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An Empirical Investigation of Factors Influencing user Satisfaction with Online Services of Mobile Communication Providers: Study of Kuwait

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Abstract: Competition among mobile communication service providers in Kuwait is very high. There is an increasing consideration for customer satisfaction in order to sustain existing customers and to attract new ones. This study is aimed to propose a multidimensional user satisfaction model in order to identify the factors that affect user satisfaction of online services provided by mobile communication providers in Kuwait. This study found that information quality, system quality, and service quality have significant impact on user satisfaction.

Keywords: Online Services, User Satisfaction, Mobile Communication, Information Quality, System Quality, Service Quality,

1. INTRODUCTION

Information technology (IT) has been taken a huge place in business development where many fields like learning, shopping, marketing, travel, and trading have adopted, it is significantly increasing online assistance of IT (Alawneh *et al.,* 2013; Lee *et al.,* 2012; MatNor, *et al.,* 2011). The pace of changing information is enormous and fast by communication technology. When e-commerce emerged since 1995, the dramatic changes of mobile business have tremendously grown. Information and communication technology (ICT) become one of the main means for organizational success (Keoduangsine and Goodwin, 2009). ICT offers applications software by organizational agencies to develop the activities and improve the quality online services between organizations, and citizens (Keoduangsine andGoodwin, 2009). Online service is a new channel to delivery services to customers; online service is not a replacement for physical service rather it complements online

IT provides for business the access their customers from anywhere at anytime using technology such as internet, and mobile services lately (Alawneh *et al.,* 2013; Lee *et al.,* 2012; Ozer *et al.,* 2013). Currently, market of communication provides people with communication package that enable customer to access internet and conduct business with reasonable prices (Klein and Jakopin, 2013). According to Zhou (2012) and Lee *et al.* (2012), telecomm field, has been used business by mobile internet, which, in turn, becomes inseparable usage these days. Zhou (2012) reported that "the number of mobile internet users in China has reached 356 million, accounting for 69% of its internet population (513 million)" (Zhou, 2012). The extraordinary diffusion of mobile services has exceed experts' expectations from industry in shadow to the leader of the telecommunication sector (Li and Yeh, 2009; Turel and Serenko, 2006). The penetration of mobile phones is almost double personal computers, in 2004, there were over 1.3 billion cell-phone users (Turel and Serenko, 2006). Accessing internet by mobile services is tremendously grown within short time period (Klein andJakopin, 2013; Kuo, and Deng, 2009; Zhou, 2012). The third generation of mobile technology (3G) improve the mobile commerce (MC) because its wide spreading and penetration around the globe (Li and Yeh, 2009). On another hand, the online service is the use of devices such as computers and mobile phones, PDAs and wireless communication technology by business people in its delivery of services to customers. Mobile devices provide a quick and instantly means of delivery for services and information (Keoduangsine and Goodwin, 2009) (Keoduangsine and Goodwin, 2009). Currently, the concern is sustaining customers by reducing payment, improving the performance, studies such as (Klein and Jakopin, 2013; Zhou, 2012) discussed how to balance between payment as use and performance.

In Kuwait, The telecomm industry is very saturated with 6.269 million subscribers and the penetration rate hit 161.7% at the end of June of 2013 (Kuwait Ministry of Communication, 2013). The population in Kuwait is 4,340,001 million and published on official website (www.paci.gov.kw). The three mobile communication companies face competitive battle in this sector particularly after decree No. 33324/2013 that eliminates all barriers and makes consumers more free to choice the operator. Therefore, with mobile number portability

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(MNP) currently is effective. Therefore, each company increasingly competes others to maintain consumers in telecomm industry through satisfaction of their customer.

In this study, online services features of telecommunication companies are considered the key role of attracting more customers to visit a website and practice in online services. This use depends on the extent to which users think that the website features provided are genuine, lawful, appropriate, overcrowding, and not misleading (Loiacono, , and Goodhue, 2007; Song and Zinkhan, 2003). According to the research of Zhou (2012), it is found the quality of information, system, and service affect continuance intention through the satisfaction. In other words, the online services need to deliver information, system, and services qualities in order to satisfy usersof mobile service.

2. LITERATURE REVIEW

Mobile devices are communication tools that could play considerable role in business (Ozer *et al.,* 2013; Shieh, Chang, Fu, Lin, andChen, 2013; Zhao, Lu, Zhang, andChau, 2012; Zhou, 2012). Currently firms implement many transactions through mobile device in order to achieve competitive advantages (MatNor *et al.,* 2011; Ozer *et al.,* 2013; Turel andSerenko, 2006). The market of mobile online services is highly expected to be growing fast (Turel andSerenko, 2006). There is a very high expectations related to the growth of mobile services, it is even reported that mobile devices superior personal computers and became the most acquired devices. This quite growth means the future of online services is growing massively and there is extreme trend among enterprises to develop online services to be consumed through mobile devices (Turel andSerenko, 2006). However, according to Shieh et al. (2013) "more than 50% of the users of mobile services are still not satisfied with the services they receive in Taiwan". Then, this enforces researchers to conduct more researches to identify the reasons behind such dissatisfaction, even that happened, the tendency to conduct online payment through mobile is considerably increasing particularly in China (Zhou, 2012). Payment through mobile seems convenient for users instead of offline payment, this services is welcomed in big market such as Chinese market (Zhou, 2012).

Before, going further, there is a need to define mobile service. Mobile service or Mobile commerce is defined as "mobile character of wireless devices that support electronic service transactions" (Ozer *et al.,* 2013). Mobile service distinguished by different characteristics and delivers different values to the customers (Ozer *et al.,* 2013). Mobile services are new comer and few years ago just emerged, however its applications considerably increased and keeps growing (Ozer *et al.,* 2013). There are many attributes that influence mobile online service adoption such as innovation, knowledge, technological cluster, age, gender, perceived usefulness, perceived enjoyment, perceived ease of use, price, and speed of use; beside technical attributes: standards, infrastructure and content (Shieh *et al.,* 2013). However, the first approach is to identify mobile service adoption attributes before measuring user satisfaction with mobile online service. Shieh *et al.* (2013) identified ten features for mobile online service: security and privacy, signal quality, comprehensive customer service, handset prices and transmission fees, advertising, network coverage, transmission speed, service accessibility, real-timeliness and usefulness. These features canbe categorized into two groups: technical and finance. Those technical features motivate customer to use mobile; besides that, finance matter is as well concerned matter (Klein andJakopin, 2013). Mobile services providers need to work seriously in terms of performance, prices and quality of their services in order to be capable to retain customers (Zhou, 2012). Competition is sever for companies to retain and attract users, however, value-added services are more homogeneous acquiring to be competitive advantage (Zhao *et al.,* 2012). In such environment, the critical factor for mobile service providers is customer satisfaction, which makes the market portability.

2. RESEARCH MODEL AND HYPOTHESES

The quality of website is measured through information believed by users is updated, accurate, and useful (Loiacono *et al.,* 2007). Another definition, information quality is defined as "user's subjective judgment of goodness and usefulness of information in certain information use settings with respect to their own expectations of information or in regard to other information available" (Hilligoss andRieh, 2007). Quality of information is reflected by information sufficiency, relevance, accuracy, and timeliness; Users expect to conduct online transactions such as paying bills or acquire information of payment (Zhou, 2012). When this information inaccurate, irrelevant, or out-of-date, users may question of capability and integrity for providing information quality. It was found that Information quality influence user in many fields (Zhou, 2012). Uncertainty information may decrease experience of users due to scrutinizing of information, and consequently decrease users' satisfaction (Zhou, 2012). Information quality may involve five facets (accuracy, usefulness, currency, goodness, and importance) (Hilligoss and Rieh, 2007). Similarly, it is found for website quality of information and content quality characterized by relevance, comprehension, and completeness (Elling, *et al.,* 2012). The accuracy of

information refers to the truthfulness of information published online or sent to the customer, as well as it is clear of ambiguity. Relevance refers to information as is delivered as customer required; while timeliness refers to the time and date of information, updated and quite relevant to the time and date are required. Finally, sufficiency or complete means users obtain enough information that fulfil all his/her requirements.

In general, perceiving online services have a strong impact on user satisfaction. This perception of information caused quality. Based on that, arguing is emerged that information quality factors have a significant impact on the user's satisfaction with online services. Consequently, hypotheses have emerged below:

H1: Accuracy of information is positively related to user satisfaction
H2: Relevance of information is positively related to user satisfaction
H3: Sufficiency of information is positively related to user satisfaction
H4: Timeliness of information is positively related to user satisfaction

System quality is a factor that contains important elements like ease-of-use, functionality, reliability, flexibility, data quality, portability, integration,Delone and Mclean (2003). It is presented by its ability to sustain business with no errors. Structure features are operational elements of online service; characterize it for attractiveness, efficiency and effectiveness. The system quality depends on functional, structured, interactive and attractive. Design is important for evaluating the satisfaction of users with online service. Easy to navigate with secure and attractive make users do frequent visit. Accessibility is defined as providing functions for finding information (Loiacono, 2002). Therefore, a well presented of online service would increases the number of usable users (Thelwall, 2001). Nevertheless, good quality user interface features attract more users. Many researchers found website design features as critical ones that motivate users to explore the website as new users and keep them as repeated visitors. The study adapts design features of system quality to online service: structure, navigation, accessibility, and attractiveness. Furthermore, accessibility is obtaining information with easy and few steps by users (Katerattanakul, 1999). Home pages, search engines, and directories publicizing online service creating related links (DholakiaandRego,1998). Previous studies considered navigation and service interaction design from perspective using of eQual measures finding considered through users (Stockdale *et al.,* 2005). A good website contains some features, as a visual designed, interesting gadgets and pleasurable tools when users visit (Kim et al, 2003). Nevertheless, this study adopted some factors form the study of Delone and Mclean (2003) as presented in table. Similarly, Zhou (2012) concluded that system quality is the main factor influence satisfaction. Zhou (2012) was seen system quality was presented by the access speed, visual appeal, ease of use, and navigation. Surely, when systems of mobile communication providers are hard for adopting due to insufficient interface design, feeling of lack ability and integrity by users would have been emerged (Zhou, 2012). Consequently, system quality may influence user trust in many fields such as e-commerce, and online shopping that system quality influence user trust and consequently his/her satisfaction (Zhou, 2012). Therefore, poor system quality may undermine experience of users. Based on that mention above arguing would take a place that system quality factors have a significant impact on the satisfaction of users with online services. Thus, hypotheses have emerged below:

H5: Navigation of system is positively related to user satisfaction
H6: Attractiveness of system is positively related to user satisfaction
H7: Accessibility of system is positively related to user satisfaction

The quality of services measured through reliable, responsive, quick, and secure provided. Delone and Mclean (2003)mentions many features such as reliability, responsiveness, assurance, and empathy, these features as measurements of service quality. Moreover, according to Zhou (2012), the quality of service would have been presented of reliability, responsiveness, personalization and assurance. In contrast, slow of response, unreliable and poor secure would cause a dissatisfaction of users. Therefore, service quality considerably influences user satisfaction. This research found these factors are applicable with online services and selected some of them as in table. Meanwhile, due to no physical interaction (non-face-to-face nature) with online services, users show hesitant and display an uncertainty about online service. Privacy and security are very important factor and any lack of information, issues like stolen information, protection of privacy of clients or users who do repeat visits are feared of copying information by unauthorised. Intellectual data could leak of users that do repeat visits, and there are many hackers could use those personal data against other clients or attack others by viruses and damages their computers or smart phones (Kim *et al.,* 2009). Users of online service are considered about the security and privacy of his/her information influencing the satisfaction, indeed; users would like to have more

secure on information, which promotes the quality of service. Similarly, Zhou (2012) concluded that service quality is important factor which is considered as the main pattern to make the users satisfied. Influencing factor impacts on trust and secure of users and consequently impacts satisfaction. Furthermore, Kuo *et al.* (2009) reached to the same conclusion with mobile value-added services, users needed quality of service that assures the basics features such as speed of response, secure of information, privacy of data, reliability of providing information and positive of responsiveness. Based on that, arguing would has been emerged of service quality that they are significant factors impact on satisfaction of users with online services. Consequently, hypotheses have been emerged below:

H8: Quickness of service is positively related to user satisfaction
H9: Reliability of service is positively related to user satisfaction
H10: Responsiveness of service is positively related to user satisfaction
H11: Security of service is positively related to user satisfaction

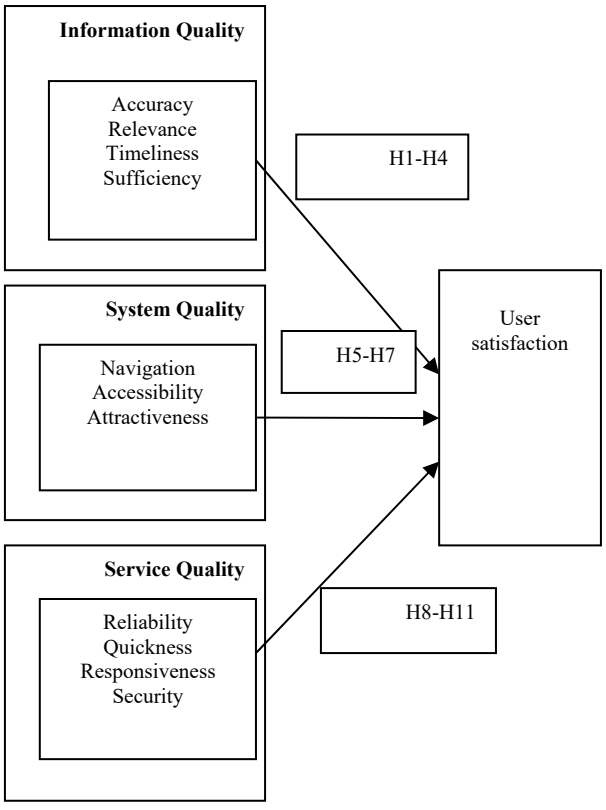


Fig.1. Proposed research model and hypotheses

Accordingly, online service divided into three dimensions and each dimension contains some factors belonging to a particular dimension. These factors of dimensions contain features of each one and those features would distinguish them of others. Arguing is emerged of online service of mobile communication companies that factors of information quality, factors of system quality, and factors service quality would have serious impact on satisfaction of users with online service of mobile communication providers. Thus, we propose the three hypotheses described previously (and see H1, H2, H3, H4, H5, H6, H7, H8, H9, H10, H11, in **(Fig. 1).**

4. RESEARCH METHODOLOGY

A questionnaire survey has been used to propose hypotheses by collecting data for testing the validate the model. The questionnaire consisted five sections: (1) demographic questions; (2) questions about information quality factors; (3) questions about service quality factors; (4) questions about system factors; and (5) questions user satisfaction. All questions except demographic data were assessed using 5-point Likert scales (1 = strongly disagree to 5 = strongly agree). The population for this research is users who have experience with using online services through their mobiles. The Sample collected from university, banks, and oil companies in Kuwait because they are easy to access by authors, and high penetration of mobile among them. Those users given the opportunity for voluntarily participate in the study. In total 397 useable responses were sought which is sufficient to meet the minimum satisfactory sample size in conducting factor analysis (Gefen *et al.,* 2000) using partial least square (PLS) analysis (Chin, 1998; Gefen *et al.,* 2000). Research survey was administered from October 2015 to January 2016. The completion of the questionnaires took 5-10 minutes.

5. EMPERRICAL RESULTS

It is found that all respondents are quite familiar with online services provided by their mobile service providers, as all of them answered yes, **(Table 1).** The gender seems quite fair; male represented 53% of respondents and female 46% (table 1). The age distributions were 60% of age 18-24, 24% of age 25-39, and the remaining (16%) is above 40 years. In terms of nationality, the majority were from Kuwait (62%) followed by Egyptian and Indian. In another hand, the level of the respondents was: 23% finished high school only, 60% graduated, and 17% postgraduate. The respondents reported that they work in university sector (students or instructors) 34%, 28% are working in Oil industry sector, 22% in banking sector, and 15% for other places who used online services. The respondents used smart phones and laptop to access online services provided by mobile communications providers. 85% used smart phone to access this online services while the remaining used laptops and PCs. The other

demographic information is as follow: Respondents reported their using for android-based (42%), apple-based (52%) and blackberry-based (8%) smart phones. Respondents reported their subscription to mobile communication providers Zain (41%), Ooredoo (29%) and Viva (28%). Most of the respondents reported their daily access to the online services (39%). Others reported weekly and monthly by 22% and 24% respectively. The majority of respondents pay for the online services through Knet (http://www.knet.com.kw) as debt payment services provided by Kuwait government, others used credit card as alternative approach. **(Table-1):**

Table-1: demographic data (N=397)

Item		N(397)	%
Do you use Online Service	Yes	397	100
	No	0	
Gender	Male	211	53.1
	Female	186	46.9
Age	18-29 years	238	59.9
	30-39 years	96	24.2
	40 and more	63	15.9
Nationality	Kuwaiti	247	62.2
	Egyptian	39	9.8
	Indian	46	11.6
	Others	65	16.4
level	Secondary School	93	23.4
	Undergraduate	237	59.7
	Postgraduate	67	16.9
Occupation	Study or work in University	137	34.5
		111	28.0
	Work in Oil sector	89	22.4
	Work in Bank sector	60	15.1
	Others		
Access online services tools	By PC and Laptop	58	14.6
	By Smart Phone and Tablet Device	339	85.4
Mobile type	Apple iPhone	207	52.1
	Google Android	168	42.3
	Motion Blackberry	8	2.0
	Others	14	3.5
Mobile Company	Zain	166	41.8
	Ooredoo	117	29.5
	Viva	114	28.7
Online service Access rate	Daily	158	39.8
	Weekly	91	22.9
	Monthly	96	24.2
	Occasionally	52	13.1
Session time	0-10 minutes	144	36.3
	11-20 minutes	92	23.2
	21-30 minutes	63	15.9
	more than 30 minutes	98	24.7
Payment for online service	KNET Services	293	73.8
	Credit Card Services	63	15.9
	Others	41	10.3

The factors of information quality, system quality, and service quality for user satisfaction proposed model were analyzed using of bootstrapping of PLS squares using 3000 resamples iterations. The output showed the statistical significant of each factor relationship with (user satisfaction) based on the path coefficients t-statistics (Chin, 1998; Hassanein and Head, 2007). Table 2, 3 and 4 demonstrate the results of hypotheses testing. The t-statistics threshold value 1.96 was used to accept or reject the hypotheses proposed with this study (Gefen and Straub, 2005).

Information quality

Empirical results demonstrated that in the endogenous construct (user satisfaction) more than 29% of total variance is explained by of information quality construct. The overall results (in Table 2) showed that the information quality factors relevance and sufficiency are significant for user satisfaction. This research found relevance and sufficiency factors influence user satisfaction significantly, while the two factors accuracy and timeliness do not influence user satisfaction significantly. Thus, the hypotheses H2, and H3 were supported whereas H1 and H4 were not supported. **(Table-2):**

Table-2: Empirical results of Information Quality

H1-H4	Path	Mean	SD	t-statistics	Results
H1	Accuracy -> user satisfaction	0.01	0.05	0.25	Not supported
H2	Relevance -> user satisfaction	0.27	0.05	5.32	Supported
H3	Sufficiency -> user satisfaction	0.37	0.06	6.08	Supported
H4	Timeliness -> user satisfaction	0.04	0.07	0.67	Not supported

System quality

Empirical results demonstrated that in the endogenous construct (user satisfaction) more than 36% of total variance is explained by of system quality construct. Furthermore, results shown in Table 3 indicate that the system quality factors accessibility, attractiveness, and navigation are significant for user satisfaction. This study found all factors under system quality influence user satisfaction significantly. Thus, hypotheses H5, H6 and H7 were supported.**(Table-3):**

Table-3: Empirical results of System Quality

H5 - H7	Path	Mean	SD	t-statistics	Results
H5	Navigation -> user satisfaction	0.12	0.05	2.17	Supported
H6	Attractiveness ->user satisfaction	0.31	0.05	6.21	Supported
H7	Accessibility -> user satisfaction	0.26	0.06	4.45	supported

Service quality

Empirical results demonstrated that in the endogenous construct (user satisfaction) more than 36% of total variance is explained by of service quality construct. Overall, the results (Table 4) proved that the service quality factors quickness and security are significant for user satisfaction. This study found quickness and security factors under service quality influence user satisfaction significantly, while reliability and responsiveness were not significant for user satisfaction. Thus, the hypotheses H8 and H11were supported whereas H9 and H10 were not supported.

(Table-4):

Table-4: Empirical results of Service Quality

H8-H11	Path	Mean	SD	t-statistics	Results
H8	Quickness -> user satisfaction	0.23	0.04	5.15	Supported
H9	Reliability -> user satisfaction	0.04	0.04	0.89	Not Supported
H10	Responsiveness->user satisfaction	0.02	0.04	0.52	Not Supported
H11	Security -> user satisfaction	0.57	0.04	13.72	Supported

6. CONCLUSION

The high penetration of mobile communication in Kuwait made providing services through mobiles inventible. Therefore, there is a considerable competition among mobile communication providers in Kuwait to retain users and on the same time trying to attract new users. This study developed a model of multidimensional factors to assess the impact of information quality, service quality, and system quality on user satisfaction with online services provided by mobile communication providers. It was found most of the factors influence positively on user satisfaction except factors accuracy and timeliness of information quality, which means users assume information accuracy and timeliness is something common and cannot be competitive features. Similarly for service quality, the factors reliability and responsive were not considered as significant. It could be said that user satisfaction with online services of mobile communication may exceed the known features such as accuracy and reliability and expected another high competitive features quickness and security.

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