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The Effects of Trust in Technology Trust in Organization on the Use of Mobile Learning and Net Benefit in the Public Universities in Kingdom of Saudi Arabia

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ABSTRACT: The objective of this study is to investigate the relationships between trust in technology, trust in organization and use of mobile learning and net benefit in the Public Universities in Kingdom of Saudi Arabia. There is still low utilization in the use of m-learning by students in public universities in developing countries like Saudi Arabia. This study was carried out because only a few studies have examined the influence of trust in technology, trust in organization and use of mobile learning on net benefit. The Partial Least Squares Structural Equation Modelling (PLS-SEM) was employed in the data analysis. The findings revealed a strong significant relationship between use of mobile learning and net benefit, and between trust in technology, trust in organization and use of mobile learning. The study concludes with a discussion on the contributions, limitations as well as suggestions for future research.

KEYWORDS: trust in technology, trust in organization, use of mobile learning, net benefit, universities in kingdom of Saudi Arabia.

I. INTRODUCTION

Information and communication technologies (ICTs), as instruments of socialization and information, are playing an increasingly important role in the advancement of society, changing human interaction and communication in an unprecedented way. According to DeLone and McLean (1992), ICTs are considered an important force that can influence the success or effectiveness of Information Systems (IS) projects. Therefore, ICTs have been exploited by institutions and learning environments to provide better interactional possibilities among their students and lecturers; hence, ICTs have become one of the fundamental building blocks of modern learning institutions. Therefore, the advancement of ICTs has important role in learning environment, such as higher education institutions (Livingstone, 2012).
According to Stead (2005) said that every area of education has been affected by the introduction and use of ICTs. Adopting technology would be the key to improve services and promote better teaching and learning environment as competitions are fierce up among universities in the countries and in the world (Sammalisto & Brorson, 2008; Fusilier & Munro, 2014). Therefore, they are adjusting their strategies in line with students' needs, expectations and welfare. When universities attempt to update technology in improving their students' skills and experiences, it will in turn reflect the stability of such institution in the scene of global competitive educational system which enables them to move in the trend of new knowledge (Barone, 2011; Szucs et al., 2013; Seale et al., 2015). Therefore, many education institutions (such as universities) are spending large amounts of money in an attempt to establish and maintain information systems with the utilisation of modern ICTs (Glood, 2017).

In this context, Saudi Arabia is one of the countries in the world which sought to implement e-learning initiatives, especially in education institutions. These initiatives of education institutions were faced many challenges, such as physical limitations of computer; students cannot access learning materials in a place or a location (Nassuora, 2012). As a result, the performance and output level are less than satisfactory (Al-Shafi & Weerakkody, 2010; Faaeq et al., 2013). Furthermore, the ratio of use and adoption of e-learning services in Saudi Arabia is still quite low compared to other developed countries (Al-Dabbagh, 2011; Faaeq et al., 2013).

The International Telecommunication Union (ITU) (2013a, 2013b) reported continuous growth in the use of ICTs along with an increasing number of services and applications offered over the Internet and/or on mobile devices. Today, many

education institutions have adopted these sophisticated mobile technologies to enhance their performance and provide efficient services and information to their students and lecturers.

In developing countries, exploiting mobile technology is considered as the optimal option to provide learning services and information to their students and lecturers (Fadhil et al., 2014; Georgescu, 2010). Therefore, many universities have tried to apply wireless and mobile technologies to interact with students, lecturers, and other stakeholders (Al-Hujran, 2012).
M-Learning is the latest technique to deliver services and information accessibility at the universal level for students, lecturers, and other institutions by wireless and mobile technologies (Al-Masaeed & Love, 2013). M-learning is considered a highly appropriate option for countries where Internet access rates are lower but mobile phone penetration is growing rapidly (Fadhil et al., 2014; Georgescu, 2010; ITU, 2013a, 2013b). Mobile technologies provide access in areas where the infrastructure required for Internet or wired phone service is not a viable option. Therefore, M-learning enhances institutions performance by delivering information and services to students, lecturers and stakeholders efficiently and economically (Chatterjee et al., 2009; Mengistu, Zo, & Rho, 2009).

However, regrettably, the adoption and use of m-learning services in education institutions in developing countries has, in general, been far less successful than initially hoped (Abdelghaffar & Magdy, 2012; Al Thunibat, Zin, & Sahari, 2011; Alrazooqi & De Silva, 2010; Mahmood, 2013; Mengistu et al., 2009). There are several challenges and barriers that hinder the implementation of m-learning initiatives. Saudi Arabia, in particular, is one of the developing countries where many universities have invested large sums of money for the implementation of m-learning initiatives, According to the report published in 2014 by the Ministry of Economy and Planning, the government spending on higher education has increased during the last years (2008-2012), to reach 59.9 billion riyals in 2012, which represents an increase of 27.72 percent from 2012.

According to Accenture (2003), and Andersen and Henriksen (2006) realization the net benefits of using IS services is critical for IS success. Where, the provision of IS services alone does not guarantee the usage if the net benefits is not recognised. Thus, if the net benefits of using m-learning services are not effectively communicated to students, it may result in low utilisation and ultimately lead to the failure of m-learning systems. Moreover, Vuolle (2011) emphasised that there is a considerable need to examine the benefits and impacts of the services that used mobile and wireless technologies as a platform.

According to Abdelghaffar and Magdy (2012) many studies have covered the adoption of e-learning but not the m-learning services, therefore, research on the evaluation of m-learning success in developing countries is relatively limited. Finally, this research anticipates that the proposed model of this research will contribute to the existing knowledge because it incorporates many unexplored dimensions, such as socio-technical dimensions Trust of Technology, trust of Organization), that influence utilisation, the net benefits of m-learning services.

II. LITERATURE REVIEW

NET BENEFIT (NB)

In this study, Net Benefits (NB) is defined as assessment of the expected and actual benefits regarding the totality of net benefits received from the use of m-learning services. The realization of IS benefits is considered a backbone for IS success (Zhou, 2013). Delone and Mclean (1992, 2003) and Seddon (1997) claimed that a NB construct is one of the important constructs in IS success domain. Several researchers also stressed that NB have an important effect on IS success in different contexts (Attaran, 2012; Bento and Costa, 2013; Chatterjee, Chakraborty, Sarker, Sarker, and Lau, 2009; Lin, 2013; Vuolle, 2011; Wixom and Watson, 2001; Zhu, Mukhopadhyay, and Kurata, 2012), as shown in previously.

In the m-learning service context, numerous benefits have been provided for the users of m-learning services. These benefits have different effects (negative or positive effects) on the individual level through usage behavior and user satisfaction of m-learning services. For instance, receiving anticipated benefits repetitively and frequently from using m-learning services may lead to a positive effect toward the usage of these services (vice versa). This repeated usage may serve as a feedback relationship; the usage/adoption of m-learning services is ultimately enhanced. Additionally, users have many needs and anticipated desires that can be fulfilled through m-learning services. If m-learning services fulfill their needs, users will feel satisfied and pleasured in using these services (a positive effect), thereby increasing usage/adoption of m-learning services. User satisfaction also serves as another feedback relationship of NB influence. Lastly, the literature review of IS success domain indicates that studies assessing m-learning success in developing countries are lacking (El-kiki & Lawrence, 2006; Vuolle, 2011). Therefore, this study focuses on the NB influence toward m-learning success to fill this gap.

TRUST IN ORGANIZATION

According to Bandyo-padhyay (2002), trust is an important factor since users need to have a trust in providers. The lack of the trust in the mobile network context has been identified by providers as one of the most important obstacles in the adoption and acceptance of transaction in a large number of discussions (Hoffman et al., 1999). Also, trust has been one of the most important factors of the adoption of mobile services and trustworthiness has significant and positive impacts on the learners‟ perceived adoption and satisfaction (Kaasinen, 2005; Zeithaml, Parasuraman, & Malhorta, 2005).

In detail, trust in the institutions such as university appears to consist of trust in managerial competence and trust in the organizations support of IT (Filstad & Gottschalk, 2010; Lewicki & Bunker, 1996). This dimension gives positive views for users who might be using and interacting with IT (Lewicki & Bunker, 1996). In fact, trust in IS is becoming more important to academics and practitioners (Lippert, 2002). It is worth to note that trust in the electronic channel such as mobile channel is the major determinant of the adoption of new technology (Malaysian Administrative Modernisation and Management Planning Unit, 2003).

TRUST IN TECHNOLOGY

The use of wireless technology in the 21st century has been explosive. It is believed that the increased trust in technology leads to more effective utilization and rapid acceptance of this technology. Further, technology trust elements can have a profound effect on speed and efficiency of technology adoption, use, and acceptance. This makes individuals rely on Internet security and privacy systems for safeguarding personal information and to protect against unauthorized use (Lippert, 2002; Osburg, and Lohrmann, 2017). While these systems focus on safety, security, and privacy, the infrastructures that support predictability, reliability, and utilization of technology, which are jointly classified as technology trust, are all underdeveloped and are especially important to the higher education institutions sector.

In fact, Al-Sukkar (2005) also agreed that trust in the mobile channel influenced the adoption and use of technology, in the context of Jordan. Therefore, it is important to study trust in the mobile channel variable that fosters and impede the adoption of new technologies particularly m-learning (Chaouali, Yahia, and Souiden 2016). This study proposes that trust in technology acceptance requires an environment with two key ingredients: (i) Trust in the university as institution (ii) Trust in the mobile channels as electronic channels.

USE OF A SYSTEM (U)

Intentions to use an information system and actual system use are well-established constructs in the information systems literature. In the IS success model system use and usage intentions are influenced by information, system, and service quality. System use is posited to influence a user's satisfaction with the information system, which, in turn, is posited to influence usage intentions. In conjunction with user satisfaction, system use directly affects the net benefits that the system is able to provide (DeLone & McLean, 2003).

III. THEORETICAL FRAMEWORK AND HYPOTHESES

This study primarily focuses on the major determinants of Net benefit; trust in technology, trust in organization and Use of Mobile Learning. Figure 3 illustrates the research framework for this study, showing the trust in technology, and Use of Mobile Learning on Net benefit.

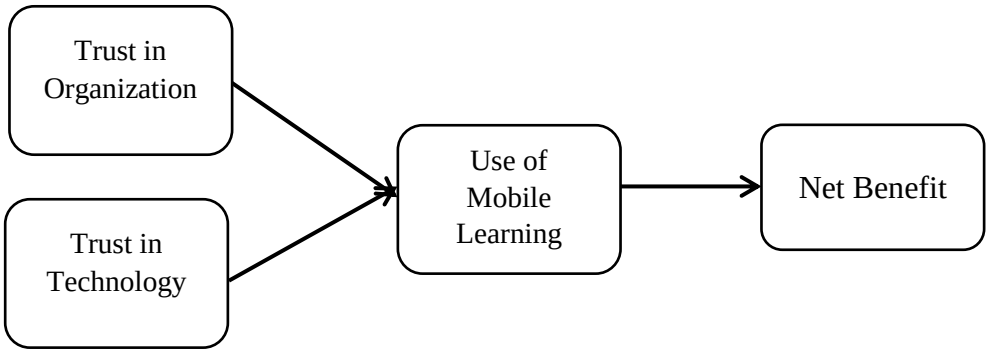

Figure 3. Research model of the present study

HYPOTHESES

H1: Trust in Organization has a significant Influence on Use of Mobile Learning in the Public Universities in Kingdom of Saudi Arabia.
H2: Trust in technology has a significant Influence on Use of Mobile Learning in the Public Universities in Kingdom of Saudi Arabia.
H3: Use of Mobile Learning has a significant Influence on Net benefit of Mobile Learning in the Public Universities in Kingdom of Saudi Arabia.

IV. METHODOLOGY

TARGET STUDY POPULATION

The target population in this research will be the students in three universities of Saudi Arabia which used BlackBoard system. These universities are King AbdulAziz University, King Saud University, and King Faisal University; and they collectively students (around 408789 students) for 2015-2016 according to statistics of planning information department in 2017.

CONSTRUCTS MEASUREMENT

The survey measures the four variables, which are TT, TO, U, and NB. All these variables were adapted from previous studies. Adaption of items related to each variable from the summary of the measurements adapted from previous studies is quite authentic and useful. To measure use of use a system, a 5 items scale was adapted from (Wu and Wang, 2006), the measure Net benefits 5 items adapted from (Wu and Wang, 2006), also to measure trust in Technology 3 items adopted from Carter & Bélanger (2005), and the measurement of Trust in Organization with 4 items adapted from Carter & Bélanger (2005). All variables were measured on a five-point Likert scale, ranging from "1" "Strongly disagree" to "5" "Strongly agree."
The Partial Least Squares Structural Equation Modelling (PLS-SEM) path modeling using SmartPLS 3.0 software was employed to test the theoretical model (Ringle, Wende, and Becker (2015). The PLS path modelling was considered the most suitable technique in this study because it resembles the conventional regression technique. The PLS path modelling has the benefit of estimating simultaneously the relationships between indicators, their corresponding latent constructs and measurement model (outer model); and the relationships between constructs and structural model (inner model) (Chin, Marcolin, and Newsted, 2003; Duarte and Raposo, 2010).

V. FINDINGS

ASSESSMENT OF THE MEASUREMENT MODEL

The study adopted a two-step process as suggested by Hair, Hult, Ringle, and Sarstedt (2014) to assess both the measurement and structural model. The first step involved assessing the measurement model by running the algorithm in SmartPLS 3.0. The result of the assessment of the measurement model shown in Table 1. The square root of the average variance extracted, correlation of latent variables, average variance extracted, and composite reliability.

Table 1. Items Loadings, Average Variance Extracted, and Composite Reliability

Constructs	Items	Loadings	*(CA)	*(CR)	*(AVE)
Net Benefits			0.906	0.930	0.728
	NB1	0.824			
	NB2	0.835			
	NB3	0.869			
	NB4	0.860			
	NB5	0.876			
Trust In Organization			0.949	0.963	0.867
	TO1	0.941			
	TO2	0.927			
	TO3	0.952			
	TO4	0.903			
Trust of Technology			0.856	0.912	0.776
	TT1	0.883			
	TT2	0.884			
	TT3	0.877			

Use of the M-learning			0.923	0.945	0.812
	US1	0.882			
	US2	0.906			
	US3	0.922			
	US4	0.895			

* AVE = Average Variance Extracted, CR = Composite Reliability, CA=Cronbach's Alpha

As shown in Table 1, the fit indices indicated that the measurement model had good convergent validity. Convergent validity refers to the extent to which items truly represent the intended latent construct and indeed correlate with other measures of the same latent construct Hair, Tatham, Anderson, and Black, 2006). The convergent validity of the reflective measurement model indicators was evaluated using Average Variance Extracted (AVE) as suggested by (Fornell and Larcker, 1981; Hair, Black, Babin, and Anderson, 2010). Assessing convergent validity was done by examining (AVE) each latent construct. Discriminant validity was also examined by the estimated correlation between the constructs with the variance extracted. An average variance extracted of greater than 0.50 indicates that the validity of both the construct and the individual variables is high. All the constructs met this conservative test of discriminant validity, meaning that each construct was statistically different from the others as indicated in Table 1. Therefore, the measurement model Figure 3, was reliable and meaningful to test and assess the structural model. As shown in Table 1, the values of the AVE ranged between 0.728 and 0.867, suggesting acceptable values.

ASCERTAINING DISCRIMINANT VALIDITY

Discriminant validity refers to the extent to which a particular latent construct is different from other latent constructs (Duarte and Raposo, 2010). Discriminant validity was measured using AVE as suggested by (Fornell and Larcker, 1981). This was accomplished by comparing the squared correlation of the paired construct with the AVEs of each construct (Fornell and Larcker, 1981). Discriminant validity of reflective constructs occurs when the loadings of the items of a construct is an order of magnitude above the loadings for other constructs (loadings higher by 0.1), and the square root of the average variance extracted for each construct is much higher than the correlations between the pairs of constructs and above 0.5 (Fornell and Larcker, 1981). Following Chin (1998) criterion and discriminant validity were determined by comparing the indicator loadings with other reflective indicators in the cross loading. First, as a rule of thumb for evaluating discriminant validity, Fornell and Larcker (1981) recommended the use of AVE with a score of 0.50 or more. In order to achieve adequate discriminant validity, the square root of the AVE should be greater than the correlations among latent constructs (Fornell and Larcker, 1981).

In Table 2, the correlations among the constructs were compared with the square root of the average variances extracted (values in boldface). Table 2 also shows that the square root of the average variances extracted were all greater than the correlations among latent constructs, suggesting adequate discriminant validity (Fornell and Larcker, 1981).

Table 2. Latent Variable Correlations and Square Roots of Average Variance Extracted

Latent Variable	1	2	3	4
Net Benefits	**0.853**			
Trust In Organization	0.367	**0.931**		
Trust of Technology	0.468	0.574	**0.881**	
Use of the M-learning	0.713	0.341	0.426	**0.901**

ASSESSMENT OF THE SIGNIFICANCE OF THE STRUCTURAL MODEL

This part presents the findings of the structural model and tests of hypotheses. Specifically, the section is concerned with the testing of the hypotheses related to the relationship effects. This study applies the PLS standard bootstrapping procedure with a number of 5,000 bootstrap samples and 330 cases to assess the significance of the path coefficients (Hair et al., 2014; Hair, Ringle, and Sarstedt, 2011; Hair, Sarstedt, Ringle, and Mena, 2012). Bootstrapping is a non-parametric procedure that can be applied to test whether coefficients, such as outer loadings, outer weights and path coefficients, are significant by estimating the standard errors for the estimates. Figure 4 and Table 3, show the estimates for the full structural model, which includes all the variables.

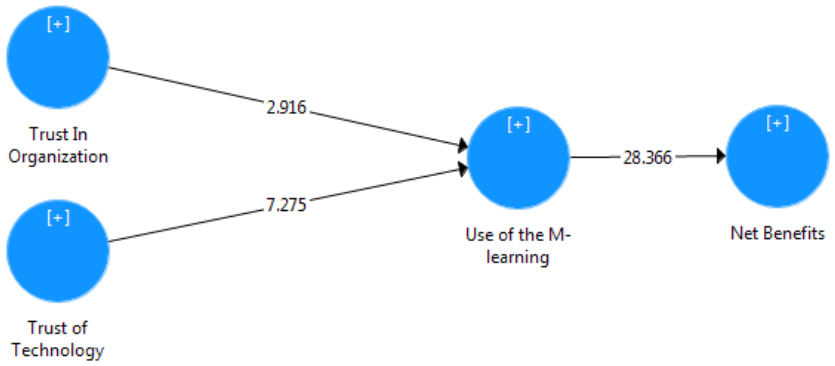

Figure 4. Full structural model

Table 3. The Structural Model Assessment Relationship

Hyp	Relation	Beta	SE	T-value	p value	Findings
H1	**TO-> U**	0.144	0.049	2.916	0.002	Supported
H2	**TT -> U**	0.343	0.047	7.275	0.000	Supported
H3	**U> NB**	0.713	0.025	28.366	0.000	Supported

Note: TO=trust in organization U=use of the m-learning, TT=trust of technology, NB=net benefits

Hypothesis 1 predicted that Trust in Organization is positively related to Use of the M-learning. The findings in Table 3 revealed a significant positive bond between Trust in Organization and Use of the M-learning ($\beta = 0.144$, $t = 2.916$, $p < 0.001$), supporting the hypothesis. Hypothesis 2 predicted that Trust of Technology is positively related to Use of the M-learning. As illustrated in Table 3, a significant and positive relationship between Trust of Technology and Use of the M-learning was found ($\beta = 0.343$, $t = 7.275$, $p > 0.001$). Therefore, this hypothesis was supported. Also, a significant positive relationship between Use of the M-learning and Net Benefits ($\beta = 0.713$, $t = 28.366$, $p > 0.001$) was found. Thus, hypothesis 3 was supported.

VI. DISCUSSION

This research was conducted to assess the effects of trust in organization, trust of technology on use of the m-learning, and the relationship between use of the m-learning and net benefits.
The findings showed a significant and positive bond between trust in organization, trust of technology and use of the m-learning among student in public universities in kingdom of Saudi Arabia, also the finding indicated the significant and positive between use of mobile learning on net benefit among student in public universities in kingdom of Saudi Arabia.

Based on the finding, it can be said that student's in public universities in Kingdom of Saudi Arabia trust the technology and trust their universities that provide the technology. The most plausible reason for the high level of significant relationship of Trust in Technology is because students are familiar and have more awareness of the technology. That is, they are more knowledgeable when it comes to using technology. The result also implies that when student have information about the use of mobile learning, it makes them have a positive trust of what the organization have to offer.

Students seem to trust the universities because they perceive that the technology that provide by the universities have met their needs and expectations. use of mobile learning, trust in technology, and trust in organization are the dominant constructs for a long-run relationship. Therefore, when students trust in technology, long-term loyalty may ensue. In promoting and encouraging universities in kingdom of Saudi Arabia. Universities in KSA seem to have been quite successful in directing students' attention to their Technology. It is imperative that managers implement and continuously revisit their strategies to compete in the technology, particularly in capturing student trust in technology. These factors promote and hinder m-learning success in Saudi Arabian higher education institutions. This in turn would help the academic staff in preparing effective guidelines in order to interest their students in participating in m-learning activities.

VII. CONCLUSION

The purpose of the current research was to examine the variables affecting use of mobile learning on net benefit in the Public Universities in Kingdom of Saudi Arabia. The rationale behind this study was to understand the mechanisms that explain the development of Use of Mobile Learning and Net benefit toward student in Public Universities in Kingdom of Saudi Arabia. The results of this study indicated that Trust in Technology, Trust in Organization and Use of Mobile Learning play a significant role in influencing Net benefit among Public Universities in Kingdom of Saudi Arabia. Overall, the findings suggest that student will be trust in technology, trust their universities when the universities offer a good technology and quality, satisfy their students' needs, and let the students' trust.

References

Abdelghaffar, H., & Magdy, Y. (2012). The adoption of mobile government services in developing countries: The case of Egypt. International Journal of Information, 2(4), 333-341.

Accenture. (2003). E-Government Leadership – Realizing the Vision. Retrieved September 10, 2013, from http://nstore.accenture.com/acn_com/PDF/Engaging_the_Customer.pdf

Al-Dabbagh, M. (2011). Electronic Government in Iraq: Challenges of development and implementation. Retrieved from Swedish Business School, Örebro University: http://www.diva-portal.org/smash/get/diva2:447880/FULLTEXT01.pdf

Al-Hujran, O. (2012). Toward the utilization of m-Government services in developing countries: a qualitative investigation. International Journal of Business and Social Science, 3(5), 155-160.

Al-Masaeed, S., & Love, S. (2013). Mobile government in Jordan: Is it a step in the right direction? International Journal of Handheld Computing Research (IJHCR), 4(3), 93-116.

Alrazooqi, M., & De Silva, R. (2010). Mobile and wireless services and technologies for m-government solution proposal for Dubai government. WSEAS Trans. Info. Sci. and App, 7(8), 1037-1047.

Al-Shafi, S., & Weerakkody, V. (2010). Factors affecting e-government adoption in the state of Qatar.

Al-Sukkar, A. S. (2005). The application of information systems in the Jordanian banking sector: a study of the acceptance of the Internet.

Al-Thunibat, A., Zin, N. A. M., & Sahari, N. (2011). Identifying user requirements of mobile government services in Malaysia using focus group method. Journal of e-Government Studies and Best Practices, 2011, 1-14.

Andersen, K. V., & Henriksen, H. Z. (2006). E-government maturity models: Extension of the Layne and Lee model. Government Information Quarterly, 23(2), 236-248.

Attaran, M. (2012). Critical success factors and challenges of implementing RFID in supply chain management. Journal of Supply Chain and Operations Management, 10(1), 144-167.

Bandyo-padhyay, N. (2002). E-commerce: context, concepts and consequences. McGraw-Hill.

Barone, C. (2011). Some things never change gender segregation in higher education across eight nations and three decades. Sociology of Education, 84(2), 157-176.

Bennett, & Rundel-Thiele, S. (2005). The brand loyalty life cycle: Implications for marketers. The Journal of Brand Management, 12(4), 250-263.

Bennett. (2001). A study of brand loyalty in the Business-to-Business services sector.

Bento, F., & Costa, C. J. (2013). ERP measure success model; a new perspective. Paper presented at the Proceedings of the 2013 International Conference on Information Systems and Design of Communication.

Bolton, R. N. (1998). A dynamic model of the duration of the customer's relationship with a continuous service provider: the role of satisfaction. Marketing Science, 45-65.

Carter, L., & Bélanger, F. (2005). The utilization of e- government services: citizen trust, innovation and acceptance factors. Information systems journal, 15(1), 5-25.

Chaouali, W., Yahia, I. B., & Souiden, N. (2016). The interplay of counter-conformity motivation, social influence, and trust in customers' intention to adopt Internet banking services: The case of an emerging country. Journal of Retailing and Consumer Services, 28, 209-218.

Chatterjee, S., Chakraborty, S., Sarker, S., Sarker, S., & Lau, F. Y. (2009). Examining the success factors for mobile work in healthcare: a deductive study. Decision Support Systems, 46(3), 620-633.

Chin, W. W. (1998). The partial least squares approach to structural equation modeling. Modern methods for business research, 295(2), 295-336.

Chin, W. W., Marcolin, B. L., & Newsted, P. R. (2003). A partial least squares latent variable modeling approach for measuring interaction effects: Results from a Monte Carlo simulation study and an electronic-mail emotion/adoption study. Information systems research, 14(2), 189-217.

DeLone, W. H., & McLean, E. R. (1992). Information systems success: The quest for the dependent variable. Information systems research, 3(1), 60-95.

Delone, W. H., & McLean, E. R. (2003). The DeLone and McLean model of information systems success: a ten-year update. Journal of management information systems, 19(4), 9-30.

Duarte, P. A. O., & Raposo, M. L. B. (2010). A PLS model to study brand preference: An application to the mobile phone market Handbook of partial least squares (pp. 449-485): Springer.

El-Kiki, T., & Lawrence, E. (2006). Mobile user satisfaction and usage analysis model of mgovernment services. Paper presented at the Proceedings of Euro mGov (pp. 91-102).

Faaeq, M. K., Ismail, N. A., Osman, W. R. S., Al–Swidi, A. K., & Faieq, A. K. (2013). A meta–analysis of the unified theory of acceptance and use of technology studies among several countries. Electronic Government, an International Journal, 10(3-4), 343-360.

Fadhil, N. A., Osman, W. R., Nather, I. T., Al-Saadi, T. A., & Al-Khafaji, N. J. (2014). Mobile Technology in the Iraq Context: Design Mobile Application Prototype for the Election of Directors for Departments in the Ministry of Science and Technology. Paper presented at the Proceedings of 5th SARC-IRF International Conference, New Delhi-India.

Filstad, C., & Gottschalk, P. (2010). Creating a learning organization in law enforcement: Maturity levels for police oversight agencies. The Learning Organization, 17(5), 404-418.

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. Journal of Marketing research, 39-50.

Fusilier, M., & Munro, D. (2014). Enterprising University Put to the Test: Transnational Education in the Middle East. Journal of Cases in Educational Leadership, 17(2), 76-93.

Georgescu, M. (2010). Mobile government: an emerging direction. Analele Stiintifice ale Universitatii" Alexandru Ioan Cuza" din Iasi-Stiinte Economice, 2010, 379-386.

Glood, S. H., Osman, W. R. S., & Nadzir, M. M. (2016). the effect of civil conflicts and net benefits on m-government success of developing countries: a case study of iraq. Journal of Theoretical and Applied Information Technology, 88(3), 541.
Hair, J. F., Black, Babin, & Anderson. (2010). Multivariate data analysis: A global perspective (7th ed.). Upper Saddle River: Pearson Education.
Hair, J. F., Hult, G. T. M., Ringle, C., & Sarstedt, M. (2014). A primer on partial least squares structural equation modeling (PLS-SEM): SAGE Publications, Incorporated.
Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a silver bullet. The Journal of Marketing Theory and Practice, 19(2), 139-152.
Hair, J. F., Sarstedt, M., Ringle, C. M., & Mena, J. A. (2012). An assessment of the use of partial least squares structural equation modeling in marketing research. Journal of the academy of marketing science, 40(3), 414-433.
Hair, J. F., Tatham, R. L., Anderson, R. E., & Black, W. (2006). Multivariate data analysis (Vol. 6): Pearson Prentice Hall Upper Saddle River, NJ.
Hoffman, R. E., Boutros, N. N., Berman, R. M., Roessler, E., Belger, A., Krystal, J. H., & Charney, D. S. (1999). Transcranial magnetic stimulation of left temporoparietal cortex in three patients reporting hallucinated "voices". Biological psychiatry, 46(1), 130-132.
Hsieh, Pan, S.-L., & Setiono, R. (2004). Product-, corporate-, and country-image dimensions and purchase behavior: a multicountry analysis. Journal of the academy of marketing science, 32(3), 251-270.
Ing, W. P., Phing, G. T. T., Peng, N. C., Sze, J., Ho, Y., & Teik, D. O. L. (2012). Global Versus Local Brand: Perceived Quality and Status-Seeking Motivation in the Automobile Industry. World Review of Business Research, 2(4), 12.
ITU. (2013a). Measuring The Information Society. Retrieved from Geneva Switzerland: https://www.itu.int/en/ITU-D/Statistics/Documents/publications/mis2013/MIS2013_without_Annex_4.pdf
ITU. (2013b). The Word in 2013, ICT Facts and Figures. Retrieved from Geneva: www.itu.int/ict
Jones, M. A., & Suh, J. (2000). Transaction-specific satisfaction and overall satisfaction: an empirical analysis. Journal of Services Marketing, 14(2), 147-159.
Kaasinen, E. (2005). User acceptance of mobile services: Value, ease of use, trust and ease of adoption.
Keller. (1993). Conceptualizing, measuring, and managing customer-based brand equity. Journal of marketing, 1-22.
Lewicki, R. J., & Bunker, B. B. (1996). Developing and maintaining trust in work relationships. Trust in organizations: Frontiers of theory and research, 114.
Lin, H.-F. (2013). Determining the relative importance of mobile banking quality factors. Computer Standards & Interfaces, 35(2), 195-204.
Lippert, R., Schwartz, R., Lancia, G., & Istrail, S. (2002). Algorithmic strategies for the single nucleotide polymorphism haplotype assembly problem. Briefings in bioinformatics, 3(1), 23-31.
Livingstone, S. (2012). Critical reflections on the benefits of ICT in education. Oxford review of education, 38(1), 9-24
Mahmood, Z. (2013). E-government implementation and practice in developing countries: IGI Global.
Mengistu, D., Zo, H., & Rho, J. J. (2009). M-government: opportunities and challenges to deliver mobile government services in developing countries. Paper presented at the Computer Sciences and Convergence Information Technology, 2009. ICCIT'09. Fourth International Conference on.
Mudambi, S. M., Doyle, P., & Wong, V. (1997). An exploration of branding in industrial markets. Industrial Marketing Management, 26(5), 433-446.
Nassuora, A. B. (2012). Students acceptance of mobile learning for higher education in Saudi Arabia. American Academic & Scholarly Research Journal, 4(2), 24-30.
Osburg, T., & Lohrmann, C. (Eds.). (2017). Sustainability in a Digital World: New Opportunities Through New Technologies. Springer.
Parasuraman, A., Zeithaml, V., & Malhotra, A. (2005). ES-QUAL a multiple-item scale for assessing electronic service quality. Journal of service research, 7(3), 213-233.
Ringham, L., Johnson, L., & Morton, C. (1994). Customer satisfaction and loyalty for a continuous consumer service. Australasian Journal of Market Research, 2(2), 43-48.
Ringle, C. M., Wende, S., & Becker, J.-M. (2015). "SmartPLS 3." Boenningstedt: SmartPLS GmbH, : SmartPLS.
Sammalisto, K., & Brorson, T. (2008). Training and communication in the implementation of environmental management systems (ISO 14001): a case study at the University of Gävle, Sweden. Journal of Cleaner Production, 16(3), 299-309.
Seale, J., Georgeson, J., Mamas, C., & Swain, J. (2015). Not the right kind of 'digital capital'? An examination of the complex relationship between disabled students, their technologies and higher education institutions.Computers & Education, 82, 118-128.
Seddon. (1997). A respecification and extension of the DeLone and McLean model of IS success. Information systems research, 8(3), 240-253.
Silva, R. V. D., & Alwi, S. F. S. (2008). Online corporate brand image, satisfaction and loyalty. The Journal of Brand Management, 16(3), 119-144.
Stead, M., Tagg, S., MacKintosh, A. M., & Eadie, D. (2005). Development and evaluation of a mass media Theory of Planned Behaviour intervention to reduce speeding. Health education research, 20(1), 36-50.
Szucs, D., Devine, A., Soltesz, F., Nobes, A., & Gabriel, F. (2013). Developmental dyscalculia is related to visuo-spatial memory and inhibition impairment. Cortex, 49(10), 2674-2688.
Ulusu, Y. (2011). Effects of brand image on brand trust. Journal of Yasar University, 24(6), 3932-3950.
Vuolle, M. (2011). Measuring Performance Impacts of Mobile Business Services from the Customer Perspective. Tampereen teknillinen yliopisto. Julkaisu-Tampere University of Technology. Publication; 1013.
Wel, C. A. B. C., Alam, S. S., & Nor, S. M. (2011). Factors affecting brand loyalty: An empirical study in Malaysia. Australian Journal of Basic and Applied Sciences, 5(12), 777-783.
Wixom, & Watson. (2001). An empirical investigation of the factors affecting data warehousing success. MIS quarterly, 17-41.
Wu, J.-H., & Wang, Y.-M. (2006). Measuring KMS success: A respecification of the DeLone and McLean's model. Information & Management, 43(6), 728-739.
Zhu, X., Mukhopadhyay, S. K., & Kurata, H. (2012). A review of RFID technology and its managerial applications in different industries. Journal of Engineering and Technology Management, 29(1), 152-167.