Undergraduate Students' Adoption of Websiteservice Quality by Applying the Unified Theory of Acceptance and Use of Technology (UTAUT) in Jordan

http://dx.doi.org/10.3991/ijim.v7i3.2482

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Abstract—Websites design and quality becomes a critical success factor especially for Electronic University (E-University) and/or Mobile University (M-University) as a part of E-Government and/or M-Government; because websites are the main interface between the universities and its students and stakeholders. This study presents factors that affect undergraduate students' adoption of website-service quality by applying the Unified Theory of Acceptance and Use of Technology (UTAUT) in Jordan. The proposed model was empirically tested using data collected from a survey containing 24 questions. Out of the 450 questionnaires that were randomly distributed, 422 were returned (93.8%). The structural equation modeling technique (SEM), by using the WarpPLS 3.0 software, was used to evaluate the causal model. Results show that student adoption and use of university website services can be predicted from the students' behavioral intentions, which are affected significantly by performance expectancy and effort expectancy. The results show that social influence, website quality, and facilitating conditions have no direct significant effect on behavioral intention to use university website services even they have a medium grand mean for the scores of responses statements. Finally, as an ultimate aspiration, it was found that there is a direct effect between behavioral intention and actual behavioral to use university website services. Furthermore, the authors hope that understanding the underlying assumptions and theoretical constructs through the use of the UTAUT will assist developers in building, developing and maintaining a university website.

Index Terms—The Unified Theory of Acceptance and Use of Technology (UTAUT), Website-Service Quality, Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI) and Facilitating Condition (FC).

I. Introduction

Reference [17] defined a website as "a group of interface and functional attributes that are connected to each other to serve high levels of usability, performance, and beauty to users, to satisfy users' wants, and to obtain their satisfaction in a competitive market of online and offline sales and information services". With increasing number of websites and considerable investment in them, website quality evaluation has become an important activity [22]. Web based application can be used and reached more than non-web based application. Reference [21] said that web is playing a main role in diverse application domains such as business, education, industry and entertainment. As a

result, there are increasing concerns about the ways in which websites are developed and the degree of quality delivered.

The design of Web sites becomes a critical success factor especially for Electronic University (E-University) and/or Mobile University (M-University) purposes as a part of E-government and/or M-government; because web sites are the main interface between the universities and its students or stakeholders.

This study investigates factors that affect students' adoption of website-service quality by applying the Unified Theory of Acceptance and Use of Technology (UTAUT) at Al al-Bayt University in Jordan.

A. The Unified Theory of Acceptance and Use of Technology (UTAUT):

The Unified Theory of Acceptance and Use of Technology (UTAUT) depicted in Fig. 1, was developed by [27] for the purpose of examining technology adoption using a more unified approach. The model integrates the Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) of the Technology Acceptance Model (TAM). TAM was initially introduced by [8]. It has become one of the most widely used models in the investigation of user acceptance of information technology. As mentioned above the model integrates the Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) of the Technology Acceptance Model (TAM) referring to them as Performance Expectancy (PE) and Effort Expectancy (EE). In addition to these two variables: Social Influence (SI) and Facilitating Condition (FC). Gender, age, experience, and voluntariness of use are posited to mediate the impact of the four key constructs on usage intention and behavior [27].

II. RESEARCH MODEL AND HYPOTHESES DEVELOPMENT

A. Intention to Use

Based on previous research, information systems adoption is largely influenced by behavioral intention, hence intention to use university website plays an important role in predicting future usage and development.

B. Performance Expectancy

Performance expectancy (PE) is defined as the "degree to which an individual believes that using website-service

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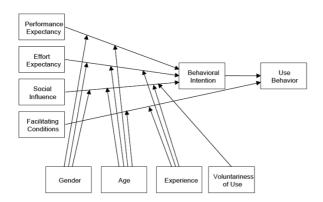


Figure 1: Original Unified Theory of Acceptance and Use of Technology (UTAUT)

will help him or her attain gains in job performance" [27, p. 447]. According to [27], the researchers expect that the relationship between performance expectancy and behavioral intention will be moderated by both gender and agesuch that the effect will be stronger for men and particularly for younger men than for women. Male users tend to be more comfortable with new information systems than female users and they tend to spend more time using new information systems, thus obtaining benefit from the systems. Age was found to be a significant variable in previous research: Older end-users tend to find new information systems such as university website difficult to use and find them less useful when performing their task or assignments thus this research proposes the following hypotheses:

- H_1 : Performance Expectancy has a positive effect on the Behavioral Intention to use university website.
- H_2 : The relationship between Performance Expectancy and Behavioral Intention to use university website is moderated by the gender of users.
- H3: The relationship between Performance Expectancy and Behavioral Intention to use university website is moderated by the age of users.

C. Effort Expectancy

Effort Expectancy (EE) is defined as "the degree of ease associated with the use of the system" [27, p. 450]. According to [27], female end users of information systems such as university website have higher level of computer anxiety and their level of effort expectancy tends to be lower than that of their male counterparts. Also compared to men, women are very concerned with the ease of use of information systems. They tend to anticipate more difficulties with ease of use. Reference [26] In the context of experience as a moderating factor, the researchers found that the longer the users use an information system such as university website, the more confident they are towards that information system. So that the influence of effort expectancy on behavioral intention will be moderated by gender, age, and experience, in that the effect will be stronger for women, particularly younger women, and particularly at early stages of experience. Therefore, this research proposes the following hypotheses:

- H4: Effort Expectancy has a positive influence on the Behavioral Intention to use university website.
- H5: The relationship between Effort Expectancy and Behavioral Intention to use university website is moderated by the gender of users.

- H6: The relationship between Effort Expectancy and Behavioral Intention to use university website is moderated by the age of users.
- H7: The relationship between Effort Expectancy and Behavioral Intention to use university website is moderated by the experience of users.

D. Social Influence

Social influence is defined as "the degree to which an individual perceives that important others believe he or she should use the new system" [27, p. 451]. "Important others" might include bosses, peers, subordinates, etc. Social influence as a direct determinant of behavioral intention is represented as subjective norm in TRA, TAM2, TPB/DTPB and C-TAM-TPB, social factors in MPCU, and image in IDT.

Reference [15] showed that social influence occurs when other people affect an individual's thoughts or actions. Reference [24] claimed that social influence, as an external variable, is the construct of interest because it operationalizes how various social influence processes affect the person's commitment to use the information system (i.e. website-service).

Reference [20] found that social influence plays an important role in determining the acceptance and usage behavior of new adopters of new information technologies.

Reference [25] found that social influence is one of the most critical components which has more pronounced effect on international students (both males and females) than their national, in determining the acceptance and usage behavior from the perspective of Unified Theory of Acceptance and Use of Technology (UTAUT) Model.

Reference [27] expect that the influence of social influence on behavioral intention will be moderated by gender, age, voluntariness, and experience, such that the effect will be stronger for women, particularly older women, particularly in mandatory settings in the early stages of experience. Therefore, this research proposes the following hypotheses:

- H8: Social Influence has a positive influence on the Behavioral Intention to use university website.
- H9: The relationship between Social Influence and Behavioral Intention to use university website is moderated by the gender of users.
- H10: The relationship between Social Influence and Behavioral Intention to use university website is moderated by the age of users.
- H11: The relationship between Social Influence and Behavioral Intention to use university website is moderated by the experience of users.
- H19: The relationship between Social Influence and Behavioral Intention to use university website is moderated by the voluntariness of use.

E. Website Quality

Website quality (WQ) has been added as an independent variable to the original UTAUT model and is moderated by gender, age and experience. These variables will assist in understanding the adoption of university website-service. Reference [2] defined website quality as a user's positive evaluation of a website's features, ensuring it meets the user's needs and expectations and reflects the overall excellence of the website. Reference [30] stated

that website quality (WQ) is the quality of the website itself or the services provided by that web system. Therefore, this definition of quality is based on two pillars: website quality and information quality. Reference [1] showed that website quality includes: website design, website functions, website security, and information quality. Website design or usability is one of the most important factors for determining the quality of a website [2], [19], [28], [29].

Therefore, this research proposes the following hypotheses:

- H12: Website Quality has a positive influence on the Behavioral Intention to use university website.
- H13: The relationship between Website Quality and Behavioral Intention to use university website is moderated by the gender of users.
- H14: The relationship between Website Quality and Behavioral Intention to use university website is moderated by the age of users.
- H15: The relationship between Website Quality and Behavioral Intention to use university website is moderated by the experience of users.

F. Facilitating Conditions

Facilitating conditions are defined as "the degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system" [27, p. 453]. This is a provision of support for users in terms of computer hardware and software necessary to utilize university website. The influence of facilitating conditions on usage will be moderated by age, monthly expense, and experience, such that the effect will be stronger for older workers, particularly with increasing experience. Therefore, this research proposes the following hypotheses:

- H16: Facilitating conditions will have a positive influence on usage of university website.
- H17: The relationship between Facilitating conditions and usage of university website is moderated by the age of users.
- H18: The relationship between Facilitating conditions and usage of university website is moderated by the experience of users.

G. Behavioral Intention

Behavioral Intention (BI) is defined by Reference [7], [10], [11] as the degree to which university website student's motivations intend to adopt the website services and this is our goals, aspirations, and expected responses to the attitude object.

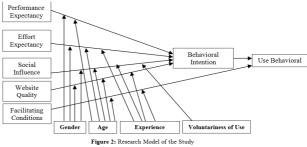
Reference [27], expect that behavioral intention will have a significant positive influence on technology usage. Therefore, this research proposes the following hypothesis:

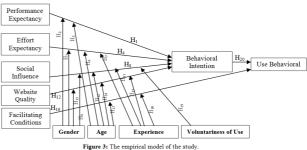
H20: Behavioral intention will have a significant positive influence on usage of university website.

III. RESEARCH MODEL AND HYPOTHESES

A. Research Model

The present study uses a modified UTAUT. The research model tested in this study is shown in Fig. 2.





B. Research Hypotheses

This section presents the hypotheses to be tested and their relationship with a well-known model, i.e. UTAUT, as shown in Fig. 3.

IV. RESEARCH DESIGN AND METHOD

A. Population and Sample

This study was conducted at one of the Jordanian public Universities. The data for the study were gathered from undergraduate students from all academic colleges and levels randomly by using a stratified random sample. A sample of 422 students was selected for the study.

B. Measuring the Constructs

A questionnaire was developed to achieve the objectives based on literature review. The questionnaire consisted of multiple items and its organization is based on seven groups using a five-point Likert scale ranging from (1) strongly disagree to (5) strongly agree.

Measurement items used in this study were adapted from previously validated measures (i.e., [7], [8], [9], and [27]), and were derived from thorough consultation with Information Systems/ Information Technology experts to ensure their reliability and validity of each item. The questionnaire was given to a number of referees. The questionnaire statements were modified based on the results of the referees, specifically the general information and the translation of the statement from Arabic into English. A pilot test of the measures was conducted on a representative sample of 40 students and some statements on the questionnaire were modified based on the results of the pilot test.

C. Data Collection Procedure

For this study, quantitative analysis was utilized. The questionnaire was distributed to a representative sample. All participants were randomly selected from the University by using a stratified random sample. Computer software was used for the analysis: WarpPLS 3.0 using structural equation modeling (SEM). Statistical Descriptive was used to find out the respondents' demographic and general characteristics in order to provide a descriptive profile of the respondents.

D. Data Analysis

The data for this research were collected by using a questionnaire containing 24 questions. After the follow-up activities from 450 survey respondents, 430 returned the questionnaires. Eight participants gave incomplete answers, so their results were dropped from the study. This left 422 sets of data for statistical analysis, with 93.8% valid return rate.

E. Reliability and Validity

Cronbach Alpha was used to measure internal consistency for state survey and research variables. The results of the reliability test for the measures suggested that all the measures in this study were reliable. The Alpha coefficients for the measures ranged from 0.61 to 0.99 and are presented in Table 1. Reference [14] claimed that a value greater than 60% is regarded as a satisfactory level of internal consistency of measure.

Therefore, a questionnaire was distributed to a selection of referees and a group of participants, and both of them agreed that the questionnaire measured the attributes it intended to measure.

V. RESULTS

A. Descriptive Statistics (Demographic Profile of Respondents)

This section describes respondents' personal background such as gender, age, and level of study. The demographic profile of the respondents is illustrated in Table 2: About 36.7% of the respondents are male. The majority of the respondents' ages (78.7%) were students in the 20 - Less than 25 years old range; 80 (19.0%) were less than 20 years old; 10 (2.3%) were more than 25 years old.

B. Grand Mean for the Scores of Responses for All Study Variables

Table 3 illustrated the arithmetic grand mean for the scores of responses for all the study variables statements. The answers to these parts relied on a 5-Likert's Scale, ranging from strongly disagree (1); disagree (2); moderately degree (3); I agree (4); and strongly agree (5). The interpretation of these results depends on the following scale: from 1.00-2.49 degree, low; from 2.50-3.49, medium; and from 3.50-5.00, high. The highest average of 3.52 in this table corresponds to the factor of Effort Expectancy. In other words, most of the respondents agreed that the use of university website is very easy. They also have the use behavioral intension to use it, with a moderate average of response reached 3.30. They also have the behavioral intension to use it, with a moderate average of response reached 3.10. The respondents moderately agreed that facilitating conditions are important with an average response of 2.96. They also agreed that website quality is moderately important, with a moderate average of response reached 2.92. The respondents moderately agreed that social influence is important with an average response of 2.90, but the lowest average response is for the its performance expectancy; the average response was about 2.84 which came to be on a moderate scale

C. Analysis of the independent factors

The Tables below show the response average for each factor in more detailed response. Therefore, the first factor which is clearly analysed in the table below shows that the

lowest average response is for the question that is related to the overall Performance Expectancy with a moderate response average of 2.84. The highest response average is for providing a desired level of service capability with an average of 3.49.

TABLE I.
THE ALPHA COEFFICIENTS.

		Alpha
1	Performance Expectancy	0.793
2	Effort Expectancy	0.776
3	Social Influence	0.776
4	Website Quality	0.667
5	Facilitating Conditions	0.608
6	Behavioral Intention	0.834
7	Use Behavioral	0.990

TABLE II.
DEMOGRAPHIC PROFILE OF RESPONDENTS

Variable		Frequency	Percentage
Gender	Female	267	63.2
Gender	Male	155	36.7
	Less than 20	80	19.0
Age (years)	20- Less than 25	332	78.7
	More than 25	10	2.3
	First Year	40	9.5
	Second Year	101	23.9
Levels	Third Year	113	26.8
	Fourth Year	153	36.3
	Fifth Year	15	3.5

TABLE III.
GRAND MEAN FOR THE SCORES OF RESPONSES FOR ALL STUDY
VARIABLES STATEMENTS.

No.	Variable	Grand Mean
1	Performance Expectancy	2.84
2	Effort Expectancy	3.52
3	Social Influence	2.90
4	Website Quality	2.92
5	Facilitating Conditions	2.96
6	Behavioral Intention	3.10
7	Use Behavioral	3.30

TABLE IV.
PERFORMANCE EXPECTANCY

No	•	Mean td.	Deviatio	Rank	Level
1	I would find the university website useful in my job.	3.49	1.274	1	Medium
2	Using the university website enables me to accomplish tasks more quickly.	2.90	1.388	2	Medium
3	Using the university website increases my productivity.	2.63	1.204	3	Medium
4	If I use the university website, I will increase my chances of getting a raise.	2.32	1.209	4	low
	Total average		2.84 (Med	lium)	

From Table 4, the averages of university website services ranged between 2.32 of paragraph (4), which attains the lowest average, and 3.49 of paragraph (1), which attains the highest average. All these averages were medium, except paragraph (4) was low, indicating that the level of Performance Expectancy provided to the sample members was medium.

TABLE V. EFFORT EXPECTANCY

No		Mean	Std. De- viation	Rank	Level
1	My interaction with the university website would be clear and understandable.	3.50	1.138	3	High
2	It would be easy for me to become skillful at using the university website.	3.75	1.181	1	High
3	I would find the university web- site easy to use.	3.73	1.133	2	High
4	Learning to operate the university website is easy for me.	3.09	1.233	4	Medium
	Total average		3.52 (I	High)	

From Table 5, the averages of university website services reached 3.09 for paragraph (4), which attains the lowest average, and 3.75 for paragraph (2), which attains the highest average. All these averages were High, except paragraph (4) was Medium, indicating that the level of Effort Expectancy provided to the sample members was high.

TABLE VI. SOCIAL INFLUENCE

No		Mean	Std. De- viation	Rank	Level
1	People who influence my behavior think that I should use the university website.	3.04	1.364	2	Medium
2	People who are important to me think that I should use the university website.	3.16	1.273	1	Medium
3	The senior management of this university has been helpful in the use of the website.	2.60	1.335	4	Medium
4	In general, the university has supported the use of the website.	2.78	1.418	3	Medium
	Total average		2.90 (Me	edium)	

From Table 6, the averages of university website services reached 2.60 for paragraph (3), which has the lowest average, and 3.16 for paragraph (2), which has the highest

average. All these averages were medium, indicating that the level of Social Influence provided to the sample members was medium.

TABLE VII. WEBSITE QUALITY

No		Mean	Std. De- viation	Rank	Level
1	University web- sites appear safe and secure for carrying out transactions.	3.43	1.345	1	Medium
2	University web- sites look attrac- tive and use fonts and color proper- ly.	2.35	1.116	5	low
3	University websites look organized.	2.98	1.184	3	Medium
4	University websites are always up and available 24/7.	2.73	1.295	4	Medium
5	Content of university websites is useful and updated regularly.	3.11	1.463	2	Medium
	Total average		2.92 (Ma	edium)	

Table 7 shows that the averages of university websites services reached 2.35 for paragraph (2) which attains the lowest average, and 3.43 for paragraph (1), which attains the highest average. All these averages being medium, except paragraph (2) was low, indicate that the level of Website Quality provided to the sample members was medium.

TABLE VIII. FACILITATING CONDITIONS

No		Mean	Std. De- viation	Rank	Level
1	I have the re- sources neces- sary to use the university web- site.	3.25	1.285	2	Medium
2	I have the knowledge nec- essary to use the university web- site.	3.49	1.193	1	Medium
3	The university website is not compatible with other systems I use.	2.80	1.178	3	Medium
4	A specific person (or group) is available for assistance with university website difficulties.	2.30	1.303	4	Low
	Total average		2.96 (Ma	edium)	

As shown in Table 8, the averages of university website services reached 2.30 for paragraph (4) which attains the lowest average, and 3.49 for paragraph (2) which attains

the highest average. All these averages were medium, except paragraph (4) was low, indicating that the level of perceived usefulness provided to the sample members was medium.

TABLE IX. BEHAVIORAL INTENTION

No		Mean	Std. Devi- ation	Rank	Level
1	I intend to use the university website in the next <n> months.</n>	3.16	1.281	1	Medium
2	I predict I would use the university website in the next <n> months.</n>	3.12	1.263	2	Medium
3	I plan to use the university website in the next <n> months.</n>	3.01	1.327	3	Medium
	Total average		3.10 (Me	dium)	

As shown in Table 9, the averages of university website services reached 3.01 for paragraph (3), which attains the lowest average, and 3.16 for paragraph (1) which attains the highest average. All these averages were medium, indicating that the level of Behavioral Intention provided to the sample members was medium.

D. Hypotheses Test

The model included 24 items describing seven latent constructs: Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Website Quality, Behavioral Intention, and Use Behavioral. The structural equation modeling (SEM) using the WarpPLS 3.0 software was used that applies the partial least squares (PLS) technique (http://www.scriptwarp.com/warppls). SEM is a second generation statistical method that, in contrast to regression, allows for the simultaneous assessment of multiple independent and dependent constructs, including multi-step paths [13]. The measurement model test presented a good fit between the data and the proposed measurement model. To assess the model fit with the data, it is recommended that the p-values for both the average path coefficient (APC= 0.106, P<0.001) and the average rsquared (ARS= =0.591, P<0.001) be both lower than 0.05. In addition, it is recommended that the average variance inflation factor (AVIF= 1.760) be lower than 5 [16]. The various goodness-of-fit statistics are shown in Table 10.

TABLE X.
MODEL EVALUATION OVERALL FIT MEASUREMENT

Measure	Value	P values
Average path coefficient (APC) (<0.05)	0.106	P< 0.001
Average r-squared (ARS) (<0.05)	0.591	P< 0.001
Average variance inflation factor (AVIF)	1.760	Good if < 5

To validate the measurement model, convergent validity was evaluated by examining composite reliability and average variance extracted (AVE) from the measures. Values for composite reliability are recommended to ex-

ceed 0.70 [5] and AVE values should be greater than the generally recognized cut-off value of 0.50 [12].

All composite reliability and AVE values meet the recommended threshold values except perceived price level. Table 11 summarizes the results. The AVE for each variable was obtained to check discriminant validity [4]. As shown in Table 11, the square root of AVE for each construct is greater than the correlations between the constructs and all other constructs, indicating that these constructs have discriminant validity [12].

TABLE XI.

COMPOSITE RELIABILITY, AVE, AND CORRELATION OF CONSTRUCTS VALUES.

		Composite Reliability	AVE	1	2	3	4	5	6	7
1	PE	0.867	0.620	0.787						
2	EE	0.857	0.601	0.499	0.775					
3	SI	0.856	0.601	0.567	0.454	0.775				
4	WQ	0.790	0.501	0.663	0.541	0.559	0.708			
5	FC	0.772	0.501	0.365	0.389	0.396	0.422	0.708		
6	BI	0.900	0.751	0.367	0.332	0.390	0.421	0.381	0.867	
7	UB	0.990	0.990	0.314	0.310	0.357	0.361	0.365	0.859	0.995

(Square roots of the AVE are the bolded diagonal values)

Fig. 4 presents the significant structural relationship among the research variables and the standardized path coefficients. The hypotheses (H₁, H₄, H₁₅, H₁₉, and H₂₀) were strongly supported as shown in Table 12. However $(H_2, H_3, H_5, H_6, H_7, H_8, H_9, H_{10}, H_{11}, H_{12}, H_{13}, H_{14}, H_{16},$ H₁₇, and H₁₈) are not supported, the result indicated that Performance Expectancy of website-service quality has a significant effect on behavioral intention to use websiteservice quality (H_1 : β =0.17, P<0.05), and indirectly influences actual use. The data also shows that Effort Expectancy significantly directly influences the behavioral intention to use (H_4 : β =0.19, P<0.001) and indirectly influences actual use. For hypothesis 15, the relationship between website quality and behavioral intention to use university website is moderated by the experience of users it has a significant effect (H_{15} : β =0.17, P<0.05). For hypothesis 19, the relationship between social influence and behavioral intention to use university website is moderated by the voluntariness of use it has a significant effect (H₁₉: β =0.16, P<0.05). According to moderating variables (gender, age, monthly expense, and experience) the result indicated that they are not supported (H₂, H₅, H₁₃, H₉, H₃, H₆, H_{12} , H_{14} , H_{17} , H_{7} , H_{11} , and H_{18}) except (H_{15} , and H_{19}). As an ultimate goals the result indicated that behavioral intention to adopt and use of university website-services has a significant effect on the actual use (H_{20} : β = 0.90, P<0.001). This means that users' behavioral intention is an important determinant of system adoption and usage.

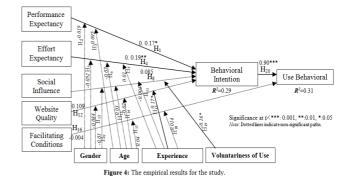


TABLE XII.
AN ILLUSTRATION OF THE RESULTS OF THE HYPOTHESES OF THE STUDY

	Independent	Dependent	Moderate	Result
H ₁ :	PE	BI		Supported
$\mathbf{H}_{2:}$	PE	BI	gender	Not Sup- ported
$\mathbf{H}_{3:}$	PE	BI	age	Not Sup- ported
H ₄ :	EE	BI		Supported
H ₅ :	EE	BI	gender	Not Sup- ported
H ₆ :	EE	BI	age	Not Sup- ported
H ₇ :	EE	BI	experience	Not Sup- ported
H ₈ :	SI	BI		Not Sup- ported
H ₉ :	SI	BI	gender	Not Sup- ported
H ₁₀ :	SI	BI	age	Not Sup- ported
\mathbf{H}_{11} :	SI	BI	experience	Not Sup- ported
H ₁₂ :	WQ	BI		Not Sup- ported
H ₁₃ :	WQ	BI	gender	Not Sup- ported
H ₁₄ :	WQ	BI	age	Not Sup- ported
H ₁₅ :	WQ	BI	experience	Supported
H ₁₆ :	FC	UB		Not Sup- ported
H ₁₇ :	FC	UB	age	Not Sup- ported
H ₁₈ :	FC	UB	experience	Not Sup- ported
H ₁₉ :	SI	BI	voluntariness	Supported
H ₂₀ :	BI	UB		Supported

VI. DISCUSSION AND CONCLUSIONS

The purpose of this article is to present the factors that affect undergraduate students' adoption of website-service quality by applying the Unified Theory of Acceptance and Use of Technology (UTAUT) in Jordan.

For this purpose, a model based on a modified Unified Theory of Acceptance and Use of Technology (UTAUT) was developed and measured.

The results suggest that: First, user adoption and use of university website services can be predicted from the students' behavioral intentions, which are affected significantly by performance expectancy, and effort expectancy. Effort expectancy has the most important significant direct effect on behavioral intention, even more than performance expectancy. A possible explanation of this finding is that students have troubles when they use a university website there are some weaknesses in some aspects such as in design, interface, and performances from their perspective; so the university website developers should keep developing student oriented easy-to-use interfaces. Reference [6] said that some research has found that the effort expectancy usage relationship is stronger than the performance expectancy usage relationship as a predictor of user acceptance in hedonic context. They claimed, "If users seek self-fulfilling value or hedonic-oriented product, effort expectancy would have more important value affecting the intended use than performance expectancy." This result indicates that the progress of student adoption could be made by focusing on effort expectancy (with less effort). This conclusion corresponds with a number of prior studies such as [18], [21]. Second, the results show that

Social Influence, Website Quality, and Facilitating Conditions have no direct significant effect on behavioral intention to use university website services even they have a medium grand mean for the scores of responses statements; according to social influence students are affected by the thoughts and actions of others regarding the use of university website services. Our findings support prior studies such as [3], [20], [23], [25], [27]. For website quality students care about the quality of the websites in general but they do not think that the university website has a good quality, they mention that the website does not look attractive and does not use fonts and color properly. Facilitating conditions are also in medium grand mean; students think that the necessary resources and knowledge to use the website are somehow available but there is not a specific person or group available for assistance to deal with university website difficulties. Third, the results indicate that moderating variables (gender, age, and experience) are not supported. They did not influence the adoption and use of university website services except the relationship between website quality and behavioral intention to use university website is moderated by the experience of users and the relationship between social influence and behavioral intention to use university website is moderated by the voluntariness of use. Finally, as an ultimate aspiration, it was found that there is a direct effect between behavioral intention and actual behavioral use of university website services which is consistent with prior research [3], [21].

This research presents a new opportunity for further research in a country like Jordan, which actually focuses on improving and developing information technology in all fields. This research avoids spending thousands of dollars that may invest without ensuring that the students will actually adopt and use of the website services. In future this research could assist developers in building, developing and maintaining a universities website.

REFERENCES

- Ahn, T., Ryu, S., and Han, I. The Impact of Web Quality and Playfulness on User Acceptance of Online Retailing, Information and Management 44 (3): 263-275, 2007. http://dx.doi.org/10.1016/j.im.2006.12.008
- [2] Aladwani, A.M. and Palvia, P.C. Developing and validating an instrument for measuring user-perceived web quality. Information & Management, 39 (6): 467-76, 2002. http://dx.doi.org/10.1016/S0378-7206(01)00113-6
- [3] Alshehri, M., Drew, S., Alhussain, T., and Alghamdi, R. The Effects of Website Quality on Adoption of E-Government Service: An Empirical Study Applying UTAUT Model Using SEM. 23rd Australasian Conference on Information Systems 3-5 Dec 2012, Geelong, 2012.
- [4] Campbell D. T. Recommendations for APA test standards regarding construct, trait, or discriminant validity. The American Psychologist. 15, pages 546–553, 1960. http://dx.doi.org/10.1037/b0048255
- [5] Chin W.W., Marcolin, B.L., and Newsted, P.R. A Partial Least Squares Latent Variable Modeling Approach for Measuring Interaction Effects: Results from a Monte Carlo Simulation Study and an Electronic-Mail Emotion/Adoption Study. Information Systems Research. 14 (2): 189-217, 2003. http://dx.doi.org/10.1287/isre.14.2.189.16018
- [6] Cho, D.Y., Kwon, H.J. and Lee, H.Y. Analysis of trust in internet and mobile commerce adoption. Proceedings of the 40th Hawaii International Conference on System Science, USA, 2007.
- [7] Davis, D., and Cosenza, R. Business research for decision making. California: Wadsworth Publishing Company, 1993.

- [8] Davis, F. Perceived usefulness, perceived ease of use, and User Acceptance of Information Technology. MIS Quarterly. 13(3): 318-339, 1989. http://dx.doi.org/10.2307/249008
- [9] Davis, F., and Venkatesh, D. Measuring user acceptance of emerging information technologies: An assessment of possible method biases. In 28th Annual Hawaii International Conference on System Sciences. Hawaii, IEEE computer society press, Los Alamitos, Calif, pages 729-736, 1995.
- [10] Fishbein, M., & Ajzen, I. A Theory of Reason Action: Some application sand Implications. In Nebraska Symposium on Motivation, H. Howe and Page (edn). University of Nebraska Press, Lincoln, NB, pages 65-116, 1979.
- [11] Fishbein, M., & Ajzen, I. Belief, Attitude, Intentions and Behavior: An Introduction to Theory and Research. Boston: Addison-Wesley, 1975.
- [12] Fornell C., and Larcker, F.L., Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. Journal of Marketing Research vol. 18, pages 39-50, 1981. http://dx.doi.org/10.2307/3151312
- [13] Gefen, D., Straub, D., and Boudreau, M.-C. Structural Equation Modeling and Regression: Guidelines for Research Practice. Communications of the Association for Information Systems, 4(article7), 2000.
- [14] Hair, J., Babin, B., Money, A., and Samouel, P. Essentials of Business Research Methods. Lehigh Publishing, Inc, 2003.
- [15] Kelman, H. Compliance, identification, and internalization: Three processes of attitude change. Journal of Conflict Resolution. Vol. 1, pages 51-60, 1958. http://dx.doi.org/10.1177/00220027580 0200106
- [16] Kock, N., WarpPLS 1.0 User Manual". ScriptWarp Systems, Laredo Texas. Retrieved online 8/11/2012 from http://www.scriptwarp.com/warppls/UserManual.pdf, 2009.
- [17] Lee S.W., and Koubek R.J. Understanding User Preferences Based on Usability and Aesthetics Before and After Actual Use. Interacting with Computers, June 2010, http://dx.doi.org/10.1016/j.intcom.2010.05.002
- [18] Liu, I-F., Chen, M., Sun, Y., Wible, D., and Kuo, C. Extending the TAM model to explore the factors that affect Intention to Use an Online Learning Community. Computers & Education. 54(2): 600–610, 2010. http://dx.doi.org/10.1016/j.compedu.2009.090.009
- [19] Loiacono, E.T., Watson, R.T. and Goodhue, D.L. WebQual: a website quality instrument, Working Paper 2000-126-0, University of Georgia, Athens, GA, 2000.
- [20] Malhotra, Y., and Galletta, D. F. Extending the Technology Acceptance Model to Account for Social Influence: Theoretical Bases and Empirical Validation. Proceedings of the 32nd Hawaii International Conference on System Sciences. Track1 page 14, 1999.
- [21] Mustafa, Suleiman H. and Al-Zoua'bi, Loai F. S. Usability of the academic websites of Jordan's universities: An evaluation study. Accepted for presentation in The 9th International Arab Conference on Information Technology (ACIT 2008), Tunisia, Sfax University, 16-18, Dec. 2008.
- [22] Naik, K. and Tripathy, P. Software Testing and Quality Assurance, Wiley, Hoboken, NJ, 2008. http://dx.doi.org/10.1002/9780470382844

- [23] Nysveen, H., Pedersen, H., Thorbjornsen, H., and Berthon, P. Mobilizing the brand. Journal of Service Research. 7(3): 257–276, 2005. http://dx.doi.org/10.1177/1094670504271151
- [24] O'Reilly, C., and Chatman, J. Organizational Commitment and Psychological Attachment: The Effects of Compliance, Identification, and Internalization on Prosocial Behavior. Journal of Applied Psychology, vol. 71, pages 492-499, 1986. http://dx.doi.org/10.1037/0021-9010.71.3.492
- [25] ORJI R. Impact of Gender and Nationality on Acceptance of a Digital Library: An Empirical Validation of Nationality Based UTAUT Using SEM. Journal of Emerging Trends in Computing and Information Sciences. 1(2): 68-79, 2010.
- [26] Venkatesh V., and Morris M. G.. Why Don't Men Ever Stop to Ask for Directions? Gender, Social Influence and Their Role in Technology Acceptance and Usage Behaviour. MIS Quarterly, 24 (1): 115-139, 2000. http://dx.doi.org/10.2307/3250981
- [27] Venkatesh, V., Morris, M. G., Davis, G. B., and Davis, F. D. User acceptance of information technology: Towards a unified view. MIS Quarterly. 27(3): 425-478, 2003.
- [28] Yang, Z. and Fang, X. Online service quality dimensions and their relationships with satisfaction. International Journal of Service Industry Management, 15 (3): 302-26, 2004. http://dx.doi.org/10.1108/09564230410540953
- [29] Yang, Z., Cai, S., Zhou, Z. and Zhou, N. Development and validation of an instrument to measure user perceived service quality of information presenting web portals. Information & Management. 42 (4): 575-89, 2005.
- [30] Zhong, L. W., and Ying, J. A. The Impact of Website and Offline Quality on Relationship Quality: An Empirical Study on Eretailing. In Proceedings of 4th International Conference on Wireless Communications, Networking and Mobile Computing Conference (WiCOM), 12-14 October 2008, pp 1-5. http://dx.doi.org/10.1109/WiCom.2008.2011

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Submitted 17 January 2013. Published as re-submitted by the authors $26 \, \text{June} \, 2013$.