-Catalan, 2013; Chong, 2013a; Veljko & Zoran, 2017).

Therefore, because the impact of trust in the context of M-commerce is important, the following hypothesis is proposed:

H1: Trust has a positive impact on M-commerce users' satisfaction.

### ***Social Influence***

Social influence refers to the extent to which members of a social network influence one another's behavior (Rice et al., 1990). M-commerce users are exposed to the effect of interactions among people in the bigger social environment. Members in complex social networks including colleagues, experienced users, friends, family members, and celebrities are all likely to exert influence on one's behavioral intention. In addition, secondary sources of information, such as TV and newspapers,

as influential in voluntary settings (Rogers, 1995; Venkatesh & Brown, 2001). Social influence has been regarded as a critical element to decision making for people in sociology and in behavioral science.

Empirical examination of social influence in m-commerce studies also showed its power in predicting consumer adoption decisions (Chong et al., 2012) and in forecasting intentions to use mobile data services (Kim et al., 2011). Social influence was found to be both an antecedent (Sadia, 2011) and a determinant of m-commerce adoption (Shin et al., 2010; Wei et al., 2009).

As social influence is found to be an important predictor of adoption to M-commerce, it is expected to affect customer satisfaction. Hence, the following hypothesis is proposed.

H2: Social influence has a positive impact on M-commerce users' satisfaction.

### ***Perceived Usefulness***

Perceived usefulness is defined as “the degree to which a person believes that using a particular system would enhance his or her job performance” (Davis, 1989). It is one of vital elements in the Technology Acceptance Model (TAM) that influence individuals' attitudes towards using the system (Davis, 1989). Usefulness of the target technology is repeatedly recognized as a critical determinant of user behavioral decisions, regardless of research contexts.

Perceived usefulness has been repeatedly found an important determinant of continuance intention toward m-commerce (Hung et al., 2007; Lin and Shih, 2008). In addition, Perceived usefulness is often considered as a predictor of users' satisfaction with new technology (Liebana-Cabanillas et al., 2013; Zhou, 2011; Chong, 2013a; Veljko & Zoran, 2017).

In line with the literature, the following hypothesis can be formulated for M-commerce users in Sri Lanka:

H3: Perceived usefulness has a positive impact satisfaction among the M-commerce users

### ***Mobility***

Kornak et al. (2004) defines mobility as “the application of mobile devices and wireless technology to enable communication, information access and business transactions from any device, from anyone, from anywhere, at any time”. Mobile technologies may help consumers in two ways: they may increase consumers' mobility, enabling “anytime, anywhere” access, but they may also reduce consumers' need to travel or move to buy or pay for goods or services (Mallat et al., 2009).

Mobility is often considered to be one of the key drivers of m-commerce acceptance, attitude toward use, intention to use, and perceived usefulness (Schierz et al., 2010; Kim et al., 2011; Mallat et al., 2009). Further, Mobility was found to be a significant driver of customer satisfaction (Veljko & Zoran, 2017).

Based on the empirical evidence, this study formulates:

H4: Mobility has a positive impact on M-commerce users' satisfaction.

### ***Perceived Enjoyment***

Igbaria et al (1996) defined enjoyment as “the intrinsic reward derived through the use of the technology or service studied”. According to Davis et al., 1992 and Dai & Palvia, 2009, Perceived enjoyment is the extent to which the activity of using m-commerce is perceived to be enjoyable in its own right or fun and pleasant to use.

Based on the review of empirical evidences, perceived enjoyment significantly and positively affects satisfaction, intention to use, and adoption in the context of M-commerce ((Veljko & Zoran, 2017; Chong, 2013a; Dai & Palvia, 2009). Therefore, this study posits:

H5: Perceived enjoyment has a positive impact on M-commerce users' satisfaction.

### ***Customization***

According to Bunt et al (2004), customization is the *adaptable interface* that allows users to customize the application to suit their needs. Thus, customization can be defined as “customer perception of the extent that he or she can customize and control the features of an online or wireless service or site.” The dimension for customizability may include options for products, services, interfaces content, communication methods, transaction process, and form factors.

Zo (2003) postulates that if customers have more control over the processes of online services, they may feel the services as more reliable and secure. Such positive effects can lead to customer satisfaction and intention to return. Chan et al. (2004) postulated that perceived customizability is influenced by a customer's self-efficacy for customizing wireless applications and as a result, perceived customizability may lead to positive perceptions of service performance, expectation and desire disconfirmation, and satisfaction.

Based on this literature review, the following hypothesis is proposed.

H6: Perceived customization has a positive impact on M-commerce users' satisfaction.

## **Methodology**

The target respondents for this study were the undergraduates in Sri Lanka who have used M-commerce services. A sample of 250 undergraduates of M-commerce users hails from the various state universities in Sri Lanka were selected using a convenience sampling method.

A questionnaire was developed based on the measurements adopted from the previous study (Veljko & Zoran, 2017). A total of 23 statements (items) were used to measure the seven dimensions Trust, Social influence, Perceived usefulness, Mobility, Perceived enjoyment, Customization and Satisfaction. Responses to the statements were measured by a five-point Likert scale ranging from 1 = Strongly Disagree to 5 = Strongly Agree. Questionnaires were distributed to the 250 undergraduates of M-commerce users by direct contact.

The collected data were subsequently analyzed using the IBM SPSS 22. Reliability analysis was performed to measure the internal consistency of the items used to measure the dimensions considered in the study. Uni-variate analysis was performed to assess the degrees of Trust, Social influence, Perceived Usefulness, Mobility, Perceived Enjoyment and Customization in relation to M-commerce users and the M-commerce users' satisfaction. The multiple linear regression analysis was applied to identify the factors affecting the M-commerce users' satisfaction, where Trust, Social influence, Perceived usefulness, Mobility, Perceived enjoyment, and Customization were the explanatory variables and users' satisfaction was the dependent variable.

## **Data Analysis and Results**

### ***Sample Profile***

Of the total 250 respondents, approximately 64% (160 respondents) are female and 36% (90 respondents) are male. In relation to nationality, the majority of the respondents are Sinhalese (approximately 74%) and rest of the respondents are Tamils. In terms of residence, 60% of the respondents come from urban area where as 40% of the respondents from the rural area. Regarding the faculty, majority of the respondents (around 60%) from the Faculty of commerce and management, 21% from the Faculty of Science and 19% of the respondents from the Faculty of Applied Sciences.

### ***Results of the Reliability Analysis***

The reliabilities of the seven dimensions were tested using Cronbach's alpha measurement. Table 2 displays the reliability coefficients ranged from 0.832 to 0.915, well above the recommended standard of 0.70 (Nunnally, 1978). Hence all the dimensions display satisfactory level of reliability.

Table 2: Results of the Reliability Test

Dimensions	Reliability (Cronbach's Alpha)
Trust	0.878
Social influence	0.844
Perceived usefulness	0.915
Mobility	0.913
Perceived enjoyment	0.853
Customization	0.832
Customer satisfaction	0.889

(Source: Survey Data)

**Results of the Univariate Analysis**

Table 3 reported the means and standard deviations for all the dimensions. The means for the dimensions range from 2.904 to 4.022 (out of 5) and the corresponding standard deviations range from 0.676 to 1.005.

Table 3: Results of the Descriptive Analysis

Dimensions	Mean	Standard deviation
Trust	4.022	0.685
Social influence	2.904	0.732
Perceived usefulness	3.895	0.676
Mobility	3.977	0.753
Perceived enjoyment	3.776	1.005
Customization	3.953	0.735
Users' satisfaction	3.970	0.745

(Source: Survey Data)

According to Hair et al. (2006), as the average values for Trust, Perceived usefulness, Mobility, Perceived enjoyment, Customization and Users' satisfaction have fallen within the high level range of 3.5 – 5 (see table 3), the degrees of Trust, Perceived usefulness, Mobility, Perceived enjoyment, Customization and Users' satisfaction for the mobile commerce are at high level among the undergraduates in Sri Lanka whereas the degree of social influence for mobile commerce is at moderate level (mean value for Social influence have fallen within the moderate level range 2.5 – 3.49).

**Results for Correlation and Regression Analysis**

Multiple regression analysis was performed to test the hypotheses proposed in the study and to identify the factors significantly affecting the M-commerce users' satisfaction. The predictors were the Trust, Social Influence, Perceived usefulness, Mobility, Perceived enjoyment, and Customization. Table 4 summarizes the results of regression analysis. As can be seen in Table 4, each predictor is positively and significantly correlated with the M-commerce users' satisfaction, indicating that those with higher scores on these variables tend to have higher score on M-commerce users' satisfaction. Among all the six predictors, Trust has strong positive association with M-commerce users' satisfaction ( $r = 0.705 > 0.7$ ), Social Influence is weakly associated with M-commerce users' satisfaction

( $r = 0.234 > 0.3$ ) and the other predictors, Perceived usefulness, Mobility, Perceived enjoyment and Customization have moderated association with M-commerce users' satisfaction ( $0.3 < r = 0.589, 0.467, 0.503, 0.561 < 0.7$ ).

The results of multiple regression analysis presented in the table 4, the multiple correlation,  $R = 0.786$ , and the coefficient of determination,  $R^2 = 0.618$  indicates that 61.8% of the variance in the M-commerce users' satisfaction is explained by the predictors Trust, Social influence, Perceived usefulness, Mobility, Perceived enjoyment and Customization and the model is a significant predictor of M-commerce users' satisfaction,  $F(6, 243) = 74.26, p < 0.001$ .

The coefficients of multiple regression ( $B$  and  $Beta$  values) and the corresponding  $t$ -values reported in the table 4 indicate that Trust ( $B = 0.388, t = 6.174, p < 0.001$ ), Perceived usefulness ( $B = 0.237, t = 4.576, p < 0.001$ ), Mobility ( $B = 0.096, t = 2.435, p < 0.001$ ), Perceived enjoyment ( $B = 0.179, t = 3.348, p < 0.001$ ) and Customization ( $B = 0.168, t = 2.976, p < 0.001$ ) have significant positive impact on M-commerce users' satisfaction. Thus, the hypotheses  $H_1, H_3, H_4, H_5$ , and  $H_6$  have been empirically supported. However, Social influence ( $B = 0.025, t = -1.723, p = 0.186$ ) has not significant impact on M-commerce users' satisfaction. Thus, the hypothesis  $H_2$  has not been empirically supported. From this it can be concluded that Trust, Perceived usefulness, Mobility, Perceived enjoyment and customization are the significant determinants of M-commerce users' satisfaction and the most influential predictor of M-commerce users' satisfaction is Trust ( $B = 0.388$  and  $Beta = 0.349$ ) followed by Perceived usefulness ( $B = 0.237, Beta = 0.215$ ), Perceived enjoyment ( $B = 0.179, Beta = 0.167$ ), Customization ( $B = 0.168$  and  $Beta = 0.163$ ) and Mobility ( $B = 0.096$  and  $Beta = 0.0163$ ).

Table 4: Results from the Correlation and Multiple Regression Analysis

Predictors	Correlation with Satisfaction ( $r$ )	Coefficients from the Multiple Regression			$t$ -value
		$B$	$SE B$	$Beta$	
Trust	.705***	.388	.035	.349	6.174***
Social influence	.234***	.025	.009	.023	-1.723
Perceived usefulness	.589***	.237	.015	.215	4.576***
Mobility	.467***	.096	.020	.087	2.435***
Perceived enjoyment	.503***	.179	.011	.167	3.348***
Customization	.561***	.168	.025	.163	2.976***
Model Summary	F Statistics	R	$R^2$	Adjusted $R^2$	
	$F(6, 243) = 74.26$ ***	0.786	0.618	0.613	

\*\*\*  $p < 0.001$

(Source: Survey Data)

## Conclusion

The research was carried to assess the degrees of the Trust, Social Influence, Perceived usefulness, Mobility, Perceived enjoyment, and Customization in relation

to M-commerce and the degree of M-commerce users' satisfaction in the Sri Lankan context. In addition, this research examined the factors that affect the M-commerce users' satisfaction.

The degrees of Trust, Perceived usefulness, Mobility, Perceived enjoyment, Customization and Users' satisfaction for the mobile commerce are at high level among the undergraduates in Sri Lanka whereas the degree of social influence for mobile commerce is at moderate level.

61.8% of the variance in the M-commerce users' satisfaction is explained by the predictors Trust, Social influence, Perceived usefulness, Mobility, Perceived enjoyment and Customization. While Trust, Perceived usefulness, Mobility, Perceived enjoyment and Customization are significantly affecting the M-commerce users' satisfaction and have positive impact on the M-commerce users' satisfaction, Social influence does not affect the M-commerce users' satisfaction. In addition, the most influential predictor of M-commerce users' satisfaction is Trust followed by Perceived usefulness, Perceived enjoyment, Customization and Mobility.

This study contributes to user satisfaction research stream by integrating Trust, Social Influence, Perceived usefulness, Mobility, Perceived enjoyment and Customization constructs in the context of M-commerce. In addition, this research provides valuable knowledge and information to m-commerce retailers and service providers to build M-commerce user satisfaction in Sri Lanka.

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