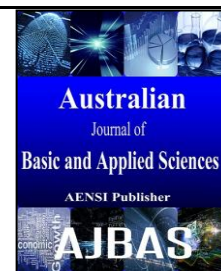




ISSN:1991-8178

Australian Journal of Basic and Applied Sciences

Journal home page: www.ajbasweb.com

Assessing the Effect of Service Quality and Information Quality on Customers' Overall Perceived Service Quality in M-Commerce

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ARTICLE INFO

Article history:

Received 22 February 2015

Accepted 20 March 2015

Available online 23 April 2015

Keywords:

Service quality, information quality, m-commerce, overall perceived service quality.

ABSTRACT

M-commerce is an emerging and rapidly evolving area as demonstrated by new technological innovations introduced to improve m-service. Motivated by the growing interest in online commerce, this research questions focuses on examining the dimensions of service quality and information quality that contribute to overall perceived service quality (OPSQ) in m-commerce. The three identified dimensions of service quality are reliability, personalization, and perceived risk, and the dimension of information quality is content usefulness. It was found in the study that there was a remarkable effect of content usefulness on the OPSQ. Other service quality dimensions however were found to have no significant effect with OPSQ. The findings suggest that service providers need to understand the consumers' perspective and needs. In order to provide better services for users, companies need to pay more attention on controlling the perceived risk associated with using m-commerce.

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To Cite This Article: Anas Abdelsatar Salameh, Shahizan Bin Hassan, Jamal Mohammad Alekam and Alaa Ahmed Chyad Alkafagi., Assessing the Effect of Service Quality and Information Quality on Customers' Overall Perceived Service Quality in M-Commerce. *Aust. J. Basic & Appl. Sci.*, 9(13): 146-153, 2015

INTRODUCTION

With the rapid changes and challenges business environment, customers are deemed to be the main partners of any organizations to achieve success. Without providing loyal customers high service quality for maximum satisfaction, m-commerce providers have no chance to further grow or even survive. That is why; service quality dimensions had become among the most investigated constructs in management and marketing (Udo, Bagchi & Kirs, 2010). In other words, customers' satisfaction nowadays has become the key element of business strategy and an important goal for any organization. The essential job of organizations managements, either manufacturing or service is to expand the customer base and ensure a high level of satisfaction. The quality of enterprise web sites has become a key indicator of how well a company is likely to satisfy its customers (King & Liou, 2004). Another new challenge is the rapid increase in the expectations

and level of sophistication of the e-customers. In recent years, research efforts have been directed at understanding how e-customers perceive the quality of e-service as well as how these perceptions are being translated into customer satisfaction and behavioral intentions. Adding to the challenges of managing e-customers, it has become crucial to understand how individual customers differ, in terms of their information technology (IT) skills, influence their online experience, behavior and attitudes. Some studies (Agarwal & Venkatesh, 2002; Chen & Macredie, 2005; Ford, Miller, & Moss, 2001; Lin & Lu, 2000) have indicated that individual differences can influence IT acceptance and satisfaction with IT usage. Motivated by the growing interest in online commerce, this research focusing on examining the dimensions of service quality and information quality that contribute to the perceived service quality in m-commerce.

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2.0 Literature Review:

There is scant research in the area of m-commerce service quality; there is therefore, an increasing need to focus on the factors that can ensure service quality of m-commerce (Lu, Zhang & Wang, 2009). The research in m-commerce service quality is still in early stage. Despite the fact that some researchers tried to investigate the overall perceived service quality in general, the effect of the dimensions of service quality and information quality with overall perceived service quality is still absent in literature.

The main goal of m-commerce offers a real independence since mobile networks allow real-time transactions, from anywhere and at anytime (Olla, Patel, & Atkinson, 2003). According to the International Telecommunications Union (ITU, 2013), mobile subscriptions around the world has increased exponentially, for example. In Jordan for example, mobile subscribers make up 112% of the country's population of six million, despite this trend, the users of mobile phones for m-commerce is still very low (Alfawaer *et al.*, 2011).

2.1 Service Quality Dimensions:

2.1.1 Reliability:

The reliability dimension in the SERVQUAL model contains: dependability, consistency and accuracy of promised service performance (Parasuraman *et al.*, 1988). New service-delivery studies, with options of computer technology realised that dependability of performance or consistency are important dimensions in measuring SQ, because the user's consideration of performance risks is based on new technology service (Cox & Dale, 2001; Dabholkar, 1996; Davis, Bagozzi, & Warshaw, 1992).

This is relevant to m-commerce services if the fact that: customers are always on the move and often in time-critical situations are considered. Information technology-based service has emphasized the importance of reliability (Lee & Lin, 2005; Wolfenbarger & Gilly, 2002). Also, Zhu *et al.* (2002), and Lee and Lin (2005) in their argument posited that the dimension of reliability positively influences perceived e-service quality and customer satisfaction. According to Al-Mushasha and Hassan (2009), Barnes and Vidgen (2001), Lin and Hsieh (2011), Gefen (2002), Lee and Lin (2005), Madu and Madu (2002), Parasuraman (2002), Santos (2003), Wang (2003), Wolfenbarger and Gilly (2002), Yang and Jun (2002), Zeithaml *et al.* (2000), Zeithaml *et al.* (2002), the reliability is the most important determinant of the perceived m-commerce SQ. Based on the above discussion, the researchers hypothesises that:

H1. There will be a significant positive relationship between reliability and overall customer perceived service quality.

2.1.2 Personalization:

In relation to SQ, the definition of personalization refers to as caring, individualized attention for the consumer and subject knowledge of employees (Parasuraman *et al.*, 1988). Riel *et al.* (2001), additionally defines personalization, in the e-service context, as the degree of customization of communication and service provider awareness of consumer needs in the e-service context. Personalization is a key feature of most e-commerce and m-commerce business models because it offers real values for a customer and creates a perception of high-quality service. The heart of personalization is to satisfy the unique needs of each individual customer (Huang & Lin, 2005; Riel *et al.*, 2001). Thus, personalization can completely change the ways a web-based business market promotes its products and maintains its customers' relationships (Reynolds, 2000).

Raisch (2001) argued that environmental variables and customers' characteristics variables influences the online customer's decision-making process. Thus, it is very important to address the issue of personalization as one of the effective methods of solving the problem of "managed-chaos", which exists in the current measurement and data mining of the web-centered area of industries. Therefore, the researcher assumes that personalization can constitute one of the factors that determines the customers' perceived mobile SQ (Zeithaml *et al.*, 2000; Keynama and Black, 2002; Parasuraman, 2002; Yang and Jun, 2002; Yang *et al.*, 2003; Lee and Lin, 2005; Lin and Hsieh, 2011; Papadomichelaki and Mentzas, 2012). Based on the above discussion, the researchers' hypotheses that:

H2. There will be a significant positive relationship between personalization and overall customer perceived service quality.

2.1.3 Perceived Risk:

The e-customers' perception is one of the major hindrances to online shopping, therefore major m-commerce firms have endeavored to address risk associated with security technologies, awareness campaigns, and assurance policy statements (Chang *et al.*, 2005; Liao & Cheung, 2002; Lopez-Nicolas & Molina-Castillo, 2008; Shih, 2004). Perceived risk is also often explained by terms like: personal risk, privacy risk, psychological risk, economic risk, and technological risk (Liebermann & Stashevsky, 2002; Ring & Ven, 1994; Zhang & Prybutok, 2005). System failure is part of perceived risk and is often associated with a loss. Therefore, understanding how perceived risk influences e-SQ and e-customer satisfaction is easy. Lopez-Nicolas and Molina-Castillo (2008) and Gefen *et al.* (2003), state that perceived risk influences shopping behavior and e-purchasing intentions. The implication is that the higher the perceived risk, the less likely is an e-customer's intention to purchase. Perceived risk can

instill either good or bad feelings and consequently can affect beliefs, attitudes and behavioral intentions (Pavlou, 2003). Zhang and Prybutok (2005) concluded that perceived risk has a significant influence on e-customer perceptions of e-SQ and satisfaction. On the contrary, Chang *et al.* (2005) in a thorough literature review conducted to determine perceived risk's effect on online shopping, among other factors, stated that: some studies found significant negative impacts while others found no impact at all. Udo, Bagchi and Kirs (2010) stated there is no significant relationship between perceived risk, behavioral intentions, and satisfaction. However, further research is needed to explore the effect of perceived risk on how e-customers perceive web SQ (Udo, Bagchi & Kirs, 2010). Based on the above discussion, the researchers' hypotheses that:

H3. There will be a significant negative relationship between perceived risk and overall customer perceived service quality.

2.2 Information Quality Dimension:

2.2.1 Content Usefulness:

According to Al-Mushasha and Hassan (2009), this refers to the reliability, value, currency, and accuracy of information. To be specific, the relevancy and clearness is the concern of information value. Information reliability means the: accuracy, dependability, and consistency of the information, where as information currency relates to the information timeliness and continuous update. Information accuracy gives the description of the extent at which the system information is free from error. Based on the above discussion, the researchers' hypotheses that:

H4. There will be a significant positive relationship between content usefulness and overall customer perceived service quality.

3. Research Methodology And Framework:

3.1 Research Framework:

Based on the literature review, the following framework is proposed:

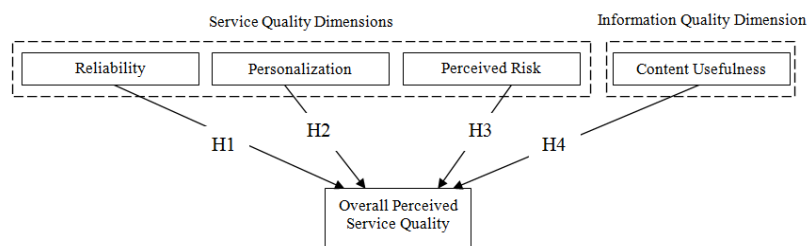


Fig. 1: Research Framework.

3.2 Measurements Of Instruments:

The measurements of the overall perceived service quality were taken from associated researches such as Parasuraman *et al.*, 1988; Pitt *et al.*, 1995; Yang *et al.*, 2005. Moreover, the study also deployed measures and it has been taken from Parasuraman *et al.*, 1988; Pitt *et al.*, 1995 to measure reliability. The measurement related to personalization was replicated from Yang *et al.*, 2005; Wang, 2003; Yang *et al.*, 2004 and the perceived risk measurement was taken from Udo, Bagchi and Kirs, 2010; Zhang and Prybutok, 2005.

3.3 Population And Sampling:

The target population is m-commerce users. However, this study is comprised of students and employees at the Arab Open University (AOU) at Jordan, which can be considered as mobile commerce users who make online transactions using the mobile phone. The sample data was gathered from students and employees of Arab Open University (AOU) located in Jordan with the help of a self administered questionnaire. A total of 870 questionnaires were distributed, which 624 were returned. However, only 618 were utilized for the purpose of data analysis.

4. Research Results Discussion:

4.1 The Construct Validity:

The Construct Validity refers to the extent at which the items generated for the purpose of measuring a construct which can appropriately measure the concept they were designed to measure (Hair *et al.*, 2010). To be more specific, the total items designed for the purpose of measuring a construct must load higher on their respective construct than their loadings on other constructs. Clearly, the results indicate the construct validity of the measurements used as illustrated in two ways. Firstly, the items show high loading on their respective constructs when compared to other constructs. Secondly, the item loadings were significantly loading on their respective constructs confirming the Construct Validity related to the measurements practiced in this study as depicted in both Table 1 and Table 2 (Chow & Chan, 2008).

4.2 The Convergent Validity:

As depicted in Table 3 it can be noticed that the composite reliability values ranged from 0.835 to 0.902 exceeds the recommended value of 0.7 (Fornell & Larker, 1981; Hair *et al.*, 2010). In addition, the AVE (average variances extracted)

values which range from 0.522 to 0.696 illustrate a good level of construct validity related to the used measurements (Barclay *et al.*, 1995). The

convergent validity of the remaining model is confirmed from these outcomes.

Table 1: Cross-Loadings and Loading of the items.

Constructs	Items	REL	PERS	PR	CUF	OVSQ
Reliability	REL1	0.633	0.373	0.489	0.187	0.363
	REL2	0.817	0.497	0.324	0.183	0.289
	REL3	0.790	0.430	0.325	0.155	0.215
	REL5	0.739	0.383	0.436	0.213	0.361
Personalization	PERS1	0.367	0.623	0.090	0.217	0.449
	PERS2	0.313	0.773	0.175	0.310	0.229
	PERS3	0.380	0.733	0.180	0.366	0.174
	PERS4	0.350	0.736	0.219	0.427	0.266
	PERS5	0.432	0.739	0.143	0.289	0.404
Perceived Risk	PR1	0.035	0.186	0.830	0.113	0.112
	PR2	0.126	0.129	0.820	0.153	0.063
	PR3	0.116	0.214	0.827	0.113	0.050
	PR4	0.117	0.240	0.860	0.148	0.142
Content Usefulness	CUF1	0.499	0.538	0.447	0.759	0.510
	CUF2	0.397	0.421	0.384	0.753	0.461
	CUF3	0.432	0.585	0.488	0.752	0.491
	CUF4	0.416	0.463	0.451	0.798	0.468
	CUF5	0.465	0.437	0.552	0.750	0.364
Overall Perceived Service Quality	OVSQ1	0.510	0.404	0.404	0.397	0.760
	OVSQ2	0.511	0.498	0.466	0.436	0.797
	OVSQ3	0.584	0.521	0.548	0.555	0.828
	OVSQ4	0.432	0.417	0.424	0.392	0.605

Table 2: T value results.

Constructs	Items	Loadings	Standard Error	T Value	P Value
Reliability	REL1	0.633	0.045	14.071	0.000
	REL2	0.817	0.016	50.097	0.000
	REL3	0.790	0.019	40.656	0.000
	REL5	0.739	0.027	27.584	0.000
Personalization	PERS1	0.623	0.036	17.497	0.000
	PERS2	0.773	0.030	25.395	0.000
	PERS3	0.733	0.033	22.384	0.000
	PERS4	0.736	0.023	32.564	0.000
	PERS5	0.739	0.027	27.313	0.000
Perceived Risk	PR1	0.830	0.134	6.196	0.000
	PR2	0.820	0.129	6.376	0.000
	PR3	0.827	0.205	4.038	0.000
	PR4	0.860	0.131	6.573	0.000
Content Usefulness	CUF1	0.759	0.023	32.985	0.000
	CUF2	0.753	0.024	30.984	0.000
	CUF3	0.752	0.019	39.536	0.000
	CUF4	0.798	0.020	39.172	0.000
	CUF5	0.750	0.020	38.329	0.000
Overall Perceived Service Quality	OVSQ1	0.760	0.022	34.837	0.000
	OVSQ2	0.797	0.024	33.716	0.000
	OVSQ3	0.828	0.014	58.409	0.000
	OVSQ4	0.605	0.037	16.337	0.000

4.3 The Discriminate Validity:

The definition of discriminate validity is the extent at which a set of items possess the efficacy to distinguish one construct from another. Therefore, the shared variance of construct is supposed to be greater if compared with the shared variance of other constructs (Compeau *et al.*, 1999). A criteria was suggested by Fornell and Larcker (1981) for the purpose of evaluating the discriminant validity. As demonstrated in Table 4, the square roots of AVE (average variance extracted) are being considered diagonal elements and the variable correlation is given below the diagonal elements. If the diagonal elements are being considered higher than the

elements in other off diagonal in their related columns and rows then we can make the comparison and assume the discriminant validity. Moreover, the outcome of the correlation matrix explained in Table 4 ensures the conformance of discriminant validity.

4.4 The Prediction Quality Of The Model:

The findings of the study related to the quality of prediction of the model, as illustrated in Table 5 indicated that the redundancy (cross-validated) related to overall perceived service quality (OVSQ) was 0.321. And the Cross Validated Communality value was 0.566. These values are more than zero indicating an adequate predictive validity of the

model based on the criteria mentioned by Fornell and Cha (1994).

Table 3: The Convergent Validity Analysis.

Constructs	Items	Loadings	Cronbach's Alpha	CRa	AVEb
Reliability	REL1	0.633	0.739	0.835	0.560
	REL2	0.817			
	REL3	0.790			
	REL5	0.739			
Personalization	PERS1	0.623	0.771	0.845	0.522
	PERS2	0.773			
	PERS3	0.733			
	PERS4	0.736			
	PERS5	0.739			
Perceived Risk	PR1	0.830	0.860	0.902	0.696
	PR2	0.820			
	PR3	0.827			
	PR4	0.860			
Content Usefulness	CUF1	0.759	0.821	0.874	0.582
	CUF2	0.753			
	CUF3	0.752			
	CUF4	0.798			
	CUF5	0.750			
Overall Perceived Service Quality	OVSQ1	0.760	0.738	0.837	0.566
	OVSQ2	0.797			
	OVSQ3	0.828			
	OVSQ4	0.605			

a: Composite Reliability: $CR = (\sum \text{factor loading})^2 / \{(\sum \text{factor loading})^2 + \sum (\text{variance of error})\}$

b: Average Variance Extracted: $AVE = (\sum \text{factor loading})^2 / \{(\sum \text{factor loading})^2 + \sum \text{variance of error}\}$

Table 4: Correlations and Discriminate Validity.

Constructs	(1)REL	(2)PERS	(3)PR	(4)CUF	(5)OVSQ
1) Reliability	0.748				
2) Personalization	0.563	0.723			
3) Perceived Risk	0.504	0.227	0.834		
4) Content Usefulness	0.241	0.451	0.163	0.763	
5) Overall Perceived Service Quality	0.311	0.422	0.120	0.599	0.752

Table 5: Prediction Relevance of the Model.

Constructs	Variable Type	R Square	Cross-validated Redundancy	Cross-validated Communalities
OVSQ	Endogenous	0.575	0.321	0.566

4.5 (GoF) Goodness Of Fit Of The Model:

Dislike CB-SEM, PLS-SEM has only one measurement of goodness of fit which is defined to be the global fit measure by Tenenhaus et al. (2005). It is the geometric mean of the average variances extracted and the average R2 for the endogenous variables as given in the following formula:

$$(1) GoF = \sqrt{(R^2 * AVE)}$$

Particularly, the GoF value of this model was found to be 0.657 which is considered large when compared to the baseline values suggested by Wetzels et al., (2009) (small =0.1, medium =0.25,

large =0.36). The results showed that the model goodness of fit measure based on the average variance explained is large which indicates an adequate level of globalization.

4.6 The Hypothesis Testing:

After the measurement model has been established, the next step was to test the hypotheses of the study by running PLS Bootstrapping in SmartPLS 2.0, 618 cases were used for analysis purposes.

Table 6: The Results of the Hypothesis Testing.

No	Hypotheses	Path Coefficient	Standard Error (STERR)	T value	P value	Decision
1	REL -> OVSQ	0.025	0.034	0.757	0.225	Not Supported
2	PERS -> OVSQ	-0.007	0.034	0.213	0.415	Not Supported
3	PR -> OVSQ	-0.046	0.041	1.132	0.129	Not Supported
4	CUF -> OVSQ	0.177***	0.040	4.446	0.000	Supported

*: p<0.1; **: p<0.05; ***: p<0.01

As illustrated in Table 6 reliability (REL) has a positive and does not have a significant effect on the overall perceived service quality (OVSQ) large of the

0.01 level of significance ($\beta=0.025$, $t= 0.757$, $p>0.01$). The results also show that personalization (PERS) has a negative and has no significant effect

on the overall perceived service quality (OVSQ) large of the 0.01 level of significance ($\beta=-0.007$, $t=0.213$, $p>0.01$). Moreover, The results also show that perceived risk (PR) has a negative and has no significant effect on the overall perceived service quality (OVSQ) large of the 0.01 level of significance ($\beta=-0.046$, $t=1.132$, $p>0.01$). Finally, the content usefulness (CUF) has a positive and significant effect on the levels of the overall perceived service quality (OVSQ) at the 0.001 level of significance ($\beta=0.177$, $t=4.446$, $p<0.01$). Therefore, these results do not support the hypotheses of the study H1, H2, and H3, but the result only supported hypothesis H4.

5. Conclusions:

To investigate the dimensions of service quality and information quality that contribute to overall perceived service quality in m-commerce was the foremost purpose of the study. The results of this study reveals one direct significant and three insignificant relationships. Hence, other organizations, especially m-commerce service providers in particular could launch free training programs that can help customers and perhaps increase their skills and abilities to use m-commerce easily. The m-commerce service providers can also initiate new strategies by asking the government of Jordan to enact certain legislations and laws that can be used to control the online transaction via the internet as well as support the m-commerce providers in providing the customers with new services that could lead to better lives.

The result of this study indicates the SERVQUAL model can also be applied to developing countries like Jordan and others. For instance, the inculcation of perceived risk, and content usefulness structure in the SERVQUAL model is very apparent based on the outcomes of the study which therefore suggests the necessity to examine other possible constructs that can provide more power in explicating online behavior in developing countries. In addition, customers should be the main focus of m-commerce providers in order for their inputs to achieve continuous service improvement.

Surprisingly, this result is contrary to the findings of other authors who found that reliability is significant and effective in the determination of web-based service quality (e.g, Kuo, 2003; Lee & Lin, 2005; Wolfinbarger & Gilly, 2003). Though the finding of this research contradicts the previous outcomes, it is highly important to assert that reliability is an essential ingredient of service quality and for any organizations to meet the and exceed the needs of their online customers, they must start to improve the dimensions of reliability which include provision of current and accurate information, strengthening of online security, meeting up transaction promises and so on (Lee & Lin, 2005).

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