International Journal of Industrial Engineering & Production Research September 2022 Vol. 33, No. 3: 1-20
DOI: 10.22068/ijiepr.33.3.12

RESEARCH PAPER

Factors Influencing the Adoption and Impact of Online Social Networks Use among Students within Public Universities in Abu Dhabi

Ahmed Saeed Awadh Ali Alrashdi[1] & Nurul Zarirah Binti Nizam[2*]

Received 17 April 2022; Revised 9 May 2022; Accepted 12 June 2022;

ABSTRACT

The main objective of this study is to determine factors influencing the adoption and impact of online social networks use in terms of performance among students within public universities in Abu Dhabi. Although various limitations exists, the findings have been encouraging, as it has managed to shed some lights on new variables affecting the use of online social networks. This study proposed an extended model of the Unified Theory of Acceptance & use of Technology (UTAUT) and found that five variables play an important role to determine the performance impact of online social networks namely performance expectancy, effort expectancy, social influence, facilitating conditions, and actual usage, in addition to the significant moderation role that service quality plays in the model which was significant on two relationships and insignificant in the remaining two. The findings of this study can provide policymakers with important insights on how to more successfully incorporate online social networks to improve students' performance and public university services, and how to encourage the management to ensure that students are more likely to utilize new technologies and thereby enabling better learning outcome, wider reach of services, gives students more control over their daily tasks and enhances their performance.

KEYWORDS: *Factors; Adoption; Impact; Social; Network; Students.*

1. Introduction

Online and internet technology applications and services have rapidly turned to be an indispensable in the daily life of most individuals and significantly impacted every facet of operations in organizations [1]. It has also become an essential platform in knowledge management system which improves knowledge acquisition, task efficiency, and decision quality (Cheung, Chang, & Lai, 2000). Social network sites, also known as social networking service, online social networks, social media, social media sites, social media platforms, phenomenon are still under debate [3]. Social networks are one of the internet platforms which is growing fast. Studies link the internet and social networks to organization performance [4]; [5], other studies emphasize that internet platforms improve knowledge acquisition, task efficiency, and decision quality in organizations (Isaac, Abdullah, Ramayah, Mutahar, & Alrajawy, 2016). The growth of social networks users worldwide in the leading platforms such as Facebook, Twitter, WhatApp, and LinkedIn need initiatives and studies to understand this issue and how the students in higher education institutions benefit from them. According to [7], an online social network in the Arab world is perceived as having numerous positive aspects that enhance the quality of life of individuals, business profitability and governmental interaction with the public. With regard to the context of this study, the United Arab Emirates (UAE) is among the highest countries in the world and region in terms of internet penetration, mobile internet usage, and number of active social media users [8]. The online penetration (% of populations use the

* **Corresponding author:** ***Nurul Zarirah Binti Nizam***
zarirah@utem.edu.my

1. *Faculty of Technology Management and Technopreneurship, Universiti Tekinal Malaysia Melaka, Malaysia.*
2. *Faculty of Technology Management and Technopreneurship, Universiti Tekinal Malaysia Melaka, Malaysia..*

online services) stands at 91.24% compared to its neighboring Arab countries such as Bahrain, Qatar, Kuwait, Oman, Saudi Arabia, Jordan, Algeria, Egypt, Yemen, Libya, and Iraq with the online penetration being recorded at 93.48%, 92.88%, 82.08%, 74.17%, 69.62%, 53.4%, 38.2%, 35.9%, 25.1%, 19.02% and 17.22%, respectively. Despite the UAE comes second in terms of the population percentage that are using the internet with a whopping 90.6% which is considered among the highest in the world [9], the UAE is positioned at the tenth place in the world in terms of the impact of technology usage on organizational performance [10]. In effort to efficiency utilize the technology, the United Arab Emirates government emphasized that the vision and long-term strategy of the UAE government is to always strive to be number one in the world in all aspects including technology usage. Yet, there is a clear gap between the indicator of the impact of technology usage on organizational performance and government's vision of the future in this aspect. Therefore, the focus of this study is determine factors influencing the adoption and impact of online social networks use in terms of performance among students within public universities in Abu Dhabi.

2. Literature Review

Several theories and models have been developed to investigate and understand the characteristics related to technology usage, and these have reduced the number of ambiguities affecting it and related issues. Some of the more well-known models that have been using to answer the questions that related to technology usage issues are: technology acceptance model (TAM) [11], DeLone and McLean information systems success model (DMISM) [12] and their updated model [13], task-technology fit (TTF) [14], and unified theory of acceptance and use of technology (UTAUT) [15].

According to [16], there are four characteristics that influence technology success within organizations, namely individual, social, technological, and organizational characteristics. Most previous studies have focused on one, two or at most three of these, and there is a lack of studies presenting the big picture and a comprehensive perspective of the issues related to technology usage in organizations [17].

Although TAM by [11] is considered the most influential and commonly employed theory for describing an individual's acceptance of information systems [18], it only focuses on technological characteristics by proposing two constructs (usefulness and ease of use), but ignores other significant characteristics which significantly affect technology usage such as individual characteristics [19][20], organizational characteristics (Kim, Park, & Lee, 2007)[22], and social characteristics [20][23]. In addition, TAM disregards any focus on evaluating IT such as user satisfaction or performance impact [24], which are both widely used to measure the success of information systems [25].

TTF [14] determines the technological, individual, and task characteristics as the main antecedence characteristics, however it ignores the effect of other important characteristics such as social characteristics [26], and organizational characteristics (Son, Park, Kim, & Chou, 2012); [17], which play a major role in technology usage and the success of information systems. Because TTF focuses on fit alone, it does not give adequate attention to the fact that systems must be utilized (used) before they can have any impact on any output factor [28]. This means that TTF neglects the role of actual system usage in the model.

DeLone and McLean's (1992), DeLone and McLean's (2003) DMISM model has widespread acceptance among the models regarding technology adoption and information system success [29]. It proposes three antecedence constructs in the update model (system, information and service quality), but ignores other important constructs such as individual characteristics (Zhao, Lu, Wang, & Huang, 2011)(Roca, Chiu, & Martínez, 2006), and social characteristics [23](D. Cheng, Liu, Qian, & Song, 2013), all of which are considered as an important constructs to determine technology usage and user satisfaction. The popularity of DMISM derives from the comprehensiveness, which allows IS scholars to fully integrate their findings [17].

On the other hand, UTAUT by [15] brings together a range of theoretical frameworks and ideas and covers range of characteristics: individual characteristics (performance expectancy "usefulness", effort expectancy "ease of use"), organizational characteristics (facilitating conditions) and social characteristics (social influence).

Furthermore, UTAUT disregards any focus on evaluating technology usage, such performance impact. Evaluating information system (IS)

through performance is strongly recommended to measure the success of IS [25]. Many previous studies regarding the usage and adoption of information technology have only focused on actual usage as an outcome construct (Almatari, Iahad, & Balaid, 2012). Few notable studies have been contributed to fill the gap by addressing the link between actual usage and individual or organizational performance (M. Norzaidi, Chong, Murali, & Salwani, 2007) [35][27].

3. Research Methodology

A survey was stratified randomly collected from 384 respondents from United Arab Emirates University and Zayed University. Driven by UTAUT2, Table shows the terms definition and their measurements. This study applied UTAUT as underpinning theory to closes the gaps as shown in table 1.2, by extending UTAUT with technology characteristic (service quality), and an outcome variable (performance impact).

Tab. 1.2. Theoretical gaps and the proposed model for closing the gaps

Variable Type	Variable Category	Variable Name	Variable Source	Underpinning theory and the gaps: UTAUT [15]	The proposed model for closing the gaps
Independent variable	Technological characteristics	Performance expectancy (Usefulness)	(Venkatesh et al., 2003)	√	√
		Effort expectancy (Ease of use)	(Venkatesh et al., 2003)	√	√
	Social characteristics	Social influence	(Venkatesh et al., 2003)	√	√
	Organizational characteristics	Facilitating conditions	(Venkatesh et al., 2003)	√	√
	Technological characteristics	Service quality	[12]	gap	√
Mediating variable	Actual Usage		(Venkatesh et al., 2003)	√	√
Dependent variable	Performance Impact		[12]	gap	√

The Rating Scale for this study is Likert rating scale that is designed to examine how strongly subject agree or disagree with statement on a 5-point Likert scale: (1) Strongly disagree, (2) Slightly disagree, (3) Neutral, (4) Slightly agree, (5) Strongly agree. The instrument to measure the main variables in this study as follow:

Item	Performance Expectancy Measure	Source
PE1	I find the usage of social networking sites useful in my job.	(Martins, Oliveira, & Popovič, 2014) [26]
PE2	I find the usage of social networking sites useful in my daily life.	(Pahnila, Siponen, & Zheng, 2011); [26];
PE3	Using the social networking sites improve my performance.	
Effort Expectancy Measure		
EE1	I find the social networking sites easy to use.	[26] (Martins et al., 2014)
EE2	I find the social networking sites flexible to interact with.	
EE3	My interaction with the social networking sites is clear and understandable.	
Social Influence Measure		
SI1	My supervisor thinks that I should use the social networking sites.	(Pahnila et al., 2011); [26];[20]

SI2	My colleagues think that I should use the social networking sites.	
SI3	My close friends think that I should use the social networking sites.	
Facilitating Conditions Measure		
FC1	I have the hardware & software necessary to use the social networking sites.	(Chan, Brown, Hu, & Tam, 2010); (Escobar-rodríguez, Carvajal-trujillo, & Monge-lozano, 2014); [26]
FC2	I have the knowledge necessary to use the social networking sites.	
FC3	I have the Skills necessary to use the social networking sites.	
Instrument for Facilitating Conditions Measure		
FC1	I have the hardware & software necessary to use the social networking sites.	(Chan et al., 2010); (Escobar-rodríguez et al., 2014); [26]
FC2	I have the knowledge necessary to use the social networking sites.	
FC3	I have the Skills necessary to use the social networking sites.	
Actual usage of social networking site Measure		
USE1	I regularly use social networking sites.	[44]
USE2	I prefer the communication through the social networking sites.	
USE4	I promote the use of social networking sites to my colleagues.	
Instrument for Service Quality Measure		
SQ1	The social networking sites provide quick responses to my requests.	[45] [46] [47]
SQ2	I could use the social networking sites services at anytime, anywhere I want.	
SQ3	The social networking sites allows learner control over his or her learning activity.	
SQ4	The social networking sites offers multimedia (audio, video, and text) types of course content.	
SQ5	The social networking sites enables interactive communication among learners.	
SQ6	The social networking sites makes it easy for me to share ideas with my group mates.	
Performance Impact (PI) Measure		
Knowledge Acquisition (KA)		
KA1	Social networking sites helps me acquire new knowledge	(Isaac et al., 2017a)
KA2	Social networking sites helps me acquire new skills.	
KA3	Social networking sites helps me to come up with innovative ideas.	
Productivity (PRO)		
PRO1	Social networking sites improves my learning performance.	(Isaac et al., 2017a)
PRO2	Social networking sites enhances my academic effectiveness.	

PRO3	Social networking sites increases my academic productivity.	
Competence (COM)		
COM1	Social networking sites increase my competence.	(Isaac et al., 2017a)
COM2	Social networking sites helps reviews and eliminate errors in my work tasks.	
COM3	Social networking sites helps to share my general knowledge	

4. Results

The structural equation model is a major constituent of the SEM analysis. After validating the measurement model, the structural model was represented by specifying all relationships between the constructs. Some researchers (Hair, Black, Babin, & Anderson, 2010); [49] stated that the structural model offers a link between all variables.

Furthermore, (Hair, Hult, Ringle, & Sarstedt, 2017) also suggested that the structural model can be assessed by observing the beta (β) variable, R^2 and the respective t-values using a bootstrapping process for a resample size of 5,000. They also stated that the effect sizes (f^2) and the predictive relevance (Q^2) must be reported. [51] argued that the *p-value* is also used for determining the existence of the effect, but it cannot indicate the effect size. Figure 4.2 shows the PLS bootstrapping (T Statistics) results which were drawn on the version PLS 3.0.

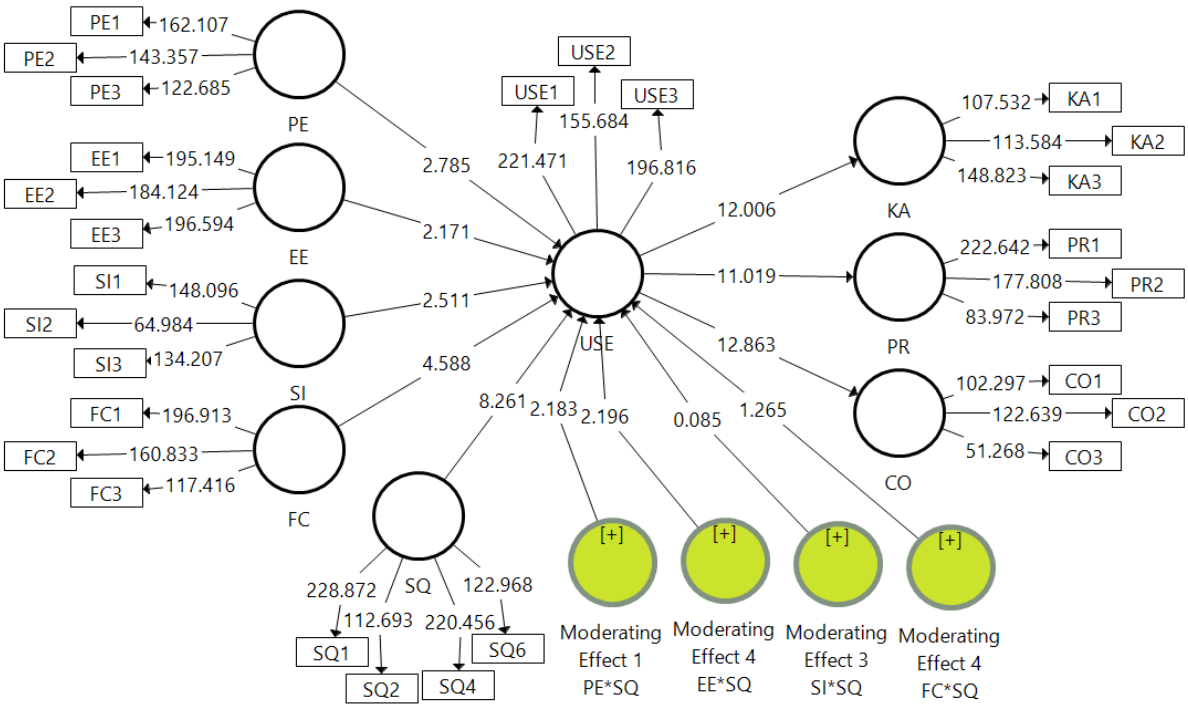

Fig. 4.2. PLS bootstrapping (t-Statistics)

Key: PE: performance expectancy, EE: effort expectancy, SI: social influence, FC: facilitating conditions, USE: actual usage of social networking site, SQ: service quality, KA: knowledge acquisition, PR: productivity, CO: competence.

4.1. Direct hypotheses testing

Figures 4.1, 4.2 and Table 4.18 describe the results of all hypothesis tests. Performance expectancy, effort expectancy, social influence, and facilitating conditions significantly predict the actual usage of social networking site. Thus, the H1, H2, H3 and H4 can be accepted and showed values of (β= 0.124; t=2.785, p<0.001), (β= 0.119; t=2.171, p<0.001), (β= 0.162; t=2.511, p<0.001) and (β= 0.256; t=4.588, p<0.001), respectively. Actual usage of social networking site significantly predict the knowledge acquisition, productivity, and competence. Thus, the H5.a,

H5.b, and H5.c can be accepted and showed values of (β= 0.557; t=12.863, p<0.001), (β= 0.511; t=12.006, p<0.001), and (β= 0.512; t=11.019, p<0.001), respectively.

The standardized path coefficients indicate the strength of the association between the exogenous and the endogenous constructs. Thus, the facilitating condition shows a stronger effect on the actual usage of social networking site compared to the effect of the performance expectancy, effort expectancy, and social influence.

Tab. 4.18. Structural path analysis results

Hypo	Relationship	Std Beta	Std Error	*t-value*	*p-value*	Decision
H1	PE -> USE	0.124	0.045	2.785	0.003	Supported
H2	EE -> USE	0.119	0.055	2.171	0.015	Supported
H3	SI -> USE	0.162	0.064	2.511	0.006	Supported
H4	FC -> USE	0.259	0.056	4.588	0.000	Supported
H5.a	USE -> CO	0.557	0.043	12.863	0.000	Supported
H5.b	USE -> KA	0.511	0.043	12.006	0.000	Supported
H5.c	USE -> PR	0.512	0.046	11.019	0.000	Supported

Key: PE: performance expectancy, EE: effort expectancy, SI: social influence, FC: facilitating conditions, USE: actual usage of social networking site, SQ: service quality, KA: knowledge acquisition, PR: productivity, CO: competence.

4.2. Coefficient of determination: r^2 value

The R^2 value describes the variance present in the dependent variables that can be explained based on the independent variables. Thus, a higher R^2 value improves the predictive ability of a structural model. All researchers must ensure that their R^2 values must be high so that the model achieves a minimal level of explanatory power [52]. Also, [53] stated that the R^2 values must be ≥0.1 so that the variance in the endogenous construct is seen to be adequate. (Cohen, 1988) stated that the R^2 value was substantial if it was >0.26 and had an acceptable power more than 0.02. (Chin, 1998) noted that the R^2 value was substantial if it was >0.65 and had an acceptable power >0.19. On the other hand, (Hair Jr, Hult, Ringle, & Sarstedt, 2016) stated that the R^2 value must be >0.75 with an acceptable power >0.25. Table 4.19 describes the R^2 values for the structural model. As shown in the table, all R^2 values were very high, which indicated that the model showed an acceptable explanatory power. Note that the variance explained in endogenous construct actual usage of social networking site is 0.62 (62%).

Tab. 4.19. Coefficient of determination, R^2 values

Exogenous Construct	**endogenous construct**	**R^2**	**(Cohen, 1988)**	**(Chin, 1998)**	**[56]**
PE, EE, SI, and FC	USE	0.62	Substantial	Moderate	Moderate
USE	KA	0.26	Substantial	Weak	Weak
USE	PRO	0.26	Substantial	Weak	Weak
USE	COM	0.31	Substantial	Weak	Weak

Key: USE: actual usage of social networking site, KA: knowledge acquisition, PR: productivity, CO: competence

4.3. Effect size F^2

In this study, the researchers also investigated the effect size (f^2). The f^2 value helps in determining if the exogenous latent construct shows any substantial, moderate or weak effect on the endogenous latent constructs [59]. Furthermore, (Hair et al., 2017) stated that any changes in the R^2 value must be determined. (Cohen, 1988) suggested the guideline for measuring the f^2 value, which must be 0.35 (large effect), 0.15 (medium effect), and 0.02 (small effect). Table 4.20 describes the f^2 values for the model.

Tab. 4.20. Results of the effect size, f^2

	USE	*KA*	*PR*	*CO*
PE	0.022			
EE	0.013			
SI	0.025			
FC	0.052			
SQ	0.255			
USE		0.353	0.355	0.45

Key: PE: performance expectancy, EE: effort expectancy, SI: social influence, FC: facilitating conditions, USE: actual usage of social networking site, SQ: service quality, KA: knowledge acquisition, PR: productivity, CO: competence.

f^2= (R^2 included - R^2 excluded) / (1- R^2 included)

4.4. Predictive relevance (blindfolding) Q^2

This study used the blindfolding process for examining the predictive relevance of the proposed model. (Hair et al., 2017) stated that the blindfolding process must only be used for the endogenous constructs having a reflective measurement. When the Q^2 value was >0, it indicated that the proposed model showed a predictive relevance for the specific endogenous constructs (Fornell, C., & Cha, 1994; Hair et al., 2017). Table 4.21 showed that all Q^2 values were >0, indicating that the model showed an appropriate predictive relevance. With respect to the Q^2 values, (Hair et al., 2017) recommended using values of 0.35 (large effect), 0.15 (medium effect), and 0.02 (small effect) as a predictive relevance measure.

Tab. 4.21. Predictive relevance (blindfolding) Q^2

Endogenous Construct	Q^2
USE	0.57
KA	0.23
PR	0.24
CO	0.26

Key: USE: actual usage of social networking site, KA: knowledge acquisition, PRO: productivity, COM: competence

4.5. Post-Hoc statistical power

Statistical Power is the ability to distinguish signal from noise, or the likelihood that it will distinguish an effect of a certain size from pure luck, which helps the researcher to assess the power of the analysis. Statistical Power affected by the observed probability level, the number of predictors, the observed R^2, and the sample size (Cohen, 1988); (Cohen, Cohen, West, & Aiken, 2003). This study used post-hoc statistical power calculator which proposed by [63] to determine the observed power for the study R^2. In the field of social sciences, the minimally acceptable power must be higher than 80 % [59]. If the observed statistical power was >0.8, it showed good power, while the power increased when the value neared the 1.0. The Daniel Sober calculator results showed that the statistical power for this study was 0.9۴, which indicated a high statistical power.

4.6. Importance-performance map analysis (IPMA)

The researchers in this study also carried out the Importance-Performance Matrix Analysis (IPMA) as the post-hoc process in the PLS using actual usage of social networking site as the result construct. The IPMA can estimate the total effects which describe the significance of the predecessor constructs and their application in assessing the target construct (i.e., actual usage of social networking site), while their mean latent variable score determines their performance. The index values were computed (performance scores) after rescaling the latent construct scores from 100 (best performance) to 0 (poor performance) [60]. [64] stated that the IPMA improved the PLS analysis results, rather than analysing the path coefficients (the significance dimension) only. This method also considers the mean values of all latent constructs along with their indicators (the performance dimension). Table 4.22 presents the results for the importance (total effects) and the performance (index values) dimensions

determined by IPMA.

Tab. 22. IPMA for actual estimation of the actual usage of social networking site

Latent constructs	Total effect of the construct Actual usage of social networking site (Importance)	Index values (Performance)
Performance Expectancy (PE)	0.134	64.863
Effort Expectancy (EE)	0.134	64.084
Social Influence (SI)	0.175	61.561
Facilitating Conditions (FC)	0.289	68.012

As shown in Figure 4.3, the researchers plotted the total effect scores and the index values in the priority map. The figure showed that facilitating conditions was an important factor that could determine the actual usage of social networking site as it showed high importance values in comparison to other constructs present in the model.

(Hair et al., 2017) stated that the IPMA could identify the predecessors which were significant target constructs (i.e., showed a strong total effect) but also showed a low performance (i.e., low mean latent variable scores). All aspects related to these constructs are seen to represent the areas that have to be improved so that they receive better attention. Hence, for improving the actual usage of social networking site, the management must aim to enhance the performance of the facilitating conditions.

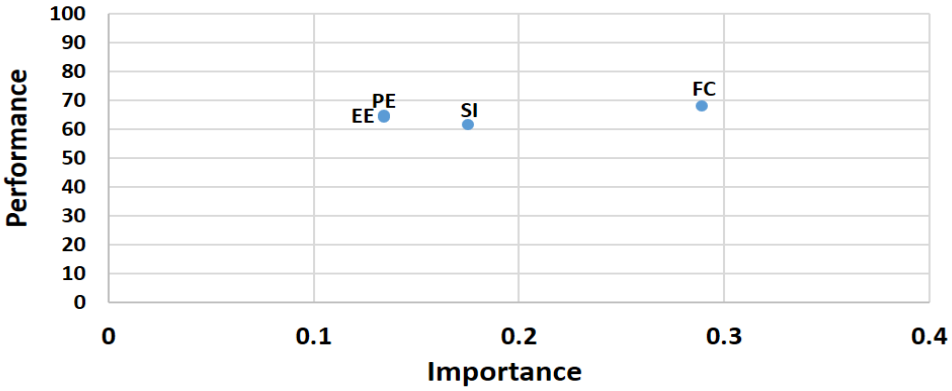

Fig. 4.3. IPMA (Priority Map) for the *actual usage of social networking site*

Key: PE: performance expectancy, EE: effort expectancy, SI: social influence, FC: facilitating conditions.

4.7. Moderation assessment

A moderating variable is one that 'moderates the effects' of a predictor variable on its outcome variable [65], and according to [66], moderation plays an important role in many social science theories. This study focuses on how the relationship between Performance expectancy, effort expectancy, social influence, and facilitating conditions (predictors) and actual usage of social networking site (outcome) changes as a function of service quality (moderator).

The conceptual model of moderation in Figure 4.4.a shows that a moderator variable is one that affects the relationship between two others. If service quality was moderators, then the strength or direction of the relationship between predictor and outcome is affected by them [67]. The statistical moderation model in Figure 4.4.b., shows how it conceptualizes moderation statistically: It predicts the outcome from the predictor variable, the proposed moderator and the interaction of the two. It is the interaction effect that tells whether moderation has occurred, but the predictor and moderator must be included as well for the interaction term to be valid [67]. Researchers in many situations have a continuous (rather than a categorical) moderator variable that they believe can either strengthen or dampen a specific relationship between two latent variables and that moderators may also change the direction of

relationships [56].

(Awang, 2014) states that before introducing a moderator into a model, the effect of a predictor on its outcome must exist and be significant. Thus, when a moderator enters the model, the causal effects will change due to some "interaction effect" between the predictor and moderator variable just entered.

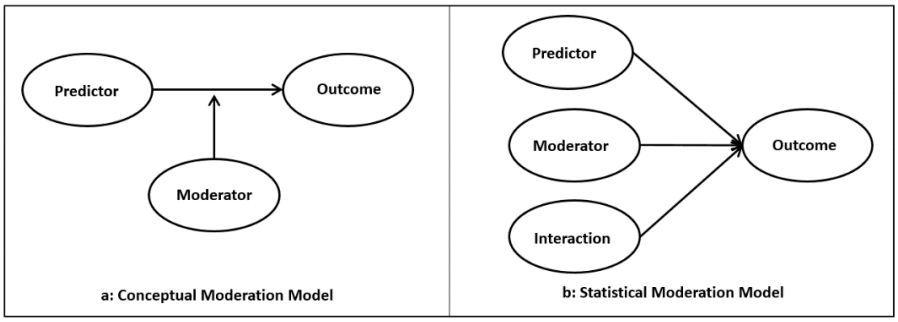

Fig. 4.4. Conceptual and statistical moderation model

Source: [67]

As shown in Table 4.23, three sub-hypotheses were tested for the three main hypotheses namely: (1) Testing the causal effect of the predictor on the outcome. (2) Testing the causal effect of moderating on the outcome. (3) Testing the causal effect of interaction (predictor*Moderating) on the outcome. The moderation assessment of this study was tested through hypotheses H6.a, H6.b, H6.c, and H6.d. A bootstrapping procedure with a resample of 5,000 was also performed to assess the interaction effect. The results in Table 4.23 show that service quality moderates (strengthens) the impact of Performance expectancy and effort expectancy on the actual usage of social networking site ($\beta = 0.092$, t= 2.183, p <0.05) and ($\beta = 0.120$, t= 2.196, p <0.01) respectively, so, H6.a and H6.b are accepted. However, H6.c, and H6.d are rejected.

Tab. 4.23. Result of moderating effects hypotheses

		Std Beta	Std Error	t-value	p-value	Decision
H6.a	H6.a: PE→USE	0.124	0.045	2.785	0.003	Supported
	H6.b: SQ→USE	-0.365	0.044	8.261	0.000	
	H6.c: PE*SQ→USE	0.092	0.042	2.183	0.015	
H6.b	H6.a: EE→USE	0.119	0.055	2.171	0.015	Supported
	H6.b: SQ→USE	-0.365	0.044	8.261	0.000	
	H6.c: EE*SQ→ USE	0.120	0.055	2.196	0.014	
H6.c	H6.a: SI→ USE	0.162	0.064	2.511	0.006	Not supported
	H6.b: SQ→ USE	-0.365	0.044	8.261	0.000	
	H6.c: SI*SQ→ USE	0.005	0.058	0.085	0.466	
H6.d	H6.a: FC→ USE	0.259	0.056	4.588	0.000	Not supported
	H6.b: SQ→ USE	-0.365	0.044	8.261	0.000	
	H6.c: FC*SQ→ USE	0.065	0.051	1.265	0.103	

Note: PE: performance expectancy, EE: effort expectancy, SI: social influence, FC: facilitating conditions, USE: actual usage of social networking site, SQ: service quality, KA: knowledge acquisition, PRO: productivity, COM: competence.

4.8. Hypotheses testing results

Table 4.24 summarises all hypotheses results in this study which includes the direct and moderation hypotheses.

Tab. 4.24. Summary of results

Hypo		Result
H1	Performance expectancy has a positive impact on actual usage of social networking site	Supported
H2	Effort expectancy has a positive impact on actual usage of social networking site	Supported
H3	Social influence has a positive impact on actual usage of social networking site	Supported
H4	Facilitating conditions has a positive impact on actual usage of social networking site	Supported
H5.a	Actual usage of social networking site has a positive impact on knowledge acquisition	Supported
H5.b	Actual usage of social networking site has a positive impact on productivity	Supported
H6.c	Actual usage of social networking site has a positive impact on competence	Supported
H6.a	Service quality moderates (strengthens) the positive impact of performance expectancy on the actual usage of social networking site	Supported
H6.b	Service quality moderates (strengthens) the positive impact of effort expectancy on the actual usage of social networking site	Supported
H6.c	Service quality moderates (strengthens) the positive impact of social influence on the actual usage of social networking site	Not Supported
H6.d	Service quality moderates (strengthens) the positive impact of facilitating conditions on the actual usage of social networking site	Not supported

5. Discussion and Conclusion

The current study was conducted using a questionnaire of 407 among students within United Arab Emirates University and Zayed University in Abu Dhabi. The respondents' gender is skewed toward male 264 respondents (64.9%) while the female represents 143 (35.1%). The age group of 30-39 years represents the majority of the respondents with 45.9%, 39.6% are between 20 and 29 years, 7.1% are between 40 and 49 years, and 2.2% are respondents over 50 years of age. Most of the respondents regarding the education level are holds bachelor degree 82.3%, 8.8% of the respondents holds either master degree, and 5.2% holds doctoral degree. The findings of this shows the validation of proposed extended model that is based on the Unified Theory of Acceptance & use of Technology (UTAUT) by [15] to examine the effect of online social networks among students within the public universities in the United Arab Emirates, the proposed extended model contains four constructs as antecedent variables to usage behavior (performance expectancy, effort expectancy, facilitating conditions and social influence), and extended it by addressing the moderating effect of service quality in the link between the dependent variables and actual usage [6](Datta, 2011).

The first objective of this study is to determine the influence of performance expectancy on actual usage among students within public universities in Abu Dhabi. This objective has one hypothesis that needs to be tested which is: performance expectancy significantly influence actual usage of online social sites.

Findings Relating to Specific Objective 1

Performance expectency was found to positively affect actual usage of online social networks among students within public universities in Abu Dhabi. This impact is supported by previous studies (Y. Wu, Tao, & Yang, 2007)(K. Al-Qeisi, Dennis, Alamanos, & Jayawardhena, 2014); (Zhou, Lu, & Wang, 2010), and is explained by the fact that the more useful online social networks to the job and daily life are, increase productivity and improve performance, the more regular the use of online social networks become, and being considered as the preferable method of communication, in addition to promoting its use to colleagues. However, this result contradicts [73] who found that there is no relationship between performance expectency and actual usage. This paradoxical results may support the claim of ([74]; (Isaac, Abdullah, Ramayah, & Mutahar, 2017a) that theories and models of technology usage do not serve equally across context.

In sum, this result is justified, as has been suggested in the literature on technology usage; performance expectency is critical for the comprehension of actual use of online social networks among students within public universities in Abu Dhabi. Thus, specific objective one of this study is achieved.

5.1. Findings relating to specific objective 2

The second objective of this study is to

determine the influence of effort expectancy on actual usage among students within public universities in Abu Dhabi. This objective has one hypothesis that needs to be tested which is: effort expectancy significantly influences actual usage of online social sites.

Effort expectancy was found to positively affect actual usage of online social networks among students within public universities in Abu Dhabi. This impact is supported by previous studies (Yueh, Huang, & Chang, 2015); (Faaeq, Alqasa, & Al-Matari, 2014); (Hsu et al., 2014), and is explained by the fact that the more online social networks are easy to use, offer flexible interaction that is clear and understandable, the more regular the use of online social networks become, and being considered as the preferable method of communication, in addition to promoting its use to colleagues.

In sum, this result is justified, as has been suggested in the literature on technology usage; effort expectancy is critical for the comprehension of actual use of online social networks among students within public universities in Abu Dhabi. Thus, specific objective two of this study is achieved.

5.2. Findings relating to specific objective 3

The third objective of this study is to determine the influence of social influence on actual usage among students within public universities in Abu Dhabi. This objective has one hypothesis that needs to be tested which is: social influences significantly influence actual usage of online social sites.

Social influence was found to positively affect actual usage of online social networks among students within public universities in Abu Dhabi. This impact is supported by previous studies (Datta, 2011); (Hsu et al., 2014);[72], and is explained by the fact that the more the supervisors, colleagues, friends and family think that an individual should use online social networks, the more regular the use of online social networks become, and being considered as the preferable method of communication, in addition to promoting its use to colleagues. Nevertheless, this result contradicts [80] who found that there is no relationship between social influence and actual usage. This paradoxical results may support the claim of ([81]; (Isaac et al., 2017a) that theories and models of technology usage do not serve equally across cultural contexts.

In sum, this result is justified, as has been suggested in the literature on technology usage; social influence is critical for the comprehension of actual use of online social networks among students within public universities in Abu Dhabi. Thus, specific objective three of this study is achieved.

5.3. Findings relating to specific objective 4

The fourth objective of this study is to determine the influence of facilitating conditions on actual usage among students within public universities in Abu Dhabi. This objective has one hypothesis that needs to be tested which is: facilitating conditions significantly influence actual usage of online social sites.

Facilitating conditions was found to positively affect actual usage of online social networks among students within public universities in Abu Dhabi. This impact is supported by previous studies [82]; (Moghawemi, Salleh, Zhao, & Mattila, 2012); (Im, Hong, & Kang, 2011), and is explained by the fact that the more the employee possess the necessary hardware and software, have the required knowledge and skills to use online social networks, the more regular the use of online social networks become, and being considered as the preferable method of communication, in addition to promoting its use to colleagues.

In sum, this result is justified, as has been suggested in the literature on technology usage; facilitating conditions are critical for the comprehension of actual use of online social networks among students within public universities in Abu Dhabi. Thus, specific objective four of this study is achieved.

5.4. Findings relating to specific objective 5

The fifth objective of this study is to determine the influence of actual usage on performance impact that includes (knowledge acquisition, productivity, and competence) among students within public universities in Abu Dhabi. This objective has three hypotheses that need to be tested which are: actual usages significantly influence knowledge acquisition of online social sites, actual usages significantly influence productivity of online social sites, and actual usage significantly influences competence of online social sites.

Actual usage was found to positively affect knowledge acquisition among students within public universities in Abu Dhabi. This impact is supported by previous studies [87]–[89], and is explained by the idea that when students utilize

online social sites more frequently and for extended amount of time, this will lead to many benefits including acquiring new knowledge and skills, come up with innovative ideas, help to recall information.

Moreover, the results shows that actual usage was found to positively affect productivity among students within public universities in Abu Dhabi. This impact is supported by previous studies [87], [90], [91], and is explained by the idea that when students utilize online social sites more frequently and for extended amount of time, respondents are more likely to accomplish tasks quickly, accomplish tasks easily, increase productivity, and work effectiveness.

Lastly, actual usage was found to positively influence competence among students within public universities in Abu Dhabi. This impact is supported by previous studies [87], [90], [91], and is understood by the idea that when students utilize online social sites more frequently and for extended amount of time, it helps students to enhance their ability to eliminate errors and realize future targets.

5.5. Findings relating to specific objective 6

The sixth objective of this study is to determine the influence of service quality as a moderating variable on the relationships between each of performance expectancy, effort expectancy, social influence, and facilitating conditions in one side and actual usage on the other among students within public universities in Abu Dhabi. This objective has four hypotheses that needs to be tested which are: service quality significantly moderates the impact of performance expectancy on actual usage, service quality significantly moderates the impact of effort expectancy on actual usage, service quality significantly moderates the impact of social influence on actual usage, and service quality significantly moderates the impact of facilitating conditions on actual usage of online social sites among students within public universities in Abu Dhabi.

In this study, the results revealed that service quality has a moderating effect (strengthen) in the relationship between performance expectancy and actual usage among students within public universities in Abu Dhabi. Simply stated, the more quick responses social sites provide for requests, being available anytime and anywhere, allows learner control over his/her learning activity, offers multimedia course content, enables interactive communication among learners, and makes it easy to share ideas among groups. The stronger is the impact of each of performance expectancy of social network sites and effort expectancy on its actual usage [92]–[94].

On the other hand, service quality was found not to have any significant moderating effect on the remaining relationships between each of social influence and facilitating conditions in one side and actual usage of social network sites on the other. This may be understood by the notion that both of these factor are not of technology nature therefore, service quality may not strengthen or dampen their relationships. Thus, the sixth specific objective is achieved.

6. Contributions and Implications

One of the aims of the present study is to test and validate the proposed extended based on Unified Theory of Acceptance & use of Technology (UTAUT). The explanation and prediction of performance impact of online social networks use among employee's public organizations in Abu Dhabi are empirically supported. The in-depth meanings of the results will explain the contributions which are of interest to practitioners and academics alike. This section outlines several contributions that have emerged subsequent to the hypotheses testing.

6.1. Academic contributions

Online social networks are currently being extensively studied in terms of adoption and in this study, we offer an insight into a post usage model. This study has successfully extended the Unified Theory of Acceptance & use of Technology and innovates by including actual use, user satisfaction and performance impact to assess the impact of those technologies. The study also contributes by examining the role of actual usage as a mediating variable in the relationships between each of performance expectancy, effort expectancy, facilitating conditions and social influence in one side and performance impact of online social networks in the other. Furthermore. Moreover, in this study, 49% of the performance impact variance was explained. The predictive power of this model, which includes actual usage and user satisfaction, has a greater capability to explain and predict performance impact compared to models from some previous studies, where performance impact variance explained was 46 percent [19], 42 percent [95], 40 percent [94],

and 37 percent [97]. This study provides evidence that the proposed model can be more effective in explaining performance impact especially within online technology context than other models in the previous literature.

7. Implications for Practitioners

The implications of the key findings provide significant benefits not only for individual employees but also to the UAE public sector as well as the country if they utilize this information technology. Incorporating the findings presented in Chapter 4, a number of practical implications were found such as promoting employees to make full use of online social networks in their work and improving professional practice, professional development and quality of work. The findings from this study will be beneficial for three different levels individuals, organizations and the country as a whole. For the individuals level, studies have revealed that online platforms usage improve the efficiency, knowledge acquisition, and decision quality for individuals [6]; [35]; [34]; [96]. For organizations level, studies show that online services usage influence positively organizational performance [4]; [5]. For the state level, studies have shown that the online applications usage has the potential to improve all aspects of our social, economic and cultural life [97], and it is linked to national income ("Pew Research Center," 2013). Therefore, online platforms usage such as social networks sites can play a major role in encouraging economic growth, improving government efficiency and enhancing students' performance in UAE.

7.1. Limitations

Even though the study offers positive new insights for both practice and theory, however, it faces limitations in three aspects. Firstly as the study population was students of public universities in Abu Dhabi as a public institution, it did not cover private institutions with different nature. Secondly, due to the research being cross-sectional. Gaining experience in using online social networks will change students' beliefs which cannot be tracked with a cross-sectional study. Thirdly, the study depends on self-reported measures to test the proposed research model. This is because getting objective data about performance was not probable due to the issue of privacy. This could decrease the relevance of the findings to alternative contexts. As such, the findings should be taken with caution.

7.2. Recommendations for future research

This present study enriches the body of knowledge by developing an extended model to better understand online social networks use among students within public universities in Abu Dhabi. As online social networks are increasingly shaping the way we live and interact with each other, where it dominates all aspects of communications, marketing, learning and interaction, it constitutes a very rich area for academic research.

Future research may apply the proposed extended UTAUT model with other technology applications, or other sectors such as the private sector. This will enhance the ability of the model to thoroughly explain performance impact in the IS context. Future researchers could investigate output based organizational performance. Researchers could also examine whether there is a moderating effect of demographic factors such as income.

Despite a longitudinal research design being relatively costly and time-consuming, it could provide stronger inferences for causality and improve understanding of how technology innovations influence online social networks usage. Additionally, a moderating role of culture in terms of collectivism/individualism could exist which makes it a viable area for researchers to explore.

References

[1] S. Greengard, *The Internet of Things*. (2015).

[2] W. Cheung, M. K. Chang, and V. S. Lai, "Prediction of Internet and World Wide Web usage at work: A test of an extended Triandis model," *Decision Support Systems*, Vol. 30, No. 1, (2000), pp. 83-100.
Doi: 10.1016/S0167-9236(00)00125-1.

[3] M. Cocosila and A. Igonor, "How important is the ' social ' in social networking ? A perceived value empirical investigation," *Information Technology & People*, Vol. 28, No. 2, pp. (2015), 366-382.
Doi: 10.1108/ITP-03-2014-0055.

[4] J. Wang and F. Hou, "Research on the Relationship between the Internet Usages

and the Organizational Performance in the Taiwanese E-commerce Business Organizations," *Informing Science*, Vol. 1, No. 1, (2003), pp. 17-25.

[5] C. Chen, "Study on Application of E-commerce and Organizational Performance in Taiwanese Professional Sports Event Promotion Organizations," *The Journal of Human Resource and Adult Learning*, Vol. 4, No. 1, (2008), pp. 66-73.

[6] O. Isaac, Z. Abdullah, T. Ramayah, A. M. Mutahar, and I. Alrajawy, "Perceived Usefulness, Perceived Ease of Use, Perceived Compatibility, and Net Benefits: an empirical study of internet usage among employees in Yemen," in *7th INTERNATIONAL CONFERENCE on POSTGRADUATE EDUCATION*, (2016), pp. 899-919.

[7] Arab Social Media Report, "Benefits of Social Media usage, Arab Social Media Influencers Summit," (2015).

[8] World Development Indicators, "World Bank Group," (2017).

[9] Internet World Stats, "Internet usage as a percentage of population: UAE vs. Arab countries," (2017).

[10] Global Information Technology Report, "The Impact of technology usage on organizational performance: (Ranking among 139 countries), World Economic Forum.," (2017).

[11] F. D. Davis, "Perceived Usefulness, Perceived ease of use, and User Acceptence of inforamtion technology," *MIS Quarterly*, Vol. 13, No. 3, (1989), pp. 319-340.

[12] W. H. DeLone and E. R. McLean, "Information systems success: The quest for the dependent variable," *Information Systems Research*, Vol. 3, No. 1, (1992), pp. 60-95.
Doi: 10.1287/isre.3.1.60.

[13] W. H. DeLone and E. R. McLean, "The DeLone and McLean model of information systems success: A ten-year update," (2003).
Doi: 10.1080/07421222.2003.11045748.

[14] D. L. Goodhue and R. L. Thompson, "Task-Technology Fit and Individual Performance," *MIS Quarterly*, Vol. 19, No. 2, (1995), pp. 213-236.

[15] V. Venkatesh, M. G. Morris, G. B. Davis, and F. D. Davis, "User Acceptance of Information Technology: Toward a Unified View," *MIS Quarterly*, Vol. 27, No. 3, (2003), pp. 425-478.
Doi: 10.1017/CBO9781107415324.004.

[16] R. Agarwal, "Individual acceptance of information technologies," *Framing the domains of IT management: Projecting the future through the past*, (2000), pp. 85-104.

[17] W.-T. Wang and Y.-J. Lai, "Examining the adoption of KMS in organizations from an integrated perspective of technology , individual , and organization," *Computers in Human Behavior*, Vol. 38, (2014), pp. 55-67.
Doi: 10.1016/j.chb.2014.05.013.

[18] V. Venkatesh, "Determinants of Perceived Ease of Use : Integrating Control , Intrinsic Motivation , and Emotion into the Technology Acceptance Model," *Information System Research*, Vol. 11, (2000), pp. 342-365.
Doi: 10.1287/isre.11.4.342.11872.

[19] V. Khayun and P. Ractham, "Measuring e-excise tax success factors: Applying the DeLone & McLean information systems success model," in *Proceedings of the Annual Hawaii International Conference on System Sciences*, (2011), pp. 1-10.
Doi: 10.1109/HICSS.2011.303.

[20] Y. M. Cheng, "Antecedents and consequences of e-learning acceptance," *Information Systems Journal*, Vol. 21, (2011), pp. 269-299.
Doi: 10.1111/j.1365-2575.2010.00356.x.

[21] B. G. Kim, S. C. Park, and K. J. Lee, "A

structural equation modeling of the Internet acceptance in Korea," *Electronic Commerce Research and Applications*, Vol. 6, No. 4, (2007), pp. 425-432.
Doi: 10.1016/j.elerap.2006.08.005.

[22] M. H. Fagan and B. R. Wooldridge, "An empirical investigation into the relationship between computer self-efficacy, anxiety, experience, support and usage," *Journal of Computer Information Systems*, (2004), pp. 95-105.

[23] J.-W. Lian, "Critical factors for cloud based e-invoice service adoption in Taiwan: An empirical study," *International Journal of Information Management*, Vol. 35, No. 1, (2015), pp. 98-109.
Doi: 10.1016/j.ijinfomgt.2014.10.005.

[24] Y. Y. Shih and C. Y. Chen, "The study of behavioral intention for mobile commerce: Via integrated model of TAM and TTF," *Quality and Quantity*, Vol. 47, No. 580, (2013), pp. 1009-1020.
Doi: 10.1007/s11135-011-9579-x.

[25] G. P. Z. Montesdioca and A. C. G. Maçada, "Measuring user satisfaction with information security practices," *Computers & Security*, Vol. 48, pp. 267-280.
Doi: 10.1016/j.cose.2014.10.015.

[26] V. Venkatesh, J. Y. L. Thong, and X. Xu, "Consumer acceptance and use of information technology: Extending the unified theory of acceptance and use of technology," *MIS Quarterly: Management Information Systems*, Vol. 36, No. 1, (2012), pp. 157-178.
Doi: 10.2307/41410412.

[27] H. Son, Y. Park, C. Kim, and J.-S. Chou, "Toward an understanding of construction professionals' acceptance of mobile computing devices in South Korea: An extension of the technology acceptance model," *Automation in Construction*, Vol. 28, (2012), pp. 82-90.
Doi: 10.1016/j.autcon.2012.07.002.

[28] M. L. Irick, "Task-Technology Fit and Information Systems Effectiveness," *Journal of Knowledge Management Practice*, Vol. 9, No. 3, (2008).

[29] S. Petter and E. R. McLean, "A meta-analytic assessment of the DeLone and McLean IS success model: An examination of IS success at the individual level," *Information & Management*, Vol. 46, No. 3, (2009), pp. 159-166.
Doi: 10.1016/j.im.2008.12.006.

[30] L. Zhao, Y. Lu, B. Wang, and W. Huang, "What makes them happy and curious online? An empirical study on high school students' Internet use from a self-determination theory perspective," *Computers and Education*, Vol. 56, No. 2, (2011), pp. 346-356.
Doi: 10.1016/j.compedu.2010.08.006.

[31] J. C. Roca, C.-M. Chiu, and F. J. Martínez, "Understanding e-learning continuance intention: An extension of the Technology Acceptance Model," *International Journal of Human-Computer Studies*, Vol. 64, No. 8, (2006), pp. 683-696.
Doi: 10.1016/j.ijhcs.2006.01.003.

[32] D. Cheng, G. Liu, C. Qian, and Y.-F. Song, "Customer Acceptance of Internet Banking: Integrating Trust and Quality with UTAUT Model," *IEEE*, (2013), pp. 383-388.

[33] A. Almatari, N. Iahad, and A. Balaid, "Factors Influencing Students Intention to Use M-learning," *Journal of Information Systems Research and Innovation*, (2012), pp. 1-8.

[34] M. Norzaidi, S. C. Chong, R. Murali, and M. I. Salwani, "Intranet usage and managers' performance in the port industry," *Industrial Management & Data Systems*, Vol. 107, No. 8, (2007), pp. 1227-1250.
Doi: 10.1108/02635570710822831.

[35] M. D. Norzaidi and M. I. Salwani, "Evaluating technology resistance and technology satisfaction on students' performance," *Campus-Wide Information*

Systems, Vol. 26, No. 4, (2009), pp. 298-312.
Doi: 10.1108/10650740910984637.

[36] C. Martins, T. Oliveira, and A. Popovič, "Understanding the Internet banking adoption: A unified theory of acceptance and use of technology and perceived risk application," *International Journal of Information Management*, Vol. 34, No. 1, (2014), pp. 1-13.
Doi: 10.1016/j.ijinfomgt.2013.06.002.

[37] S. Pahnila, M. Siponen, and X. Zheng, "Integrating Habit into UTAUT : The Chinese eBay Case," *Pacific Asia Journal of the Association for Information Systems*, Vol. 3, No. 2, (2011), pp. 1-30.

[38] C. Martins, T. Oliveira, and A. Popovič, "Understanding the Internet banking adoption: A unified theory of acceptance and use of technology and perceived risk application," *International Journal of Information Management*, Vol. 34, No. 1, (2014), pp. 1-13.
Doi: 10.1016/j.ijinfomgt.2013.06.002.

[39] S. Pahnila, M. Siponen, and X. Zheng, "Integrating Habit into UTAUT : The Chinese eBay Case," *Pacific Asia Journal of the Association for Information Systems*, Vol. 3, No. 2, (2011), pp. 1-30.

[40] F. K. Y. Chan, S. A. Brown, P. J. Hu, and K. Y. Tam, "Modeling Citizen Satisfaction with Mandatory Adoption of an E-Government Technology," *Journal of the Association for Information System*, Vol. 11, No. 10, (2010), pp. 519-549.

[41] T. Escobar-rodríguez, E. Carvajal-trujillo, and P. Monge-lozano, "Factors that influence the perceived advantages and relevance of Facebook as a learning tool : An extension of the UTAUT," *Australasian Journal of Educational Technology*, Vol. 30, No. 2, (2014), pp. 136-151.

[42] F. K. Y. Chan, S. A. Brown, P. J. Hu, and K. Y. Tam, "Modeling Citizen Satisfaction with Mandatory Adoption of an E-Government Technology," *Journal of the Association for Information System*, Vol. 11, No. 10, (2010), pp. 519-549.

[43] T. Escobar-rodríguez, E. Carvajal-trujillo, and P. Monge-lozano, "Factors that influence the perceived advantages and relevance of Facebook as a learning tool : An extension of the UTAUT," *Australasian Journal of Educational Technology*, Vol. 30, No. 2, (2014), pp. 136-151.

[44] Y.-Y. Shih and K. Fang, "The use of a decomposed theory of planned behavior to study Internet banking in Taiwan," *Internet Research*, Vol. 14, No. 3, (2004), pp. 213-223.
Doi: 10.1108/10662240410542643.

[45] K. A. Pituch and Y. Lee, "The influence of system characteristics on e-learning use," *Computers & Education*, Vol. 47, No. 1, (2006), pp. 222-244.

[46] C. M. Chiu, C. S. Chiu, and H. C. Chang, "Examining the integrated influence of fairness and quality on learners' satisfaction and Web-based learning continuance intention," *Information Systems Journal*, Vol. 17, No. 3, (2007), pp. 271-287.
Doi: 10.1111/j.1365-2575.2007.00238.x.

[47] F. Lin, S. S. Fofanah, and D. Liang, "Assessing citizen adoption of e-Government initiatives in Gambia: A validation of the technology acceptance model in information systems success," *Government Information Quarterly*, Vol. 28, No. 2, (2011), pp. 271-279.
Doi: 10.1016/j.giq.2010.09.004.

[48] J. F. Hair, W. C. Black, B. J. Babin, and R. E. Anderson, *Multivariate Data Analysis*, 7th ed. New Jersey: Pearson, (2010).

[49] R. Ho, *HANDBOOK OF uNIVARIATE AND multivariate data analysis and interpretation with SPSS*. (2006).

[50] J. F. Hair, G. T. M. Hult, C. Ringle, and M. Sarstedt, *A Primer on Partial Least Squares Structural Equation Modeling*

(PLS-SEM), 2nd ed. London: Thousand Oaks: SAGE., (2017).

[51] G. M. Sullivan and R. Feinn, "Using Effect Size - or why the p Value is not enough," *Journal of Graduate Medical Education*, Vol. 4, No. 3, (2012), pp. 279-282.

[52] N. Urbach and F. Ahlemann, "Structural equation modeling in information systems research using partial least squares," *Journal of Information technology theory and application*, Vol. 11, No. 2, (2010), pp. 5-40.

[53] R. F. Falk and N. B. Miller, *A primer for soft modeling*. University of Akron Press, (1992).

[54] J. Cohen, *Statistical Power Analysis for the Behavioral Sciences*, 2nd ed. London: Routledge, (1988).

[55] W. W. Chin, "Issues and opinion on structural equation modeling," *MIS Quarterly*, Vol. 22, No. 1, (1998), pp. 7-16.

[56] J. F. Hair Jr, G. T. M. Hult, C. Ringle, and M. Sarstedt, *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*, Second edi. Sage publications, (2016).

[57] J. Cohen, *Statistical Power Analysis for the Behavioral Sciences*, 2nd ed. London: Routledge, (1988).

[58] W. W. Chin, "Issues and opinion on structural equation modeling," *MIS Quarterly*, Vol. 22, No. 1, (1998), pp. 7-16.

[59] D. Gefen and E. E. Rigdon, "An Update and Extension to SEM Guidelines for Administrative and social science research," *MIS quarterly*, Vol. 35, No. 2, (2011).

[60] J. F. Hair, G. T. M. Hult, C. Ringle, and M. Sarstedt, *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*, 2nd ed. London: Thousand Oaks: SAGE., (2017).

[61] J. Fornell, C., & Cha, *Partial least squares. In R. P. Bagozzi (Ed.), Advanced methods in marketing research (pp. 52–78)*. Cambridge: Blackwell, (1994).

[62] J. Cohen, P. Cohen, S. G. West, and L. S. Aiken, *Applied Multiple Regression/Correlation Analysis for the Behavioral Sciences*, 3rd ed. Mahwah, NJ: Lawrence Earlbaum Associates., (2003).

[63] D. Sober, "Post-hoc Statistical Power Calculator for Multiple Regression [Software]. Available from http://www.danielsoper.com/statcalc," (2016).

[64] C. M. Ringle and M. Sarstedt, "Gain more insight from your PLS-SEM results: The importance-performance map analysis," *Industrial Management & Data Systems*, Vol. 116, No. 9, (2016), pp. 1865-1886. Doi: 10.1108/IMDS-10-2015-0449.

[65] Z. Awang, *Structural Equation Modeling Using AMOS*. Shah Alam.Malaysia: University Teknologi MARA Publication Center, (2014).

[66] A. Hayes, *Introduction to Mediation, Moderation, & Conditional Process Analysis*, First. The Guilford Press, (2013).

[67] A. Field, *Discovering statistics using IBM SPSS statistics*. (2013).

[68] Z. Awang, *Structural Equation Modeling Using AMOS*. Shah Alam.Malaysia: University Teknologi MARA Publication Center, (2014).

[69] P. Datta, "A preliminary study of ecommerce adoption in developing countries," *Information Systems Journal*, Vol. 21, No. 1, (2011), pp. 3-32. Doi: 10.1111/j.1365-2575.2009.00344.x.

[70] Y. Wu, Y. Tao, and P. Yang, "Using UTAUT to explore the behavior of 3G mobile communication users," *2007 IEEE International Conference on Industrial*

Engineering and Engineering Management, (2007), pp. 199-203.
Doi: 10.1109/IEEM.2007.4419179.

[71] K. Al-Qeisi, C. Dennis, E. Alamanos, and C. Jayawardhena, "Website design quality and usage behavior: Unified Theory of Acceptance and Use of Technology," *Journal of Business Research*, Vol. 67, No. 11, (2014), pp. 2282-2290.
Doi: 10.1016/j.jbusres.2014.06.016.

[72] T. Zhou, Y. Lu, and B. Wang, "Integrating TTF and UTAUT to explain mobile banking user adoption," *Computers in Human Behavior*, Vol. 26, No. 4, (2010), pp. 760-767.
Doi: 10.1016/j.chb.2010.01.013.

[73] C.-L. Hsu, M.-C. Chen, Y.-H. Lin, K.-C. Chang, and A.-Y. Hsieh, "Adopting the Extension of UTAUT Model to Investigate the Determinants of e-book Adoption," (2014).

[74] K. I. Al-Qeisi, "Analyzing the Use of UTAUT Model in Explaining an Online Behavior: Internet Banking Adoption," Brunel University, (2009).
Doi: 10.1017/CBO9781107415324.004.

[75] O. Isaac, Z. Abdullah, T. Ramayah, and A. M. Mutahar, "Internet usage, user satisfaction, task-technology fit, and performance impact among public sector employees in Yemen," *International Journal of Information and Learning Technology*, Vol. 34, No. 3, (2017), pp. 210-241.
Doi: 10.1108/IJILT-11-2016-0051.

[76] H. Yueh, J. Huang, and C. Chang, "Exploring factors affecting students ' continued Wiki use for individual and collaborative learning : An extended UTAUT perspective," *Australasian Journal of Educational Technology*, Vol. 31, No. 1, (2015), pp. 16-31.

[77] M. K. Faaeq, K. Alqasa, and E. M. Al-Matari, "Technology Adoption and Innovation of E-Government in Republic of Iraq," *Asian Social Science*, Vol. 11, No. 3, (2014), pp. 135-145.
Doi: 10.5539/ass.v11n3p135.

[78] C.-L. Hsu, M.-C. Chen, Y.-H. Lin, K.-C. Chang, and A.-Y. Hsieh, "Adopting the Extension of UTAUT Model to Investigate the Determinants of e-book Adoption," (2014).

[79] P. Datta, "A preliminary study of ecommerce adoption in developing countries," *Information Systems Journal*, Vol. 21, No. 1, (2011), pp. 3-32.
Doi: 10.1111/j.1365-2575.2009.00344.x.

[80] H. Yueh, J. Huang, and C. Chang, "Exploring factors affecting students ' continued Wiki use for individual and collaborative learning : An extended UTAUT perspective," *Australasian Journal of Educational Technology*, Vol. 31, No. 1, (2015), pp. 16-31.

[81] K. I. Al-Qeisi, "Analyzing the Use of UTAUT Model in Explaining an Online Behavior: Internet Banking Adoption," Brunel University, (2009).
Doi: 10.1017/CBO9781107415324.004.

[82] A. Raman and Y. Don, "Preservice Teachers' Acceptance of Learning Management Software: An Application of the UTAUT2 Model," *International Education Studies*, Vol. 6, No. 7, (2013), pp. 157-164.
Doi: 10.5539/ies.v6n7p157.

[83] S. Moghawemi, N. A. M. Salleh, W. Zhao, and M. Mattila, "The entrepreneur's perception on information technology innovation adoption: An empirical analysis of the role of precipitating events on usage behavior," *Management Policy & Practice*, Vol. 14, No. 2, (2012), pp. 231-246.

[84] I. Im, S. Hong, and M. S. Kang, "An international comparison of technology adoption: adoption Testing the UTAUT model," *Information & Management*, Vol. 48, No. 1, (2011), pp. 1-8.
Doi: 10.1016/j.im.2010.09.001.

[85] D. Stefanovic, U. Marjanovic, M. Delić, D. Culibrk, and B. Lalic, "Assessing the

success of e-government systems: An employee perspective," *Information and Management*, Vol. 53, No. 6, (2016), pp. 717–726.
Doi: 10.1016/j.im.2016.02.007.

[86] O. Isaac, Z. Abdullah, T. Ramayah, and A. M. Mutahar, "Internet Usage and Net Benefit among Employees Within Government Institutions in Yemen: An Extension of Delone and Mclean Information Systems Success Model (DMISM) with Task-Technology Fit," *International Journal of Soft Computing*, Vol. 12, No. 3, (2017), pp. 178-198.
Doi: 10.3923/ijscomp.2017.178.198.

[87] P. E. Ramirez-Correa, F. J. Rondan-Cataluna, J. Arenas-Gaitan, and J. L. Alfaro-Perez, "Moderating effect of learning styles on a learning management system's success," *Telematics and Informatics*, Vol. 34, No. 1, (2017), pp. 272-286.
Doi: 10.1016/j.tele.2016.04.006.

[88] O. Isaac, Z. Abdullah, T. Ramayah, and A. M. Mutahar, "Internet Usage and Net Benefit among Employees Within Government Institutions in Yemen: An Extension of Delone and Mclean Information Systems Success Model (DMISM) with Task-Technology Fit," *International Journal of Soft Computing*, Vol. 12, No. 3, (2017), pp. 178-198.
Doi: 10.3923/ijscomp.2017.178.198.

[89] P. E. Ramirez-Correa, F. J. Rondan-Cataluna, J. Arenas-Gaitan, and J. L. Alfaro-Perez, "Moderating effect of learning styles on a learning management system's success," *Telematics and Informatics*, Vol. 34, No. 1, (2017), pp. 272-286.
Doi: 10.1016/j.tele.2016.04.006.

[90] M. Heffernan, B. Harney, K. Cafferkey, and T. Dundon, "Exploring the HRM-performance relationship: the role of creativity climate and strategy," *Employee Relations*, Vol. 38, No. 3, (2016), pp. 438-462.
Doi: 10.1108/ER-06-2015-0110.

[91] L. Para-González, D. Jiménez-Jiménez, and A. R. Martínez-Lorente, "Exploring the mediating effects between transformational leadership and organizational performance," *Employee Relations*, Vol. 40, No. 2, (2018), pp. 412-432.
doi: 10.1108/ER-10-2016-0190.

[92] K. Dartey-Baah, "Resilient leadership: a transformational-transactional leadership mix," *Journal of Global Responsibility*, Vol. 6, No. 1, (2015), pp. 99-112.
Doi: 10.1108/JGR-07-2014-0026.

[93] H. Xinli, "Effectiveness of information technology in reducing corruption in China," *Electronic Library*, Vol. 33, No. 1, (2015), pp. 52-64.
Doi: 10.1108/EL-11-2012-0148.

[94] Y. S. Wang and Y. W. Liao, "Assessing eGovernment systems success: A validation of the DeLone and McLean model of information systems success," *Government Information Quarterly*, Vol. 25, No. 4, (2008), pp. 717-733.
Doi: 10.1016/j.giq.2007.06.002.

[95] C.-K. Hou, "Examining the effect of user satisfaction on system usage and individual performance with business intelligence systems: An empirical study of Taiwan's electronics industry," *International Journal of Information Management*, Vol. 32, No. 6, (2012), pp. 560-573.
Doi: 10.1016/j.ijinfomgt.2012.03.001.

[96] J. H. Wu and Y. M. Wang, "Measuring KMS success: A respecification of the DeLone and McLean's model," *Information and Management*, Vol. 43, No. 6, (2006), pp. 728-739.
Doi: 10.1016/j.im.2006.05.002.

[97] M. Kocaleva and S. Zdravev, "Research on UTAUT Application in Higher Education Institution," in *International Conference on Information Technology and Development of Education*, (2014), pp. 34-38.

[98] "Pew Research Center," *Nations Embrace*

Internet & Mobile Technology, (2013).