



Research Article

Subjective Norm as Antecedents of Consumers' Behavioral Intentions to Use Smart Phones in Arab World

Hasan A Abbas

Kuwait University College of Business Administration Dept. of Information Systems, Kuwait

Received date: 2 April 2014; Accepted date: 1 July 2014; Published date: 27 September 2016

Copyright © 2016. Hasan A Abbas. Distributed under Creative Commons CC-BY 4.0

Abstract

Technology acceptance model is widely adopted and used in different aspects of technology research. We adopt TAM model in special social environment in Kuwait. The smart phones technology controls the majority of the Kuwaiti mobile sector. Hence, our study focus on the social aspect of Kuwait population and test the influence of subjective norm (SN) (external factor) over the TAM model and precisely over behavioral intention (BI) to use smart phones through the two intermediate factors perceived ease of use (PEOU) and perceived usefulness (PU). We found that all factors affect the behavioral intention to use mobile phones. However and contrary to well-established thinking, we found no significant influence between perceived usefulness and behavioral intention.

Keywords: Subjective norm, TAM, smart phones, perceived ease of use, perceived usefulness

Introduction

Since its first introduction to the mobile market in 1992, smart phones took the lead to become the users' first choice in most markets globally. It is called smart phones because they combine computing capabilities in addition to their normal use as mobile phones.

Enhancements on smart phones are flourished since their first appearance such as their computing ability, screen resolution, camera, writing editor, 3G and 4G, GPS, diversity of networking options, and many

more. Among the famous companies that entered into this market worldwide are: IBM, Palm, Microsoft (Window CE pocket PC operating systems), BlackBerry, Apple (iPhone), Android, and many others.

The expected number of mobile phone connections worldwide is more than 6 billion in 2012 (BBC, 2010) and will reach more than 7.8 billion in 2015 (Statista, 2014). According to Russel (2011), among this number, just 27 percent is accounted for smart phones, which is an indication that there are still much potential for more market share occupation by communication

companies. Reports in 2014 show that shipments topped one billion for first time in 2013, and now represent 55% of overall mobile shipments (MacRumors, 2014). But, we should be little careful since not all reports are so enthusiastic; the numbers of 2013 and 2014 show a decline in smart phones shipments (Versace, 2013).

In general, the communication market is flourishing since more than a decade regardless of 2008 recession. For example, the biggest four companies in the US communication market, (Verizon, AT&T, Spring, and T-Mobile) reached the ceiling of 10 billion dollars in revenues in 2009 (Richtel, 2009). The same results can be said true in China and Japan and Western Europe. These results include all types of communication services such as MMS, SMS, IM, and so forth (O'Brien, 2009).

The 2008 crisis was globally strong that shocked every sector, crisis that is considered to the most devastating crash since 75 years (Altman, 2009). According to Altman (2009), Americans alone lost 14 trillion dollars from their savings and investments.

However, this crisis covered all sectors globally but the communication market was an exception. It stands strong against the worldwide financial shock. Kuwait communication was no exception. Its three major communication players (Zain est. in 1983, Wataniya est. in 1997, and Viva est. in 2007) had no difficulty to overcome the international crisis of 2008.

The competition among three companies in Kuwait communication market is very challenging. One important fact about mobile market is that this market specifically is mature and customers are highly knowledgeable, this is why those companies fight to keep and increase their market share in creative manners. According to Zhao and his teammates (2012), "As the market becomes more and more mature, value-added services become more homogeneous and completion for acquiring new customers

and retaining existing customers becomes more intense. In this environment, customer satisfaction is a critical factor for mobile service providers to maintain or improve their market share and profitability" (Zhao et al., 2012).

The paper is composed of the following sections. First, we introduce the importance of our research. Second, we make a brief trip over literature review and important studies in the field. Third, discussion of the research model is introduced; followed by, fourth, the data collection, sample, and statistical discussion. Finally, we discuss the results and reach the findings of the study and conclusion.

Importance and Research Questions:

Kuwait communication market is mature. The consumers are using most advanced technologies and gadgets. iPhone and Android systems are considered very popular and used by all ages. Thus, Kuwaiti communication organizations are competing on services provided for smartphones (3G and 4G). Our research is concentrated therefore over the following questions: 1. What factors affect usages smart phones? 2. Does ease of use affect the intention to use smart phones? 3. Does usefulness of smartphones affect the behavioral intention their usages?

Literature Review

Behavior Theory and Technology Acceptance Model

There are varieties of publications in technology adoption. For example Theory of Reasoned Action (TRA) (Fishbein and Ajzen, 1975), the Innovation Diffusion Theory (IDT) (Rogers, 1983), the Technology Acceptance Model (TAM) and its related modifications and variations (Davis, 1989; Venkatesh and Davis, 2000; Venkatesh et al., 2003; Yi et al., 2006; Rouibah, 2008; Rouibah and Abbas, 2010), in addition to other theories that group more than one to create a new model (Kim and Garrison, 2009).

One important note should be made is that TAM is the only theory that developed and invented in the environment of information systems to be used and measure information technology acceptance compared to other theories that were created by people outside the field. For this reason it is considered one of the most successful theories in the field and this is why it has been applied and used in variety of applications and environments (Venkatesh & Davis, 2000; King & He, 2006; Rouibah, 2008; Rouibah and Abbas, 2011; Kim & Garrison, 2009; Liao et al., 2009; Mallat et al., 2009).

In 1989 when Davis introduced this theory (Davis, 1989; Davis et al., 1989), TAM took lot of concentration (See Venkatesh and Davis, 2000; Venkatesh et al., 2003; Yi et al., 2006; Rouibah, 2008; Rouibah and Abbas, 2010). All types of scholars verified the goodness of fit of the model (see for example Chen et al., 2011). Many extensions were introduced by researchers of TAM (Lopez et al., 2008; Rouibah et al., 2011; Liqat and Anjali, 2009; Lung and Peng, 2007; Koury et al., 2010). Researchers tried different versions of TAM extension by addition many external factors to the original form. Hong et al., (2002) asserted that extending original TAM to include the following five external variables will positively explain the model since they all influence individual perception: computer's self-efficacy, knowledge of the search domain, relevance, terminology, and finally the screen design. However, Lewis et al. (2003) extended TAM model to include the external variables institutional factor, social factor, and individual factor. It is widely known that those applications and extension of TAM were validated and tested successfully (Hasan and Ahmed, 2007), Hsu and Lu (2007) had another point of view. They found that TAM has mixed and sometimes debatable and conflicting results.

Smart Phone and Acceptance Models

It is also true that TAM is used heavily in communication services and technologies. For example, Chen et al., (2009; 2011) adopted TAM to test application of

smartphones in logistics in Taiwan. The model was used in two different forms (with and without self-efficacy) and found that self-efficacy is the only important factor that affects perceived ease of use construct.

M-net was the study of Shin (2007). He focused towards finding the motivators that affect users' mobile Internet usage. Based upon 515 consumers' responses, he found that users' perceptions are significantly associated with their motivations towards using mobile Internet. Shin also found that perceived quality and perceived availability are two constructs that have significant effect on users' extrinsic and intrinsic motivations (Shin, 2007).

Shin et al. (2011) used the Unified Theory of Acceptance and Usage Technology (UTAUT) to measure the behavior intention of using smartphones in ubiquitous learning (u-learning). The findings were consistent with previous studies and research that found satisfaction and confirmation are the two main predictors of intention.

In addition, there were plenty of publications and verifications of acceptance models towards using smartphones. For example, in m-commerce and online shopping (Chang and Chen, 2005; Rouibah and Abbas, 2010; Rouibah, Abbas, and Rouibah, 2011), sports and training (Taylor et al., 2011), m-net (Shin, 2007), mobile advertising (Koury et al., 2010), learning and teaching (Hashemi and Ghasemi, 2011; Shin et al., 2011), and many more.

Research Model

We modified the original TAM model to include the construct subjective norm (SN). Our developed research model is based upon the research of Venkatesh and Davis (2000) where developed an extension TAM 2. Their new model combines social factors and cognitive instrumental determinants into one model.

Subjective Norm (SN)

Kuwait belongs to Arab society. According to Hofstede's dimensions, Arab (Kuwait) is categorized to be collectivist society. Accordingly, we assume that subjective norm (SN) plays sensitive role in such societies. Subjective norm (SN) is derived from Theory of Reasoned Action (TRA) where it is verified that it is major determinant of behavioral intention to use. In further developments of TAM, Venkatesh and Davis (2000) used subjective norm in TAM2 and scored important results. It is refer to "a person's perception of what people important to him think he should or should not perform in accordance to a behavior in question" (Rouibah and Abbas, 2010). According to Venkatesh and Davis (2010), "the direct compliance effect of subjective norm is the case when an individual perceives that a social actor wants him to perform a certain behavior, and the social actor has the ability to reward the behavior or punish it in case of its absence". We assume, thus, that users of smartphones adapt their attitude and behavior according to the groups that they belong to.

Prior studies found positive relationship between SN and perceived usefulness (PU) (Venkatesh and Davis, 2000; Yi et al., 2006; Schepers and Wetzels, 2007; Rouibah, 2008), and positive effect with behavioral intention (Venkatesh and Davis, 2000; Hung et al., 2003). Thus we hypothesis that:

- H1: Subjective norm (SN) is positively affects the perceived ease of use (PEOU).
- H2: Subjective norm (SN) positively affects the construct perceived usefulness (PU).
- H3: Subjective norm (SN) positively affects behavioral intention (BI) to use smart phones.

Perceived Usefulness (PU) and Perceived Ease of Use (PEOU)

The research model is depicted in Figure 1.

The original work of TAM by Davis (1989) introduced the cognitive construct and established in TAM the relationship between the most important two factors in the model, i.e. perceived ease of use (PEOU) and perceived usefulness (PU). It is been tested and verified by plenty of studies that PEOU is major predictor of PU (King and He, 2006). According to literature (King and He, 2006; Bruner and Kumar, 2005; Hu et al., 1999; Igbaria and Livari, 1995; Shyu et al., 2011) users normally consider a technology is useful when they perceive it to be easy to use. PU is defined as "the degree to which a person believes that using a particular system would enhance his or her job performance" (Davis, 1989, p. 320). Consequently, it is the degree to which one believes that using smartphone enhances his performance for any purpose (personal, professional, social, or academic).

PEOU is defined by Davis (1989) as "the degree to which a person believes that using a particular system would be free of effort" (Davis, 1989, p. 320). Accordingly, we define perceived ease of use in the context of using smart phones as the degree to which a person believes that using a smart phone would free himself/herself from an effort (can be personal, social, academic, or professional) (Abbas, 2014).

Prior studies verified the positive influence over behavioral intention by both perceived usefulness and perceived ease of use (Shyu et al., 2011; Adams et al., 1992; Davis et al., 1992; Hu et al., 1999; Venkatesh and Davis, 1996; Venkatesh and Davis, 2000). Thus we state the following hypotheses:

- H4: Perceived ease of use positively affects perceived usefulness.
- H5: Perceived ease of use positively affects behavioral intention to use smart phones.
- H6: Perceived usefulness positively affects behavioral intention to use smart phones.

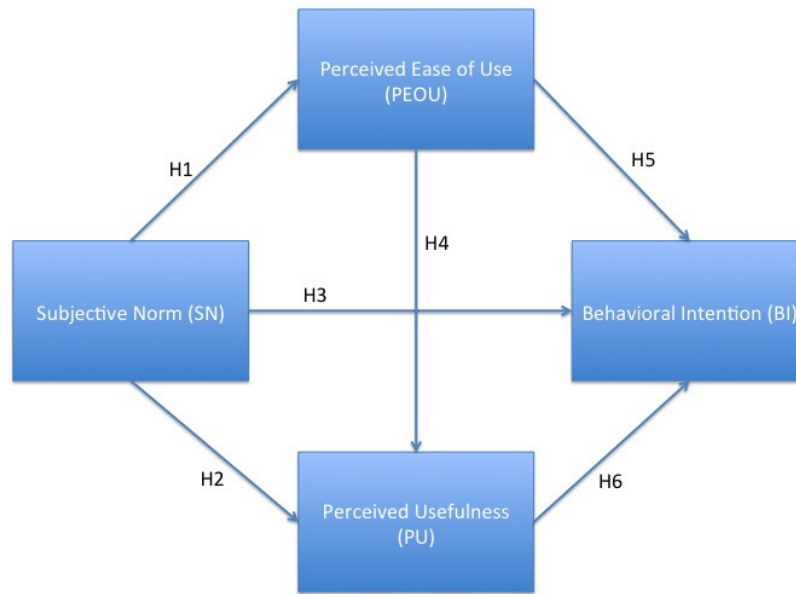


Figure 1: Research model

Research Method

Population Sampling and Data

Our collection data is a two-stage model. We first began the process by collecting pilot study data. The pilot samples are 30 of Arabic language speakers. According to pilot study and data, the questionnaire is updated and revised accordingly where many necessary changes were needed before beginning the next and final stage of data collection. Random samples of 450 smart phone users in the State of Kuwait were collected using stratified random sample.

Measurements

The measurements are based upon previous studies. Since the publication in the field of technology acceptance is limited in this area, we modified study measurements from foreign studies and tailored them to fit our analysis.

The translation was the most critical step in using previous studies measurements since

the translation cannot be word by word. The pilot study showed many variations of meaning between the two instruments (English vs. Arabic). This is why we modified the statements and measurements to be understandable and at the same reflect correctly the scientific meaning. For this purpose, we showed the new modified versions of the instruments to two of professional scientists in the field with Arabic and English capabilities to verify the translation and the scientific meanings of the instrument.

Sample Characteristics

Table 1 shows the demographics of sample: gender distribution tends to favor the female (57.1% vs. 42.9% for male). Among the sample, 92.1% were Kuwaiti nationality, 4.9% were non-Kuwaitis (Arabs or non Arabs).

Table 1: Study sample characteristics and distribution

Characteristic		Number	Valid Percent	Cumulative Percent	
Age	< 12	8	1.8	1.8	1.8
	12 - 15	18	4.0	4.0	5.8
	15 - 20	100	22.2	22.2	28.0
	20 - 25	137	30.4	30.4	58.4
	25 - 30	49	10.9	10.9	69.3
	30 - 35	25	5.6	5.6	74.9
	35 - 40	19	4.2	4.2	79.1
	40 - 45	32	7.1	7.1	86.2
	45 - 50	33	7.3	7.3	93.6
	50 - 55	20	4.4	4.4	98.0
	> 55	9	2.0	2.0	100.0
	Total	450	100.0	100.0	
Academic Degree	High school or less	193	42.9	42.9	42.9
	2 years college	57	12.7	12.7	55.6
	BS	179	39.8	39.8	95.3
	MS	14	3.1	3.1	98.4
	PhD	7	1.6	1.6	100.0
	Total	450	100.0	100.0	
Income	500 or less	195	43.3	47.2	47.2
	500 - 1000	79	17.6	19.1	66.3
	1000 - 1500	63	14.0	15.3	81.6
	1500 - 2000	45	10.0	10.9	92.5
	2000 - 2500	11	2.4	2.7	95.2
	2500 - 3000	8	1.8	1.9	97.1
	3000 - 3500	4	.9	1.0	98.1
	3500 - 4000	2	.4	.5	98.5
	> 4000	6	1.3	1.5	100.0
	Total	413	91.8	100.0	

Reliability and Validity

The overall Cronbach's reliability coefficient Alpha is high (92.2%), which illustrates an acceptable consistency among instruments. The measurements that were used are more

than those explained in the following table. Table 2 explains the Cronbach's reliability Alpha coefficient and explained variance per each latent construct. Table 3 collects the factor loadings of study measurements.

Table 2: Cronbach's reliability coefficients and explained variance of study latent constructs

	Explained Variance	Cronbach's Reliability Coefficient
Subjective Norm (SN)	84.12	81.1%
Perceived Usefulness (PU)	77.9	92.9%
Perceived Ease of Use (PEOU)	76.9	92.4%
Behavioral Intention (BI)	73.3	81.3%

The data were under many analyses and testing in order to build sound research model. We ran into different stages of discriminate validity test before going into

further analysis. Finally, and after many rounds of pilot studies, we gathered our data that were found to be sound (see Table 3).

Table 3: Factor loadings of study measurements

	Component			
	1	2	3	4
SN1				.873
SN2				.870
PU1	.804			
PU2	.880			
PU3	.891			
PU4	.854			
PU5	.770			
PEOU1		.814		
PEOU2		.838		
PEOU3		.874		
PEOU4		.804		
PEOU5		.689		
B11			.747	
B12			.783	
B13			.791	

Table 4: Inter-construct correlations

	PU1	PU2	PU3	PU4	PU5	PEOU1	PEOU2	PEOU3	PEOU4	PEOU5	BI1	BI2	BI3	SN1	SN2
PU1	1.00														
PU2	0.81	1.00													
PU3	0.82	0.88	1.00												
PU4	0.75	0.80	0.82	1.00											
PU5	0.69	0.73	0.76	0.83	1.00										
PEOU1	0.50	0.40	0.42	0.53	0.53	1.00									
PEOU2	0.41	0.36	0.36	0.44	0.45	0.85	1.00								
PEOU3	0.45	0.34	0.37	0.42	0.43	0.85	0.86	1.00							
PEOU4	0.47	0.37	0.37	0.43	0.43	0.79	0.82	0.82	1.00						
PEOU5	0.34	0.30	0.28	0.36	0.35	0.71	0.73	0.76	0.70	1.00					
BI1	0.37	0.37	0.36	0.43	0.47	0.63	0.64	0.62	0.59	0.76	1.00				
BI2	0.39	0.35	0.32	0.39	0.44	0.48	0.49	0.44	0.53	0.53	0.76	1.00			
BI3	0.33	0.30	0.29	0.31	0.33	0.49	0.48	0.48	0.51	0.55	0.72	0.71	1.00		
SN1	0.37	0.34	0.37	0.26	0.30	0.30	0.32	0.29	0.35	0.21	0.37	0.32	0.28	1.00	
SN2	0.33	0.30	0.34	0.26	0.32	0.19	0.21	0.18	0.27	0.17	0.31	0.28	0.26	0.76	1.00

Testing the Research Model

To identify the important and significance of our study relationships and the connections between study constructs, we used LISREL 8.54 software to run structured equation

modeling, which verifies and tests the importance of influences between constructs. Figure 2 is the research model with path significance.

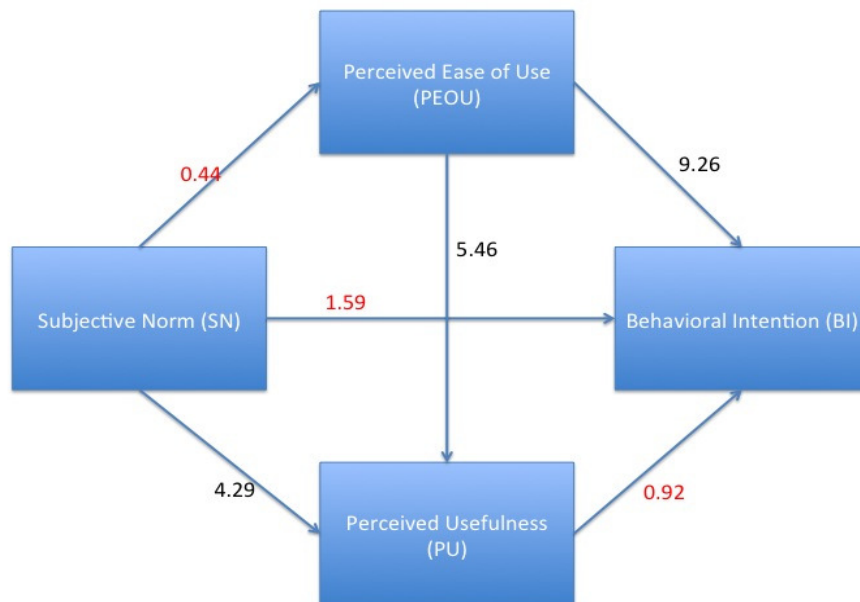


Figure 2: Results of Hypotheses Testing and Path Analysis

It is obvious from Figure 2 that results show some significant paths and effects between constructs. Table 5 views the results of

structured of equation modeling (goodness of fit analysis).

Table 5: Goodness of fit statistics of the study

	Values in study
Root mean Square Residuals (RMR)	0.054
Goodness of Fit Index (GFI)	0.82
Root Mean Square Error of Approximation (RMSEA)	0.11
Adjusted Goodness of Fit Index (AGFI)	0.76
Normed Fit Index (NFI)	0.95
Comparative Fit Index (CFI)	0.95
Relative Fit Index (RFI)	0.94

Results show that subjective norm has neither significant effect over perceived ease of use, nor on behavioral intention. The

following table (Table 6) presents the study hypothesis and whether they were supported.

Table 6: Testing Study Hypotheses

Hypothesis	1 st Construct	2 nd Construct	Impact factor	Significance
H1	SN	PEOU	0.44	NOT
H2	SN	PU	4.29	SIG.
H3	SN	BI	1.59	NOT
H4	PEOU	PU	5.46	SIG
H5	PEOU	BI	9.26	SIG
H6	PU	BI	0.92	NOT

One of most important findings in our study is that perceived usefulness (PU) has no significant association with behavioral intention (H6). This is one interesting finding from our result.

Conclusion

We studied Kuwaiti mobile consumer market. The aim was to measure the Kuwaiti

consumer market acceptance to use smartphones.

The study comes in alignment with prior studies, in that, significant associations were found. Subjective norm (SN) found to have positive association with perceived usefulness (PU). However, SN was also found not to have significant association with perceived ease of use (PEOU), and also no significance with behavioral intention (BI).

PEOU affects positively and significantly over the behavioral intention and perceived usefulness constructs.

Notes

¹This project is supported by Kuwait Foundation for the Advanced of Sciences (KFAS 2010-1103-05)

References

1. Abbas, Hasan. (2014). Antecedents of consumers' behavioral intentions to use smartphones in Arab World. *To be published soon*.
2. Adams, D. A., Nelson, R. R., and Todd, P. A. (1992). Perceived usefulness, ease of use, and usage of information technology. A replication. *MIS Quarterly*, 16 (2), 227 - 247.
3. Altman, Roger. (2009). The great crash, 2008. *Foreign Affairs*, Januar/February, 2009.
4. BBC News. (2010). Over 5 billion mobile phone connections worldwide. (March, 2014), <http://www.bbc.co.uk/news/10569081>.
5. Bowlby, J. (1969). Attachment and loss. Vol. 1: Attachment. New York: Basic Books.
6. Bruner, G. C., and Kuwar, A. (2005). Explaining consumer acceptance of handheld Internet devices. *Journal of Business Research*, 58 (5), 553 - 558.
7. Chen, Kuanchin, Chen, Jengchung V., and Yen, David C. (2009). The acceptance and diffusion of the innovative smart phone use: A case study of a delivery service company in logistics. *Information & Management*, 46(4), 241 - 248.
8. Chen, Kuanchin, Chen, Jengchung V., and Yen, David C. (2011). Dimensions of self-efficacy in the study of smart phone acceptance. *Computer Standards & Interfaces*, 33(4), 422 - 431.
9. Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319 - 340.
10. Davis, F. D., Bagozzi, R. P., and Warshaw, P. R. (1989). User acceptance of two theoretical models. *Management Science*, 36, 982 - 1003.
11. Davis, F. D., Bagozzi, R. P., and Warshaw, P. R. (1992). Extrinsic and intrinsic motivations to use computers in the workplace. *Journal of Applied Social Psychology*, 22 (14), 1111 - 1132.
12. Fishbein, M., and Ajzen, I. (1975). Belief, attitude, intention and behavior: An introduction to theory and research. Addison-Wesley, Reading: Massachusetts.
13. Hasan, B., and Ahmed, M. U. (2007). Consumer behavior in online game communities: A motivational factor perspective. *Computer Human Behavior*, 23 (3), 1642 - 1659.
14. Hashemi, Masoud, and Ghasemi, Babak. (2011). Using Mobile Phones in Language Learning/Teaching. *Procedia Social and Behavioral Sciences*, 15, 2947 - 2951.
15. Hofstede, G. (1980) Culture's consequences: International differences in work-related values. Newbury Park, CA: Sage.
16. Hong, W. Thong, J. Y. I., and Wong, W. M. (2002). TAM, determinants of user acceptance of digital libraries: An empirical examination of individual differences and systems characteristics. *Journal of Management Information Systems*, 18 (3), 97 - 124.
17. Hu, J., Chau, Y. K., Sheng, R. L., and Tam, K. Y. (1999). Examining technology acceptance model using physician acceptance of telemedicine technology. *Journal of Management Information Systems*, 16 (2), 91 - 112.

18. Hung, Shin-Yuan, Ku, Cheng-Yuan, and Chang, Chia-Ming. (2003). Critical factors of WAP services adoption: An empirical study. *Electronic Commerce Research and Applications*, 2, 42 - 60.
19. Igbaria, M., Iivari, J., and Maragahh, H. (1995). Why do individuals use computer technology? A Finnish case study. *Information Management*, 29 (5), 227 - 238.
20. King, S. and Garrison, G. (2009). Investigating mobile wireless technology adoption: An extension of the technology acceptance model. *Information Systems Frontiers*, 11 (3), 323 - 333.
21. King, W. R., and He, J. (2006). A meta-analysis of the technology acceptance model. *Information Management*, 43 (6), 740 - 755.
22. Koury, Sandra, Soroa, Yang, and Kenneth, C. C. (2010). Factors affecting consumers' responses to mobile advertising from a social norm theoretical perspective. *Telematics and Informatics*, 27(1), 103 - 113.
23. Lewis, W., Agarwal, R., and Sambamurth, V. (2003). Sources of influence on beliefs about information technology use: An empirical study of knowledge workers. *MIS Q*, 27 (4), 657 - 678.
24. Li, Dahui, Chau, Patrick Y. K., and Lou, Hao. (2005). Understanding individual adoption of instant messaging: An empirical investigation. *Journal of the Association for Information Systems*, 6 (4), 102 - 129. April, 2005.
25. Liao, C., Palvia, P., & Chen, J. (2009). Information technology adoption behavior life cycle: Toward a Technology Continuance Theory (TCT). *International Journal of Information Management*, 29, 309 - 320. doi:10.1016/j.ijinfomgt.2009.03.004.
26. Liqueat, Hosain, and Anjali, de Silva. (2009). Exploring user acceptance of technology using social networks. *Journal of High Technology Management Research*, 20, 1 - 18.
27. Lopez, Carolina Nicolas, Molina, Castillo Francisco, Harry, Bouwman. (2008). An assessment of advanced mobile services acceptance: contributions from TAM and diffusion theory models. *Information & Management*, 45, 359 - 364.
28. Lung, Hsu Chin, and Peng, Lu Hsi. (2007). Consumer behavior in online game communities: A motivational factor perspective. *Computers in Human Behavior*. 23, 1642 - 1659.
29. MacRumors. (2014). Apple continues to lose smartphone share, gain mobile phone share in 4Q 3014. Jan. 28, 2014.
30. Mallat, N., Rossi, M., Tuunainen, K., & Öörni, A. (2009). The impact of use context on mobile services acceptance: The case of mobile ticketing. *Information & Management*, 46, 190-195. doi:10.1016/j.im.2008.11.008.
31. McAdams, D. P. and Bryant, F. B. (1987). Intimacy motivation and subjective mental health in a nationwide sample. *Journal of Personality*, Vol. 3, Iss. 55, 395 - 413.
32. O'brien, Kevin J. (2009). Turning the Masses onto Mobile Broadband. *The New York Times*, June 15, 2009.
33. Reis, H. T. and Patrick, B. C (1996). Attachment and intimacy: Component processes, *Social Psychology: Handbook of Basic Principles*, Higgins, E. T. and A. W., Kruglanski (eds), New York: Guilford Press, 523 - 563.
34. Ritelch, Matt. (2009). U.S. Pulls Ahead in Mobile Data Revenue. *The New York Times*, May 11, 2009.
35. Rogers, E. M. (1983). *Diffusion of Innovations*. Free Press, NY.
36. Rouibah, K. (2008). Social usage of instant messaging by individuals outside the

- workplace in Kuwait: A structural equation model. *IT & People*, 21 (1), 34 - 68.
37. Rouibah, K, and Abbas, H. (2010). Effect of personal innovativeness, attachment motivation, and social norms on the acceptance of camera mobile phones: An empirical study in an Arab country. *International Journal of Handheld Computing Research (IJHCR)*, 1 (4), 41 - 62. October-December, 2010.
38. Rouibah, Kamel, Abbas, Hasan, and Rouibah, Samia. (2011). Factors affecting camera mobile phone adoption before e-shopping in the Arab world. *Technology in Society*, 33, 271 - 283.
39. Russel, Jon. (2011). Smart phones account for just 27% of all mobile phones. *Vision Mobile*, <http://thenextweb.com/mobile/2011/11/29/report-smartphones-account-for-just-27-of-all-mobile-phones-worldwide/>
40. Sarbaugh-Thompson, M. and Feldman, M. (1998). Electronic mail and organizational communication: Does saying Hi really matter? *Organization Science*, 9 (6), 685 - 698.
41. Shepers, J., and Wetzels, M. (2007). A meta-analysis of the technology acceptance model: Investigating subjective norm and moderation effects. *Information & Management*, 44, 90 - 103.
42. Shin, Dong-Hee. (2007). User acceptance of mobile Internet: Implication for convergence technologies. *Interacting with Computers*, 19(4), 472 - 483. July, 2007.
43. Shin, Dong-Hee, Shin, Youn-Joo, Choo, Hyunseung, and, Beom, Khisu. (2011). Smartphones as smart pedagogical tools: Implications for smartphones as u-learning devices. *Computers in Human Behavior*, 27 (6), 2207 - 2214. November, 2011.
44. Shyu, Stacy Huey-Pyng, and Huang, Jen-Hung. (2011). Elucidating usage of e-government learning: A perspective of the extended technology acceptance model. *Government Information Quarterly*, 28, 491 - 502.
45. Statista. (2014). The Statistics Portal. <http://www.statista.com/statistics/277640/number-of-mobile-connections-worldwide-since-2007/>. (March, 2014).
46. Taylor, Ken, Abdullah, Umran A., Helmer, Richard J. N., Lee, Jungoo, and Blanchonette, Ian. (2011). Activity classification with smart phones for sports activities. *Procedia Engineering*, 13, 428 - 433.
47. Venkatesh, V. and Davis, F. D. (1996). A model of the antecedents of perceived ease of use: Development and test. *Decision Sciences*, 27 (3), 451 - 481.
48. Venkatesh, V. and Davis, F. D. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field. *Management Science*, 46, 186 - 204.
49. Venkatesh, V. Morris, M. G., and Ackerman, P. L. (2000). A longitudinal field study of gender differences in individual technology adoption decision making processes. *Organization Behavior Human Decision Processes*, 83, 33 - 60.
50. Venkatesh, V., and Ramesh. (2003). Understanding usability in mobile commerce. *Communications of the ACM*, 46 (12), 53 - 56.
51. Venkatesh, V., Morris, D., and Davis, F. (2003b). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 27, 425 - 478.
52. Versace, Christopher. (2014). It had to happen! Smartphone shipments dip in 1Q 2013. *Forbes*, 21/01/2013.
53. Yi, M. Y., Jackson, J. D., Park, J. S., and Probst, J. C. (2006). Understanding information technology acceptance by individual professionals: Towards and integrative view. *Information & Management*, 43, 350 - 363.
54. Zhao, Ling, Lu, Yaobin, Zhang, Long, and Chau, Patrick Y. K. (2012). Assessing the

effects of service quality and justice on customer satisfaction and the continuance intention of mobile value-added services: An

empirical test of a multidimensional model. *Decision Support Systems*, (article in press). 1 - 12. 2012.

Appendix 1: Questionnaire

Measurement		Totally Dis						Totally
		Agree						Agree
		1	2	3	4	5	6	7
Subjective Norm (SN) measures	People who are important to me think that I should use smart phone. (Rouibah et al, 2010; Rouibah et al., 2011). (SN1)							
	People who are important for me pressure me to use adopt smart phone. (Rouibah et al, 2010; Rouibah et al., 2011). (SN2)							
Perceived Usefulness (PU)	I use the smart phone in my job to improve my performance. (Davis, 1989; Lim et al., 2011). (PU1)							
	. I use smart phones to increase my productivity. (Davis, 1989). (PU2)							
	Using smart phones would enhance my effectiveness on the job. (Davis, 1989). (PU3)							
	Using smart phones make it easier to do my job. (Davis, 1989). (PU4)							
	In general, I would find smart phones are useful in my job. (Davis, 1989). (PU5)							
Perceived Ease of Use (PEOU)	Learning to operate smart phone is easy for me. (Davis, 1989). (PEOU1)							
	I would find it easy to get to do what I want it to do. (Davis, 1989). (PEOU2)							
	My interaction with smart phone would be clear and understandable. (Davis, 1989). (PEOU3)							
	I would find smart phone to be flexible to interact with. (Davis, 1989). (PEOU4)							
	I would find smart phone easy to use in general. (Davis, 1989). (PEOU5)							
Behavioral Intention (BI)	I think I will continue using smart phone in coming years. (BI1)							
	I will not hesitate to increase my dependence on smart phone in my daily life. (BI2)							
	I think I will hesitate to use smart phones when I have chance to do so. (BI3)							