

The copyright © of this thesis belongs to its rightful author and/or other copyright owner. Copies can be accessed and downloaded for non-commercial or learning purposes without any charge and permission. The thesis cannot be reproduced or quoted as a whole without the permission from its rightful owner. No alteration or changes in format is allowed without permission from its rightful owner.



**AN EXTENDED INFORMATION SYSTEM SUCCESS MODEL
FOR MOBILE LEARNING USAGE IN SAUDI ARABIA
UNIVERSITIES**



ALORFI, ALMUHANNAD SULAIMAN M

**DOCTOR OF PHILOSOPHY
UNIVERSITI UTARA MALAYSIA
2018**

Permission to Use

In presenting this thesis in fulfilment of the requirements for a postgraduate degree from Universiti Utara Malaysia, I agree that the Universiti Library may make it freely available for inspection. I further agree that permission for the copying of this thesis in any manner, in whole or in part, for scholarly purpose may be granted by my supervisor(s) or, in their absence, by the Dean of Awang Had Salleh Graduate School of Arts and Sciences. It is understood that any copying or publication or use of this thesis or parts thereof for financial gain shall not be allowed without my written permission. It is also understood that due recognition shall be given to me and to Universiti Utara Malaysia for any scholarly use which may be made of any material from my thesis.

Requests for permission to copy or to make other use of materials in this thesis, in whole or in part, should be addressed to:

Dean of Awang Had Salleh Graduate School of Arts and Sciences

UUM College of Arts and Sciences

Universiti Utara Malaysia

06010 UUM Sintok

Abstrak

Perkembangan rangkaian 4G membolehkan m-pembelajaran menjadi lebih menarik dalam sistem pendidikan. Peranti mudah alih mempunyai potensi untuk meningkatkan ketercapaian serta kecekapan pengedaran bahan dan maklumat pendidikan. Negara-negara membangun, terutamanya di Timur Tengah, jauh ketinggalan kerana telah menghadapi kesulitan dalam pengambilan dan penggunaan m-learning. Kajian lepas menyatakan bahawa penyelidikan dalam kejayaan m-learning masih tidak mencukupi di negara-negara membangun, terutamanya di Arab Saudi di mana jumlah pelajar yang terlibat dalam m-learning juga menunjukkan peratusan yang rendah. Sembilan faktor yang mempengaruhi kejayaan m-learning digabungkan dan dinilai ke dalam model penyelidikan. Pendekatan kuantitatif digunakan, di mana soal selidik dihantar ke tiga universiti di KSA. Faktor penyumbang dan hubungan di antara mereka telah dinilai menggunakan teknik Pemodelan Persamaan Struktur. Kajian ini mendapati bahawa kualiti maklumat, kepuasan pengguna (US), kepercayaan dalam teknologi, sikap, sokongan organisasi, kepercayaan dalam organisasi, dan net faedah m-pembelajaran mempengaruhi penggunaan m-pembelajaran secara positif. Di samping itu, keputusan yang diperolehi mengesahkan bahawa kepuasan pengguna secara positif dipengaruhi oleh kualiti sistem (SEQ), kualiti perkhidmatan (SQ), dan net faedah (NB) dalam menggunakan sistem (U). Hasilnya turut menunjukkan terdapat hubungan yang signifikan antara NB dan US untuk teknologi m-pembelajaran. Kajian ini memanjangkan penyelidikan sebelumnya dengan menyediakan model konseptual untuk pelaksanaan kejayaan perkhidmatan m-pembelajaran di universiti. Kesan mediasi US ini menerangkan kesan pembolehubah bebas (IQ, SEQ, SQ) pada U. Ia juga mengkaji kesan pengantara U dalam menjelaskan pengaruh US pada NB menggunakan perkhidmatan m-pembelajaran. Penemuan kajian ini adalah berguna sebagai input untuk Kementerian Pengajian Tinggi dan pengamal lain yang berkaitan. Kajian ini membina satu model baru untuk meningkatkan penggunaan pembelajaran jarak jauh di kalangan pelajar di universiti.

Kata kunci: M-Pembelajaran, Model kejayaan sistem maklumat, Net faedah pembelajaran jarak jauh, Universiti-Universiti KSA

Abstract

The emergence of 4G networks allows m-learning to be attractive for educational systems. Mobile devices have the potential to enhance accessibility and efficiency distribution of educational materials and information. Developing countries, especially in the Middle East, lag behind as they face difficulties in the adoption and use of m-learning. Previous researches stated that the studies in the success of m-learning are still insufficient in developing countries, particularly in Saudi Arabia where the number of students involved in m-learning also constitutes low percentages. Nine factors that influence the success of m-learning are incorporated and evaluated into a research model. A quantitative approach was used, where questionnaires were sent to three universities in KSA. The contributing factors and the relationships between them were evaluated using a Structural Equation Modelling technique. The research revealed that information quality, user satisfaction (US), trust in technology, attitude, organisation support, trust in organisation, and the net benefits of m-learning positively influence m-learning usage. In addition, the results confirmed that user satisfaction is positively affected by system quality (SEQ), service quality (SQ), and net benefits (NB) of using (U) the system. The results also showed that there is a significant relationship between NB and US for m-learning technology. This study extends the previous research by providing a conceptual model for the successful execution of m-learning services in universities. This mediating effect of US explains the impact of independent variables (IQ, SEQ, SQ) on U. It also examined the mediating effect of U in explaining the influence of US on the NB using m-learning services. The findings of this study are valuable as input for the Ministry of Higher Education and practitioners concerned with successful m-learning services. This study constructed a new model to enhance the mobile learning usage among students in universities.

Keywords: M-Learning, Information system success models, Net benefits of mobile learning, KSA Universities.

Acknowledgement

“In The Name of ALLAH the Most Gracious and the Most Merciful”

First and foremost, all praise to ALLAH (SWT), the almighty, and the most gracious and most merciful, without those divine guidance and blessing, I would not have been able to even begin, let alone complete, such a complex undertaking.

My sincere thanks go to my supervisor; Prof. Dr. Wan Rozaini Sheik Osman and my co-supervisor; Dr. Wiwied Virgiyanti for all guidance, support, and ideas that helped me to achieve this research on time. I will always be thankful to you, “Jazakumu Allahu Khairan”

My heartfelt thanks go to my beloved family. I remain indebted to my beloved Father Mr. Sulaiman and my beloved mother Dr. Sabah and grandparents who have always been there for me. May Allah reward your efforts! To my brothers (Bara, Moayd, Anas, Ma'an) and my sister (Shukran). Special thanks go to my uncles (Dr. Majid Alorfi, Hafiz), aunts (Dr. Shukran Alorfi, Salwa), and my deceased grandfather (Masad) may Allah have mercy on him. Also, I owe my heartfelt thanks to my dearest friends (Noor Wakid, Dr. Ali Hawsawi, Ala'a Dmour, Ahmad Hawamleh, Hussain Qm, Ahmed Sherbib, Dr. Nassir Farhan, Dr. Yasir Dawod, Dr. Abbas Ramadan, Anas Hamdan, Gasem Alshik).

Table of Contents

Permission to Use	i
Abstrak	ii
Abstract	iii
Acknowledgement	iv
Table of Contents	v
List of Tables	xi
List of Figures	xiii
List of Appendices	xiv
List of Abbreviations	xv
CHAPTER ONE INTRODUCTION	1
1.1 Background of Study	1
1.2 Problem Statement	7
1.3 Research Questions	16
1.4 Research Objectives	16
1.5 Research Scope	17
1.6 Significance of The Study	19
1.7 Operationalization Definitions	21
1.8 Organisation of The Thesis	24
CHAPTER TWO LITERATURE REVIEW	26
2.1 Introduction	26
2.2 Mobile Learning (M-Learning)	26
2.2.1 M-Learning vs. E-Learning	27
2.2.2 M-Learning in Developing Countries	31
2.2.3 M-Learning in Higher Education	33

2.3 M-Learning in Kingdom of Saudi Arabia.....	36
2.3.1 History of the Kingdom of Saudi Arabia.....	36
2.3.2 Utilisation of Mobile Learning in Saudi Arabia	37
2.3.3 Higher Education in KSA	38
2.3.3.1 Saudi Arabian Universities.....	38
2.4 The Phases of Information System Usage	42
2.5 Previous Studies for M-Learning.....	43
2.6 Theories and Models of Information Systems Success	49
2.6.1 The Original DeLone and McLean Model	49
2.6.2 Wixom and Todd Model.....	52
2.6.3 The Theory of Planned Behaviour (TPB).....	53
2.6.4 Institutional Theory.....	55
2.6.5 Updated Delone and McLean Model.....	56
2.7 Previous Research of the Updated D&M Is Success Model.....	58
2.8 Theoretical Framework.....	63
2.9 Development of Conceptual Framework.....	66
2.9.1 Updated D&M model	66
2.9.2 Needs for Inclusion of Perceived Behavioural control, Subjective norm and Attitude Constructs as Social Factors	69
2.9.3 Needs for Inclusion of Trust in Technology and Trust in Organisation Constructs	73
2.9.4 Needs for Inclusion of Institution Policy Construct	75
2.9.5 Needs for Inclusion of Organisation Support Construct.....	75
2.10 Conceptual Research Model	78
2.11 Operationalization of Constructs And Hypothesis	79
2.11.1 Independent Variables	80
2.11.1.1 Institutional factors.....	80
2.11.1.2 Technology Factors	84
2.11.1.3 Social Factors	98
2.11.1.4 Trust.....	103
2.11.2 Dependent Variables.....	106

2.11.2.1 Use of a System (U)	106
2.11.2.2 User Satisfaction (US).....	108
2.11.2.3 Net Benefit (NB)	110
2.11.3 Mediating Effects.....	115
2.11.3.1 Mediating Effect of User Satisfaction	116
2.11.3.2 Inconsistent Findings.....	118
2.11.3.3 Mediating Effect of Use of a System (U).....	119
2.12 Justification of Model Development.....	120
2.13 Summary	120
CHAPTER THREE RESEARCH METHODOLOGY.....	121
3.1 Introduction.....	121
3.2 Research Process.....	121
3.3 Research Approach	123
3.4 Research Design.....	125
3.5 Population and Sample Size.....	126
3.5.1 Target Study Population and Sampling Frame	126
3.5.2 Sample Size.....	128
3.6 Sampling Method.....	130
3.6.1 Sampling Technique	131
3.6.2 Systematic Random Sampling	132
3.7 Questionnaire Design.....	132
3.7.1 Constructs Measurement.....	133
3.7.2 Translating the Questionnaire	136
3.7.3 Validation of the Questionnaire	137
3.8 Pilot Study.....	137
3.8.1 Checking Reliability of the Instrument.....	140
3.8.2 Factor Analysis for Pilot Study.....	142

3.9 Procedures of the Main Data Collection	145
3.10 Data Analysis Method.....	147
3.11 Validation of Model	148
3.12 Summary	148
CHAPTER FOUR DATA ANALYSIS AND RESULTS	149
4.1 Introduction.....	149
4.2 Response Analysis	149
4.2.1 Response Rate.....	149
4.2.2 Non-Response Bias Test.....	152
4.2.3 Descriptive Statistics of Respondents.....	155
4.3 Test of Normality	159
4.4 Test of Multicollinearity	161
4.5 Structural Equation Modelling.....	163
4.5.1 Assessment of Measurement Model.....	165
4.5.1.1 Results of Reliability and Validity of Measurement Model.....	166
4.5.2 Assessment of Structural Model.....	179
4.5.2.1 Result of Assessment of Structural Model.....	181
4.5.2.2 The Prediction Quality of the Model.....	199
4.6 Summary	202
CHAPTER FIVE RESEARCH FINDINGS.....	203
5.1 Introduction.....	203
5.2 Overview of The Research.....	203
5.3 Discussion of Hypotheses Testing	204
5.3.1 Discussion of Main Effect Hypotheses.....	204
5.3.1.1 Relationship between Organisation support and Use of m-learning Services (H1).....	204
5.3.1.2 Relationship between Institution policy and Use of m-learning Services (H2).....	206

5.3.1.3 Relationship between System Quality and Use, User Satisfaction of m-learning Services (H3, H4)	207
5.3.1.4 Relationship between Service Quality and Use, Use Satisfaction of m-learning Services (H5, H6)	208
5.3.1.5 Relationship between Information Quality and Use, Use Satisfaction of m-learning Services (H7, H8)	210
5.3.1.6 Relationship between Attitude and Use of m-learning Services (H9)	212
5.3.1.7 Relationship between Subjective Norm and Use of m-learning Services (H10).....	213
5.3.1.8 Relationship between Perceived Behavioural Control and Use of m-learning Services (H11)	214
5.3.1.9 Relationships between Trust in technology, Trust in Organisation and Use of m-learning Services (H12, H13)	215
5.3.1.10 Relationship between Use of m-learning Services and Net Benefits of m-learning Services (H14).....	216
5.3.1.11 Relationship between User Satisfaction and Use, Net benefits of m-learning Services (H15, H16)	218
5.3.1.12 Relationship between Net Benefits and Use, User Satisfaction of m-learning Services (H17, H18)	220
5.3.2 Discussion of Mediating Effect Hypotheses.....	222
5.3.2.1 Influence of User Satisfaction as Mediator	222
5.3.2.2 Influence of Use of M-learning Services as a Mediator.....	224
5.4 Validation of The Model Through Experts.....	226
5.5 Summary	228
CHAPTER SIX CONCLUSION, LIMITATIONS, AND FUTURE RESEARCH	229
6.1 Introduction.....	229
6.2 Summary of Findings.....	229
6.3 Contributions of The Study.....	237
6.3.1 Theoretical Contributions	238
6.3.2 Practical Contributions	239

6.3.3 Methodology Contribution	240
6.4 Limitations	241
6.5 Directions for Future Research	241
6.6 Conclusion	242
REFERENCES.....	245



List of Tables

Table 2.1: E-Learning and M-Learning Terms.....	29
Table 2.2: Modes of Communication Between Students in both E-Learning and M-Learning	29
Table 2.3: List of Previous Studies of Research Projects in M-Learning in Developed Countries	34
Table 2.4: Public Universities in Kingdom of Saudi Arabia (MOHE, 2017).....	39
Table 2.5: Saudi Arabia Universities which used Blackboard Learning Management Systems (BLMS).....	40
Table 2.6: Prior Studies for M-learning	44
Table 2.9: Definitions of Constructs of the Updated D & M Model (2003)	57
Table 2.10: Summary of Previous Research using D & M Model	61
Table 2.11: Research Main Hypotheses Between Independent and Dependent Variables	113
Table 3.1: Comparison between Qualitative and Quantitative Approaches (Sekaran, 2003)	124
Table 3.2: The Number of Students for the study population.....	128
Table 3.3: The Probability Sampling of Students for Each University	130
Table 3.4: Sources and Measurement of Constructs.....	134
Table 3.5: Demographic Information for Participants in Pilot Study.....	139
Table 3.6: Number of Measurement Items with Their Construct.....	140
Table 3.7: Pilot Study Reliability test	141
Table 3.8: Factor Analysis and Reliability of the Final Instrument (Pilot Study)	143
Table 3.9: Summary of the Main Data Collection Process.....	146
Table 4.1: The Frequency of According to Filter Question.....	151
Table 4.2: Response Rate of the Questionnaires	152
Table 4.3: Test of Non-Response Bias (Chi-Square Test of Independence)	154

Table 4.4: Demographic Information of Respondents.....	155
Table 4.5: Result of Skewness and Kurtosis Test for Constructs	160
Table 4.6: Result of Shapiro-Wilk Test for Constructs	161
Table 4.7: Result of Multicollinearity Test.....	163
Table 4.8: Threshold Values for Evaluating the Reliability and Validity of the Measurement Model	165
Table 4.9: Constructs Items Loadings, Average Variance Extracted, and Composite Reliability.....	168
Table 4.10: HTMT Assessment for Discriminant Validity	172
Table 4.12: Discriminant Validity Values (Fornell-Larcker Criterion).....	177
Table 4.13: Measures and Threshold Values for the Structural Model Evaluation...	181
Table 4.14: Values of Coefficient of Determination (R^2).....	185
Table 4.15: Results of Path Coefficients (Direct Relationship) in Model-1	186
Table 4.16: Mediation Testing Results	192
Table 4.17: Values of Coefficient of Determination (R^2) for Model-2	194
Table 4.18: Results of Path Coefficients for Structural Model-2	195
Table 4.19: Hypotheses Testing Based on Structural Estimates.....	197
Table 4.20: Effect Size of Predictive Variables.....	200
Table 4.21: Values of Predictive Relevance (Q^2) for Endogenous Constructs of Model-1 and Model-2	201

List of Figures

Figure 2.1: Interrelationships Between Learning Paradigms.....	31
Figure 2.4: DeLone and McLean Model, 1992.....	50
Figure 2.5: Wixom and Todd's Model, 2003	52
Figure 2.6: The Theory of Planned Behaviour by Ajzen, 1991	55
Figure 2.7: Updated model of IS success by Delone and McLean, 2003	58
Figure 2.8: Conceptual Model	79
Figure 3.1: Research Framework.....	122
Figure 4.1: Gender of the Respondents.....	156
Figure 4.2: Age of the Respondents.....	157
Figure 4.3: Education-level of the Respondents	158
Figure 4.4: Mobile-device of the Respondents	158
Figure 4.6: Structure Model-1.....	184
Figure 4.7: Phases of the Mediation Analysis	191
Figure 4.8: Structural Model-2	193
Figure 4.9: Validated Structural Model-2	196
Figure 4.10: Validated Structural Model-2 from SmartPLS3.....	196
Figure 4.11: Validated Structural Model	198
Figure 6.1: The Contributing Factors of M-learning Success Among Students in the Universities of the KSA	231
Figure 6.2: The Significant Factors for M-learning Success Among Students in the Universities of KSA.....	233

List of Appendices

Appendix A Questionnaire (English Version).....	284
Appendix B Questionnaire (Arabic Version).....	291
Appendix C Demographic Statistics of Respondents	297
Appendix D The Results of Normality Test.....	305
Appendix E Questionnaire Translation Certificate.....	313
Appendix F Table of Definitions Based on the Original Authors Construct.....	314
Appendix G Consent Letter Regarding Data Collection from UUM.....	315
Appendix H Approval Letter from Embassy of Saudi Arabia for Data Collection...	317
Appendix I Approval Letter from King Faisal University for Data Collection.....	318
Appendix J Approval Letter from King Abdul-Aziz University for Data Collection	319
Appendix K Approval Letter from King Saud University for Data Collection.....	320
Appendix L List of Experts.....	321



List of Abbreviations

AJU	Al-Jouf University
ATT	Attitude
B2C	Business to Customer
BB	BlackBoard
BLMS	Blackboard Learning Management Systems
BU	Baha University
DL	Distance Learning
DM	DeLone and McLean
DOI	Diffusion of Innovation
eG	Electronic Government
E-HRM	Electronic-Human Resources Management
EL	Electronic Learning
GPS	Global positioning system
HR	Human Resource
HU	Hail University
IAU	Imam Abdulrahman bin Faisal University
ICT	Information and Communication Technology
IMAMU	Imam Mohammed bin Saudi University
IP	institutional policy
IQ	Information Quality
IS	Information System
ISP	Internet Service Providers
IT	Information Technology
ITU	International Telecommunication Union
IU	Intention to Use
IU	Islamic University of Madinah
JU	Jazan University

KAAU	King Abdul-Aziz University
KFPUM	King Fahad University of Petrol and Minerals
KFU	King Faisal University
KKU	King Khalid University
KMS	Knowledge Management Systems
KSA	Kingdom of Saudi Arabia
KSAU	Kingdom of Saudi Arabia Universities
KSU	King Saud University
KSUHS	King Saudi Bin Abdulaziz Health Sciences University
mG	Mobile Government
MIS	Management Information System
ML	Mobile Learning
MOHE	Ministry of Higher Education
MP3	MPEG Layer 3
MU	Majma University
NB	Net Benefits
NBU	Northern Border University
NU	Najran University
OECD	Organization of Economic Cooperation Development
OS	Organization Support
PBC	Perceived Behavioral Control
PC	Personal Computer
PDA	Personal Digital Assistant
PLS	Partial Least Square
PSAU	Prince Sattam bin Abdul-Aziz university
QU	Al-Qassim University
SEM	Structural Equation Modeling
SEQ	Service Quality

SERVQUAL	Service Quality
SMS	Short Message Services
SN	Subjective Norms
SPSS	Statistical Package for Social Science
SU	Shaqra University
SYQ	System Quality
TAM	Technology Acceptable Mode
TO	Trust of Organization
TPB	Theory of Planned Behavior
TRA	Theory of Reasoned Action
TT	Trust of Technology
TU	Taif University
U	Use of a system
UAU	Umm Al-Qura University
UB	University of Bisha
UJ	University of Jeddah
UN	United Nations
US	User Satisfaction
UT	University of Tabouk
UTAUT	Unified Theory of Acceptance and Use of Technology

CHAPTER ONE

INTRODUCTION

1.1 Background of Study

Information and communication technologies (ICTs), as instruments of socialisation 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 important forces that can influence the success or effectiveness of Information Systems (IS) projects. Therefore, ICTs were 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 an important role in the learning environment, such as higher education institutions (Livingstone, 2012).

According to Stead (2005), the use of ICTs has had an impact on all aspects of the education system. Adopting technology would be the key to improve services and promote better teaching and learning environment, which leads to fierce competition among universities in the developing countries and in the world (Fusilier & Munro, 2014; Sammalisto & Brorson, 2008). Therefore, universities are adjusting their strategies in line with students' needs, expectations, and welfare (Sánchez Prieto et al., 2014). When universities attempt to update technology to improve their students' skills and experiences, it will, in turn, reflect the stability of such institutions in the scene of the global competitive educational system, which enables them to move towards the

The contents of
the thesis is for
internal user
only

REFERENCES

- Ab Hamid, M. R., Sami, W., & Sidek, M. M. (2017, September). Discriminant Validity Assessment: Use of Fornell & Larcker criterion versus HTMT Criterion. *In Journal of Physics: Conference Series*, 890(1), p 012163. IOP Publishing.
- Abachi, H. R., & Muhammad, G. (2014). The Impact of M-learning Technology on Students and Educators. *Computers in Human Behavior*, 30, 491-496.
- Abasi, N., Azad, N., & Hafashjani, K. (2015). Information systems success: the quest for the dependent variable. *Uncertain Supply Chain Management*, 3(2), 181-188.
- 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.
- Abu-Al-Aish, A., Love, S., Hunaiti, Z., & Al-masaeed, S. (2013). Toward a Sustainable Deployment of M-learning in Higher Education. *International Journal of Mobile Learning and Organisation*, 7(3-4), 253-276.
- AbuSneineh, W., & Zairi, M. (2010). An Evaluation Framework for E-learning Effectiveness in the Arab World. *International Encyclopedia of Education*, 521-535.
- Accenture. (2003). *E-Government Leadership – Realizing the Vision*. Retrieved September 10, 2013, from http://nstore.accenture.com/acn_com/PDF/Engaging_the_Customer.pdf
- Afshari, M., Bakar, K. A., Luan, W. S., Samah, B. A., & Fooi, F. S. (2014). Factors affecting teachers' use of information and communication technology. *International Journal of Instruction*, 2(1).
- Agarwal, R. P. (2000). *Difference Equations and Inequalities: Theory, Methods, and Applications* (2 ed.). New York, USA: Marcel Dekker, Inc.
- Agarwal, R., & Prasad, J. (1997). The Role of Innovation Characteristics and Perceived Voluntariness in the Acceptance of Information Technologies. *Decision Sciences*, 28(3), 557-582.
- Ahn, T., Ryu, S., & Han, I. (2007). The Impact of Web Quality and Playfulness on User Acceptance of Online Retailing. *Information & Management*, 44(3), 263-275.
- Ajzen, I. (1991). The Theory of Planned Behaviour. *Organizational Behaviour and Human Decision Processes*, 50(2), 179-211.
- Ajzen, I., & Fishbein, M. (1980). *Understanding Attitudes and Predicting Social Behaviour* (1ed.). USA: Pearson Education, Inc.

- Akour, H. (2009). *Determinants of Mobile learning Acceptance: An Empirical Anvestigation in Higher Education*. Doctoral Dissertation, Oklahoma State University, USA.
- Al Alhareth, Y. (2014). E-learning Accessibility for Saudi Women: A Literature Review. *International Journal of Emerging Technologies in Learning (iJET)*, 9(4), pp-65.
- Al Alhareth, Y., McBride, N., Prior, M., Leigh, M., & Flick, C. (2013). *Saudi Women and E-learning*. Paper presented at International Conference: The Future of Education, 3rd Edition, Florence, Italy.
- Al-Asmari, A. M., & Rabb Khan, M. S. (2014). E-learning in Saudi Arabia: Past, Present and Future. *Near and Middle Eastern Journal of Research in Education*, 1(2).
- Alawneh, A., Al-Refai, H., & Batiha, K. (2013). Measuring User Satisfaction from e-Government Services: Lessons from Jordan. *Government Information Quarterly*, 30(3), 277-288.
- Albalawi, M. S. (2007). *Critical Factors Related to the Implementation of Web-Based Instruction by Higher-Education Faculty at Three Tniversities in the Kingdom of Saudi Arabia*. Doctoral Dissertation, University of West Florida, USA.
- Al-Dabbagh, M. (2011). Electronic Government in Iraq: Challenges of development and implementation. Retrieved On June 21, 2013 from Swedish Business School, Örebro University: <http://www.diva-portal.org/smash/get/diva2:447880/FULLTEXT01.pdf>
- Alenezi, A. R., Karim, A. M. A., & Veloo, A. (2010). An Empirical investigation into the role of enjoyment, computer anxiety, computer self-efficacy and internet experience in influencing the students' intention to use e-learning: A case study from Saudi Arabian Governmental Universities. *TOJET: The Turkish Online Journal of Educational Technology*, 9(4).
- Al-Enezi, J. R., Abbod, M. F., & Alsharhan, S. (2010). Artificial Immune Systems-Models, Algorithms and Applications. *IJRRAS*, 3(2), 118-131.
- Alexander, B. (2004). Going Nomadic: Mobile learning in higher Education. *Educause review*, 39(5), 29-35.
- Al-Fahad, F. N. (2009). Students' Attitudes and Perceptions Towards the Effectiveness of Mobile Learning in King Saud University, Saudi Arabia. *The Turkish Online Journal of Educational Technology*, 8(2). 111-119
- Alfarani, L. A. (2015). Influences on the Adoption of Mobile Learning in Saudi Women Teachers in Higher Education. *International Journal of Interactive Mobile Technologies*, 9(2), 58-62.

- Al-Gahtani, S. S. (2004). Computer Technology Acceptance Success Factors in Saudi Arabia: an Exploratory Study. *Journal of Global Information Technology Management*, 7(1), 5-29.
- Algharibi, A. J., Keung, L. C., Niukyun, S., Zhao, L., Tyler, E., Taweel, A., & Arvanitis, T. N. (2012). *Adapting the Unified Theory of Acceptance and Use of Technology (UTAUT) as a Tool for Assessing Future Technology Adoption of e-Trial Software Tools*. In Proceedings of the 10th International Conference on Information Communication Technologies in Health (pp. 258-267).
- Al-Haderi, S. M. S. (2013). The Effect of Eelf-Efficacy in the Acceptance of Information Technology in the Public Sector. *International Journal of Business and Social Science*, 4(9), 188-198
- Al-Harbi, K. A.-S. (2011). E-Learning in the Saudi Tertiary Education: Potential and Challenges. *Applied Computing and Informatics*, 9(1), 31-46.
- Alharbi, S., & Drew, S. (2015). Mobile Learning-System Usage: Scale Development and Empirical tests. *International Journal of Advanced Research in Artificial Intelligence*, 3(11), 31-47.
- Alhendawi, K., & Baharudin, A. (2014a). The impact of interaction quality factors on the effectiveness of Web-based information system: the mediating role of user satisfaction. *Cognition, technology & work*, 16(4), 451-465.
- Alhendawi, K., & Baharudin, A. (2014b). Influence of Quality Factors on the Effectiveness of Web-based Management Information System: Scale Development and Model Validation. *Journal of Applied Sciences*, 14(8), 723.
- 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.
- Ali, A. S. B., & Money, W. H. (2005, January). *A study of Project Management System Acceptance*. In System Sciences, 2005. HICSS'05. Proceedings of the 38th Annual Hawaii International Conference on (pp. 234c-234c). IEEE.
- Ali, A. S. B., & Money, W. H. (2005, January). A study Of Project Management System Acceptance. In System Sciences, 2005. HICSS'05. *Proceedings of the 38th Annual Hawaii International Conference on* (pp. 234c-234c). IEEE.
- Aljabre, A. (2012). An Exploration Of Distance Learning in Saudi Arabian Universities: Current Practices and Future Possibilities. *International Journal of Instructional Technology and Distance Learning*, 9(2), 21-28.
- Alkhalaf, A. (2014). Identifying Mobile Learning Challenges at Male High Schools in Saudi Arabia from the Teachers' Point of View. *International Journal of Learning and Teaching*, 6(1), 30-37.

- Al-Khamayseh, S., Hujran, O., Aloudat, A., & Lawrence, E. (2006). *Intelligent M-Government: Application of Personalisation and Location Awareness Techniques*. Paper Presented at the Second European Conference on Mobile Government, Brighton, UK.
- Alksasbeh, M. (2012). *Integrating Mobile Technology Quality Service, Trust and Cultural Factors into Technology Acceptance of Mobile Learning: A Case of the Jordan Higher Education Institution*. Doctoral Dissertation, Universiti Utara Malaysia, Malaysia.
- 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.
- Al-Mushasha, A., & Farouq, N. (2008). *A Model for Mobile Learning Service Quality in University Environment*. Doctoral Dissertation, Universiti Utara Malaysia, Malaysia.
- Al-Mushasha, N. F., & Hassan, S. (2009). A Model for Mobile Learning Service Quality in University Environment. *International Journal of Mobile Computing and Multimedia Communications*, 1(1), 70-91.
- Al-Nefaie, S. (2015). *Investigating Factors Influencing Students' Attitude and Performance When Using Web-Enhanced Learning in Developing Countries: The Case of Saudi Arabia*. Doctoral dissertation, Brunel University London, UK.
- Al-Qahtani, A. A., & Higgins, S. E. (2013). Effects of Traditional, Blended and E-Learning on Students' Achievement in Higher Education. *Journal of Computer Assisted Learning*, 29(3), 220-234.
- Alrasheedi, M., & Capretz, L. F. (2018). Determination of critical success factors affecting mobile learning: a meta-analysis approach. *arXiv preprint arXiv:1801.04288*.
- Alrasheedi, M., & Capretz, L. F. (2018). Determination of critical success factors affecting mobile learning: a meta-analysis approach. *arXiv preprint arXiv:1801.04288*.
- 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*. Paper Presented at European and Mediterranean Conference on Information Systems, Abu Dhabi, UAE.
- Alshardan, A., Goodwin, R., & Rampersad, G. (2015). Measuring the Benefits of Information Systems in Small Organizations in Developing Countries. *Computer and Information Science*, 9(1), 1-20.

- Al-Shehri, S. (2014). Mobile Learning in the Arab World: Contemporary and Future Implications. In Xu, X. (Ed.), *Interdisciplinary Mobile Media and Communications: Social, Political, and Economic Implications: Social, Political, and Economic Implications*, (pp 48- 63). USA, IGI Global.
- Alshibly, H. H. (2014). Evaluating E-HRM Success: A Validation of the Information Systems Success Model. *International Journal of Human Resource Studies*, 4(3), 107-124.
- Alshwaier, A., Youssef, A., & Emam, A. (2012). A New Trend for E-learning in KSA Using Educational Clouds. *Advanced Computing: An International Journal (ACIJ)*, 3(1), 81-97.
- ALSMADI, A. M., & Hilles, S. M. (2017). Trust and Service Quality That Influencing on the Acceptance of Mobile Learning Services among Student in Al-Madinah International University. *International Journal of Contemporary Computer Research*, 1(3), 12-14.
- Al-Sukkar, A. S. (2005). *The Application of Information Systems in the Jordanian Banking Sector: a Study of the Acceptance of the Internet*. Doctoral Disertation, University of Wollongong, Austratia.
- Al-Taie, M. Z., & Kadhim, A. M. (2013). *Factors Disrupting a Successful Implementation of E-Commerce in Iraq*. Paper presented at Conference: the Fourth Scientific Forum Held at Baghdad Collage of Economic Sciences University, Iraq.
- 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.
- Al-Wabil, N. (2015). *Usability of Mobile Applications in Saudi Higher Education: An Exploratory Study*. In HCI International 2015-Posters' Extended Abstracts (pp. 201-205). Springer International Publishing.
- Al-zaza, N. S., & Yaakub, A. R. (2011). Student's Mobile Information Prototype for the Higher Education Environment. *American journal of economics and business administration*, 3(1), 81-86.
- Amadi, G., & Paul, A. K. (2017). Perception of the Use Of Webquest for Academic Purposes Among Undergraduate Students in Rivers State, Nigeria. *International Journal of Education, Learning and Development*, 5(5), 1-11.
- Amoroso, D. L., & Magnier-Watanabe, R. (2012). Building a Research Model for Mobile Wallet Consumer Adoption: the case of Mobile Suica in Japan. *Journal of theoretical and applied electronic commerce research*, 7(1), 94-110.
- 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.

- Anderson, E. W., & Sullivan, M. W. (1993). The Antecedents and Consequences of Customer Satisfaction for Firms. *Marketing Science*, 12(2), 125-143.
- Anderson, R. C. (1974). Concretization and Sentence Learning. *Journal of Educational Psychology*, 66(2), 179-183.
- Anohah, E., Oyelere, S. S., & Suhonen, J. (2017). Trends of Mobile Learning in Computing Education from 2006 to 2014: A Systematic Review of Research Publications. *International Journal of Mobile and Blended Learning (IJMBL)*, 9(1), 16-33.
- Arambewela, R., & Hall, J. (2008). A Model of Student Satisfaction: International Postgraduate Students from Asia. *European Advances in Consumer Research*, 8(1), 129-135.
- Arman, A. A., & Wiyono, C. M. (2015, November). Design Of Organization Readiness Model For E-Learning Implementation. In *Information Technology Systems and Innovation (ICITSI), 2015 International Conference on* (pp. 1-6). IEEE.
- Asiimwe, E. N., Grönlund, Å., & Hatakka, M. (2017). Practices and challenges in an emerging m-learning environment. *International Journal of Education and Development using Information and Communication Technology*, 13(1), 103-122.
- Athanasopoulos, P. (2017). Study on the use of mobile devices in schools: the case of Greece. *Revista de Estudios e Investigación en Psicología y Educación*, (13), 319-324.
- 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.
- Attewell, J., & Savill-Smith, C. (2004). Mobile Learning and Social Inclusion: Focusing on Learners and Learning. Paper Presented at Learning with Mobile Devices, Research and Development Conference (mLearn), Rome (pp. 3-11).
- Aversano, N. (2005). *Technology Rejection of Mobile Telephones*. Doctoral Dissertation, Case Western Reserve University, United States.
- Avgerou, C., & Walsham, G. (Eds.). (2017). *Information Technology in Context: Studies from the Perspective of Developing Countries: Studies from the Perspective of Developing Countries*. Routledge.
- Babbie, E. R. (2008). *The Basics of Social Research*. Belmont, USA: Thomson Wadsworth.
- Badwelan, A., Drew, S., & Bahaddad, A. A. (2016). Towards acceptance m-learning approach in higher education in Saudi Arabia. *International Journal of Business and Management*, 11(8), 12.

- Baggaley, J., & Belawati, T. (2007). (Eds.). *Distance Education Technology in Asia*. Lahore, Pakistan: Virtual University of Pakistan.
- Baker, H. K., Singleton, J. C., & Veit, E. T. (2010). *Survey Research in Corporate Finance: Bridging the Gap Between Theory and Practice*. New York, USA: Oxford University Press.
- Balasubramanian, V., Ho, S. S., & Vovk, V. (Eds.). (2014). *Conformal Prediction for Reliable Machine Learning: Theory, Adaptations and Applications*. Waltham, MA, USA: Elsevier Inc.
- Bandyopadhyay, N. (2002). *E-commerce: Context, Concepts and Consequences*. London, UK: McGraw-Hill.
- Barki, H., Titah, R., & Boffo, C. (2007). Information System Use-Related Activity: An Expanded Behavioral Conceptualization of Individual-Level Information System Use. *Information Systems Research*, 18(2), 173-192.
- 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.
- Barroso, C., Carrión, G. C., & Roldán, J. L. (2010). Applying Maximum Likelihood and PLS on Different Sample Sizes: Studies on SERVQUAL Model and Employee Behavior Model *Handbook of Partial Least Squares* (pp. 427-447): Springer.
- Baumgartner, H., & Homburg, C. (1996). Applications of Structural Equation Modelling in Marketing and Consumer Research: A Review. *International Journal of Research in Marketing*, 13(2), 139-161.
- Belanger, H. G. (2005). Factors Moderating Neuropsychological Outcomes Following Mild Traumatic Brain Injury: A Meta-analysis. *Journal of the International Neuropsychological Society*, 11(03), 215-227.
- Bellaaj, M., Zekri, I., & Albugami, M. (2015). The Continued Use of E-Learning System: An Empirical Investigation Using Utaut Model at The University of Tabuk. *Journal of Theoretical & Applied Information Technology*, 72(3), 646-474.
- 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 (pp. 16-26). ACM.
- Bergh, J. (2002). *Do Social Movements Matter to Organizations. An Institutional Theory Perspective on Corporate Responses to the Contemporary Environmental Movement*. Doctoral Dissertation, Pennsylvania State University, USA.
- Bharati, P., & Chaudhury, A. (2006). Studying the current Status of Technology Adoption. *Communications of the ACM*, 49(10), 88-93.

- Bhattacharjee, A. (2001). Understanding Information Systems Continuance: An Expectation-Confirmation Model. *MIS quarterly*, 25(3), 351-370.
- Bhattacharjee, A., & Premkumar, G. (2004). Understanding Changes in Belief and Attitude Toward Information Technology Usage: A Theoretical Model and Longitudinal Test. *MIS quarterly*, 28(2), 229-254.
- Bischoff, S., Aier, S., & Winter, R. (2014). *An Exploration of Factors Influencing the Continuous Use of Business Intelligence Systems*. Paper presented at the Multikonferenz Wirtschaftsinformatik Conference in Paderborn, Germany.
- Bitner, M. J., & Hubbert, A. R. (1994). Encounter Satisfaction Versus Overall Satisfaction Versus Quality. In Roland T. R & Richard L. O (Eds.), *Service Quality: New Directions in Theory and Practice* (pp72-94). Thousand Oaks, CA, USA: SAGE Publications, Inc.
- Borgatti, S. P. (1999). Elements of Research. Retrieved On October, 23rd , 2014 from <http://www.analytictech.com/mb313/elements.htm>
- Brown, E. G. (2004). Effects of Coding Dictionary on Signal Generation. *Drug Safety*, 25(6), 445-452.
- Brown, I., & Jayakody, R. (2008). B2C e-commerce success: A test and validation of a revised conceptual model. *The Electronic Journal Information Systems Evaluation*, 11(3), 167-184.
- Bryman, A., & Bell, A. (2015). *Business Research Methods*. Oxford University Press, USA.
- Carl-Erik, S., Bengt, S., & Jan, W. (2003). *Model Assisted Survey Sampling*. Springer-Verlag New York Inc.
- Castells, M., Fernandez-Ardevol, M., Qiu, J. L., & Sey, A. (2009). *Mobile communication and society: A global perspective*. USA, Mit Press.
- Cavus, N., & Ibrahim, D. (2009). M-Learning: An Experiment in Using SMS to Support Learning new English language Words. *British Journal of Educational Technology*, 40(1), 78-91.
- Chanchary, F. H., & Islam, S. (2011). *Mobile learning in Saudi Arabia-prospects and challenges*. Paper presented at the International Arab Conference on Information Technology (ACIT'2011). Zarqa University, Jordan.
- Chandra, V., Nehra, D., Parent, R., Woo, R., Reyes, R., Hernandez-Boussard, T., & Dutta, S. (2010). A Comparison of Laparoscopic and Robotic Assisted Suturing Performance by Experts and Novices. *Surgery*, 147(6), 830-839.

- Chang, T. K., Huang, H. F., & Chang, S. M. (2013). Understanding Educational Administrators' Subjective Norms on Their Use Intention toward On-Line Learning. In 7th International Conference on Knowledge Management in Organizations: Service and Cloud Computing (pp. 267-273). Springer, Berlin, Heidelberg.
- 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.
- Chen, & Cheng. (2009). Understanding Consumer Intention in Online Shopping: A Respecification and Validation of the DeLone and McLean Model. *Behaviour & Information Technology*, 28(4), 335-345.
- Cheng, B., Wang, M., Moormann, J., Olaniran, B. A., & Chen, N. S. (2012). The Effects of Organizational Learning Environment Factors on e-Learning Acceptance. *Computers & Education*, 58(3), 885-899.
- Cheon, J., Lee, S., Crooks, S. M., & Song, J. (2012). An Investigation of Mobile Learning Readiness in Higher Education Based on the Theory of Planned Behaviour. *Computers & Education*, 59(3), 1054-1064.
- Cheong, J., & Park, M. C. (2005). Mobile Internet Acceptance in Korea. *Internet Research*, 15(2), 125-140.
- Chiasson, M. W., & Lovato, C. Y. (2001). Factors Influencing the Formation of a User's Perceptions and Use of a DSS Software Innovation. *ACM SIGMIS Database*, 32(3), 16-35.
- Chismar, W. G., & Wiley-Patton, S. (2002). *Test of the Technology Acceptance Model for the Internet in Pediatrics*. In Proceedings of the AMIA Symposium (p. 155). American Medical Informatics Association.
- Chisnall, P. M. (1997). Marketing Research. London, UK, McGraw-Hill
- Chiu, & Chang. (2007). Examining the Integrated Influence of Fairness and Quality on Learners' Satisfaction and Web-based Learning Continuance Intention. *Information systems journal*, 17(3), 271-287.
- Chiu, C. M., Hsu, M. H., Sun, S. Y., Lin, T. C., & Sun, P. C. (2005). Usability, Quality, Value and e-Learning Continuance Decisions. *Computers & Education*, 45(4), 399-416.
- Chiu, C.-M., & Wang, E. T. (2008). Understanding Web-based Learning Continuance Intention: The Role of Subjective Task Value. *Information & Management*, 45(3), 194-201.

- Chong, A. Y.-L., Ooi, K.-B., Lin, B., & Bao, H. (2012). An Empirical Analysis of the Determinants of 3G Adoption in China. *Computers in Human Behavior*, 28(2), 360-369.
- Chong, Cates, D., & Rauniar, R. (2010). Validity of Delone and Mclean's e-Commerce Model in B2C Student Loan Industry. *Journal of International Technology and Information Management*, 19(1), 75-96.
- Chounta, I. A., Manske, S., & Hoppe, H. U. (2017). 'From Making to Learning': Introducing Dev Camps as an Educational Paradigm for Re-inventing Problem-based Learning. *International Journal of Educational Technology in Higher Education*, 14(1), 21.
- Chu, C. W., & Lu, H. P. (2007). Factors Influencing Online Music Purchase Intention in Taiwan: An Empirical Study Based on the Value-Intention Framework. *Internet Research*, 17(2), 139-155.
- Chung, B. Y., Skibniewski, M. J., Lucas Jr, H. C., & Kwak, Y. H. (2008). Analyzing Enterprise Resource Planning System implementation Success Factors in the Engineering-Construction Industry. *Journal of Computing in Civil Engineering*, 22(6), 373-382.
- Churchill, A. G., Brown, J. T., & Suter, A. T. (2010). *Basic Marketing Research* (7th ed.). Australia, South-Western Cengage Publication.
- Cidral, W. A., Oliveira, T., Di Felice, M., & Aparicio, M. (2017). E-learning success determinants: Brazilian empirical study. *Computers & Education*.
- Cochrane, T. D. (2010). Exploring Mobile Learning Success Factors. *Alt-j*, 18(2), 133-148.
- Cohen, S. H., Gerding, D. N., Johnson, S., Kelly, C. P., Loo, V. G., McDonald, L. C., & Wilcox, M. H. (2010). Clinical practice guidelines for Clostridium Difficile Infection in Adults: 2010 Update by the Society for Healthcare Epidemiology of America (SHEA) and the Infectious Diseases Society of America (IDSA). *Infection Control and Hospital Epidemiology*, 31(05), 431-455.
- Colton, D., & Covert, R. W. (2007). *Designing and Constructing Instruments for Social Research and Evaluation*. San Francisco, CA: John Wiley & Sons.
- Conrath, D. W., & Mignen, O. P. (1990). What is Being Done to Measure User Satisfaction with EDP/MIS. *Information & Management*, 19(1), 7-19.
- Creswell, Pacilio, Lindsay, & Brown. (2014). Brief Mindfulness Meditation Training Alters Psychological and Neuroendocrine Responses to Social Evaluative Stress. *Psychoneuroendocrinology*, 44, 1-12.
- Creswell. (2009). *Research design: Qualitative, Quantitative, and Mixed Methods Approaches* (3rd ed.). USA: SAGE Publications, Inc.

- Creswell. (2012). *Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research* (4th ed.). USA: SAGE Publications, Inc.
- Cronbach, L. J. (1957). The Two Disciplines of Scientific Psychology. *American Psychologist*, 12(11), 671-684.
- Dadayan, L., Ferro, E.: *When technology meets the mind: A comparative study of the technology acceptance model*. In: Wimmer, M.A., Traunmüller, R., Grönlund, Å., Andersen, K.V. (eds.) EGOV 2005. LNCS, vol. 3591, pp. 137–144. Springer, Heidelberg (2005)
- Dai, W., Yang, Q., Xue, G. R., & Yu, Y. (2007, June). Boosting for Transfer Learning. In Proceedings of the 24th International Conference on Machine Learning (pp. 193-200).ACM.
- Daneshgar, F., & Parirokh, M. (2007). A Knowledge Schema for Organisational Learning in Academic Libraries. *Knowledge Management Research & Practice*, 5(1), 22-33.
- Darsono, L. I. (2005). Examining Information Technology Acceptance by Individual Professionals. *Gadjah Mada International Journal of Business*, 7(2), 155-178.
- Davis, F. D. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS quarterly*, 13(3), 319-340.
- Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User Acceptance of Computer Technology: a Comparison of Two Theoretical Models. *Management Science*, 35(8), 982-1003.
- 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.
- Delone, W. H., & Mclean, E. R. (2004). Measuring E-Commerce Success: Applying the Delone & Mclean Information Systems Success Model. *International Journal of Electronic Commerce*, 9(1), 31-47.
- DeSanctis, G. L. (1982). *An Examination of an Expectancy Theory Model of Decision Support System Use*. Doctoral Dissertation, Texas Tech University, USA.
- Duraipandian, I., & Rakesh, T. (2011). *Empirical Study of Factors Influencing Acceptance of E-Government Services in India*. Paper Presented at the Proceedings of the 5th International Conference on Theory and Practice of Electronic Governance. New York, USA.

- Dwivedi, Y. K., Kapoor, K. K., Williams, M. D., & Williams, J. (2013). RFID Systems in Libraries: An Empirical Examination of Factors Affecting System Use and User Satisfaction. *International Journal of Information Management*, 33(2), 367-377.
- Dwivedi, Y. K., Papazafeiropoulou, A., Brinkman, W.-P., & Lal, B. (2010). Examining the Influence of Service Quality and Secondary Influence on The Behavioural Intention to Change Internet Service Provider. *Information Systems Frontiers*, 12(2), 207-217.
- Earl, B. (2011). *The Basics of Social Research* (5th ed.). USA: Belmont Wadsworth.
- Elgort, I. (2005,). E-Learning Adoption: Bridging the Chasm. *Ascilite*. 181-185.
- El-Hussein, M. O. M., & Cronje, J. C. (2010). Defining Mobile Learning In The Higher Education Landscape. *Journal of Educational Technology & Society*, 13(3).
- 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).
- El-Kiki, T., Lawrence, E., & Steele, R. (2005). A Management Framework for Mobile Government Services. *Collaborative Electronic Commerce Technology and Research*. Paper Presented at Proceedings of COLLECTeR, Sydney, Australia.
- Eteokleous, N., & Ktoridou, D. (2009). Investigating Mobile Devices Integration in Higher Education in Cyprus: Faculty Perspectives. *International Journal of Interactive Mobile Technologies*, 3(1), 38-48.
- Faaeq, M. K. (2014). *Factors Affecting Continued Usage Intention of Electronic Government Among Public Servants in Iraq*. Doctoral Dissertation, University Utara Malaysia. Malaysia.
- 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.
- Fang, X., Chan, S., Brzezinski, J., & Xu, S. (2005). Moderating Effects of Task Type on Wireless Technology Acceptance. *Journal of Management Information Systems*, 22(3), 123-157.

- Farrow, E. G., Yu, X., Summers, L. J., Davis, S. I., Fleet, J. C., Allen, M. R., & Garringer, H. J. (2011). Iron Deficiency Drives an Autosomal Dominant Hypophosphatemic Rickets (ADHR) Phenotype in Fibroblast Growth Factor-23 (Fgf23) Knock-in Mice. Paper Presented at the Proceedings of the National Academy of Sciences, 108(46), E1146-E1155.
- Fernández-López, Á., Rodríguez-Fórtiz, M. J., Rodríguez-Almendros, M. L., & Martínez-Segura, M. J. (2013). Mobile learning technology based on iOS devices to support students with special education needs. *Computers & Education*, 61, 77-90.
- Ferreira, J. B., Klein, A. Z., Freitas, A., & Schlemmer, E. (2013). Mobile learning: definition, uses and challenges. In Laura A. Wankel, Patrick Blessinger (ed.) *Increasing Student Engagement and Retention Using Mobile Applications: Smartphones, Skype and Texting Technologies* (Cutting-edge Technologies in Higher Education, Volume 6 Part D) Emerald Group Publishing Limited, 47-82.
- 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.
- Fishbein, M., & Ajzen, I. (1975). *Belief, Attitude, Intention and Behaviour: An Introduction to Theory and Research*. Reading, Mass : Addison-Wesley.
- Flavián, C., & Guinalíu, M. (2006). Consumer Trust, Perceived Security and Privacy Policy: Three Basic Elements of Loyalty to a Web Site. *Industrial Management & Data Systems*, 106(5), 601-620.
- Flavián, C., Guinalíu, M., & Gurrea, R. (2006). The Role Played by Perceived Usability, Satisfaction and Consumer Trust on Website Loyalty. *Information & Management*, 43(1), 1-14.
- Floropoulos, J., Spathis, C., Halvatzis, D., & Tsipouridou, M. (2010). Measuring the Success of the Greek Taxation Information System. *International Journal of Information Management*, 30(1), 47-56.
- Fowler, F. J. (2002). *Survey Research Methods*. London, UK: SAGE Publications Inc.
- Frankfort-Nachmias, & Nachmias. (2000). *Research Methods in the Social Sciences* (6th ed.). USA: New York Worth.
- Fuerst, W. L., & Cheney, P. H. (1982). Concepts, Theory, and Techniques: Factors Affecting the Perceived Utilization of Computer-Based Decision Support Systems in the Oil Industry. *Decision Sciences*, 13(4), 554-569.
- 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.

- Garrison, D. R. (2011). *E-learning in the 21st Century: A Framework for Research and Practice*. New York, USA: Routledge
- Gebauer, J., & Shaw, M. J. (2004). Success Factors and Impacts of Mobile Business Applications: Results from a Mobile E-Procurement Study. *International Journal of Electronic Commerce*, 8(3), 19-41.
- Gefen, D., Straub, D., & Boudreau, M.-C. (2000). Structural Equation Modelling and Regression: Guidelines for Research Practice. *Communications of the Association for Information Systems*, 4(1), 1-70.
- Geldhof, G. J., Preacher, K. J., & Zyphur, M. J. (2014). Reliability Estimation in a Multilevel Confirmatory Factor Analysis Framework. *Psychological Methods*, 19(1), 72-91.
- George, J. F. (2004). The Theory of Planned Behaviour and Internet Purchasing. *Internet Research*, 14(3), 198-212.
- Georgescu, M. (2010). Mobile Government: An Emerging Direction. *Analele Stiintifice ale Universitatii 'Alexandru Ioan Cuza' din Iasi-Stiinte Economice*, 2010, 379-386.
- Georgiev, T., Georgieva, E., & Smrikarov, A. (2004). M-Learning a New Stage of E-Learning. In *International Conference on Computer Systems and Technologies-CompSysTech*, 4(28), 1-4.
- Ghandour, A., Deans, K., Benwell, G., & Pillai, P. (2008). Measuring eCommerce website success. Proceedings In 19th Australasian Conference on Information Systems ACIS, University of Canterbury, Christchurch, New Zealand.
- Ginzberg, M. J. (1981). Early Diagnosis of MIS Implementation Failure: Promising Results and Unanswered Questions. *Management Science*, 27(4), 459-478.
- Gitte, L. (1994). *Usability Testing and System Evaluation: A Guide for Designing Useful Computer Systems*. London: Chapman & Hall.
- 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), 541-552.
- Gong, M., Xu, Y., & Yu, Y. (2004). An Enhanced Technology Acceptance Model for Web-Based Learning. *Journal of Information Systems Education*, 15(4), 365-374.
- Gorla, N., Somers, T. M., & Wong, B. (2010). Organizational Impact of System Quality, Information Quality, and Service Quality. *The Journal of Strategic Information Systems*, 19(3), 207-228.

- Grenier, D. (2018). The Relationship between Mobile Learning and Academic Achievement in a Community College System Online Environment.
- Guimaraes, T., & Igbaria, M. (1997). Client/Server System Success: Exploring the Human Side. *Decision Sciences*, 28(4), 851-876.
- Gunasekaran, A., Ngai, E. W., & McGaughey, R. E. (2006). Information Technology And Systems Justification: A Review for Research and Applications. *European Journal of Operational Research*, 173(3), 957-983.
- Gupta, B., Dasgupta, S., & Gupta, A. (2008). Adoption of ICT in a Government Organization in a Developing country: An Empirical Study. *The Journal of Strategic Information Systems*, 17(2), 140-154.
- Hair, Black, Babin, & Anderson. (2010). *Multivariate Data Analysis* (7th ed.). Upper Saddle River, NJ, USA: Pearson Prentice Hall.
- Hair, Black, Babin, Anderson, & Tatham. (2006). *Multivariate Data Analysis* (Vol. 6). Upper Saddle River, NJ, USA: Pearson Prentice Hall.
- Hair, Hult, Ringle, & Sarstedt. (2014). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*. California, USA: SAGE Publications, Inc.
- Hair, J. F., Sarstedt, M., Ringle, C. M., & Gudergan, S. P. (2018). *Advanced Issues in Partial Least Squares Structural Equation Modeling*. Los Angeles, CA: SAGE.
- Hair, J., Black, B. B., Anderson, R., & Tatham, R. (2006). *Multivariate Data Analysis* (6th edition). Upper Saddle River NJ: Prentice-Hall.
- Hair, Sarstedt, Ringle, & Mena. (2011). An Assessment of the Use of Partial Least Squares Structural Equation Modelling in Marketing Research. *Journal of the Academy of Marketing Science*, 40(3), 414-433.
- Halawi, L. A., McCarthy, R. V., & Aronson, J. E. (2008). An Empirical Investigation of Knowledge Management Systems' Success. *Journal of Computer Information Systems*, 48(2), 121-135.
- Hamdy, H. I., & Al-Enezi, M. Z. (2009). Effect of Management Support, Training, and User Involvement on System Usage and Satisfaction in Kuwait. *Industrial Management & Data Systems*, 109(3), 338-356.
- Hameed, A. G., Shukur, B. S., Al-Khafaji, N. J., & Al-Farhan, H. A. (2014). *Utilizing Mobile Applications as a Channel of Interaction between the Citizens and the Government: Design M-police in Iraq*. Paper presented at the Third International Conference on e-Technologies and Networks for Development (ICeND).
- Hamilton, S., & Chervany, N. L. (1981). Evaluating Information System Effectiveness-Part I: Comparing Evaluation Approaches. *MIS quarterly*, 5(3), 55-69.

- Hassanzadeh, A., Kanaani, F., & Elahi, S. (2012). A Model for Measuring E-Learning Systems Success in Universities. *Expert Systems with Applications*, 39(12), 10959-10966.
- Hayes, A. F. (2009). Beyond Baron and Kenny: Statistical Mediation Analysis in the New Millennium. *Communication Monographs*, 76(4), 408-420.
- Heider, F. (1944). Social Perception and Phenomenal Causality. *Psychological Review*, 51(6), 358.
- Henseler, J., Ringle, C., & Sarstedt, M. (2015). A New Criterion for Assessing Discriminant Validity in Variance-Based Structural Equation Modeling. *Journal of the Academy of Marketing Science*, 43(1), 115-135
- Herman, J. A., Gideon, J. M., & David, J. H. (2008). *Advising on Research Methods: A Consultant's Companion*. Huizen, Netherlands: Johannes Van Kessel publishing,
- Hong, S., Thong, J. Y., & Tam, K. Y. (2006). Understanding Continued Information Technology Usage Behaviour: A Comparison of Three Models in the Context of Mobile Internet. *Decision Support Systems*, 42(3), 1819-1834.
- Hosnavi, R., & Ramezan, M. (2010). Measuring the Effectiveness of a Human Resource Information System in National Iranian Oil Company: An empirical assessment. *Education, Business and Society: Contemporary Middle Eastern Issues*, 3(1), 28-39.
- Hosnavi, R., & Ramezan, M. (2010). Measuring the Effectiveness of A Human Resource Information System in National Iranian Oil Company: An Empirical Assessment. *Education, Business and Society: Contemporary Middle Eastern Issues*, 3(1), 28-39.
- Hoyle, R. H. (1995). *Structural Equation Modelling: Concepts, Issues, and Applications*. USA: SAGE Publications, Inc.
- Hsieh, J., & Wang, W. (2007). Explaining Employees' Extended Use of Complex Information Systems. *European Journal of Information Systems*, 16(3), 216-227.
- Hsu, M. H., Chang, C. M., Chu, K. K., & Lee, Y. J. (2014). Determinants of Repurchase Intention in Online Group-Buying: The Perspectives of Delone & Mclean IS Success Model and Trust. *Computers in Human Behavior*, 36(2014), 234-245.
- Hu, J. & Zhang, Y. (2016). Chinese Students' Behavior Intention to Use Mobile Library Apps and Effects of Education Level and Discipline. *Library Hi Tech*, 34(4), 639-656.
- Hull, C. L. (1943). *Principles of Behaviour: An Introduction to Behaviour Theory*. New York, USA: Appleton-Century Crofts, Inc.

- Hung, S.-Y., Chang, C.-M., & Kuo, S.-R. (2013). User Acceptance of Mobile E-Government Services: An Empirical Study. *Government Information Quarterly*, 30(1), 33-44.
- Hunt, S. D., Sparkman Jr, R. D., & Wilcox, J. B. (1982). The Pretest in Survey Research: Issues and Preliminary Findings. *Journal of Marketing Research*, 19(2), 269-273.
- Ibrahim, E. N. M., & Walid, N. (2014). Trust Contributing Factors in M-Learning Technology. *Procedia-Social and Behavioral Sciences*, 129, 554-561.
- Igbaria, M. (1990). End-User Computing Effectiveness: A Structural Equation Model. *Omega*, 18(6), 637-652.
- Igbaria, M., & Tan, M. (1997). The consequences of information technology acceptance on subsequent individual performance. *Information & Management*, 32(3), 113-121.
- Iivari, J. (2005). An Empirical Test of the Delone-McLean Model of Information System Success. *ACM Sigmis Database*, 36(2), 8-27.
- Irani, Z. (2002). Information Systems Evaluation: Navigating Through the Problem Domain. *Information & Management*, 40(1), 11-24.
- Irani, Z., Dwivedi, Y. K., & Williams, M. D. (2009). Understanding consumer adoption of broadband: an extension of the technology acceptance model. *Journal of the Operational Research Society*, 60(10), 1322-1334.
- Isaias, P., & Issa, T. (2015). *High Level Models and Methodologies for Information Systems*. New York, USA: Springer.
- Ismail, I., Idrus, R. M., Ziden, A. A., & Rosli, M. (2010). Adoption of Mobile Learning Among Distance Education Students in Universiti Sains Malaysia. *International Journal of Interactive Mobile Technologies*, 4(2), 24-28.
- ITU. (2015). *Key ICT Indicators for Developed and Developing Countries and the World (totals and penetration rates)*. Retrieved on February 10th, 2016 from <https://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx>
- ITU. (2010). News Room-Press Release [Press release]. Retrieved on February 10th, 2014 from www.itu.int/pressoffice/press_release/2010/39.aspx,
- ITU. (2011). *The World in 2011: ICT Facts and Figures*. Retrieved on February 10th, 2014 from Geneva Switzerland: www.itu.int/ITU-D/ict/facts/2011/material/ICT_FactsFigures2011.pdf.
- ITU. (2013a). *Measuring The Information Society*. Retrieved on February 10th, 2014 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
- Jacobsen, W. C., & Forste, R. (2011). The Wired Generation: Academic and Social Outcomes of Electronic Media Use Among University Students. *Cyberpsychology, Behavior, and Social Networking*, 14(5), 275-280
- Jairak, K., Praneetpolgrang, P., & Mekhabunchakij, K. (2009, December). *An Acceptance of Mobile Learning for Higher Education Students in Thailand*. Paper Presented at the Sixth International Conference on eLearning for Knowledge-Based Society, Thailand (Vol. 17, No. 18, pp. 361-368).
- Jan, R. (2012). *Scientific research in information systems: a beginner's guide*: Springer Science & Business Media.
- Jaradat, M. A. K., Al-Rousan, M., & Quadan, L. (2011). Reinforcement Based Mobile Robot Navigation in Dynamic Environment. *Robotics and Computer-Integrated Manufacturing*, 27(1), 135-149.
- Jiang, J. J., Klein, G., & Crampton, S. M. (2000). A Note on SERVQUAL Reliability and Validity in Information System Service Quality Measurement. *Decision Sciences*, 31(3), 725-744.
- Jiang, P. (2009). Consumer Adoption of Mobile Internet Services: An Exploratory Study. *Journal of Promotion Management*, 15(3), 418-454.
- Johnson, M. (2013). *The Body in the Mind: The Bodily Basis of Meaning, Imagination, and Reason*. USA: University of Chicago Press.
- Jones, A., & Hubona, G. S. (2005). Individual Differences and Usage Behaviour: Revisiting a Technology Acceptance Model Assumption. *ACM Sigmis Database*, 36(2), 58-77.
- Jones, C., Ramanau, R., Cross, S., & Healing, G. (2010). Net Generation or Digital Natives: Is There a Distinct New Generation Entering University? *Computers & Education*, 54(3), 722-732.
- Kaasinen, E. (2005). *User Acceptance of Mobile Services: Value, Ease of Use, Trust and Ease of Adoption*. Doctoral Dissertation, Tampere University of Technology, Finland.
- Kadirire, J. (2007). Instant Messaging for Creating Interactive and Collaborative M-Learning Environments. *The International Review of Research in Open and Distributed Learning*, 8(2), 1-14.
- Karch, K. (2014). *An investigation of perceptions about smart mobile phone usage as an instructional tool in a high school classroom* (Doctoral dissertation, Capella University).

- Karim, S., N., Hawa Darus, S., & Hussin, R. (2006). Mobile Phone Applications in Academic Library Services: A Students' Feedback Survey. *Campus-Wide Information Systems*, 23(1), 35-51.
- Karjaluoto, H., Koenig-Lewis, N., Palmer, A., & Moll, A. (2010). Predicting Young Consumers' Take Up Of Mobile Banking Services. *International Journal of Bank Marketing*, 28(5), 410-432.
- Karjaluoto, H., Püschel, J., Afonso Mazzon, J., & Mauro C. Hernandez, J. (2010). Mobile Banking: Proposition of an Integrated Adoption Intention Framework. *International Journal of Bank Marketing*, 28(5), 389-409.
- Keegan, D. (2002). *The Future of Learning: From E-learning To M-learning*. Retrieved on October 13th, 2014 from <http://www.fernuni-hagen.d/ZIFF/mlearn.htm>
- Kenneth, S., & Bordens, B. B. A. (2005). *Research and Design Methods: A Process Approach*: New York, USA: McGraw-Hill
- Kettinger, W., & Lee, C. (1994). Perceived Service Quality and User Satisfaction with the Information Services Function. *Decision Sciences*, 25(5-6), 737-766.
- Khaddage, F., Müller, W., & Flintoff, K. (2016). Advancing mobile learning in formal and informal settings via mobile app technology: Where to from here, and how?. *Educational Technology & Society*, 19(3), 16-26.
- Khan, A. I., Al-Shihi, H., Al-Khanjari, Z. A., & Sarrab, M. (2015). Mobile Learning (M-Learning) Adoption in the Middle East: Lessons Learned From The Educationally Advanced Countries. *Telematics and Informatics*, 32(4), 909-920.
- Khan, Moon, Rhee, & Rho. (2010b). E-Government Skills Identification and Development: Toward a Staged-Based User-Centric Approach for Developing Countries. *Asia Pacific Journal of Information Systems*, 20(1), 1-31.
- Khan, Moon, Swar, Zo, & Rho. (2012). E-Government Service Use Intentions in Afghanistan: Technology Adoption and The Digital Divide in a War-Torn Country. *Information Development*, 28(4), 281-299.
- Khan, Moon, Zo, & Rho. (2010a). Civil Conflict, Digital Divide, and E-Government Service Adoption: A Conflict Theory Approach. *World Academy of Science, Engineering and Technology*, 66, 537-549.
- Khan. (2010). *Essays on Electronic Government in Developing Countries: Socio-Technical Perspective*. Doctoral Dissertation, Kaist University, South Korea.
- Khudhair, R. S. (2016). An Empirical Test of Information System Success Model in A University's Electronic Services. *Advances in Natural and Applied Sciences*, 10(12), 54-63.

- Kim, Ahn, & Chung. (2013). Examining The Factors Affecting Perceived Enjoyment and Usage Intention of Ubiquitous Tour Information Services: A Service Quality Perspective. *Asia Pacific Journal of Tourism Research*, 18(6), 598-617.
- Kim, C., Mirusmonov, M., & Lee, I. (2010). An Empirical Examination of Factors Influencing The Intention to Use Mobile Payment. *Computers in Human Behavior*, 26(3), 310-322.
- Kim, D., Rueckert, D., Kim, D. J., & Seo, D. Students' Perceptions and Experiences of Mobile Learning. *Language Learning & Technology*, 17(3), 52-73.
- Kim, Ferrin, & Rao. (2009). Trust and Satisfaction, Two Stepping Stones For Successful E-Commerce Relationships: A Longitudinal Exploration. *Information Systems Research*, 20(2), 237-257.
- Kim, Shin, & Lee. (2006). A Study of Factors That Affect User Intentions Toward Email Service Switching. *Information & Management*, 43(7), 884-893.
- King, W. R., & Epstein, B. J. (1983). Assessing Information System Value: An Experimental Study. *Decision Sciences*, 14(1), 34-45.
- King, W. R., & Rodriguez, J. I. (1978). Evaluating Management Information Systems. *MIS Quarterly*, 2(3), 43-51.
- Kleinbaum, D., Kupper, L., Nizam, A., & Rosenberg, E. (2013). Applied Regression Analysis and Other Multivariable Methods (5th ed): Ontario, Canada, Nelson Education.
- Kline, R. B. (2015). *Principles and Practice of Structural Equation Modelling*. New York, USA: Guilford publications.
- Kllopping, I. M., & McKinney, E. (2004). Extending The Technology Acceptance Model and the Task-Technology Fit Model to Consumer E-Commerce. *Information Technology Learning And Performance Journal*, 22(1), 35-48.
- Klopfer, E., Squire, J., & Jenkins, H. (2002). Environmental detectives: PDAs as a window into a virtual simulated world. Paper presented at the *IEEE international Workshop on Wireless and Mobile Technologies in Education (WMTE'02)*, Los Alamitos, CA.
- Kllopping, I. M., & McKinney, E. (2006). Practice Makes A Difference: Experience and E-Commerce. *Information Technology Learning And Performance Journal*, 24(1), 25.
- Korucu, A. T., & Alkan, A. (2011). Differences Between M-Learning (Mobile Learning) and E-Learning, Basic Terminology And Usage of M-Learning In Education. *Procedia-Social And Behavioural Sciences*, 15, (2011) 1925-1930.

- Kothari, C. R. (2004). *Research Methodology: Methods And Techniques*: New Age International. India.
- Kraut, R. (Ed.). (2013). *Policy guidelines for mobile learning*. UNESCO.
- Kuhl, J. (1985). *Volitional mediators of cognition-behavior consistency: Self-regulatory processes and action versus state orientation*. In *Action control* (pp. 101-128). Springer, Berlin, Heidelberg.
- Kulkarni, U., Ravindran, S., & Freeze, R. (2006). A Knowledge Management Success Model: Theoretical Development and Empirical Validation. *Journal of Management Information Systems*, 23(3), 309-347.
- Kwan, R., & Wang, F. L. (2009). *Hybrid Learning(ICHL2009)*. Paper presented at the 2nd International Conference on Hybrid Learning. Retrieved from http://www.cs.cityu.edu.hk/~ichl2009/ICHL2009_Local.pdf.
- Lan, Y. F., & Sie, Y. S. (2010). Using RSS To Support Mobile Learning Based on Media Richness Theory. *Computers & Education*, 55(2), 723-732.
- Laouris, Y., & Eteokleous, N. (2005). We Need An Educationally Relevant Definition Of Mobile Learning. In *Proceedings of the 4th World Conference on Mobile Learning* (pp. 1–13), Cape Town, South Africa.
- Lawless, N., & Allan, J. (2004). Understanding And Reducing Stress in Collaborative E-Learning. *Electronic Journal of E-learning*, 2(1), 121-128.
- Leclercq, A. (2007). The Perceptual Evaluation of Information Systems Using The Construct of User Satisfaction: Case Study of A Large French Group. *ACM Sigmis Database*, 38(2), 27-60.
- Lee, & Chung. (2009). Understanding Factors Affecting Trust In And Satisfaction With Mobile Banking In Korea: A Modified Delone And Mclean's Model Perspective. *Interacting With Computers*, 21(5), 385-392.
- Lee, & Kim. (2005). Understanding Outsourcing Partnership: A Comparison of Three Theoretical Perspectives. *Engineering Management, IEEE Transactions on*, 52(1), 43-58.
- Lee, Cheng, & Cheng. (2007). An Empirical Study of Mobile Commerce in Insurance Industry: Task–Technology Fit And Individual Differences. *Decision Support Systems*, 43(1), 95-110.
- Lee, M.-C. (2010). Explaining and predicting users' continuance intention toward e-learning: An extension of the expectation–confirmation model. *Computers & Education*, 54(2), 506-516.
- Lee, U.-K., Kim, K. K., & Lee, J. R. (2013). The Effect of Community Artifacts and Media Richness Elements on the Experiences of the Social Network Game

- Users:'Anypang'Case. *The Journal of Society for e-Business Studies*, 18(1), 191-211.
- Lee, W. H., & Kuo, M. C. (2014, January). An NFC E-Learning Platform for Interactive and Ubiquitous Learning. In *2014 International Conference on Education Reform and Modern Management (ERMM-14)*. 271-274. Atlantis Press.
- Lee. (2003). Crafting Rules: Context-Reflective Data Quality Problem Solving. *Journal of Management Information Systems*, 20(3), 93-119.
- Lee. (2010). 10year Retrospect on Stage Models of E-Government: A Qualitative Meta-Synthesis. *Government Information Quarterly*, 27(3), 220-230.
- Leiyu, S. (2008). *Health Services Research Methods* (2nd ed.). NY, USA: Delmar learning.
- Levy, M. (2009). Technologies in use for second language learning. *The Modern Language Journal*, 93(s1), 769-782.
- Lewicki, R. J., & Bunker, B. B. (1996). Developing and maintaining trust in work relationships. In R. M. Kramer & T. R. Tyler (Eds.), *Trust in organizations: Frontiers of theory and research* (pp. 114-139). Thousand Oaks, CA: Sage Publishers.
- Lewin, K., Dembo, T., Festinger, L., & Sears, P. S. (1944). Level of aspiration. In J. M. Hunt, *Personality and the behavior disorders* (pp. 333-378). Oxford, England: Ronald Press.
- Lewis, B. P., Shih, I. H., Jones-Rhoades, M. W., Bartel, D. P., & Burge, C. B. (2003). Prediction of Mammalian MicroRNA Targets. *Cell*, 115(7), 787-798.
- Lewis, W., Agarwal, R., & Sambamurthy, V. (2003). Sources of Influence on Beliefs About Information Technology Use: An Empirical Study of Knowledge Workers. *MIS Quarterly*, 27(4), 657-678.
- Li, J. P., & Kishore, R. (2006). How robust is the UTAUT instrument?: a multigroup invariance analysis in the context of acceptance and use of online community weblog systems. *Paper presented at the Proceedings of the 2006 ACM SIGMIS CPR conference on computer personnel research: Forty-four years of computer personnel research: achievements, challenges & the future*. California: USA.
- Liang, T.-P., & Yeh, Y.-H. (2011). Effect of Use Contexts on the Continuous Use of Mobile Services: The Case of Mobile Games. *Personal and Ubiquitous Computing*, 15(2), 187-196.
- Liaw, S. S. (2008). Investigating Students' Perceived Satisfaction, Behavioral Intention, and Effectiveness of E-Learning: A Case Study of the Blackboard System. *Computers & Education*, 51(2), 864-873.

- Liaw, S.-S., Chang, W.-C., Hung, W.-H., & Huang, H.-M. (2006). Attitudes Toward Search Engines As A Learning Assisted Tool: Approach Of Liaw and Huang's Research Model. *Computers in Human Behavior*, 22(2), 177-190.
- Limayem, M., & Cheung, C. M. (2008). Understanding Information Systems Continuance: The Case of Internet-Based Learning Technologies. *Information & Management*, 45(4), 227-232.
- Lin, H. H., & Wang, Y. S. (2006). An Examination of the Determinants of Customer Loyalty in Mobile Commerce Contexts. *Information & Management*, 43(3), 271-282.
- Lin, H. H., Wang, Y. S., & Li, C. R. (2016). Assessing Mobile Learning Systems Success. *International Journal of Information and Education Technology*, 6(7), 576.
- Lin, H. H., Wang, Y. S., Li, C. R., Shih, Y. W., & Lin, S. J. (2016). The Measurement and Dimensionality of Mobile Learning Systems Success: Two-Stage Development and Validation. *Journal of Educational Computing Research*. 55(4), pp. 449 - 470.
- Lin, H.-F. (2013). Determining the Relative Importance of Mobile Banking Quality Factors. *Computer Standards & Interfaces*, 35(2), 195-204.
- Lippert, S.K. (2001a) *An Exploratory Study into the Relevance of Trust in the Context of Information Systems Technology*. Doctoral Dissertation. The George Washington University, Washington, D.C.
- Lippert, S.K. (2001b) Trust in Information Systems Technology: Implications for Academia. *Proceedings of the Seventeenth Annual Research Forum*, Washington Consortium of Business Schools, April 21, 2001, Washington, DC.
- Lippert, S.K. (2001c) *Trust in Information Systems Technology: A Fundamental Metric In Systems Development and Usage*. Washington Metropolitan Best Practices Forum, April 26, 2001, Washington, DC.
- Lippert, S.K. (2001d) *Why Trust in Information Systems Technology? Does it Matter For IT Professionals?* Invited Guest Lecturer, Management and Organization Seminar, George Washington University, April 23, 2001, Washington, DC.
- Lippert, S.K. (2002). Contributing to a Unified Model of Technology Trust: Understanding Trust in Information Systems Technology. Forthcoming at the 2002 *Academy of Business and Information Technology Meeting*, May 2-4, 2002, Pittsburgh, PA.
- Liska, A. E. (1984). A Critical Examination Of The Causal Structure of The Fishbein/Ajzen Attitude-Behaviour Model. *Social Psychology Quarterly*, 47(1), 61-74.
- Little, B., & Colleagues, E. S. E. C. T. (2006). *Employability and Work-Based Learning*. York: Higher Education Academy.

- Liu, & Chen. (2009). An Empirical Research on the Determinants of User M-Commerce Acceptance *Software Engineering, Artificial Intelligence, Networking And Parallel/Distributed Computing* (pp. 93-104): Springer.
- Liu, M. C., & Huang, Y. M. (2015). Collaborative Experience Sharing With the Support of M-Learning 2.0: A Fundamental Framework, A Case Study and Research Issues. *International Journal of Mobile Learning and Organisation*, 9(1), 21-37.
- Liu, Y., Han, S., & Li, H. (2010). Understanding the Factors Driving M-Learning Adoption: A Literature Review. *Campus-Wide Information Systems*, 27(4), 210-226.
- Livingstone, S. (2012). Critical reflections on the Benefits of ICT in Education. *Oxford review of education*, 38(1), 9-24
- Locke, E. A. (1965). Interaction of Ability and Motivation in Performance. *Perceptual and Motor Skills*, 21(3), 719-725.
- Loehlin, J. C., & Beaujean, A. A. (2017). Latent variable models: An Introduction to Factor, Path, and Structural Equation Analysis (5th ed.). New York, NY: Taylor & Francis.
- Long, P. D., & Ehrmann, S. C. (2005). The Future of The Learning Space: Breaking Out Of The Box. *EDUCAUSE review*, 40(4), 42-58.
- Lu, X., & Viehland, D. (2008). Factors Influencing the Adoption of Mobile Learning. Proceeding at 19th Australasian Conference on Information Systems (pp. 597-606). Christchurch.
- Lucas, H., & Spitler, V. (1999). Technology use and Performance: A field Study of Broker Workstations. *Decision Sciences*, 30(2), 291-311.
- Lucas, R. E. (1973). Some International Evidence on Output-Inflation Tradeoffs. *The American Economic Review*, 63(3), 326-334.
- Lwoga, E., & Sanga, C. (2007). New Technologies for Teaching and Learning: Challenges for Higher Learning Institutions in Developing Countries. *International Journal Of Education And Development Using ICT*, 3(2).
- Lynn, S. C., & Ronald, R. P. (2010). Basic Research Methods for Librarians (5th ed.). USA: Greenwood Publishing Group.
- MacKinnon, D. P., & Fairchild, A. J. (2009). Current Directions in Mediation Analysis. *Current Directions in Psychological Science*, 18(1), 16-20.
- MacKinnon, D. P., Lockwood, C. M., Hoffman, J. M., West, S. G., & Sheets, V. (2002). A Comparison of Methods to Test Mediation and Other Intervening Variable Effects. *Psychological Methods*, 7(1), 83.

- Maditinos, D., Mitsinis, N., & Sotiriadou, D. (2008). Measuring User Satisfaction with Respect to Websites. *Zagreb International Review of Economics and Business*, (1), 81-97.
- Mahatanankoon, P., Wen, H. J., & Lim, B. B. (2006). Evaluating the Technological Characteristics and Trust Affecting Mobile Device Usage. *International Journal of Mobile Communications*, 4(6), 662-681.
- Mahmood, Z. (2013). *E-government Implementation and Practice in Developing Countries*: IGI Global. Hershey, PA
- Malhotra, N. K., (2010). *Marketing Research: An Applied Orientation* (6th ed.). New York, USA: Pearson.
- Marlow, C. (2010). *Research Methods for Generalist Social Work*. London: Cengage Learning.
- Martyn, D. (2007). *The Good Research Guide for Small-Scale Social Research Projects* (3rd Edition ed.). McGraw-Hill House, England: Open University Press.
- Maruyama, G. M. (1997). *Basics of Structural Equation Modelling*. Thousand Oaks, CA: Sage.
- McGill, T. J., & Hobbs, V. (2008). How Students And Instructors Using A Virtual Learning Environment Perceive The Fit Between Technology And Task. *Journal of Computer Assisted Learning*, 24(3), 191-202.
- McGill, T. J., Hobbs, V. J., & Klobas, J. E. (2003). User Developed Applications and Information Systems Success: A Test of Delone and Mclean's Model. *Information Resources Management Journal*, 16(1), 24-45.
- Meharia, P. (2012). Assurance on The Reliability of Mobile Payment System and Its Effects on Its' Use: An Empirical Examination. *Accounting and Management Information Systems*, 11(1), 97-111.
- Mengistu, D., Zo, H., & Rho, J. J. (2009). M-government: Opportunities and Challenges to Deliver Mobile Government Services in Developing Countries, *Fourth International Conference on Computer Sciences and Convergence Information Technology (ICCIT)*, IEEE, pp. 1445-1450.
- Meyers, L. S., Gamst, G., & Guarino, A. (2006). *Applied Multivariate Research: Design and Interpretation*. (chaps. 12A–13B). Thousand Oaks, CA: Sage.
- Mohammadi H (2015) Investigating Users' Perspectives on E-Learning: An Integration of TAM and IS Success Model. *Comput Hum Behav* 45(4):359–374
- Mohd, H., Syed-Mohamad, S. M., & Zaini, B. J. (2005). Correlation Between Information Quality, User Acceptance And Doctors' attitude Of Emr System. *Icoqsia* 2005, 6-8

December, Penang, Malaysia, 1-6. Retrieve on 16th Dec 2016 From <http://health-informatics.kk.usm.my/pdf/ICOQSIA.pdf>

- Molla, A., & Licker, P. S. (2001). E-Commerce Systems Success: An Attempt to Extend and Respecify the Delone and MaClean Model of IS Success. *J. Electron. Commerce Res.*, 2(4), 131-141.
- Monecke, A., & Leisch, F. (2012). semPLS: Structural Equation Modeling Using Partial Least Squares.
- Motlik, S. (2008). 63. Mobile Learning in Developing Nations. *International Review of Research in Open and Distance Learning*, 9(2), 1-7.
- Müller, D. 2012. *Design characteristics of virtual learning environments: A theoretical integration and empirical test of technology acceptance and IS success research*. (1st ed). Wiesbaden: Springer Gabler Research.
- Muraina, I. D., Wan, R., & Azizah, A. (2013a). *Efficacy Of UTAUT Model in Continuation of Usage of Broadband In The Rural Areas Of Northern Region of Malaysia*. Proceedings of International Conference on Rural ICT Development, Malaysia. Jun. 25-27.
- Muraina. (2015). *The Factors that Contribute to the Continuous Usage of BroadBand Technologies among Youth in Rural Areas: A case of Northern Region of Malaysia*. Doctoral dissertation: Universiti Utara Malaysia. Malaysia.
- Napoleon, A. E., & Bhuiyan, S. H. (2010). Contemporary Research on Mobile Government. in Scandinavian Workshop on E-Government (SVEG), Örebro University, Sweden. Retrieved 11 August 2016 From <http://mgovworld.org/libra/mgovernance/papers/contemporaryresearch-on-mobile-government>
- Nassuora, A. B. (2012). Students Acceptance Of Mobile Learning For Higher Education In Saudi Arabia. *American Academic & Scholarly Research Journal*, 4(2), 24-30.
- Nassuora, A. B. A. (2010). Mobile Phone Technology Knowledge Sharing Model Among University Academics. Doctoral dissertation: Universiti Utara Malaysia, Malaysia.
- Ndonje, T. S. (2013). *Factors for E-Learning Adoption in Tanzania the Case of Higher Learning Institutions in Mwanza Region*. Doctoral dissertation: Morogoro, Tanzania.
- Ndou, V. "E-Government for Developing Countries: Opportunities and Challenges," *Electronic Journal of Information Systems in Developing Countries*, 18(1), pp. 1-24.
- Ndubisi, N. O. (2004). Factors Influencing E-Learning Adoption Intention: Examining The Determinant Structure of the Decomposed Theory of Planned Behaviour

- Constructs. *Proceedings of the 27th Annual Conference of HERDSA*. Miri, Malaysia.
- Ndubisi, N. O., & Chukwunonso, N. C. (2004). On-Line Learning Adoption Intention: Comparing the Predictive Power of Two Competing Models. *Proceedings of HERDSA Conference*, Miri, Sarawak, Malaysia.
- Nelson, R. R., Todd, P. A., & Wixom, B. H. (2005). Antecedents of Information and System Quality: An Empirical Examination Within the Context of Data Warehousing. *Journal of Management Information Systems*, 21(4), 199-235.
- Newman, I., & Benz, C. R. (1998). *Qualitative-quantitative research methodology: Exploring the interactive continuum*. Carbondale: University of Illinois Press.
- Nguyen, H. H., Palani, K., & Nicol, D. M. (2017, April). An approach to incorporating uncertainty in network security analysis. In *Proceedings of the Hot Topics in Science of Security: Symposium and Bootcamp* (pp. 74-84). ACM.
- Nortcliffe, A. (2012). Considering the Smartphone Learner: An Investigation Into Student Interest in the Use of Personal Technology To Enhance Their Learning. *Student Engagement and Experience Journal*, 1(1), 1-15.
- Ntalani, M., Costopoulou, C., & Karetsos, S. (2008). Mobile Government: A Challenge for Agriculture. *Government Information Quarterly*, 25(4), 699-716.
- Nyiri, K. (2002). Towards a Philosophy of M-Learning. *IEEE International Workshop on Wireless and Mobile Technologies in Education*, Vaxjo, Sweden.
- Nykvist, B., & Whitmarsh, L. (2008). A Multi-Level Analysis of Sustainable Mobility Transitions: Niche Development in the UK and Sweden. *Technological Forecasting And Social Change*, 75(9), 1373-1387.
- Odat, A. M. (2012). E-Government in Developing Countries: Framework Of Challenges And Opportunities. *Journal of Theoretical and Applied Information Technology*, 46 (2), 1013–1021..
- Oghuma, A. P., Libaque-Saenz, C. F., Wong, S. F., & Chang, Y. (2016). An Expectation-Confirmation Model of Continuance Intention to Use Mobile Instant Messaging. *Telematics and Informatics*, 33(1), 34-47.
- Oghuma, Apollos Patricks; Park, Myeong-cheol; Rho, Jae Jeung (2012) : Adoption of mGovernment Service Initiative In Developing Countries: A Citizen-Centric Public Service Delivery Perspective, 19th *ITS Biennial Conference 2012*, Bangkok, Thailand, 18 - 21 November 2012: Moving Forward with Future Technologies: Opening a Platform for All.

- O'malley, K. J., Cook, K. F., Price, M. D., Wildes, K. R., Hurdle, J. F., & Ashton, C. M. (2005). Measuring Diagnoses: ICD Code Accuracy. *Health Services Research*, 40(5pt2), 1620-1639.
- Pachler N., Bachmair B., Cook J. (2010) *Whither a Socio-Cultural Ecology of Learning with Mobile Devices*. In: *Mobile Learning*. Springer, Boston, MA
- Pallant, J. (2001). SPSS Survival Manual: a Step by Step Guide to Data Analysis Using SPSS for Windows (versions 10). Australia: Allen & Unwin.
- Pallant, J. (2011) SPSS survival manual: A step by step guide to data analysis using the SPSS program (4th ed.). Australia: Allen & Unwin.
- Parasuraman, A., Zeithaml, V. A., & Malhotra, A. (2005). E-S-QUAL: A Multiple-Item Scale for Assessing Electronic Service Quality. *Journal of Service Research*, 7(3), 213-233.
- Parasuraman, A., Zeithaml, V. A., Berry, L. L., 1985, A Conceptual Model of Service Quality and its Implications for Future Research, *Journal of Marketing*, 49(4): 41-50.
- Parasuraman, A., Zeithaml, V., & Berry, L. (1988). "SERVQUAL: A Multi-Item Scale For Measuring Consumer Perceptions Of Service Quality." *Journal of Retailing* 64(1). 12-40
- Park, J., Kim, J., & Koh, J. (2010). Determinants of Continuous Usage Intention in Web Analytics Services. *Electronic Commerce Research and Applications*, 9(1), 61-72.
- Park, S. Y. (2009). An Analysis of The Technology Acceptance Model in Understanding University Students' Behavioral Intention to Use E-Learning. *Journal of Educational Technology & Society*, 12(3), 150.
- Park, S. Y., Nam, M. W., & Cha, S. B. (2012). University Students' Behavioral Intention to Use Mobile Learning: Evaluating The Technology Acceptance Model. *British Journal of Educational Technology*, 43(4), 592-605.
- Parsazadeh, N., Ali, R., & Rezaei, M. (2018). A framework for cooperative and interactive mobile learning to improve online information evaluation skills. *Computers & Education*, 120, 75-89.
- Patten, M. L. (2017). *Understanding Research Methods: an Overview of the Essentials*. (9th Ed). Routledge:Taylor & Francis.
- Peat, J., Mellis, C., Williams, K. and Xuan W. (2002), *Health Science Research: A Handbook of Quantitative Methods*, London: Sage
- Petter, S., & McLean, E. R. (2009). A Meta-Analytic Assessment of the Delone and Mclean IS Success Model: An Examination of IS Success at the Individual Level. *Information & Management*, 46(3), 159-166.

- Petter, S., DeLone, W., & McLean, E. (2008). Measuring Information Systems Success: Models, Dimensions, Measures, and Interrelationships. *European Journal of Information Systems*, 17(3), 236-263.
- Petter, S., DeLone, W., & McLean, E. R. (2013). Information Systems Success: the Quest for the Independent Variables. *Journal of Management Information Systems*, 29(4), 7-62.
- Pitt, L. F., Watson, R. T., & Kavan, C. B. (1995). Service Quality: A Measure of Information Systems Effectiveness. *MIS quarterly*, 19(2), 173-187.
- Pitt, L., Watson, R., & Kavan, B. (1995). Service Quality: A Measure of Information Systems Effectiveness. *MIS Quarterly*, 19(2), 173-187.
- Prajapati M. and Patel J. M. (2014). "The Factors Influencing in Mobile Learning Adoption: - A literature Review. *International Journal of Application or Innovation in Engineering & Management (IJAIEEM)*. 3(9), 133-138
- Preacher, K. J., & Hayes, A. F. (2004). SPSS and SAS Procedures for Estimating Indirect Effects in Simple Mediation Models. *Behavior Research Methods, Instruments, & Computers*, 36(4), 717-731.
- Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and Resampling Strategies for Assessing and Comparing Indirect Effects In Multiple Mediator Models. *Behavior Research Methods*, 40(3), 879-891.
- Prieto, J. C. S., Migueláñez, S. O., & García-Peñalvo, F. J. (2013). Understanding Mobile Learning: Devices, Pedagogical Implications And Research Lines. *Education in the Knowledge Society*, 15(1), 20.
- Ragu-Nathan, B. S., Apigian, C. H., Ragu-Nathan, T. S., & Tu, Q. (2004). A Path Analytic Study of The Effect of Top Management Support For Information Systems Performance. *Omega*, 32(6), 459-471.
- Rai, A., Lang, S. S., & Welker, R. B. (2002). Assessing the Validity of IS Success Models: An Empirical Test and Theoretical Analysis. *Information Systems research*, 13(1), 50-69.
- Rainer, R. K., Cegielski, C. G., Spletstoesser-Hogeterp, I., & Sanchez-Rodriguez, C. (2013). *Introduction to information systems: Supporting and transforming business*: (3 Canadian Ed), Canada. John Wiley & Sons.
- Ramdhani, M. A., Aulawi, H., Ikhwana, A., & Mauluddin, Y. (2017). Model of Green Technology Adaptation in Small and Medium-Sized Tannery Industry. *Journal of Engineering and Applied Sciences*, 12(4), 954-962
- Ramos, A., Trinona, J., & Lambert, D. (2006). Viability of SMS Technologies For Non-Formal Distance Education. In J. Baggaley (Ed.) *Information and Communication*

Technology for Social Development. (pp. 69-80). Jakarta: ASEAN Foundation. Retrieved on 13 May 2016 From http://www.aseanfoundation.org/documents/ICT4D_book_v2.pdf

- Ranjit, K. (2011). *Research Methodology: A Step-By-Step Guide for Beginners*, (3rd Edition: Sage Publication Limited ed.). London.
- Ravenscroft, A. (2000). Designing Argumentation for Conceptual Development. *Computers & Education*, 34(3), 241-255.
- Raymond, L. (1985). Organizational Characteristics and MIS Success in the Context of Small Business. *MIS Quarterly*, 9(1), 37-52.
- Raymond, L., & Bergeron, F. (2008). Project Management Information Systems: An Empirical Study of Their Impact on Project Managers And Project Success. *International Journal of Project Management*, 26(2), 213-220.
- Rehman, M., & Esichaikul, V. (2011, May). Factors Influencing the Adoption of E-Government in Pakistan. In *E-Business and E-Government (ICEE)*, 2011 *International Conference on* (pp. 1-4). IEEE.
- Reinartz, W., Haenlein, M., & Henseler, J. (2009). An Empirical Comparison of the Efficacy of Covariance-Based and Variance-Based SEM. *International journal of Research in Marketing*, 26(4), 332-344.
- Rekkedal, T., & Dye, A. (2007). Mobile Distance Learning with PDAs: Development and Testing of Pedagogical and System Solutions Supporting Mobile Distance Learners. *The International Review of Research in Open and Distributed Learning*, 8(2).
- Reyes, P. M., & Jaska, P. (2007). is RFID Right for Your Organization or Application? *Management Research News*, 30(8), 570-580.
- Rheingold, H. (2007). *Smart Mobs: the Next Social Revolution*. Basic Books, USA: Perseua.
- Ringle, C. M., Götz, O., Wetzels, M., & Wilson, B. (2009). On the use of formative measurement specifications in structural equation modelling: A Monte Carlo simulation study to compare covariance-based and partial least squares model estimation methodologies. *METEOR Research Memoranda (RM/09/014)*.
- Ringle, C. M., Sarstedt, M., & Straub, D. (2012). A Critical Look at the Use of PLS-SEM in MIS Quarterly. *MIS Quarterly (MISQ)*, 36(1).
- Rivard, S., Poirier, G., Raymond, L., & Bergeron, F. (1997). Development of a measure to assess the quality of user-developed applications. *ACM SIGMIS Database: the DATABASE for Advances in Information Systems*, 28(3), 44-58.

- Robertson, R. J. (2005). Metadata quality: implications for library and information science professionals. *Library Review*, 54(5), 295-300.
- Rogers, E.M. (2003). *Diffusion of innovations* (5th ed.). New York: Free Press.
- S. Shareef, A. Johnnes, J. Hamis, and P. Elias, Mutli-channel delivery of services: initial pace towards m-government: the case of Kurdistan region of Iraq. Presented at the 5th Annual Conference, The School of Computing and Technology, University of East London, England, January 19, 2010.
- Saeed, K. A., & Abdinnour-Helm, S. (2008). Examining the Effects of Information System Characteristics and Perceived Usefulness on Post Adoption Usage of Information Systems. *Information & Management*, 45(6), 376-386.
- Samadi, M., Jamshidi, D. A., Lee, J., & Mahlke, S. (2014, February). *Paraprox: Pattern-Based Approximation for Data Parallel Applications*. In ACM SIGARCH Computer Architecture News (Vol. 42, No. 1, pp. 35-50). ACM.
- 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.
- Sanayei, A., Shaemi, A., & Jamshidi, H. (2011). An Analysis of The Factors Affecting Customers' Satisfaction and Trust in Mobile Banking (Case Study: Branches Of Bank Mellat In Isfahan). *Interdisciplinary Journal of Contemporary Research in Business*, 3(7), 440.
- Santhanamery, T., & Ramayah, T. (2012). Continued Usage Intention of E-Filing System in Malaysia: The Role Of Optimism Bias. *Procedia-Social and Behavioural Sciences*, 65, 397-403.
- Sarrab, M., & Bourdouden, H. (2013). Runtime Monitoring Using Policy Based Approach to Control Information Flow for Mobile Apps. *International Journal of Communication Science and Engineering*, 7(11), 913-920.
- Sarrab, M., Alzahrani, A., Alwan, N. A., & Alfarraraj, O. (2014). From Traditional Learning Into Mobile Learning in Education at the University Level: Undergraduate Students Perspective. *International Journal of Mobile Learning and Organisation*, 8(3-4), 167-186.
- Sarrab, M., Elbasir, M., & Alnaeli, S. (2016). Towards A Quality Model Of Technical Aspects For Mobile Learning Services: An Empirical Investigation. *Computers in Human Behavior*, 55(PA), 100-112.
- Saunders, M. N. (2011). *Research Methods for Business Students*, 5/e. Pearson Education India.

- Schepers, J., & Wetzels, M. (2007). A Meta-Analysis of the Technology Acceptance Model: Investigating Subjective Norm And Moderation Effects. *Information & Management*, 44(1), 90-103.
- Schierz, P. G., Schilke, O., & Wirtz, B. W. (2010). Understanding Consumer Acceptance of Mobile Payment Services: An Empirical Analysis. *Electronic Commerce Research and Applications*, 9(3), 209-216.
- Scott, W. R. (2005). Institutional theory: Contributing To A Theoretical Research Program. *Great Minds in Management: the Process of Theory Development*, 460-485. Oxford, U.K.: Oxford University Press.
- Scott, W. R. 2014. *Institutions and organizations: Ideas, Interests, and Identities* (4th ed.). Thousand Oaks, CA: Sage.
- 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, & Yip. (1992). An empirical evaluation of user information satisfaction (UIS) measures for use with general ledger accounting software. *Journal of Information Systems*, 6(1), 75-92.
- Seddon, Graeser, & Willcocks. (2002). Measuring Organizational IS Effectiveness: An Overview and Update of Senior Management Perspectives. *ACM Sigmis Database*, 33(2), 11-28.
- Seddon, P. B., Staples, S., Patnayakuni, R., & Bowtell, M. (1999). Dimensions of Information Systems Success. *Communications of the AIS*, 2(3es), 5.
- Seddon, P., & Kiew, M. Y. (1996). A Partial Test and Development of Delone and Mclean's Model of IS Success. *Australasian Journal of Information Systems*, 4(1), 90-109.
- Seddon. (1997). A Respecification And Extension Of The Delone And Mclean Model of IS Success. *Information Systems Research*, 8(3), 240-253.
- Sedera D, Gable G, Chan T (2004b) Measuring enterprise systems success: the importance of a multiple stakeholder perspective. In: *Proceedings of the 12th European conference on information systems (ECIS 04)*. Turku.
- Sekaran, & Bougie, R. (2016). *Research Methods for Business*. United Kingdom: John Wiley & Sons.
- Sekaran, & Bougie. (2010). *Research Method for Business: A Skill Building Approach* (5th Edition ed.): John Wiley & Sons.

- Sekaran, & Bougie. (2011). *Research Methods for Business: A Skill Building Approach* (5th Edition ed.): TJ International Ltd, Padstow, Cornwall, Great.
- Sekaran, U. (2003). *Research methods for business: A skill building approach* (4th edition). New York: John Wiley.
- Sekaran. (2000). *Research Methods for Business: A Skill-Building Approach*: John Wiley & Sons.
- Sekaran. (2003). *Research method for business: A skill Approach*. New Jersey: John Willey and Sons, Inc.
- Seymour, L., Makanya, W. and Berrange, S. (2007), "End-users' acceptance of enterprise resource planning systems: an investigation of antecedents", *Proceedings of the 6th Annual ISOnEworld Conference*, Las Vegas, NV, 11-13 April. (pp. 1-22).
- Sharma, J. K. (2007). *Business Statistics* (2nd ed.). New Delhi, India: Pearson's Education.
- Shih, Y. Y., & Huang, S. S. (2009). The Actual Usage of ERP Systems: An Extended Technology Acceptance Perspective. *Journal of Research and Practice in Information Technology*, 41(3), 263.
- Shittu, A. T., Gambari, A. I., Gimba, W. R., & Ahmed, H. (2016). Modeling Technology Preparedness as an Antecedent of Mathematic Pre-Service Teachers' Self Efficacy, Perceived Usefulness and Intention Toward Use of Information Technology in Nigeria. *Malaysian Online Journal of Educational Sciences*, 4(3), 39-48.
- Sife, A., Lwoga, E., & Sanga, C. (2007). New technologies for teaching and learning: Challenges for higher learning institutions in developing countries. *International journal of education and development using ICT*, 3(2).
- Simonson, M., Smaldino, S., & Zvacek, S. M. (Eds.). (2014). *Teaching and learning at a distance: Foundations of distance education*. IAP.
- Singletary, L., Akbulut, A., and Houston, A. (2002). Innovative Software Use After Mandatory Adoption. *Proceedings of the Americas Conference on Information Systems (AMCIS)*, August 9-11, Dallas Texas, USA
- Srinivasan, A. (1985). Alternative Measures of System Effectiveness: Associations and Implications. *MIS quarterly*, 9(3). 243-253.
- Srithar, U., & Selvaraj, D. (2015). Learning at Your Own Pace: M-Learning Solution for School Students. *International Journal of Information and Electronics Engineering*, 5(3), 216.
- Staples, D. S., Wong, I., & Seddon, P. B. (2002). Having Expectations Of Information Systems Benefits That Match Received Benefits: Does It Really Matter? *Information & Management*, 40(2), 115-131.

- 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.
- St-Pierre, N. R. 2007. Design and analysis of pen studies in the animal sciences. *J. Dairy Sci.* 90:E87–E99.
- Straub, D., Boudreau, M.-C., & Gefen, D. (2004). Validation Guidelines for IS Positivist Research. *The Communications of the Association for Information Systems*, 13(1), 63.
- Straub, D., Limayem, M., & Karahanna, E. (1995). Measuring System Usage: Implications for IS Theory Testing. *Management science*, 41(8), 1328-1342.
- Stylianou, A. C., & Jackson, P. J. (2007). A Comparative Examination of Individual Differences and Beliefs on Technology Usage: Gauging the Role of IT. *Journal of Computer Information Systems*, 47(4), 11.
- Swanson, E. B. (1974). Management Information Systems: Appreciation and Involvement. *Management Science*, 21(2), 178-188.
- 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.
- Tabachnick, B. G., & Fidell, L. S. (2007). *Using Multivariate Statistics* (5th ed.). Pearson Education.
- Taha, H. A. (2014). *Integer programming: theory, applications, and computations*. Academic Press, 2014
- Taylor, S., & Todd, P. (1995). Assessing IT Usage: The Role of Prior Experience. *MIS quarterly*, 19(4), 561-570.
- Teo, T. (2009). Modelling Technology Acceptance In Education: A Study Of Pre-Service Teachers. *Computers & Education*, 52(2), 302-312.
- Teo, T. S., Srivastava, S. C., & Jiang, L. (2008). Trust and electronic government success: An empirical study. *Journal of management information systems*, 25(3), 99-132.
- Termsnguanwong, S. (2010). *Customer's discernment of mobile banking business: northern region of Thailand*. In Proceedings of the International Trade and Academic Research Conference, London, UK (pp. 1-12).
- Thomas, P. (2008). *Information Systems Success and Technology Acceptance Within A Government Organization*. Doctoral Dissertation, University Of North Texas, USA.

- Tick, A. (2006). A Web-Based E-Learning Application of Self Study Multimedia Programme in Military English. 3rd Romanian-Hungarian Joint Symposium on Applied Computational Intelligence-SACI 2006. May 25-26, Timisoara, Romania. Retrieved December 2016 from http://www.bmf.hu/conferences/saci2006/Andrea_Tick.pdf
- Traxler, J. (2005, June). *Defining mobile learning*. In IADIS International Conference Mobile Learning, Qwara, 28-30 June 2005. Malta: IADIS.
- Traxler, J. (2007). Defining, Discussing and Evaluating Mobile Learning: The Moving Finger Writes and Having Writ.... *The International Review of Research in Open and Distributed Learning*, 8(2).
- Triandis, H. C. (1977b). *Interpersonal Behaviour*. Monterey, CA: Brooks/Cole Publishing Company.
- Triantafillou, T. C., & Papanicolaou, C. G. (2006). Shear strengthening of reinforced concrete members with textile reinforced mortar (TRM) jackets. *Materials and structures*, 39(1), 93-103.
- Unyolo, T. (2013). *Building consumer mobile money adoption and trust in conditions where infrastructures are unreliable*. Doctoral Dissertation, Umeveristy of Pretoria, South Africa.
- Vaishnavi, V. K., & Kuechler, W. (2015). *Design Science Research Methods and Patterns: Innovating Information and Communication Technology*. NW, USA: CRC Press.
- Van Maele, D., & Van Houtte, M. (2011). The Quality of School Life: Teacher-Student Trust Relationships and the Organizational School Context. *Social Indicators Research*, 100(1), 85-100.
- Venkatesh, V., & Davis, F. (2000). A Theoretical Extension of the Technology Acceptance Model: Four Longitudinal Field Studies. *Management science*, 46(2), 186-204.
- Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User Acceptance of Information Technology: Toward A Unified View. *MIS quarterly*, 27(3), 425-478.
- Venkatesh, V., Thong, J. Y., Chan, F. K., Hu, P. J. H., & Brown, S. A. (2011). Extending the Two-Stage Information Systems Continuance Model: Incorporating UTAUT Predictors and the Role of Context. *Information Systems Journal*, 21(6), 527-555.
- Visser, M., Van Biljon, J. & Herselman, M., 2013, 'Evaluation of management information systems: A study at a Further Education and Training college', *SA Journal of Information Management* 15(1), Art. #531, 1.8 pages. Retrieved Aug 27, 2015 From <http://dx.doi.org/10.4102/sajim.15i1.531>
- Vonk, G., Geertman, S., & Schot, P. P. (2007). A SWOT Analysis of Planning Support Systems. *Environment and Planning A*, 39(7), 1699-1714.

- Voorthees, C., Brady, M., Calantone, R., & Ramirez, E. (2016). Discriminant Validity Testing in Marketing: An Analysis, Causes for Concern, and Proposed Remedies. *Journal of the Academy of Marketing Science*, 44(1), 119-134.
- Vuolle, M. (2011). *Measuring Performance Impacts of Mobile Business Services from the Customer Perspective*. Doctoral Dissertation, Tampere University of Technology. julkaisu. Finland
- Wagner, E. D. (2005). Enabling Mobile Learning. *EDUCAUSE Review*, 40(3), 40-53. Retrieved jun 21, 2014 from: <http://www.educause.edu/apps/er/erm05/erm0532.asp?bhcp=1>
- Wang, & Chen. (2012). From potential users to actual users: Use of e-government service by Chinese migrant farmer workers. *Government Information Quarterly*, 29, S98-S111.
- Wang, & Liao. (2008). Assessing eGovernment systems success: A validation of the DeLone and McLean model of information systems success. *Government Information Quarterly*, 25(4), 717-733.
- Wang, E. T., & Chen, J. H. (2006). Effects of Internal Support And Consultant Quality on the Consulting Process and ERP System Quality. *Decision Support Systems*, 42(2), 1029-1041.
- Wang, K., Li, M., & Bucan, M. (2007). Pathway-Based Approaches For Analysis Of Genomewide Association Studies. *The American Journal of Human Genetics*, 81(6), 1278-1283.
- Wang, Y. S. (2008). Assessing e-commerce systems success: a respecification and validation of the DeLone and McLean model of IS success. *Information Systems Journal*, 18(5), 529-557.
- Wang, Y. S., & Shih, Y. W. (2009). Why do people use information kiosks? A Validation of the Unified Theory of Acceptance and Use of Technology. *Government Information Quarterly*, 1(26), 158-165.
- Wang, Y. S., Lin, H. H., & Luarn, P. (2006). Predicting Consumer Intention to Use Mobile Service. *Information systems journal*, 16(2), 157-179.
- Wang, Y. S., Wu, M. C., & Wang, H. Y. (2009). Investigating the Determinants and Age and Gender Differences in the Acceptance of Mobile Learning. *British journal of educational technology*, 40(1), 92-118.
- Wedge, C., & Kearns, T. (2005). Creation of the learning space: Catalysts for envisioning and navigating the design process. *EDUCAUSE Review*. 40(4). July/August. Retrieved September 2015 from <http://www.educause.edu/ir/library/pdf/erm0541.pdf>

- Weerakkody, V., Al-Shafi, S., Irani, Z. and Lee, H. (2009), "G-Government Adoption in Qatar: An Investigation Of The Citizens' Perspective", DIGIT Proceedings, 3-7 September
- Wentzel, P., Lammeren, R., Molendijk, M., Bruin, S., & Wagtendonk, A. (2005). Using Mobile Technology to Enhance Student's Educational Experiences. *Case Study from the EDUCAUSE Center for Applied Research (ECAR)*. Retrieved May 2016 from <http://www.educause.edu/ir/library/pdf/ers0502/cs/ecs0502.pdf>
- Whitacre, B. E., Hartman, P. S., Boggs, S. A., & Schott, V. (2009). A Community Perspective on Quantifying the Economic Impact of Teleradiology and Telepsychiatry. *The Journal of Rural Health*, 25(2), 194-197.
- Wicander, G., Hatakka, M., & Kromidha, E. (2010). *Assessing the Impacts of Rural Internet Centre Programs on Quality of Life in Rural Area of Malaysia*. Paper presented at the Proceedings of IPID Postgraduate Strand at ICTD 2010, Karlstad University Studies, London.
- Wickramasinghe, N., & Misra, S. K. (2004). A Wireless Trust Model For Healthcare. *International Journal of Electronic Healthcare*, 1(1), 60-77.
- Wilkin, C., and Hewitt, B. Quality in a respecification of DeLone and McLean's IS success model. In Mehdi Khozrowpour (ed.), *Proceedings of 1999 IRMA International Conference*. Hershey, PA: Idea Group Publishing, 1999, pp. 663-672.
- Williams, P. W. (2009). *Assessing Mobile Learning Effectiveness and Acceptance*. Doctoral Dissertation, The George Washington University.
- Wilson, B. (2010). Using PLS to Investigate Interaction Effects Between Higher Order Branding Constructs. *Handbook of Partial Least Squares* (pp. 621-652): Springer.
- Wixom, & Todd. (2005). A Theoretical Integration of User Satisfaction and Technology Acceptance. *Information systems research*, 16(1), 85-102.
- Wixom, & Watson. (2001). An empirical investigation of the factors affecting data warehousing success. *MIS quarterly*, 25(1), 17-41.
- Woodill, G., & Udell, C. (2012). Magriculture: The Application of Mobile Computing to the Business of Farming. Float Mobile Learning.
- Wu, & Wang. (2006). Measuring KMS success: A Respecification of the DeLone and McLean's model. *Information & Management*, 43(6), 728-739.
- Wu, J. H., Shen, W. S., Lin, L. M., Greenes, R. A., & Bates, D. W. (2008). Testing the Technology Acceptance Model for Evaluating Healthcare Professionals' Intention to Use An Adverse Event Reporting System. *International Journal for Quality in Health Care*, 20(2), 123-129.

- Wu, J. W. (2007). *Extending the DeLone and McLean Information Systems Success Model for e-commerce website success*. Doctoral dissertation, University of Nevada, Las Vegas.
- Yalcinkaya, R. (2007). *Police officers' adoption of information technology: A Case Study of the Turkish POLNET System*. University of North Texas.
- Yang, Z. (2007). PAm-learning 4: phylogenetic analysis by maximum likelihood. *Molecular biology and evolution*, 24(8), 1586-1591.
- Yaqoobi, N., Yazdani, B., & Kord, H. (2012). The Impact of Effective Key Factors on Efficient Development of Mobile Government (A Case Study in Sistan and Baluchestan Province, Iran). *Basic and Applied Scientific Research*, 2(11), 11812-11814.
- Yeap, J. A., Ramayah, T., & Soto-Acosta, P. (2016). Factors Propelling the Adoption of M-Learning Among Students in Higher Education. *Electronic Markets*, 26(4), 323-338.
- Yfantis, V., Vassilopoulou, K., Pateli, A., & Usoro, A. (2013). The Influential Factors of M-Government's Adoption in the Developing Countries. in *International Conference on Mobile Web Information Systems* (pp. 157-171): Springer, Berlin, Heidelberg
- Yim, S., & Shin, M. (2014). Effects of System Quality And Information Quality on The Use and Job Performance of An Enterprise Mobility Solution for A Mobile Office With A Consideration of Task Mobility and Task Interdependence as Control Variables. *Asia Pacific Journal of Information Systems*, 24(2), 115-140.
- Ying-Feng, K., & Ling-Show, C. (2004). Individual Demographic Differences and Job Satisfaction Among Information Technology Personnel: An Empirical Study in Taiwan. *International Journal of Management*, 21(2), 221.
- Yong, A. G., & Pearce, S. (2013). A Beginner's Guide to Factor Analysis: Focusing on Exploratory Factor Analysis. *Tutorials in Quantitative Methods For Psychology*, 9(2), 79-94.
- Yoo, B., & Donthu, N. (2001). Developing and Validating A Multidimensional Consumer-Based Brand Equity Scale. *Journal of Business Research*, 52(1), 1-14.
- Yordanova, K., 2007. Mobile Learning and Integration of Advanced Technologies in Education. *Proceedings of the 2007 International Conference on Computer Systems and Technologies*, (ICCST'07), ACM, New York, pp: 21-26.
- Younus, A. D. (2014). *Investigation of A Mobile Government a Case Study in Iraq*. Doctoral Dissertation, Near East University. Iraq.

- Zakaria, E., Solfitri, T., Daud, Y., & Abidin, Z. Z. (2013). Effect of Cooperative Learning on Secondary School Students' Mathematics Achievement. *Creative Education*, 4(02), 98.
- Zeithaml, V. A. (1988). Consumer Perceptions of Price, Quality, and Value: A Means-End Model and Synthesis of Evidence. *The Journal of marketing*, 52(3), 2-22.
- Zeithaml, V. A., Parasuraman, A., & Malhotra, A. (2000). *Conceptual Framework for understanding e-service quality: Implications for future research and managerial practice*. Working Paper Report, Marketing Science Institute, Cambridge, MA, No. 00-115
- Zhang, S., Janakiraman, R., Sim, T., & Kumar, S. (2006, January). Continuous Verification Using Multimodal Biometrics. in *ICB* (pp. 562-570).
- Zhao, Y., & Kurnia, S. (2014). Exploring Mobile Payment Adoption in China. In *PACIS* (p. 232).
- Zhou, T. (2013). An Empirical Examination Of Continuance Intention of Mobile Payment Services. *Decision Support Systems*, 54(2), 1085-1091.
- Zhou, T. (2013). Understanding continuance usage of mobile services. *International Journal of Mobile Communications*, 11(1), 56-70.
- 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.
- Zikmund, W. G., Badin, B. J., Carr, J. C., & Griffin, M. (2010). *Business Research Methods* (8th ed.). USA: Thomson South-Western Inc.
- Zikmund. (2003). Health, Well-Being, and the Quality of Life: Some Psychosomatic Reflections. *Neuro Endocrinology Letters*, 24(6), 401.
- Zoltan, D., & Tatsuya, T. (2010). *Questionnaires in Second Language Research: Construction, Administration, and Processing* (2nd ed.). Routledge, New York, USA

Appendix A

Questionnaire (English Version)

UNIVERSITI UTARA MALAYSIA
COLLEGE OF ARTS AND SCIENCES
QUESTIONNAIRE



Research Title: "A MODEL FOR MEASURING MOBILE LEARNING SUCCESS AMONG STUDENTS IN SAUDI ARABIA UNIVERSITIES"

Dear Respondents,

I am a doctoral student from the College of Arts and Sciences (CAS), Universiti Utara Malaysia (UUM). This questionnaire is designed to find out factors for measuring Use and Net Benefits of m-Learning services among students in KSAU.

Part of my work is to conduct a survey on the current state of using mobile learning among students in Kingdom of Saudi Arabia Universities. I hereby would like to invite you to participate in this survey by completing the attached questionnaire.

The success of this study highly depends on your kind cooperation. This study is only for academic purpose and not for other use. All of the answers provided will be kept strictly confidential. The questionnaire is designed to take minimum of your valuable time.

Your participation and contribution are highly appreciated

Best regards,

ALORFI, ALMUHANNAD SULAIMAN M

PhD candidate

School of Computing, College of Arts and Sciences (CAS)

University Utara Malaysia (UUM), Sintok 06010, Kedah Darul Alman, Malaysia

Date: _____.

Researcher e-mail address:

Phone Number: +60123286695

This questionnaire consists of three sections. Section A consists of the questions regarding your demographic profile. Section B consists of some statements about The Factors that Affect M-learning Services in KSAU. Section C includes Two (2) open ended questions if you like to add some comments.

Section A: Personal Information

We would like to collect some information about yourself so that we can understand better your decisions related to the m-learning services (Please tick (✓) the appropriate box).

1. Your Gender: ☐ Male. ☐ Female.
2. Your Age: ☐ 18-22. ☐ 23 -35. ☐ ≤ 45 .
3. Your marital status: ☐ Single. ☐ Married. ☐ Divorced. ☐ Widowed.
4. Your Education level: ☐ First year. ☐ Second year. ☐ Third year. ☐ Last year
5. What type of mobile device(s) do you own? ☐ Hand Phone. ☐ Laptop. ☐ Smart phone. ☐ Others
6. Experience using mobile devices: ☐ Advance. ☐ Normal.
7. Do you use blackboard in learning in university (if “No” move to section C): ☐ Yes ☐ No
8. Using mobile blackboard: ☐ Daily ☐ Weekly ☐ Monthly ☐ Other

Section B: The Factors that Affect M-learning Services in KSAU

We would like to understand your opinions about the factors that are affecting Utilization, User Satisfaction and Net Benefits of M-learning services in KSAU (Please circle the appropriate number based on a 5-point scale where 1= Strongly Disagree; 2= Disagree; 3= Neutral; 4= Agree; 5= Strongly Agree).

Please follow the numbers which denote the following answers to circle one answer for each question.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

Please follow the numbers which denote the following answers to circle one answer for each question.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

1.0 – Information Quality	Degree of Agreement				
1. The information in mobile learning system is accurate	1	2	3	4	5
2. Mobile learning provide sufficient information.	1	2	3	4	5
3. The information in mobile learning system is up-to-date.	1	2	3	4	5
4. The information in mobile learning system is presented in a clear way.	1	2	3	4	5
5. Mobile learning provide me with the information that I need to do my job.	1	2	3	4	5
2.0– System Quality	Degree of Agreement				
6. It is easy to navigate within M-learning system.	1	2	3	4	5
7. It only takes a few clicks to locate information on M-learning system.	1	2	3	4	5
8. This M-learning system is available all the time.	1	2	3	4	5
9. M-learning system website loads all the text and graphics quickly.	1	2	3	4	5

Please follow the numbers which denote the following answers to circle one answer for each question.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

3.0– Service Quality	Degree of Agreement				
10. I have sufficient understanding about M-learning system.	1	2	3	4	5
11. I have gained enough training on how to operate M-learning system	1	2	3	4	5
12. If the Service Support promises to do something by a certain time they will.	1	2	3	4	5
13. The Service Support provide prompt service.	1	2	3	4	5
14. The Service Support has adequate knowledge to help me if I experience any problems with M-learning system.	1	2	3	4	5
15. The Service Support understands my needs.	1	2	3	4	5

Please follow the numbers which denote the following answers to circle one answer for each question.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

4.0–Use of the E-learning	Degree of Agreement				
16. I use M-learning system to help me make decisions.	1	2	3	4	5
17. I use M-learning system to help me record my knowledge	1	2	3	4	5
18. I use M-learning system to communicate knowledge and information with colleagues.	1	2	3	4	5

19. I use M-learning system to share my general knowledge.	1	2	3	4	5
20. I use M-learning system to share my specific knowledge.	1	2	3	4	5

Please follow the numbers which denote the following answers to circle one answer for each question.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

5.0– User Satisfaction	Degree of Agreement				
21. I am satisfied that M-learning system meet my knowledge or information processing needs.	1	2	3	4	5
22. I am satisfied with M-learning system efficiency.	1	2	3	4	5
23. I am satisfied with M-learning system effectiveness.	1	2	3	4	5
24. Overall, I am satisfied with M-learning system.	1	2	3	4	5

Please follow the numbers which denote the following answers to circle one answer for each question.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

6.0– Net Benefits	Degree of Agreement				
25. M-learning helps me acquire new knowledge and innovative ideas.	1	2	3	4	5
26. M-learning helps me effectively manage and store knowledge that I need.	1	2	3	4	5
27. M-learning enable me to accomplish tasks more efficiently.	1	2	3	4	5
28. My performance on the study is enhanced by M-learning.	1	2	3	4	5
29. M-learning improves the quality of my study.	1	2	3	4	5

Please follow the numbers which denote the following answers to circle one answer for each question.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

7.0– Attitude	Degree of Agreement				
30. Using M-learning would be a wise idea	1	2	3	4	5
31. Using M-learning is a good idea	1	2	3	4	5
32. Using Mobile technology in education is unpleasant	1	2	3	4	5

33. I like to use M-learning	1	2	3	4	5
34. Using M-learning would be a wise idea	1	2	3	4	5

Please follow the numbers which denote the following answers to circle one answer for each question.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

7.0– Subjective Norm	Degree of Agreement				
35. People who are important to me would think that using M-learning would be a wise idea	1	2	3	4	5
36. People who are important to me would think that using M-learning is a good idea	1	2	3	4	5
37. Most people who are important to me would think that I should use M-learning	1	2	3	4	5
38. My family who is important to me would think that using M-learning would be a wise idea	1	2	3	4	5
39. My family who is important to me would think that using M-learning is a good idea	1	2	3	4	5
40. My family important to me would think that I should use M-learning.	1	2	3	4	5

Please follow the numbers which denote the following answers to circle one answer for each question.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

8.0– Perceived Behavioral Control	Degree of Agreement				
41. I would be able to operate M-learning	1	2	3	4	5
42. I have the resource to use M-learning	1	2	3	4	5
43. I have the knowledge to use M-learning	1	2	3	4	5

Please follow the numbers which denote the following answers to circle one answer for each question.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

9.0–Trust In Technology	Degree of Agreement				
44. The internet has enough safeguards to make me feel comfortable using it to interact with the university online.	1	2	3	4	5
45. I feel assured that legal and technological structures adequately protect me from problems on the internet.	1	2	3	4	5
46. In general, the internet is now a robust and safe environment in which to transact with the university.	1	2	3	4	5

Please follow the numbers which denote the following answers to circle one answer for each question.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

10.0–Trust In Organization	Degree of Agreement				
47. I think I can trust the University	1	2	3	4	5
48. The University can be trusted to carry out online works faithfully.	1	2	3	4	5
49. In my opinion, University is trustworthy.	1	2	3	4	5
50. I trust University to keep my best interests in mind.	1	2	3	4	5

Please follow the numbers which denote the following answers to circle one answer for each question.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

11.0– Institutional Policy	Degree of Agreement				
51. I am aware of the current ICT policy	1	2	3	4	5
52. The ICT policy, addresses the issues regarding m-Learning	1	2	3	4	5
53. My University provides incentives to Teachers who use m-Learning	1	2	3	4	5
54. My University provides incentives to students who use m-Learning	1	2	3	4	5
55. My University promotes the adoption of m-learning through proper ICT policy implementation	1	2	3	4	5

Please follow the numbers which denote the following answers to circle one answer for each question.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

12.0– Organizational Support	Degree of Agreement				
56. I have heard of my university Mobile Learning System	1	2	3	4	5
57. I have used my m-Learning System	1	2	3	4	5
58. My head of department is supportive to me on the use of m-Learning for my work	1	2	3	4	5
59. There are technical help available if required while using m-Learning	1	2	3	4	5

60. When I encounter issues during my work, I am always given technological and pedagogical support	1	2	3	4	5
---	---	---	---	---	---

Section C: Comments and Advices

We would like to seek your general comments and advices regarding the reasons and barriers that affect for reducing to use m-learning services among students in KSAU.

1.0 Why you did not use the m-learning services?

.....

.....

.....

.....

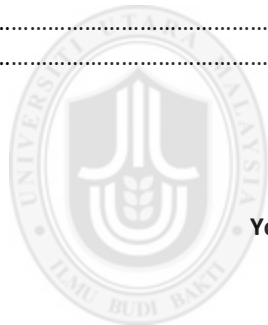
2.0 Please, use this space to write any suggestions regarding m-learning services.

.....

.....

.....

.....



Your time and cooperation are highly valued

Thank you.

Appendix B

Questionnaire (Arabic Version)

استبيان رقم:

الحق أ: استبيان نسخة 1 ينية

جامعة قوالتارا ليلزي

كلية 1 داب الفلوم

استبيان

عن وائل بحث: "نموذج قياسي لجامعة عن طريق لجالينال بفي لجامعة اسل س عوية"

أعزطي المشركون،

أنا طلب لفتورافي جامعة 1 داب والفلوم، جامعة قوالتارا ليلزي. صمم هذا 1 استبيان لقياس استخدام خدمات
الجامعة عن طريق لجالينال والوفول لطلبة في ليلزي. في لجامعة اسل س عوية.

و جزء من علهي هو إجراء لتتوقصاء عن اللة لرافة استخدام التلجم عن طريق لجالينال بفي لجامعة
المملكة العربية الس عوية. وأود أن أدعوك لالمشرك في هذا 1 تقصص استكمال 1 استبيان اللفق.

يعد من جاح ماله لراس بشل كل لغير لحي س نفع لوكم. ماله لدراسة استخدام 1 كاي م في حبس بوليس ت
آخر. جيع 1 جلات لا قدم تظي سي قامة. صمم 1 استبيان خذل وقت ليل من أوتل كم التيم.

مشل لفتكم ومسا املكم حل تقري كير

مع أطيبت جيتي

المن س ليمان ال عوي

طلب لفتوراه

كلية فاح لسات، كلية 1 داب والفلوم

جامعة قوالتارا ليلزي، سبتوك 01060، ليلدا دار 1 مان، ليلزي

تاريخ:

لليدي لفترون ليل لباحث:

رقم التليفون: +10628231106

يتكون سبعة أجزاء. لجزء أ: لملء الفراغات بتصويب لك على خصري. لجزء ب: يبيّن على بعض الجوانب عن العوامل التي تؤثر في خدمة التعليم عن طريق الأجل في الجامعات المتساوية. لجزء ج: يبيّن على (P) سؤالا مفتوحا في حلها في إضافة بعض التحقيقات.

لجزء أ: لملء الفراغات بتصويب لك على خصري

6. النوع: ذكر ☐ أنثى ☐
2. السن: 22-63 ☐ 86-28 ☐ ≤56 ☐
8. الحالة: متاهجة: أعزب ☐ متزوج ☐ مطلق ☐ أرمل ☐
5. المستوى التعليمي: لاسنة ☐ لاسنة لثانية ☐ لاسنة لثالثة ☐ لاسنة لاربعة ☐
6. ما هو نوع الالام حمول ذي تملكه؟: ☐ متف محمول ☐ لوجيتر محمول ☐ متف لكى ☐ أخرى ☐
1. اللفوفيريات خدام: مزال محمولة: تقدمة ☐ عاية ☐

لجزء ب: لعوامل لملءة على خدمات لك علم عن طريق لالوالفي لالامعات لالعووي

نود أن نفهم أللكم عن العوامل الملءة على استخدام التعليم عن طريق الأجل في الجامعات المتساوية، ورضال ملءة خدم، اللفوفل: لالصفلي: لالجي وضع طارة حول الالام لالبل من 6 لتغيرات حيث 6 = غير ملءة شدة؛ 2 = غير ملءة؛ 5 = أفق؛ 6 = أفق بشدة.)

يرجي بلباع رق الالاللل على لبات الالالقبوض طارة على إلبة واأللكل سؤال.

غير ملءة شدة	غير ملءة	محلل	أفق	أفق شدة
6	2	8	5	6

0.1 جودة لملءات	درج لال ملءة
6 الالومل في ن ظلماعلم عن طريق الالاللل.	6 5 8 2 6
2 لوفللالعلم عن طريق الالاللل وامل وامل اللل.	6 5 8 2 6
8 الالومل في ن ظلماعلم عن طريق الالاللل.	6 5 8 2 6
5 ملءة لالومل اللل ن ظلماعلم عن طريق الالاللل وامل.	6 5 8 2 6
6 ملءة لالومل اللل ن ظلماعلم عن طريق الالاللل وامل اللل.	6 5 8 2 6

يرجي بلباع رق الالاللل على لبات الالالقبوض طارة على إلبة واأللكل سؤال.

غير ملءة شدة	غير ملءة	محلل	أفق	أفق شدة
6	2	8	5	6

-0.1 جودة لنظام	درج لال ملءة
الالاللل للالاللل الالومل في ن ظلماعلم عن طريق الالاللل.	6 5 8 2 6
7 ملءة لالاللل الالومل اللل ن ظلماعلم عن طريق الالاللل وامل اللل.	6 5 8 2 6
3- مزال ن ظلماعلم عن طريق الالاللل وامل اللل.	6 5 8 2 6
0- ملءة لالومل اللل ن ظلماعلم عن طريق الالاللل وامل اللل وامل اللل وامل اللل.	6 5 8 2 6

يُدرج في هذا رفق المهني يتبدل على لبات التالية قبوض طيرة على إجلة واخلكل سؤال.

غير ملفقة شدة	غير ملفقة	م حيد	أفوق	أفوق شدة
6	2	8	5	6
0.1- جودة لخدمة				
60- لف من ظلمنا علم عن طريق ال جوال لعل كافي.				
66- لقيت تدرب على في ال عمل لقي نظام ال لقم عن طريق ال جوال لعل كافي.				
62- قديم خدم ال دعم شي القتي بي عبدا في ال قتل م حدد.				
68- قديم خدم ال دعم خدم اتفورية.				
65- متقبل ك خدم ال دعم علومات الف في ال عدتي في حلة م واجه أي مشكل في نظام ال لقم عن طريق ال جوال.				
66- مقسم خدم ال دعم اطلع ات ي.				

يُدرج في هذا رفق المهني يتبدل على لبات التالية قبوض طيرة على إجلة واخلكل سؤال.

غير ملفقة شدة	غير ملفقة	م حيد	أفوق	أفوق شدة
6	2	8	5	6
0.1- ست خدم ال علم عن طريق ال جوال				
61- ست خدم ال لقم عن طريق ال جوال لعل عدني في ات اذا لقرارات.				
67- ست خدم ال لقم عن طريق ال جوال لعل عدتي في تيس لم علم ات ي.				
63- ست خدم ال لقم عن طريق ال جوال في و لعل علومات ول معرفة مع ز .				
60- ست خدم نظام ال لقم عن طريق ال لعل لمشراك قم علم ات ي ال عامة.				
20- ست خدم ال لقم عن طريق ال جوال لمشراك قم علم ات ي ال م حدة.				

يُدرج في هذا رفق المهني يتبدل على لبات التالية قبوض طيرة على إجلة واخلكل سؤال.

غير ملفقة شدة	غير ملفقة	م حيد	أفوق	أفوق شدة
6	2	8	5	6
0.1- رض ال مهنت خدم				
26- لقيت ين نظام ال لقم عن طريق ال جوال اطلع ات في م عال ج ال لعل ات ول معرفة لعل ر صيني.				
22- لًا راض عن كفاءة نظام ال لقم عن طريق ال جوال.				
28- لًا راض عن فعالية نظام ال لقم عن طريق ال جوال.				
25- لًا راض عن نظام ال لقم عن طريق ال جوال لعل ك عام.				

يُدرج في هذا رفق المهني يتبدل على لبات التالية قبوض طيرة على إجلة واخلكل سؤال.

غير ملفقة شدة	غير ملفقة	م حيد	أفوق	أفوق شدة
6	2	8	5	6
0.1- لملو لملهاية				
26- يس لعدني ال لقم عن طريق ال لعل في لكساب علومات جيدة وملتكرة.				
21- يس لعدني ال لقم عن طريق ال لعل في إدار و حفظ ال عمل و ملتتي اضا ج ه لكفاءة.				
27- يس لعدني ال لقم عن طريق ال لعل في لجاز مهمات لكفاءة.				
23- تحسن أداءي ال واس يملت خدم ال لقم عن طريق ال جوال.				
20- ي ح لعلنا علم عن طريق ال جوال من جودة لسات ي.				

يُدرج في هذا رفق المهني يتبدل على لبات التالية بوضع طرّة على إجابة واختار كل سؤال.

غير ملفقة شدة	غير ملفقة	محلل	ألفق	ألفق شدة
6	2	8	5	6
0.1- وجه لالنظر				
80- لبات خدام التلّيم عن طريق الـجوال ملفق حكيمة.				
86- سيات خدام التلّيم عن طريق الـجوال ملفقة جيدة.				
82- است خدام التلّيم عن طريق الـجوال في التلّيم غير مرضية				
88- احب أن است خدام التلّيم عن طريق الـجوال.				
85- لبات خدام التلّيم عن طريق الـجوال ملفقة حكيمة				

يُدرج في هذا رفق المهني يتبدل على لبات التالية بوضع طرّة على إجابة واختار كل سؤال.

غير ملفقة شدة	غير ملفقة	محلل	ألفق	ألفق شدة
6	2	8	5	6

0.1- لمعاري الال شخصي				
68- متقد اصال م هيبة السبيلي أن است خدام التلّيم عن طريق الـجوال ملفق حكيمة.				
81- متقد اصال م هيبة السبيلي أن است خدام التلّيم عن طريق الـجوال ملفقة جيدة.				
87- متقد معظم ش خاص الـم هيبة السبيلي لي أن هي جب أن لبت خدام التلّيم عن طريق الـجوال.				
83- متقد لفرد اداسيت الـم هيبة السبيلي أن است خدام التلّيم عن طريق الـجوال ملفقة حكيمة.				
89- متقد لفرد اداسيت الـم هيبة السبيلي أن است خدام التلّيم عن طريق الـجوال ملفقة جيدة.				
90- متقد لفرد اداسيت الـم هيبة السبيلي أن لبت خدام التلّيم عن طريق الـجوال.				

يُدرج في هذا رفق المهني يتبدل على لبات التالية بوضع طرّة على إجابة واحدة فقط سؤال.

غير ملفقة شدة	غير ملفقة	محلل	ألفق	ألفق شدة
6	2	8	5	6

1.1- طر وابل ملوكة لظاهرة				
56- است بطي عال م ملين نظام التلّيم عن طريق الـجوال.				
52- ملل كل مال موارد ا زمة ت خدام التلّيم عن طريق الـجوال.				
58- ملل كل المال ومات زم ست خدام التلّيم عن طريق الـجوال.				

يُدرج في هذا رفق المهني يتبدل على لبات التالية بوضع طرّة على إجابة واختار كل سؤال.

غير ملفقة شدة	غير ملفقة	محلل	ألفق	ألفق شدة
6	2	8	5	6

0.1- لائق في ملك ولوجي				
55- لائق شبكة تيرنت ض لبات الفعليّة لمعني اش عربللا راحة عود لست خدام التلّيم عن طريق الـجوال.				
56- لائق لائق م لوج و ميني قول روية واللقتر روية الفسي قة ميني من مشكل تيرنت.				
51- لائق ميني تيرنت شبكل ع امي قة قريّة وأمل قة لائق ع مال جامة.				

غير ملوثة شدة	غير ملوثة	م حيد	أفوق	أفوق شدة
6	2	8	5	6
1.1 ملوث في لجامعة				
57	عليق د ل ه ل ن ي الو شوقي ل ا ج ا م ع .	6	2	8
53	ل ا ج ا م ع و ش و ق ي ب ت ا ل ف ي ذ ع م ا ل ع ر ت ر ن ت ب ا م ن ع .	6	2	8
60	ه ي ر ا ي , ا ل ا ج ا م ع ج ي ر ف ي ب ل ق ن ع .	6	2	8
60	م ي ف ي ق ي ا ل ا ج ا م ع ل ح ف ا ط ع ل ع ر ل ح ت ي .	6	2	8

غير ملققة شدة	غير ملققة	معتدلة	اللقية	اللقية شدة
6	2	8	5	6

يرجى اتباع رق الهك تبدل على بابات الفالى قبوض ع طئرة على اءبلة واخلى كل س وائل.

مجموع	مجموع	مجموع	مجموع	مجموع
6	5	8	2	6

درج عالٍ فوقه					00.1 لدعوى نظريه
6	5	8	2	6	61 سمعت عن نظام التقييم عن طريق جوال لم اعثي.
6	5	8	2	6	67 مات خدمت نظام التقييم عن طريق لاجوال.
6	5	8	2	6	63 شج عن يوسلفيق سمس على خدمات التقييم عن طريق جوال.
6	5	8	2	6	60 فسر المساعده قانوني فتلواء لمت خدمات التقييم عن طريق جوال.
6	5	8	2	6	40 وفردال ففقدوني والقبو عفي حله مواجهه مشكل فتلواء تخدام.

لجزء ت التلحققات وانصالح

نودال حصول عل عيب عض الانصالح عامة والتلحققات عن باب والامعق انشكيت حد منبرات خدام خدمات التلحق عن طريق ال جوال بين ا ب في ال جام انتالس عويية.

6.0 ل م ا ذ ال متنت خدم خدمات التلحق عن طريق ال جوال ؟

.....
.....
.....
.....

2.0 من فضل ك، انصبة أيق لتراج انتت عل قين ظلام علم عن طريق ال جوال.

.....
.....
.....
.....



تعاون لثوق تكم لا غلي حل قنتي رنا

شكر ا لكم

UUM
Universiti Utara Malaysia

Appendix C

Demographic Statistics of Respondents

Statistics									
		University	Gender	Age	Marital Status	Education Level	Mobile Device	Experince	Times of Using
N	Valid	396	396	396	396	396	396	396	396
	Missing	0	0	0	0	0	0	0	0
Mean		1.77	1.68	1.39	1.18	2.75	2.64	1.33	2.6
Std. Deviation		0.893	0.467	0.534	0.397	1.161	0.908	0.471	1.115
Minimum		1	1	1	1	1	1	1	1
Maximum		3	2	3	3	4	4	2	4
Sum		699	665	552	467	1089	1045	527	1031

		IQ1	IQ2	IQ3	IQ4	IQ5	SQ1	SQ2
N	Valid	396	396	396	396	396	396	396
	Missing	0	0	0	0	0	0	0
Mean		3.64	3.58	3.71	3.59	3.73	3.75	3.64
Std. Deviation		1.005	.955	1.062	1.021	.965	.902	.923
Minimum		1	1	1	1	1	1	1
Maximum		5	5	5	5	5	5	5
Sum		1442	1417	1469	1421	1478	1487	1441

		SQ3	SQ4	SEQ1	SEQ2	SEQ3	SEQ4	SEQ5
N	Valid	396	396	396	396	396	396	396
	Missing	0	0	0	0	0	0	0
Mean		3.79	3.79	3.78	3.65	3.71	3.77	3.69
Std. Deviation		.964	.933	.938	1.036	1.006	.995	1.042
Minimum		1	1	1	1	1	1	1
Maximum		5	5	5	5	5	5	5
Sum		1499	1500	1496	1446	1469	1494	1460

		SEQ6	SN1	SN2	SN3	SN4	SN5	SN6
N	Valid	396	396	396	396	396	396	396
	Missing	0	0	0	0	0	0	0
Mean		3.53	3.52	3.54	3.73	3.69	3.58	3.57
Std. Deviation		.932	1.202	1.094	1.127	1.159	1.089	1.198
Minimum		1	1	1	1	1	1	1
Maximum		5	5	5	5	5	5	5
Sum		1396	1395	1402	1477	1462	1417	1413

		AT1	AT2	AT3	AT4	IP1	IP2	IP3
N	Valid	396	396	396	396	396	396	396
	Missing	0	0	0	0	0	0	0
Mean		3.71	3.59	3.75	3.80	3.78	3.73	3.74
Std. Deviation		.930	.954	.976	.943	.965	.969	1.004
Minimum		1	1	1	1	1	1	1
Maximum		5	5	5	5	5	5	5
Sum		1468	1421	1485	1505	1496	1479	1481

		IP4	IP5	OS1	OS2	OS3	OS4	OS5
N	Valid	396	396	396	396	396	396	396
	Missing	0	0	0	0	0	0	0
Mean		3.70	3.84	3.68	3.88	3.80	3.71	3.73
Std. Deviation		1.024	.957	.995	.948	1.058	1.032	.989
Minimum		1	1	1	1	1	1	1
Maximum		5	5	5	5	5	5	5
Sum		1467	1522	1459	1538	1503	1471	1476

		TO1	TO2	TO3	TO4	TT1	TT2	TT3
N	Valid	396	396	396	396	396	396	396
	Missing	0	0	0	0	0	0	0
Mean		3.66	3.54	3.61	3.93	3.93	3.66	3.69
Std. Deviation		1.023	1.044	1.081	.966	.948	.928	1.029
Minimum		1	1	1	1	1	1	1
Maximum		5	5	5	5	5	5	5
Sum		1448	1401	1431	1558	1555	1449	1462

		PBC1	PBC2	PBC3	US1	US2	US3	US4
N	Valid	396	396	396	396	396	396	396
	Missing	0	0	0	0	0	0	0
Mean		3.57	3.49	3.45	3.92	3.99	3.91	3.96
Std. Deviation		1.112	1.175	1.120	.897	.915	.956	.928
Minimum		1	1	1	1	1	1	1
Maximum		5	5	5	5	5	5	5
Sum		1414	1382	1365	1554	1579	1548	1569

		U1	U2	U3	U4	U5
N	Valid	396	396	396	396	396
	Missing	0	0	0	0	0
Mean		3.66	3.72	3.68	3.71	3.78
Std. Deviation		1.039	1.051	.931	.964	.990
Minimum		1	1	1	1	1
Maximum		5	5	5	5	5
Sum		1450	1472	1457	1471	1495

		NB1	NB2	NB3	NB4	NB5
N	Valid	396	396	396	396	396
	Missing	0	0	0	0	0
Mean		3.79	3.82	3.60	3.86	3.71
Std. Deviation		1.018	.915	1.010	.890	1.006
Minimum		1	1	1	1	1
Maximum		5	5	5	5	5
Sum		1502	1512	1425	1530	1469

Frequency Table

University

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid KFU	215	54.3	54.3	54.3
KSU	59	14.9	14.9	69.2
KAAU	122	30.8	30.8	100.0
Total	396	100.0	100.0	

Gender

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Male	127	32.1	32.1	32.1
Female	269	67.9	67.9	100.0
Total	396	100.0	100.0	

Age

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 18-22	249	62.9	62.9	62.9
23-35	138	34.8	34.8	97.7
=>45	9	2.3	2.3	100.0
Total	396	100.0	100.0	

Marital_Status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SINGLE	327	82.6	82.6	82.6
	married	67	16.9	16.9	99.5
	Divorced	2	.5	.5	100.0
	Total	396	100.0	100.0	

Education_Level

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1st year	80	20.2	20.2	20.2
	2nd year	88	22.2	22.2	42.4
	3rd year	79	19.9	19.9	62.4
	4th year	149	37.6	37.6	100.0
	Total	396	100.0	100.0	

Mobile_Device

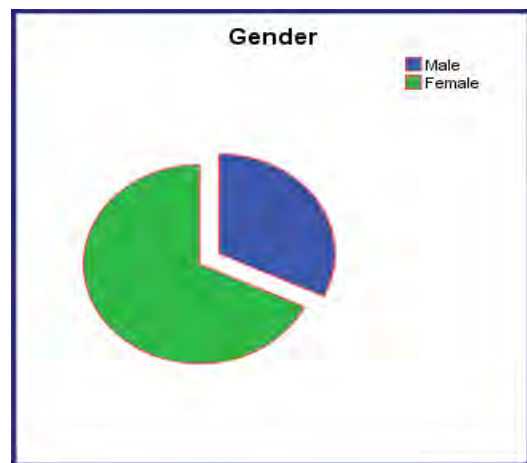
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Hand Phone	79	19.9	19.9	19.9
	Laptop	23	5.8	5.8	25.8
	Smart Phone	256	64.6	64.6	90.4
	Others	38	9.6	9.6	100.0
	Total	396	100.0	100.0	

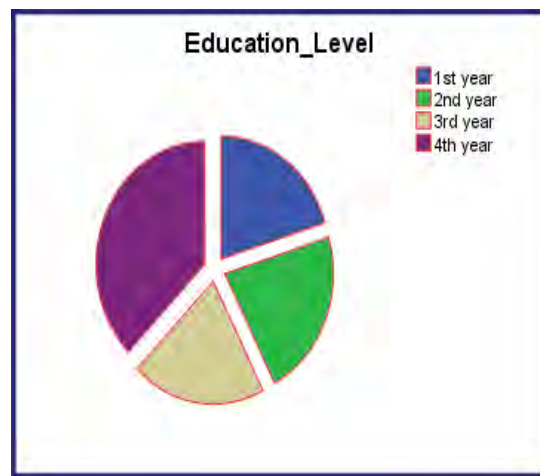
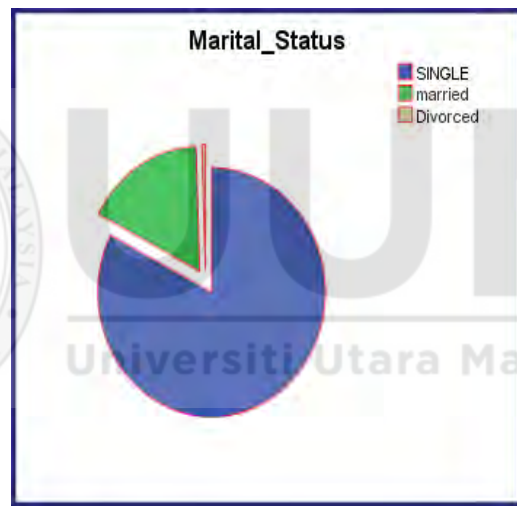
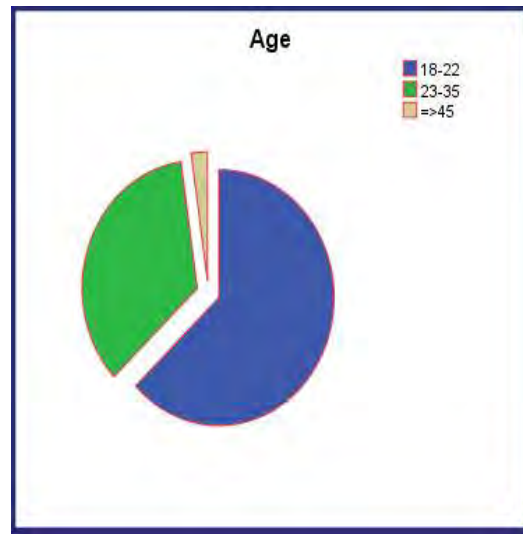
Experince

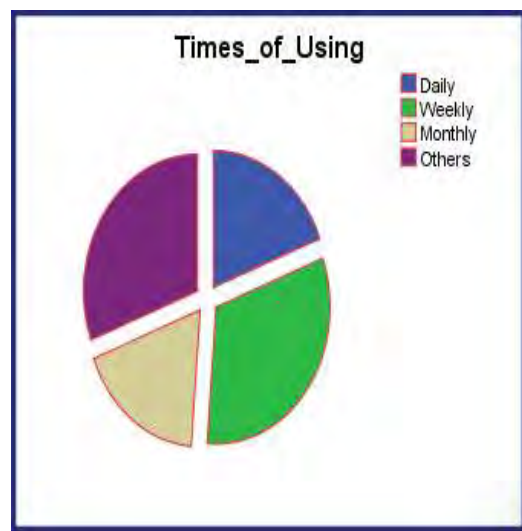
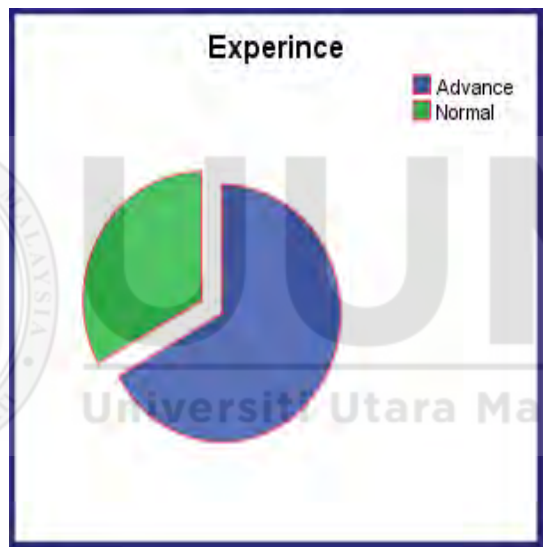
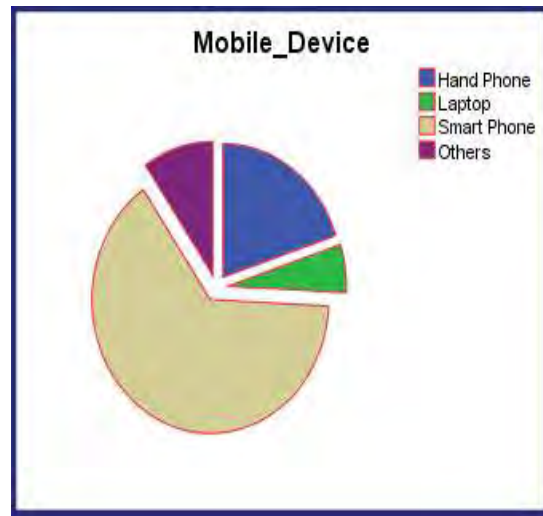
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Advance	265	66.9	66.9	66.9
	Normal	131	33.1	33.1	100.0
	Total	396	100.0	100.0	

Times_of_Using

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Daily	76	19.2	19.2	19.2
	Weekly	127	32.1	32.1	51.3
	Monthly	71	17.9	17.9	69.2
	Others	122	30.8	30.8	100.0
	Total	396	100.0	100.0	







Appendix D

The Results of Normality Test

Descriptive

			Statistic	Std. Error
MIQ	Mean		3.6500	.04002
	95% Confidence Interval for Mean	Lower Bound	3.5713	
		Upper Bound	3.7287	
	5% Trimmed Mean		3.6957	
	Median		3.8000	
	Variance		.634	
	Std. Deviation		.79646	
	Minimum		1.00	
	Maximum		5.00	
	Range		4.00	
	Interquartile Range		1.00	
	Skewness		-.818	.123
	Kurtosis		.523	.245
	Mean		3.7413	.03643
MSQ	95% Confidence Interval for Mean	Lower Bound	3.6697	
		Upper Bound	3.8129	
	5% Trimmed Mean		3.7783	
	Median		3.7500	
	Variance		.525	
	Std. Deviation		.72486	

MSEQ	Minimum	1.00	
	Maximum	5.00	
	Range	4.00	
	Interquartile Range	1.00	
	Skewness	-.789	.123
	Kurtosis	1.316	.245
	Mean	3.6873	.03927
	95% Confidence Interval for Lower Bound	3.6101	
	Mean Upper Bound	3.7645	
	5% Trimmed Mean	3.7236	
	Median	3.8333	
	Variance	.611	
	Std. Deviation	.78139	
	Minimum	1.00	
	Maximum	5.00	
MSN	Range	4.00	
	Interquartile Range	1.00	
	Skewness	-.641	.123
	Kurtosis	.382	.245
	Mean	3.6052	.04021
	95% Confidence Interval for Lower Bound	3.5262	
	Mean Upper Bound	3.6843	
	5% Trimmed Mean	3.6429	
	Median	3.8333	
	Variance	.640	
	Std. Deviation	.80024	
	Minimum	1.33	

	Maximum	5.00	
	Range	3.67	
	Interquartile Range	1.00	
	Skewness	-.705	.123
	Kurtosis	-.015	.245
	Mean	3.7110	.03779
	95% Confidence Interval for Lower Bound	3.6367	
	Mean Upper Bound	3.7853	
	5% Trimmed Mean	3.7505	
	Median	3.7500	
	Variance	.565	
MAT	Std. Deviation	.75195	
	Minimum	1.00	
	Maximum	5.00	
	Range	4.00	
	Interquartile Range	1.00	
	Skewness	-.794	.123
	Kurtosis	1.228	.245
	Mean	3.7601	.03865
	95% Confidence Interval for Lower Bound	3.6841	
	Mean Upper Bound	3.8361	
	5% Trimmed Mean	3.8043	
MIP	Median	3.9792	
	Variance	.592	
	Std. Deviation	.76915	
	Minimum	1.00	
	Maximum	5.00	

	Range	4.00	
	Interquartile Range	.96	
	Skewness	-.905	.123
	Kurtosis	1.201	.245
	Mean	3.7610	.03875
	95% Confidence Interval for Lower Bound	3.6848	
	Mean Upper Bound	3.8371	
	5% Trimmed Mean	3.7914	
	Median	3.8000	
	Variance	.595	
MOS	Std. Deviation	.77114	
	Minimum	1.00	
	Maximum	5.00	
	Range	4.00	
	Interquartile Range	1.20	
	Skewness	-.491	.123
	Kurtosis	.312	.245
	Mean	3.6856	.04060
	95% Confidence Interval for Lower Bound	3.6058	
	Mean Upper Bound	3.7654	
	5% Trimmed Mean	3.7232	
	Median	3.7500	
MTO	Variance	.653	
	Std. Deviation	.80796	
	Minimum	1.25	
	Maximum	5.00	
	Range	3.75	

MTT	Interquartile Range	1.00	
	Skewness	-.686	.123
	Kurtosis	.236	.245
	Mean	3.7591	.03854
	95% Confidence Interval for Lower Bound	3.6834	
	Mean Upper Bound	3.8349	
	5% Trimmed Mean	3.7918	
	Median	4.0000	
	Variance	.588	
	Std. Deviation	.76688	
	Minimum	1.00	
	Maximum	5.00	
	Range	4.00	
	Interquartile Range	1.00	
	Skewness	-.647	.123
MPBC	Kurtosis	.090	.245
	Mean	3.5028	.04962
	95% Confidence Interval for Lower Bound	3.4052	
	Mean Upper Bound	3.6003	
	5% Trimmed Mean	3.5468	
	Median	3.6667	
	Variance	.975	
	Std. Deviation	.98733	
	Minimum	1.00	
	Maximum	5.00	
	Range	4.00	
	Interquartile Range	1.00	

MUS	Skewness		-.707	.123
	Kurtosis		-.173	.245
	Mean		3.9457	.04067
	95% Confidence Interval for	Lower Bound	3.8658	
	Mean	Upper Bound	4.0257	
	5% Trimmed Mean		4.0102	
	Median		4.0000	
	Variance		.655	
	Std. Deviation		.80929	
	Minimum		1.00	
	Maximum		5.00	
	Range		4.00	
	Interquartile Range		1.00	
	Skewness		-.893	.123
MU	Kurtosis		1.191	.245
	Mean		3.7094	.04112
	95% Confidence Interval for	Lower Bound	3.6286	
	Mean	Upper Bound	3.7902	
	5% Trimmed Mean		3.7489	
	Median		4.0000	
	Variance		.670	
	Std. Deviation		.81834	
	Minimum		1.00	
	Maximum		5.00	
	Range		4.00	
	Interquartile Range		.80	
	Skewness		-.844	.123

	Kurtosis		.584	.245
	Mean		3.7562	.03608
	95% Confidence Interval for Mean	Lower Bound	3.6853	
		Upper Bound	3.8271	
	5% Trimmed Mean		3.8018	
	Median		3.8000	
	Variance		.515	
MNB	Std. Deviation		.71798	
	Minimum		1.20	
	Maximum		5.00	
	Range		3.80	
	Interquartile Range		.60	
	Skewness		-1.100	.123
	Kurtosis		1.220	.245

Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
MIQ	.123	396	.000	.949	396	.000
MSQ	.104	396	.000	.952	396	.000
MSEQ	.113	396	.000	.966	396	.000
MSN	.125	396	.000	.952	396	.000
MAT	.109	396	.000	.951	396	.000
MIP	.122	396	.000	.945	396	.000
MOS	.083	396	.000	.968	396	.000

MTO	.134	396	.000	.953	396	.000
MTT	.143	396	.000	.950	396	.000
MPBC	.162	396	.000	.932	396	.000
MUS	.156	396	.000	.913	396	.000
MU	.146	396	.000	.936	396	.000
MNB	.166	396	.000	.914	396	.000

a. Lilliefors Significance Correction



Questionnaire Translation Certificate

313

Appendix F

Table of Definitions Based on the Original Authors Construct

CONSTRUCT	MODEL(S)	SOURCE (S)
	Updated Delone and Mclean model (2003)	
Net Benefits	It is group all the “impact” measures into a single impact or benefit category.	Delone and Mclean (2003)
User Satisfaction	It is subjective assessment of the various consequences, evaluated on a pleasant and unpleasant continuum.	Delone and Mclean (2003)
Intention/ Use	“Intention to use” is an attitude, whereas “use” is a behavior.	Delone and Mclean (2003)
Information Quality	Refers to the quality of personalization, currency, relevance, reliability, completeness, easy to understand and secured for (to gain user’s trust when conducting a transactions via the internet).	Delone and Mclean (2003)
System Quality	Refers to the quality of (usability, availability, reliability, adaptability, and response time)	Delone and Mclean (2003)
Service Quality	The overall support delivered by the service provider, applies regardless of whether this support is delivered by the IS department, a new organizational unit, or outsourced to an Internet service provider (ISP).	Delone and Mclean (2003)
Theory of Planning Behaviour		
Attitude	It is a component of an individual’s belief towards certain behaviour and the outcome assessment that results from the specific act.	Ajzen (1991)
Subjective Norms	It refers to the perceived social pressure to perform or not to perform the behaviour.	Ajzen (1991)
Behavioral Control	It refers to a specific behavioral context and not to a generalized predisposition.	Ajzen (1991)
Trustworthiness		
Trust of internet (or Technology)	An individual's trust in the technology through which electronic transactions and information exchange are executed, the internet	Lee and Turban (2001)
Trust of organization	An individual's trust in the government agency providing an online service to protect privacy and ensure security	Lee and Turban (2001)
Additional Factors		
Organizational support	Refers to the degree to which an individual believes that an organizational infrastructure supports the use of PCs.	Thompson, Higgins and Howell (1991)
Institutional policy	Policy is taken here to be any course of action (or inaction) relating to the selection of goals, the definition of values or the allocation of resources.	Codd (1988)

Appendix G

Consent Letter Regarding Data Collection from UUM



AWANG HAD SALLEH
GRADUATE SCHOOL OF ARTS AND SCIENCES
UUM College of Arts and Sciences
Universiti Utara Malaysia
06010 UUM SINTOK
KEDAH DARUL AMAN
MALAYSIA



Tel: 604-928 5299/5266/5251
Faks (Fax): 604-928 5297/5296
Laman Web (Web): <http://ahsgs.uum.edu.my>

KEDAH AMAN MAKMUR • BERSAMA MEMACU TRANSFORMASI

UUM/CAS/ AHSGS/95309

25 April 2016

TO WHOM IT MAY CONCERN

Dear Sir/Madam

DATA COLLECTION FOR PROJECT PAPER/ THESIS

This is to certify that **Mr. Alortfi, Almuhammad Sulaiman M (matric number: 95309)** is a full time postgraduate student in Doctor of Philosophy (Information Technology) at UUM College of Arts and Sciences.

He needs to do his field study and data collection for his project paper/thesis in order to fulfill the partial requirements of his graduate studies.

We sincerely hope that your organization will be able to assist him in the data collection and the distribution of the questionnaires for his research.

Thank you.

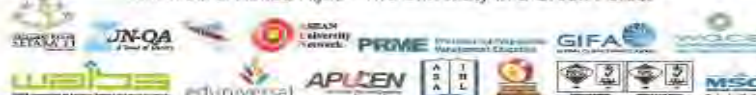
"KNOWLEDGE, VIRTUE, SERVICE"

Yours faithfully


WAN NORHASHIMA BINTI WAN MIN
Assistant Registrar
for Dean
Awang Had Salleh Graduate School of Arts and Sciences
UUM College of Arts and Sciences

UUM/0000000000

Universiti di Rimba Hijau - The University in a Green Forest





PUSAT PENGAJIAN PERKOMPUTERAN
SCHOOL OF COMPUTING
College of Arts and Sciences
Universiti Utara Malaysia
06010 UUM SINTOK
KEDAH DARUL AMAN
MALAYSIA



UUM
Universiti Utara Malaysia

Tel: 604-928 5056/5058/5060
Faks (Fax): 604-928 5067
Laman Web (Web): www.soc.uum.edu.my

31 March 2016

TO WHOM IT MAY CONCERN

Dear Sir

Aplication to Go for Data Collection

With reference to the matter above, I would like to inform you that **Mr. Alorfi, Almuhammad Sulaiman M (95309)** will have to travel to Saudi Arabia to collect data for his thesis.

Mr. Almuhammad has to collect data for a pilot study during the month of April to July 2016 that will involve travelling to different geographical areas where the Riyadh College of Technology has branches in Saudi Arabia. There will be at least a few trips where the first trip will be for the pilot study. Therefore, during this period of time, **Mr Almuhammad** will travel regularly between Saudi Arabia and Malaysia for the purposes of presenting the results of the pilot study and data collection, proposal discussion and attending collection in Saudi Arabia. I will be grateful if you can provide all the necessary help for him. Your kind cooperation and assistance in allowing him to collect the data for his PhD research is vital and highly appreciated.

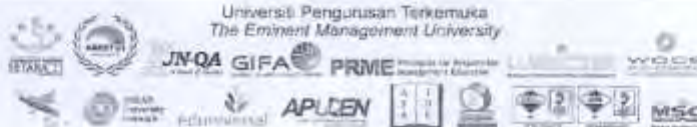
Should you have any further enquiries regarding this matter, please do not hesitate to contact me.
Thank you.

Sincerely

(Associate Professor Dr. Wan Rozaini Bt Sheik Osman)

School of Computing
College of Arts and Sciences
Universiti Utara Malaysia
06010 UUM Sintok
Kedah Darul Aman, Malaysia
Tel: +604-9285209
Fax: +604-9285067
Email: rozai174@uum.edu.my

JR. WAN ROZAINI SHEIK OSMAN
Assoc. Prof
School of Computing
UUM College of Arts & Sciences
Universiti Utara Malaysia



Appendix H

Approval Letter from Embassy of Saudi Arabia for Data Collection



Appendix I

Approval Letter from King Faisal University for Data Collection

King Faisal University Deanship of Scientific Research Research Ethics Committee (REC)		جامعة الملك فيصل عمادة البحث العلمي لجنة أخلاقيات البحث العلمي
---	--	---

Memorandum
Research Proposal Review

REC REF NUMBER	KFU-REC/2017 - 01 - 06	
INSTITUTION	Universiti Utara Malaysia	
PROJECT TITLE	A MODEL FOR MEASURING MOBILE LEARNING SUCCESS AMONG STUDENTS IN SAUDI ARABIA UNIVERSITIES	
PRINCIPAL INVESTIGATOR	Mr. Alorfi, Almuhammad Sulaiman	
SUPERVISOR	Dr. Wan Rozaimi Bt Sheik Osman	
APPROVAL DATE	G 01/25/2017	H 04/27/1438

Dear Mr. Alorfi, Almuhammad Sulaiman

You are hereby informed that the Research Ethics Committee (REC) at King Faisal University has approved your subject proposal. Following a thorough review by the REC of the ethical aspects of the proposal, your research has been approved for one year from the approval date, under the following conditions:

1. **Approval Duration:** Twelve (12) months from the approval date.
2. **Amendments to the approved project:** Changes to any aspect of the project require resubmission of Request for Amendment to the Research Ethics Committee (REC).
3. **Future Correspondence:** Please quote reference number and project title above in any further correspondence.
4. **Safety:** the safety and well-being of all participants must be protected in accordance with the relevant research ethics guidelines of King Faisal University and the National Committee of Medical & Bioethics. Where required, **signed consent form** must be obtained from all participants.
5. **Monitoring:** Projects may be subject to an audit or any other form of monitoring by the Research Ethics Committee (REC) at any time.
6. **Retention and storage of data:** The Principal Investigator is responsible for the storage, retention, and security of original data pertaining to the project for a minimum period of five years.

Please be aware that **this memorandum constitutes ethical approval only**. If the research project is to be conducted at another site or under auspices of another organization, approval must be obtained from the appropriate respective authorities before the project may commence.

Dr. Abdullah M. Al-Zahrani

Dean Scientific Research
Vice Chair of Research Ethics Committee (REC)




Appendix J

Approval Letter from King Abdul-Aziz University for Data Collection

KINGDOM OF SAUDI ARABIA
Ministry of Education
KING ABDULAZIZ UNIVERSITY
(035)

✉ : 80200 Jeddah 21589

☎ : +966 12 6952015

Fax: +966 12 6952441

http://gsr.kau.edu.sa



مكتب وكيل الجامعة للدراسات العليا والبحث العلمي
Office of the Vice President for Graduate Studies and Research

المملكة العربية السعودية
وزارة التعليم
جامعة الملك عبد العزيز
(٠٣٥)

✉ : ٨٠٢٠٠ جدة : ٢١٥٨٩

☎ : ١٢ ٦٩٥٢٠١٥ (+٩٦٦)

فاكس : ١٢ ٦٩٥٢٤٤١ (+٩٦٦)

E-mail: research@kau.edu.sa

سعادة الملحق الثقافي بسفارة المملكة العربية السعودية في ماليزيا حفظه الله

السلام عليكم ورحمة الله وبركاته:

جامعة الملك عبد العزيز تهدي سعادتك تحياتها، ونشير إلى الطلب المقدم من المواطن/ المهندس بن سليمان مسعد العرفي، طالب الدكتوراه بجامعة أوتارا، يرغب في القيام برحلة علمية للمملكة، لجمع معلومات تتعلق بموضوع أطروحته للدكتوراه وتطبيقها في جامعة الملك عبد العزيز. في هذا السياق نفيد سعادتك بأن الجامعة لا تمنع من قيام المبتعث بتطبيق دراسته لديها، علماً بأن ضوابط توزيع الامتيازات بجامعة الملك عبد العزيز مرفوعة على الرابط التالي:

http://graduatestudies.kau.edu.sa/content.aspx?Site_ID=306&lng=AR&cid=241579&URL=www.kau.edu.sa

U.S.S

ويمكن للطلاب التواصل مع عمادة الدراسات العليا لطلب المساعدة عن طريق وحدة الخدمات البحثية، وذلك من خلال الإيميل التالي: dgsg.rsu@kau.edu.sa

وتقبلوا خالص تيماني وتقدير...

وكيل الجامعة

لدراسات العليا والبحث العلمي المكلف

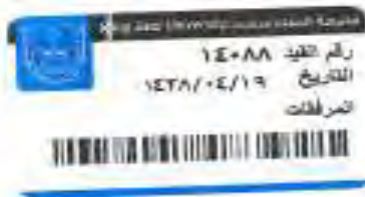
أ.د. عبدالله بن عمر عبدالله بافيل

Encl : مرفقات

Date : التاريخ ١٤/٤/٢٠٢٠

Ref : الرقم ٢٨/٢٩٦٩

Approval Letter from King Saud University for Data Collection



حفظه الله

سعادة وكيل جامعة الملك سعود للدراسات العليا والبحث العلمي

السلام عليكم ورحمة الله وبركاته .

أفيد سعادتكم بأنني طلبت من وزارة التعليم العالي إلى جامعة (UUM) في ماليزيا للحصول على درجة الدكتوراه تخصص (تقنية معلومات) وأحتاج إلى توزيع استيلاء من ضمن متطلبات رسالة الدكتوراه . وعليه أمل من سعادتكم التكرم بالموافقة على توزيع الاستيلاء للطلاب

شَاكِرْ تَعَاوُنِكُمْ مَعَنَا ۛۛۛ



صندوق النقد الدولي

المجلس السليمان العرفي

957.9

0710.147.

smart_sa @ windowslive.com



1971.1.18T

Appendix L

List of Experts

No	Name	Designation	University	Email
1	Zulkhairi Dahalin	Professor	University Utara University / Malaysia	zul@uum.edu.my
2	Shafiz Affendi Mohd Yusof	Associate Professor	University of Wollongong / UAE	shafizMohdYusof@uowdubai.ac.ae
3	Zahayu binti Md Yusof	Associate Professor	University Utara University / Malaysia	scsq@uum.edu.my
4	Hashed Ahmad Mabkhot	Assistant Professor	King Faisal University / KSA	hashed@kfu.edu.sa
5	Jamal Mohammad Alekam	Assistant Professor	University Utara University / Malaysia	jamalalekam@uum.edu.my
6	Ebrahim Mohammd Almatari	Assistant Professor	Al-Jouf University / KSA	emalmatri@Ju.edu.sa



SQS STATISTICAL CONSULTING
SCHOOL OF QUANTITATIVE SCIENCES
UUM COLLEGE OF ARTS AND SCIENCES
www.sqs.uum.edu.my
Email: scsqs@uum.edu.my

Consultation Bill

Date	Time	Duration	Charge	Consultant's signature and stamp
29/11/17	2-20 pm	3-10 pm	RM 25	 DR. ZAHAYU MD YUSOF Associate Professor School of Quantitative Sciences UUM College of Arts and Science Universiti Utara Malaysia

Consultation Appointment Form

Name: Alo Rfi, Al Muhannad Sulaiman
 Staff/Matric no: 95709 School/Department: SOC
 Institution: CAS Email: smart_soc@windowslive.com
 Tel no (Office): _____ Mobile: 0123286695

Type of consultation (please tick):

- ☐ Research project
☐ Journal article/Conference presentation
☒ Dissertation/Thesis (Msc/PhD)
☐ Final year project (Undergraduate)

Fees rate (per hour) - * Please bring exact amount

Student RM 25
 UUM Staff/ Others RM 50

Title of project: A model for measuring Mobile Learning Success Among student in Saudi Arabia universities

Analysis/software applications plan to use: He would like an advice on his analysis. He was using PLS to construct his model. He is proposing few new factors to the m-learning usage among students

Signature of client:

Date:

29-11-2017

*Note for consultant:

Submit this form to treasurer of SQS Statistical Consulting:

Dr. Muhammad Mat Yusof (Tel no: 049286316, mmv@uum.edu.my)