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## EXAMINING FACTORS INFLUENCING CUSTOMER SATISFACTION AND TRUST TOWARDS VENDORS ON THE MOBILE INTERNET

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### **Abstract**

This study aims to examine factors influencing customer satisfaction and trust towards vendors on the mobile Internet. Data were analysed among 200 respondents who completed the questionnaire by employing multiple regression analysis. Results revealed that customer satisfaction towards the vendor was significantly influenced by ease-of-use, responsiveness, and brand image. Meanwhile, customer trust towards the

vendor in m-commerce is affected by responsiveness, brand image and satisfaction towards the vendor in m-commerce. The findings imply there is a need for a vendor in m-commerce to put greater focus on the factors that can generate more satisfaction and trust from the customers. The paper rounds off with conclusions and an agenda for future research in this area.

Keywords: 3G; Adoption; Attitude; Mobile Phone; Technology Acceptance; Usage

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## **INTRODUCTION**

Mobile Internet applications allow real-time, anywhere, anytime connectivity to services on the Internet where it creates a growing demand for mobility (Olla, Patel, & Atkinson, 2003). This means that customers, partners and employees should be able to access information resources and services of a company wherever and whenever they want via mobile phone (Steendern, 2002). Every company entering the mobile marketplace has the same goal: leveraging this channel to create customer value (Kalakota & Robinson, 2001). Prior research has identified trust as a research issue in both e- and m-commerce (Hsu & Lu, 2005; Hsu, Lu, & Hsu, 2007; Lai, 2004; Siau & Shen, 2003). Li and Yeh (2009) found that the level of satisfaction is a key determinant of gaining customer trust in m-commerce. Lin and Wang (2006) extended SERVQUAL satisfaction with trust and perceived value, and examined customer loyalty in m-commerce. When customers make transactions with the vendor, they may have different reactions towards the transaction, thus affecting overall satisfaction (Spreng, MacKenzie, & Olshavsky, 1996).

Chae, Kim, Kim, and Ryu (2002), Li and Yeh (2009) found factors affecting quality of service in m-commerce has an impact on behavioral intention to use 3G services through the improved level of satisfaction. According to Siau, Sheng, Nah, and Davis (2004) satisfaction was the fundamental performance variable affecting customer perceptions with regard to m-commerce. Hence, this study aims to examine factors influencing customer satisfaction and trust towards vendors on the mobile Internet. This paper is structured as follows: Section 2 presents the model employed in this study, focusing on the rationale of the constructs used and deriving testable hypotheses. Section 3 describes the research methodology. The next section presents the results and discussion sections. The paper rounds off with conclusions and an agenda for future research in this area.

## **LITERATURE REVIEW**

Trust is the confidence in the other's goodwill and can also be viewed as being a consensual ideology (Ring & Van de Ven, 1992). The benefits of a relationship based on trust are that it economises on information and commercial transaction costs and creates the condition where exchanges between technologically and legally separate entities can take the form of problem solving rather than bargaining (March & Simon, 1958). Lee (2005) stressed the importance of responsiveness in leading to trust in m-commerce. Expectations are described as the beliefs developed by the consumer relative to the characteristics of a product or service before the purchase (Evrard, 1993). According to

Siau and Shen (2003) trust in m-commerce (m-trust) can be divided into two categories: trust in mobile technology and trust in mobile vendors. Lee and Benbasat (2003) and Chae and Kim (2003) agreed that limited system resource (e.g. smaller screens and lower multimedia processing capabilities) can hinder the development of trust in m-commerce.

Since there is no consensus on the nature of quality dimensions, it is necessary to identify the quality dimensions considered important by customers in m-commerce. These include web site quality, mobile technology quality and vendor quality.

### **Web site quality**

Mobile business applications that involve interactivity and customisation provide new opportunities for expansion and enhancement of markets. These two factors interact to influence customers' perceptions of satisfaction during the use of mobile technology (Liang & Wei, 2004). Lee (2005) argued that the interactivity is an influential source of trust. Interactivity and customisation interact to influence customers' perceptions of satisfaction during the use of mobile technology (Liang & Wei, 2004). Lee and Benbasat (2003) defined customisation as a tailoring ability enhanced by users' mobile setting. Venkatesh, Ramesh, & Massey (2003) further suggested that customisation's impact can be extended to enhance the mobile interface design and to improve mobile usability, thus raising the level of satisfaction. Accordingly, the study hypothesizes that:

- H<sub>1</sub>. Interactivity significantly affects satisfaction towards the vendor in m-commerce
- H<sub>2</sub>. Interactivity significantly affects trust towards the vendor in m-commerce
- H<sub>3</sub>. Customisation significantly affects satisfaction towards the vendor in m-commerce
- H<sub>4</sub>. Customisation significantly affects trust towards the vendor in m-commerce

### **Mobile technology quality**

Usefulness and ease-of-use are the two vital elements in the Technology Acceptance Model (TAM) (Davis, 1989). In TAM the behavioral intention to use is jointly influenced by attitudes and usefulness, where the latter directly affects the former. Information science (IS) and information technology (IT) has shown that these two factors influence individuals' attitudes towards using the system. They were shown to be closely related to the acceptance of computer technologies (Davis, 1989; Venkatesh & Davis, 2000) and are of great importance for new users (Gefen & Straub, 2000). Based on a review of empirical evidence, usefulness and ease-of-use may positively affect satisfaction (Ribbink, Van Riel, & Liljander, 2004). Therefore, the study posits:

- H<sub>5</sub>. Usefulness significantly affects satisfaction towards the vendor in m-commerce
- H<sub>6</sub>. Ease-of-use significantly affects satisfaction towards the vendor in m-commerce

### **Vendor quality**

Responsiveness can specifically represent an e-retailer's commitment to providing rapid feedback (Dholakia, Miao, Dholakia, & Fortin, 2000; Ku, 1992) or generally refer to being responsive to the service subscribers (Heeter, 1989). Its recent applications can be found in different areas of e-commerce such as web-based services (Kuo, 2003), internet retailing (Barnes & Vidgen, 2001) and electronic banking (Zhu, Wymer, & Chen, 2002). Previous studies suggest responsiveness is critical not only as a measure of service quality but also as a diagnostic tool for uncovering areas of service quality

strengths and shortfalls (Kettinger & Lee, 1997, 1999; Pitt, Watson, & Kavan, 1995; Van Dyke, Kappelman, & Prybutok, 1997). A high level of responsiveness, representing a trust cue, can convey the trustworthiness of the vendor in m-commerce to customers (Corritore, Kracher, & Wiedenbeck, 2003). Therefore, the study hypothesizes that:

H<sub>7</sub>. Responsiveness significantly affects satisfaction towards the vendor in m-commerce

H<sub>8</sub>. Responsiveness significantly affects trust towards the vendor in m-commerce

Another possible source of vendor quality, brand image is more than a name given to a product. It can be broken down into a whole set of physical and socio-psychological attributes and beliefs (Simoes & Dibb, 2001), all of which affect customers' perceptions of the brand and the meaning they attribute to it. Moreover, similar classifications of brand image distinguish product-related and non-product-related attributes, as proposed by Keller (1998) and Aaker (1997). While the former refers to the components of the core product or function sought by customers, the latter are external to the function or process of the product or the service provided (Keller, 1998). These two attributes can be formed from customers' own experience with the brand or through the image portrayed via marketing channels (O'Cass & Grace, 2004). Geyskens, Steenkamp, Scheer, & Kumar (1996) suggested ease of relationships with service operators can improve the level of satisfaction. According to Lannon and Cooper (1983) ease of relationships can be built through the development of brand image and thus make customers become part of the brand. Accordingly, it seems that a strong image will lead to better customer satisfaction. In addition, Berry (2000) found that a strong brand image increases customer trust and becomes a surrogate especially when the service is intangible. Accordingly, the study hypothesizes that:

H<sub>9</sub>. Brand image significantly affects satisfaction towards the vendor in m-commerce

H<sub>10</sub>. Brand image significantly affects trust towards the vendor in m-commerce

### **Satisfaction**

Based on Casalo, Flavia, and Guinalu (2008) satisfaction refers to an affective consumer condition that result from a global evaluation of all the aspects that make up the consumer relationship (Severt, 2002). According to Geyskens, Steenkamp, & Kumar, (1999) satisfaction can be raised by economic conditions (e.g. monetary benefits) or psychological factors (e.g. promise fulfillment or ease of relationships with retailers). Consequently, the consumers' post-trust level is affected directly by the level of satisfaction (Singh & Sirdeshmukh, 2000). Past research has suggested that customer satisfaction is the antecedent of trust (Garbarino & Johnson, 1999). Recent studies have validated the positive effect of satisfaction on trust in the e-commerce environment (Pavlou, 2003). Hence, the study posits:

H<sub>11</sub>. Satisfaction significantly affects trust towards the vendor in m-commerce

Figure 1 summarises the stated hypotheses.

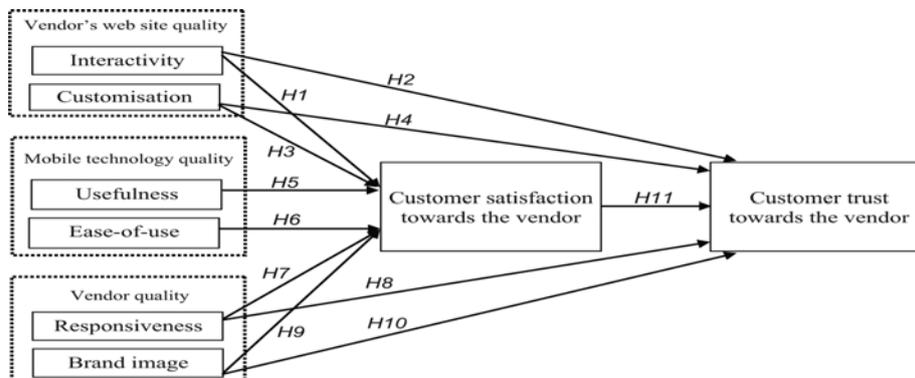


Figure 1: Theoretical Framework

## METHODOLOGY

200 questionnaires were distributed to students conveniently sampled at a higher learning institution in the Federal Territory of Labuan, Malaysia. It took a week to complete the data collection. The scale items for web site quality (i.e. interactivity and customisation) were adapted from Lee (2005) and Ribbink et al. (2004). The scale items for mobile technology quality (i.e. usefulness and ease-of-use) were taken from Davis (1989). Items for vendor quality (i.e. responsiveness and brand image) were adapted from Parasuraman, Zeithaml, & Berry, (1985) and Hsieh and Li (2008). The constructs for satisfaction and trust were adapted from Lin and Wang (2006), Hsu et al. (2007) and Heijden et al. (2003). Hence, the items selected represent the concepts in the empirical model under investigation and ensure the content validity of the scales. The questionnaires were constructed in five-point Likert scale where it ranges from 1 (strongly disagree) to 5 (strongly agree). Data were analysed using multiple regression analysis via the Statistical Package for Social Sciences (SPSS) version 17 computer programs, when the focus is on the relationship between a dependent variable with one or more independent variables.

### Data analysis

Table 1 summarizes the socio-demographic profile of the sample. There were 200 students who participated in the survey with 82 of them males and 118 females. 88% of the students, or 176 of them, were between the age of 19-23 and the remaining 12% of the students, 24 of them, are aged between 21-24 years. The survey revealed that 196 respondents are degree pursuers and 4 of them hold Masters Degrees. 78% were cell phone users, 16% were PDA phone users and 6% were Smartphone users. These technologies are being used more and more as an essential lifestyle accessory. This allows companies to increase the number of touch points with their customers, and to drive increased sales in order to generate a dramatic increase via Smartphone apps. The survey showed that 33% have experienced 4-6 years of m-commerce experiences, and 38% have experienced more than 7 years of m-commerce experiences.

**Table 1: Socio-demographic Profile of Respondents**

Variable		Frequency	Percent
Gender	Male	82	41.0
	Female	118	59.0
Age	19-23	176	88.0
	24-28	24	12.0
Highest Education Level	Undergraduate	196	98.0
	Masters	4	2.0
Wireless Handheld Equipment Type	Cell Phone	156	78.0
	PDA Phone	32	16.0
	Smart Phone	12	6.0
M-Commerce Experiences	1-3 years	58	29.0
	4-6 years	66	33.0
	> 7 years	76	38.0

**Reliability analysis**

The research instrument was tested for reliability using Cronbach's coefficient alpha estimate. A value of 0.70 or greater is deemed to be indicative of good scale reliability (Hair, Black, Babin, Anderson, & Tatham, 2010). The Cronbach's alpha for the eight factors ranged from 0.816 to 0.937, suggesting that the constructs measures are deemed reliable (Table 2).

**Table 2: Reliability Test**

Variable	No. of item	Cronbach's Alpha
Interactivity	3	0.873
Customization	3	0.834
Responsiveness	3	0.816
Brand image	3	0.871
Satisfaction	3	0.905
Trust	3	0.841
Easy-of-use	3	0.893
Usefulness	2	0.937

**Correlation analysis**

The interrelationships between the seven variable measurements were examined through correlation analyses. According to Simon (2008), correlation values of +0.01 and above are significant but shows little association, values that are above +0.3 and are lesser than +0.7 depicts weak positive association while values above +0.7 to +1.0 shows strong positive association. Table 3 describes that all of the Pearson's correlations between the variables are positively significant at 0.01 levels. The usefulness had the highest mean of 3.380 whereas the customization had the highest standard deviation of 0.894. The skewness of all the items range from -0.081 to -0.726 below  $\pm 2.0$ . Similarly, the values for kurtosis ranges from 0.135 to 1.375 well below the threshold of  $\pm 10$ . Both the skewness and kurtosis are lower for the most part, indicating

that the scores approximate a “normal distribution” or “bell-shaped curve”.

**Table 3: Correlation between the Factors**

	1	2	3	4	5	6	7	8
(1) Interactivity	1							
(2) Customization	.615(**)	1						
(3) Responsiveness	.561(**)	.687(**)	1					
(4) Brand image	.514(**)	.558(**)	.485(**)	1				
(5) Satisfaction	.483(**)	.594(**)	.618(**)	.631(**)	1			
(6) Trust	.530(**)	.665(**)	.638(**)	.706(**)	.759(**)	1		
(7) Easy-of-use	.340(**)	.426(**)	.373(**)	.469(**)	.549(**)	.541(**)	1	
(8) Usefulness	.379(**)	.425(**)	.361(**)	.468(**)	.516(**)	.562(**)	.742(**)	1
Mean	3.270	3.287	3.113	3.240	3.185	3.287	3.373	3.380
Std. Deviation	0.828	0.894	0.893	0.764	0.884	0.789	0.861	0.836
Skewness	-0.497	-0.573	-0.081	-0.726	-0.443	-0.616	-0.614	-0.122
Kurtosis	0.640	0.345	0.135	1.375	0.502	0.711	0.706	0.326

\*\* Correlation is significant at the 0.01 level (2-tailed).

### Multiple Regression Analysis

To further test the hypotheses of this study, multiple regression analysis was performed. The analysis revealed that the model significantly predicted a sizable proportion of variance in users' satisfaction towards the vendor,  $F(3, 196) = 45.019$ ,  $p < 0.05$ .  $R^2$  for the model was 0.583, and adjusted  $R^2$  was 0.570. Table 4 displays the standardized regression coefficients ( $\beta$ ), and t statistics for each variable. The level of significance ( $\alpha$ ) was set at 0.05. Hypotheses 1, 3 and 5 postulate the associations between satisfaction towards the vendor in m-commerce and three antecedents of vendor's website quality: interactivity, customisation and usefulness. As evident in Table 4, users' satisfaction towards the vendor in m-commerce is not significantly influenced by usefulness ( $\beta_5 = 0.081$ ), interactivity ( $\beta_1 = 0.001$ ) and customisation ( $\beta_3 = 0.104$ ). Hence, the proposed hypotheses are not supported,  $p > 0.05$ .

**Table 4: Relationship between Independent Variables and Satisfaction towards the Vendor in M-commerce**

Variable	Standardized beta	t-value
Interactivity	0.001	-0.721
Customization	0.104	0.018
Responsiveness	0.300	1.444*
Brand image	0.299	4.511*
Easy-of-use	0.192	4.873*
Usefulness	0.081	2.691
F	45.019	
$R^2$	0.583	
Adjusted $R^2$	0.570	
Standard Error	.57974	

\* $p < 0.05$

Hypothesis 6, 7 and 9 explicate the associations between users' satisfaction towards the vendor in m-commerce and three antecedents of vendor's website quality: ease-of-use,

responsiveness, and brand image. This study asserts that users' satisfaction towards the vendor in m-commerce includes three dimensions: ease-of-use, responsiveness, and brand image. Table 4 depicts that users' satisfaction towards the vendor in m-commerce is significantly influenced by ease-of-use, responsiveness, and brand image ( $\beta_6 = 0.192$ ,  $\beta_7 = 0.300$ ,  $\beta_9 = 0.299$ ,  $p < 0.05$ ). As a result, the hypotheses are supported. 58.3 percent of the variance in users' satisfaction towards the vendor in m-commerce is explained by the interactivity, customisation, usefulness, ease-of-use, responsiveness, and brand image.

Hypothesis 2 and 4 explains the impacts of interactivity and customisation on trust towards the vendor in m-commerce. Results in Table 5 indicate that there is a statistically significant influence between customisation and trust towards the vendor in m-commerce ( $\beta_4 = 0.175$ ,  $p < 0.05$ ), demonstrating support for H<sub>4</sub>. However, hypothesis H<sub>2</sub> is not satisfactorily demonstrated, confirming that there is no relationship between interactivity and trust towards the vendor in m-commerce ( $\beta_2 = 0.012$ ,  $p > 0.05$ ). Hypothesis 2 and 4 explicate the associations between responsiveness, brand image and satisfaction on users' trust towards the vendor in m-commerce. This study asserts that responsiveness ( $\beta_8 = 0.131$ ), brand image ( $\beta_{10} = 0.299$ ) and satisfaction ( $\beta_{11} = 0.379$ ) significantly influences trust towards the vendor in m-commerce, supporting H<sub>8</sub>, H<sub>10</sub>, H<sub>11</sub>. Accordingly, 70.5 percent of the variance in trust towards the vendor in m-commerce is explained by these five antecedents, indicating that the explanatory power of the model may be considered satisfactory and that the model fits the data and is appropriate to test the hypotheses.

**Table 5: Relationship between Independent Variables and Trust towards the Vendor in M-commerce**

Variable	Standardized beta	t-value
Interactivity	0.012	0.238
Customization	0.175	2.889*
Responsiveness	0.131	2.243*
Brand image	0.299	5.571*
Satisfaction	0.379	6.614*
F	92.867	
R <sup>2</sup>	0.705	
Adjusted R <sup>2</sup>	0.698	
Standard Error	.43401	

\* $p < 0.05$

## Discussion, Conclusion and Recommendations

This research examines the factors that influence customers' satisfaction and trust towards the vendor in m-commerce. This study confirms that customer satisfaction towards the vendor in m-commerce was significantly influenced by ease-of-use, responsiveness, and brand image. Meanwhile, customer trust towards the vendor in m-commerce is affected by vendor's website quality elements such as responsiveness, brand image and satisfaction towards the vendor. Reminiscent of previous findings (Lee, 2005; Corritore *et al.*, 2003) the results indicated that responsiveness did directly lead to trust development. This may be because m-commerce customers were more concerned with vendor service honesty (responsiveness) (Ratnasingham and Kumar, 2000). As in

the studies by Liang and Wei (2004), Berry (2000) and Parasuraman *et al.* (1985), web site and vendor quality influenced customer satisfaction. Surprisingly, customers' satisfaction and trust towards the vendor in m-commerce is not significantly influenced by the vendor's website quality in terms of interactivity. Vendor quality such as responsiveness and brand image does influence customers' satisfaction and trust towards the vendor in m-commerce.

The findings also reveal that ease of use is the only mobile technology quality factor that influence trust towards the vendor in m-commerce. Customers should be satisfied with the product or services they use in order to gain trust on it. In this case, customers should be satisfied with m-commerce service experiences so that they would have trusted to use the services without hesitation and remain loyal to it. Moreover, this study has validated the determinants of satisfaction and trust, leading the way for a detailed exploration of how to improve customer satisfaction and trust towards the vendor in m-commerce. Despite the useful findings of this study, this empirical study has several limitations that need to be acknowledged. Several factors were examined in this study. Future studies should attempt to draw profiles based on characteristics other than these factors. Next, the data were collected from a convenience sample of 200 students at a higher learning institution in the Federal Territory of Labuan, Malaysia. It is recognized that this convenience sample, given its demographic limitation, would place restrictions on the generalization of the results of this study to other geographic areas or to the general population. Future research should expand or increase the involvement of respondents. The more geographic area of research included, the result will be more representative.

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