

Psychological Dimensions Influencing Hospitality Instructors' Adoption of Web-based Learning Systems: A Comparative Study between Developing and Developed Countries

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Abstract

Despite the emerging trend of using web-based learning systems (WBLs) to facilitate teaching and learning activities, hospitality instructors do not always accept such systems as expected. Therefore, the purpose of this study is to propose a conceptual model investigating the impacts of three psychological dimensions (i.e. subjective norms, computing self-efficacy, and computing anxiety) on hospitality instructors' adoption of WBLs in three countries: Egypt as an example of a developing country and the UK and the USA as examples of developed countries. The sample chosen for this study included hospitality instructors who experienced using WBLs in teaching such as Blackboard, Moodle. A convenience sample method was implemented. In order to attract more participants, both paper-based and online-based surveys were used. Accordingly, a total of 300 surveys were sent and distributed. Among, 208 usable responses were obtained, representing a response rate of 69.3 percent. Confirmatory factor analysis was used to measure the reliability and validity of the survey constructs. Then, structural equation modeling was employed to explore the relationship among the survey constructs. The results show significant influences of students, colleagues, chair departments, mass media, computing self-efficacy, and computing anxiety on the Egyptian instructors' adoption of WBLs. However, only four dimensions (i.e. students, colleagues, self-efficacy, and anxiety) had significant influences on the non-Egyptian instructors' adoption of WBLs. In addition, age was a significant factor influencing instructors' adoption of WBLs. The findings of the current study offer practical implications for scholars and practitioners.

Keywords Psychological dimensions, web-based learning systems (WBLs), subjective norms, computing self-efficacy, computing anxiety.

Introduction

The Internet revolution of the twenty first century enabled the pedagogical shift from the traditional face-to-face teaching method to exciting electronic web-based interactive learning environment.⁽¹⁾ In order to cope with this revolution, different web-based learning systems (WBLs) have been developed for higher education. Blackboard Learning System, Moodle Learning System, the System for Multimedia Integrated Learning (Smile), Web Course Tools (WebCT), and Web Course Homepage System (WebCH) are the latest technology-based pedagogical tools that use the Internet as a delivery mechanism.⁽²⁾ Nowadays, many institutions of higher education adopt such WBLs for their e-learning courses.⁽³⁾ As a result, instructors are expected to integrate WBLs into their instructional activities.⁽⁴⁾ A WBL is a web-based communications platform that allows students, without limitation of time and place, to access different learning tools, such as program information, course content, instructor assistance, discussion boards, document sharing systems, and learning resources.⁽⁵⁾

Despite the emerging trend of using WBLs to facilitate teaching and learning activities, the number of users of such systems is not increasing as fast as expected.⁽⁶⁾ Additionally, the introduction of WBLs in teaching is often a complex process and instructors do not always accept such technologies as expected.⁽⁷⁾ Similarly, hospitality instructors exhibit a reluctance to embrace WBLs.⁽⁸⁾ Therefore, it is critical to identify the factors that influence instructors' adoption of WBLs to help policymakers in higher education facilitate their use.⁽⁶⁾

The majority of the WBLs studies have researched students' perspective,⁽⁹⁾ while only a few studies have examined instructors' perspective.⁽²⁾ Although, it has been argued that while student and instructor commitment impact favorable outcomes of WBLs,⁽¹⁰⁾ it is primarily instructor acceptance and attitudes that remain the critical components to the overall success of WBLs.⁽¹¹⁾ In addition, most studies have examined the technological factors of WBLs such as system quality.⁽²⁾ There is little research examining the influences of the psychological factors on instructors' acceptance of WBLs,⁽¹²⁾ especially in developing countries such as Egypt. In particular, most WBLs studies have been conducted in western/developed countries, while little studies have been conducted in non-western/developing countries.⁽¹³⁾

Therefore, the purpose of this study is to propose a conceptual model investigating the impacts of three psychological dimensions (i.e. subjective norms, computing self-efficacy, and computing anxiety) on hospitality instructors' adoption of WBLs in three countries: Egypt as an example of a developing countries and the UK and the USA as examples of developed countries. In this study, instructors' adoption of WBLs is defined as the degree to which the instructors intend to continue to use internet platforms in teaching.⁽³⁾

Literature Review and Hypotheses

Hofstede's Cultural Dimensions

The rationale for the differences in the acceptance of WBLs could be explained by the distinctions found in the national culture.⁽¹⁴⁾ In this regards, Hofstede cultural dimensions model is widely used by researchers to explain cultural differences.⁽⁴⁾ The dimensions of the culture are Power Distance (PD), Individualism/Collectivism (IC), Uncertainty Avoidance (UA) and Masculinity/Femininity (MF). PD is "a measure of the interpersonal power or influence between a superior and subordinate as perceived by the subordinate."⁽¹⁵⁾ In individualistic culture "interests of the individual prevail over the interest of the group", while in collectivistic culture "interests of the group prevail over the interest of the individual".⁽¹⁵⁾ UA is defined as "the degree to which members of a society feel uncomfortable with uncertainty and ambiguity".⁽¹⁵⁾ Masculine cultures focus on achievements and success. Feminine cultures are characterized by solidarity, equality, consensus seeking and concern about social relationships.⁽¹⁵⁾

The current study employed instructors from three countries (i.e. Egypt, UK, USA), therefore cultural factors can explain the behavioral variation of instructors in accepting WBLs. The differences in culture should be studied thoroughly before implementing WBLs.⁽⁴⁾ In a high PD culture such as Egypt (PD = 70), decision over implementing WBLs is taken by a superior and instructors are expected to accept it; however, in low PD cultures such as UK (PD = 35) and USA (PD = 40) instructors usually participate in the decision of implementing WBLs.⁽⁴⁾ In individualistic cultures such as UK (IC = 89) and USA (IC = 91), the opinion of others over accepting WBLs will not have any impact on individuals. But in a collectivistic culture such as Egypt (IC = 25), the opinion of others usually influences the individual decision.⁽⁴⁾ Individuals in a high UA-culture such as Egypt (UA = 80) feel uncomfortable when implementing a new WBLs and try to avoid it; however, individuals in low UA-cultures such as UK (UA = 35) and USA (UA = 46) accept new systems.⁽⁴⁾ In a feminine culture such as Egypt (MF = 45), female decision of accepting a new WBLs will be influenced by others in the organization, whereas in masculine cultures such as UK (MF = 66) and USA (MF = 62), decision of adopting a new WBLs is influenced by rewards, recognition, training and improvement of the individuals.⁽⁴⁾

A Proposed Model and its Research Hypotheses

The theoretical foundation for this study was the Technology Acceptance Model 2 (TAM2) developed by Venkatesh and Davis.⁽¹⁶⁾ TAM2 asserts that subjective norms impact individual's behavioral intention to accept a certain technology through the mediating influence of perceived usefulness and perceived ease of use. The proposed model extends TAM2 through the inclusion of another two psychological factors: computing self-efficacy and computing anxiety as additional predictor variables.⁽¹⁷⁾ The proposed conceptual model is illustrated in Figure 1. The following sections explain and justify each of the predicted relationships in the light of previous findings from the literature.

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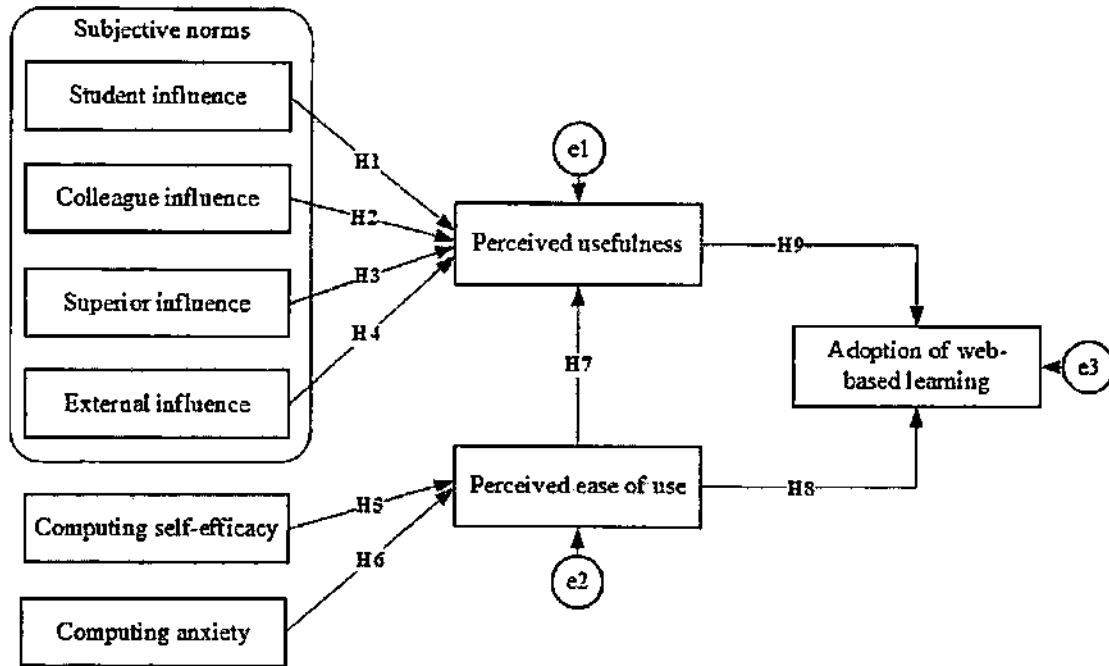


Figure 1. Conceptual model

Subjective Norms

Subjective norms refer to “the social pressures that make an individual perform a particular behavior”.⁽¹⁸⁾ Different social groups might have different opinions regarding the adoption of a particular technology.⁽¹⁹⁾ For the current study, four groups were considered: students, peers (department colleagues), superiors (department chairs), and externals (experts and mass media). On one hand, students might be more supportive to their instructors to adopt WBLs. On the other hand, department chairs, colleagues, and experts might feel that adopting WBLs may improve student’s learning. Therefore, in this study, subjective norms refer to the hospitality instructor’s perception social pressure or incentive, particularly from the students, colleagues, department chairs, and external experts, to use a WBL. In this regards, previous studies about technology adoption show that instructors’ behavioral intention to adopt WEBLs is significantly correlated to student influences,⁽⁶⁾ colleague influences, department chair influences,⁽²⁰⁾ and external influences.⁽²¹⁾ Furthermore, the subjective norm constructs of student, colleague, superior, and expert influences were introduced as determinants to instructors’ perceived usefulness.⁽²²⁾ Thus, four hypotheses are proposed:

- H1. Student influences positively affect the instructors’ perceived usefulness of WBLs.
- H2. Colleague influences positively affect the instructors’ perceived usefulness of WBLs.
- H3. Superior influences positively affect the instructors’ perceived usefulness of WBLs.
- H4. External influences positively affect the instructors’ perceived usefulness of WBLs.

Computing Self-efficacy

Self-efficacy is defined as “individual’s perceived capabilities to perform a behavior”.⁽²³⁾ In this study, computing self-efficacy is defined as the level of the instructors’ confidence and capabilities to successfully use WBLs to support their in-class learning environment based on previous experiences with other information systems.⁽⁶⁾ In this regards, previous studies have found that computing self-efficacy is likely to lead to a higher level of instructors’ intention to adopt WBLs.⁽²⁴⁾ Furthermore, computing self-efficacy has a direct effect on perceived ease of use of WBLs.⁽²⁾ Instructors who have higher computing self-efficacy are likely to have more positive ease of use belief. Therefore, hypothesis H5 is suggested:

- H5. Computing self-efficacy positively affects instructors’ perceived ease of use of WBLs.

Computing Anxiety

With the continuous development of more integrated WBLs, anxieties about learning to use such systems and executing tasks effectively become of primary importance.⁽¹⁷⁾ In particular, hospitality instructors computing anxieties may hinder institutional strategic objectives.⁽²⁰⁾ Computing anxiety is defined as “a feeling of being fearful or apprehensive when using or considering the use of a computer”.⁽²⁵⁾ In this study, computing anxiety is defined as the instructor’s feeling of being apprehensive when adopts WBLs. In this regards, previous studies show that computing anxiety influences how instructors perceive ease of use of a WBL.⁽¹⁷⁾ As instructor computing anxiety increases, the perception of ease of use of the WBL decreases. Therefore, this study hypothesizes that:

H6. Computing anxiety negatively affects instructors’ perceived ease of use of WBLs.

Perceived Ease of Use

Perceived ease of use (PEU) is defined as “the degree to which a person believing using a particular technology system would be free from effort”.⁽²⁶⁾ In this study, the perceived ease of use of WBLs is defined as the degree to which the instructors believe that using such systems would be free from effort.⁽⁷⁾ Previous information system researchers confirmed that PEU had a positive effect on behavioral intention to adopt WBLs through the perceived usefulness,⁽¹⁶⁾ therefore hypotheses seven and eight state:

H7. PEU positively affects the instructors’ perceived usefulness of WBLs.

H8. PEU positively affects the instructors’ intention to adopt WBLs.

Perceived Usefulness

Perceived usefulness (PU) is defined as “the degree to which a person subjectively believing in the use of a technology will enhance performance”.⁽²⁶⁾ In this study, the perceived usefulness of WBLs is defined as the degree to which the instructors believe that using such systems can enhance their teaching performance.⁽⁶⁾ The higher the perceived usefulness (or perceived advantage) the more likely it is for the instructors to adopt WBLs. Previous researchers revealed that perceived usefulness had a positive effect on the behavioral intention to adopt WBLs.⁽¹⁹⁾ Thus hypothesis nine proposes:

H9. PU positively affects the instructors’ intention to adopt WBLs.

Instructor Demographics

It might be interesting to examine how age, gender, or other demographic variables contribute to the variance in behavioral intention to adopt WBLs.⁽²⁷⁾ Previous studies show no significant correlation between instructors’ gender and their intention to adopt WBLs.⁽⁹⁾ Furthermore, there was no significant correlation between instructors’ age and their intention to adopt WBLs.⁽⁹⁾ Therefore, this study hypothesizes that:

H10. There is no significant correlation between instructors’ gender and their intention to adopt WBLs.

H11. There is no significant correlation between instructors’ age and their intention to adopt WBLs.

Methodology

Instrument Development

The current study employed a survey as the data-gathering instrument. All survey constructs were measured with items adapted from previous research (see Table 1), which have been validated. All items were measured on a 7-point Likert type scale: definitely agree,” “mostly agree,” “partially agree,” “neither agree nor disagree,” “partially disagree,” “mostly disagree,” and “definitely disagree.” The instrument was pre-tested with the data collected from 20 hospitality instructors using the convenience sampling method. The participants were explicitly asked to point out any ambiguities in the wording of the questionnaire. As a result, the modified survey instrument included nine constructs: student influence (3 items), colleague influence (3 items), superior influence (3 items), external influence (3 items), computing self-efficacy (3 items), computing anxiety (3 items), perceived usefulness (4 items), perceived ease of use (4 items), and intention (3 items). Additionally, the modified instrument included five questions for instructor demographics and technology attitude.

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Sample and Procedures

The sample chosen for this study included hospitality instructors who experienced using a WBLS in teaching. A convenience sample method was implemented. Instructors were selected from seven hospitality institutions: Five institutions from Egypt as an example of a developing countries, and other two institutions from UK and USA as examples of developed countries. In order to attract more participants, both paper-based and online-based surveys were used. The online survey was conducted by one of the major web-based survey portals in the UK (i.e. Checkbox Survey). First, a total of 250 e-mails were sent to invite hospitality instructors to participate in the survey. Second, 50 paper-based survey were distributed to instructors who did not participate in the online survey. Accordingly, 208 usable responses were obtained, representing a response rate of 69.3 percent.

Table 1. Instrument scales, items, and sources

Construct	Code	Measure	Source
Student influence (SI)	SI1	My students think that I should use the WBLS for teaching.	Roca et al., ⁽²⁸⁾
	SI2	My students have an influence on my intention to use the WBLS for teaching.	Ajjan & Hartshorne ⁽²²⁾
	SI3	I think it is important to my students that I use the WBLS for teaching.	
Colleague influence (CI)	CI1	My colleagues think that I should use the WBLS for teaching.	Roca et al., ⁽²⁸⁾
	CI2	My colleagues have positively influenced my decision to use the WBLS for teaching.	Ajjan & Hartshorne ⁽²²⁾
	CI3	Based on the views of my colleagues, it is important for me to use the WBLS for teaching.	
Superior influence (SPI)	SPI1	My department chair think that I should use the WBLS for teaching.	Roca et al., ⁽²⁸⁾
	SPI2	I feel pressure from my department chair to use the WBLS for teaching.	Ajjan & Hartshorne ⁽²²⁾
	SPI3	It is important to my department chair that I use the WBLS for teaching.	
External influence (EI)	EI1	I have read/seen news reports that say using WBLSs is a good way of teaching.	Roca et al., ⁽²⁸⁾
	EI2	Expert opinions are positive sentiment about using WBLSs for teaching.	
	EI3	Mass media reports have convinced me to use WBLSs for teaching.	
Computing self-efficacy (CS)	CS1	I could complete my teaching activities using the WBLS even if I had never used a system like it before.	Saadé & Kira ⁽¹⁷⁾
	CS2	I could complete my teaching activities using the WBLS even if I had only the system manuals for reference.	
	CS3	I could complete my teaching activities using the WBLS even if	

		there was no-one around to help me.	
Computing anxiety (CA)	CA1	I feel anxious about my ability to use the WBLs.	Saadé & Kira ⁽¹⁷⁾
	CA2	I feel pressured by using the WBLs.	
	CA3	I am frightened of using the WBLs.	
Perceived usefulness (PU)	PU1	Using the WBLs improves my teaching performance.	Davis, ⁽²⁶⁾ Ajjan & Hartshorne ⁽²²⁾
	PU2	Using the WBLs enhances my teaching effectiveness.	
	PU3	Using the WBLs gives me greater control over teaching.	
	PU4	I find the WBLs to be useful in my teaching.	
Perceived ease of use (PEU)	PEU1	Interacting with the WBLs does not require a lot of my mental effort.	Davis, ⁽²⁶⁾ Ajjan & Hartshorne ⁽²²⁾
	PEU2	I find the WBLs to be easy to use.	
	PEU3	My interaction with the WBLs is clear and understandable.	
	PEU4	I find it easy to get the WBLs to do what I want to do.	
Behavioral Intention to Use (BI)	BI1	I will use the WBLs for teaching on a regular basis in the future.	Roca et al., ⁽²⁸⁾ Ajjan & Hartshorne ⁽²²⁾
	BI2	I will frequently use the WBLs for teaching in the future.	
	BI3	I will strongly recommend others to use the WBLs for teaching.	

Data Grouping, Screening, and Analysis

In order to conduct a comparison between instructors' adoption of WBLs in developing and developed countries, the collected data were categorized into two groups: Egyptian and non-Egyptian instructors. The data from the British and American instructors were grouped together under "Non-Egyptian instructors". The reason for the grouping is that British and American instructors were using the same WBL (i.e. Blackboard). Furthermore, UK and USA represent nearby the same positions on all of Hofstede's cultural dimensions.⁽¹⁵⁾ After grouping, the data were screened for normality using SPSS v.22. Neither univariate nor multivariate outliers were detected. After data screening, confirmatory factor analysis (CFA) was used to measure the reliability and validity of the nine latent constructs of the survey. Then, structural equation modeling (SEM) was used to estimate the structural models and to explore the causal relationship among all constructs. CFA and SEM were estimated using AMOS v.22. Furthermore, two non-parametric tests (i.e. the Mann-Whitney and the Kruskal Wallis tests) were used to compare the scores of the instructors regarding their gender and age.

Results

Respondents' Profiles

Table 2 shows that the sample size was deemed adequate according to gender. In particular, hospitality instructors comprised 50.5 percent females and 49.5 percent males. They ranged in age from younger than 30 to over 60 years old. The majority of instructors were between 30 and 40 (36.5 percent), meaning more than one third of the respondents were members of Generation X who are considered "digital natives," or those that have grown up using technology such as computers, cell phones, and the Internet.⁽²⁹⁾ According to the rank, almost half of the instructors (47.6 percent) were assistant professors, followed by associate

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professors (27.9 percent), PhD candidates (13.9 percent), and full professors (10.6 percent). According to the home university, more than half of the instructors (52.8 percent) were selected from two universities in developing countries, one in the UK (i.e. Cardiff Metropolitan University) and the other in the USA (i.e. Purdue University), whereas 47.2 percent were selected from five Egyptian universities and higher institutions (i.e. Alexandria University, Helwan University, Pharos University, Sinai Institute for Tourism and Hotels, Suez Canal University). Regarding the technology use, almost half of the instructors (52.9 percent) had a very positive attitude towards using technology.

Table 2. Profiles of the respondents (N = 208)

Variable	Frequency	%
Gender		
Female	105	50.5
Male	103	49.5
Age (years)		
Less than 30	17	8.2
30 up to 40	76	36.5
40 up to 50	49	23.6
50 up to 60	62	29.8
60 or more	4	1.9
Employment position		
Full professor	22	10.6
Associate professor	58	27.9
Assistant professor	99	47.6
PhD. Candidate	29	13.9
University		
Alexandria University	22	10.6
Cardiff University	92	44.2
Helwan University	44	21.2
Purdue University	18	8.7
Other Egyptian institutions	32	15.4
General attitude towards using technology		
Neither positive nor negative	31	14.9
Rather positive	67	32.2

The Measurement Models (CFA)

Confirmatory factor analysis (CFA) was first used to measure the reliability and validity of the nine latent constructs in the hypothesized model (Figure 1). The initial model was not a satisfactory fit and so some modification indices were suggested to improve the model fit. As a result, a good model fit was achieved for the measurement models: $\chi^2(244) = 443.543$; $p < .0001$, $\chi^2/df = 1.82$, GFI = 0.90, AGFI = 0.91, NFI = 0.93, RFI = 0.91, IFI = 0.93, TLI = 0.94, CFI = 0.95, which were all greater than the recommended level of 0.90 and RMSEA = 0.025, lower than the cut off value of 0.05.⁽³⁰⁾ The results of CFA (see Table 3) show that the lowest value of CR and Cronbach's α for all the constructs was 0.81, which exceeded the minimum acceptable value of 0.70,⁽³¹⁾ indicating a good reliability level. Additionally, the lowest value of AVE for all the constructs was 0.60, which exceeded the minimum acceptable value of 0.50,⁽³¹⁾ indicating good convergent validity. Furthermore, the results of CFA (see Table 4) show that the AVE of each construct was greater than the squared correlation for each pair of constructs,⁽³¹⁾ indicating good discriminant validity.

Table 3. Standardized parameter estimates of the measurement models

Constructs	Egyptian Instructors				Non-Egyptian Instructors			
	β	CR	α	AVE	β	CR	A	AVE
Student influence		0.87	0.86	0.70		0.90	0.90	0.74
SI1	0.81				0.81			
SI2	0.83				0.88			
SI3	0.86				0.89			
Colleague influence		0.89	0.88	0.72		0.90	0.89	0.75
CI1	0.84				0.80			
CI2	0.82				0.88			
CI3	0.89				0.92			
Superior influence		0.84	0.84	0.64		0.86	0.85	0.67
SPI1	0.77				0.81			
SPI2	0.82				0.80			
SPI3	0.80				0.84			
External influence		0.85	0.84	0.66		0.85	0.84	0.65
EI1	0.84				0.79			
EI2	0.79				0.80			
EI3	0.80				0.82			
Computing self-efficacy		0.90	0.89	0.76		0.90	0.89	0.76

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CS1	0.83				0.85			
CS2	0.98				0.95			
CS3	0.79				0.80			
Computing anxiety		0.87	0.86	0.69		0.82	0.81	0.60
CA1	0.84				0.80			
CA2	0.88				0.78			
CA3	0.76				0.75			
Perceived usefulness		0.96	0.95	0.86		0.93	0.92	0.77
PU1	0.94				0.90			
PU2	0.99				0.90			
PU3	0.97				0.88			
PU4	0.80				0.82			
Perceived ease of use		0.91	0.90	0.72		0.93	0.93	0.78
PEU1	0.79				0.80			
PEU2	0.88				0.93			
PEU3	0.81				0.97			
PEU4	0.91				0.82			
Behavioral intention		0.96	0.95	0.88		0.93	0.92	0.82
BI1	0.95				0.93			
BI2	0.92				0.97			
BI3	0.94				0.80			

Notes: β = Beta coefficients; CR = Composite reliability; α = Alpha reliability; AVE = Average variance extracted.

Table 4. Discriminant validity for the measurement models

Constructs	Variance for the Egyptian Instructors										Variance for the Non-Egyptian Instructors									
	SI	CI	SPI	EI	CS	CA	PU	PEU	BI	SI	CI	SPI	EI	CS	CA	PU	PEU	BI		
SI	0.70									0.74										
CI	0.14	0.72								0.24	0.75									
SPI	0.13	0.52	0.64							0.02	0.01	0.67								
EI	0.57	0.56	0.58	0.66						0.02	0.02	0.40	0.65							
CS	0.14	0.01	0.27	0.02	0.76					0.08	0.01	0.01	0.52	0.76						
CA	0.07	0.36	0.04	0.01	0.06	0.69				0.52	0.06	0.11	0.39	0.05	0.60					
PU	0.58	0.25	0.52	0.60	0.04	0.01	0.86			0.62	0.11	0.01	0.15	0.41	0.01	0.77				
PEU	0.30	0.12	0.53	0.01	0.11	0.01	0.25	0.72		0.41	0.01	0.02	0.18	0.62	0.16	0.52	0.78			
BI	0.54	0.10	0.01	0.46	0.01	0.04	0.17	0.52	0.88	0.62	0.05	0.01	0.01	0.14	0.31	0.30	0.30	0.82		

Notes: The bold values along the diagonal line are the AVE values for the constructs, and the other values are the squared correlations for each pair of constructs.

SI = Student influence; CI = Colleague influence; SPI = Superior influence; EI = External influence; CS = Computing self-efficacy; CA = Computing anxiety; PU = Perceived usefulness; PEU = Perceived ease of use; BI = Behavioral intention to adopt WBLs.

The Structural Models (SEM)

Structural equation modeling (SEM) was used to test two structural models for the Egyptian and non-Egyptian (i.e. UK, USA) instructors using AMOS. The goodness-of-fit statistics indicated that the two models fitted the data within an acceptable level: $\chi^2(27) = 80.245$; $p < .0001$, $\chi^2/df = 2.97$, GFI = 0.92, AGFI = 0.92, NFI = 0.94, RFI = 0.90, IFI = 0.95, TLI = 0.94, CFI = 0.94 and RMSEA = 0.041.

The standardized estimates presented in Table 5 and Figure 2 show that all paths within the final model for the Egyptian instructors were significant. The variance accounted for in the Egyptian instructors' PU of the WBLS was 73 percent: Student influence \rightarrow PU ($\beta = 0.38$, $p < 0.001$); colleague influence \rightarrow PU ($\beta = 0.13$, $p < 0.05$); superior influence \rightarrow PU ($\beta = 0.66$, $p < 0.001$); external influence \rightarrow PU ($\beta = 0.34$, $p < 0.001$); and PEU influence \rightarrow PU ($\beta = 0.45$, $p < 0.001$). Therefore, hypotheses one (H1), two (H2), three (H3), Four (H4), and seven (H7) were supported. In addition, the variance accounted for in the Egyptian instructors' PEU of the WBLS was 49 percent: Computing self-efficacy \rightarrow PEU ($\beta = 0.50$, $p < 0.001$); and computing anxiety \rightarrow PEU ($\beta = -0.30$, $p < 0.001$), supporting hypotheses five (H5) and six (H6). Over half of the variance for the Egyptian instructors' intention to use WBLSs (52 percent) was explained by PEU ($\beta = 0.48$, $p < 0.001$), and PU ($\beta = 0.22$, $p < 0.01$). Therefore, hypotheses eight (H8) and nine (H9) were supported.

For the non-Egyptian instructors (i.e. British, American), the variance explained for their PU of the web-based learning system was 48 percent: Student influence \rightarrow PU ($\beta = 0.38$, $p < 0.001$); colleague influence \rightarrow PU ($\beta = 0.18$, $p < 0.05$), supporting hypotheses one (H1) and two (H2). However, hypothesis three (H3), superior influence on PU ($\beta = -0.01$, $p > 0.05$), and hypothesis (H4), external influence on PU ($\beta = -0.01$, $p > 0.05$), were not supported. Additionally, 33 percent of the variance for the PEU was explained by computing self-efficacy ($\beta = 0.53$, $p < 0.001$), and computing anxiety ($\beta = -0.23$, $p < 0.01$). Therefore, hypotheses five (H5) and six (H6) were supported. Furthermore, the variance explained in determining the non-Egyptian instructors' intention to adopt the WBLS was 42 percent: PEU \rightarrow intention ($\beta = 0.29$, $p < 0.01$); PU \rightarrow intention ($\beta = 0.16$, $p < 0.05$), supporting hypotheses eight (H8) and nine (H9).

Table 5. Standardized parameter estimates of the structural models

Hypotheses	Path	Egyptian Instructors				Non-Egyptian Instructors			
		Beta coefficients (β)	t-values	R ²	Results	Beta coefficients (β)	t-values	R ²	Results
H1	SI → PU	0.38	4.67***	0.73	Supported	0.38	5.32***	0.48	Supported
H2	CI → PU	0.13	2.12*		Supported	0.18	2.42*		Supported
H3	SPI → PU	0.66	6.11***		Supported	-0.01	-0.03		Rejected
H4	EI → PU	0.34	4.09***		Supported	-0.01	-0.02		Rejected
H5	CS → PEU	0.50	6.71***	0.49	Supported	0.53	6.70***	0.33	Supported
H6	CA → PEU	-0.30	-4.07***		Supported	-0.23	-2.88**		Supported
H7	PEU → PU	0.45	6.55***		Supported	0.28	3.35***		Supported
H8	PEU → BI	0.48	6.35***	0.52	Supported	0.29	3.20**	0.42	Supported
H9	PU → BI	0.22	2.75**		Supported	0.16	2.18*		Supported

Notes: SI = Student influence; CI = Colleague influence; SPI = Superior influence; EI = External influence; CS = Computing self-efficacy; CA = Computing anxiety; PU = Perceived usefulness; PEU = Perceived ease of use; BI = Behavioral intention.

*Absolute t-value > 1.96, p < 0.05; **Absolute t-value > 2.58, p < 0.01; ***Absolute t-value > 3.29, p < 0.001.

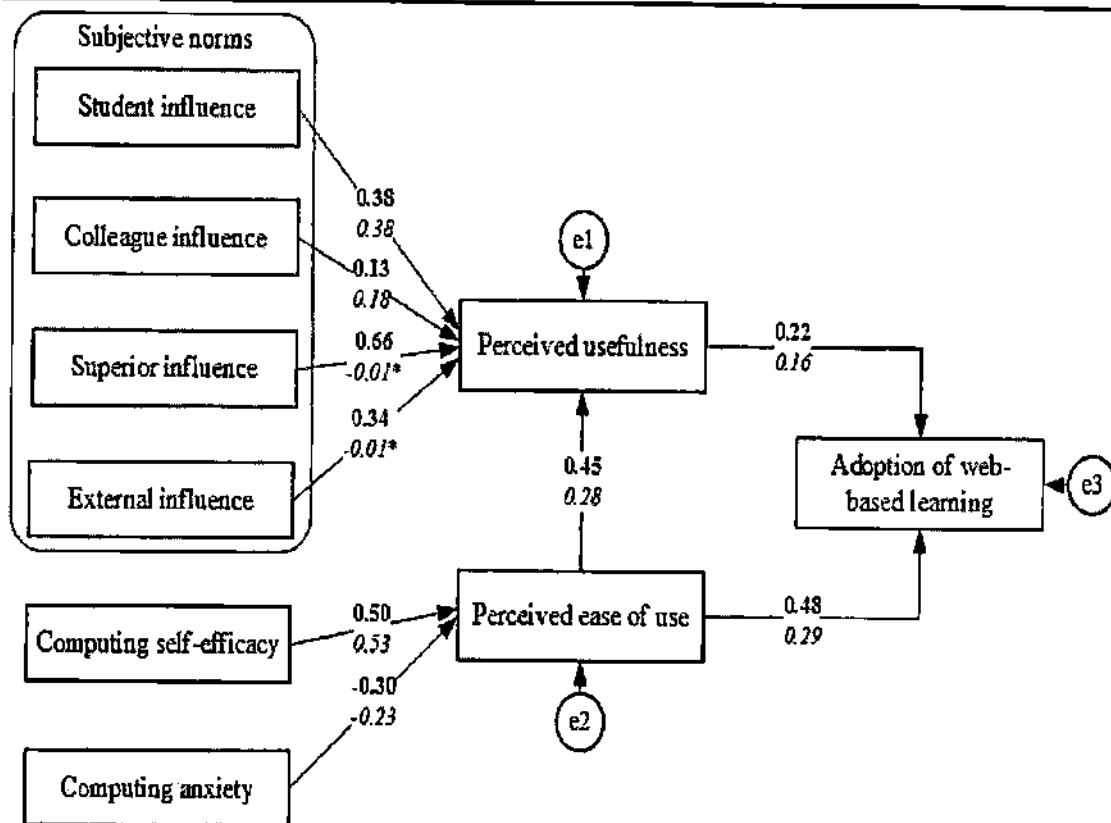


Figure 2. Final structure equation models (Key: bold denotes path coefficients for the Egyptian instructors; italic denotes path coefficients for the non-Egyptian instructors; *denotes non-significant paths)

Analysis of Variance

Instructors were compared regarding their scores of gender and age. Regarding the gender, the results showed no differences between female and male instructors in their behavioral intention to adopt WBLs ($p > 0.05$). Therefore, hypothesis ten (H10) was supported. However, younger instructors had higher scores than elder instructors on their behavioral intention to adopt WBLs ($p < 0.001$). A significant trend was found in the data: as the instructors' age increased, their intention to adopt WBLs decreased. Therefore, hypothesis eleven (H11) was not supported.

Discussion and Implications

The results of this study indicated that student, colleague, department chair, and external influences all increased the Egyptian instructors' perceived usefulness of WBLs. In other words, if key referent groups (i.e. students, colleagues, department chairs, mass media) support the Egyptian instructor to adopt WBLs, instructors will consider WBLs useful.⁽⁶⁾ In a collectivistic culture such as Egypt, the opinion of others usually influences the individual decision.⁽⁴⁾ Nevertheless, the influence of department chair was more than the other three factors. A possible explanation is that, in a high PD culture such as Egypt, decision over implementing WBL is taken by a superior and instructors are expected to accept it.⁽⁴⁾ The positive effect of subjective norms on the Egyptian instructors' perceived usefulness was consistent with previous studies.⁽²²⁾ However, the current results revealed that student and colleague influences were the only factors which increased the non-Egyptian instructors' perceived usefulness of WBLs. Department chairs and mass media had no influence on the non-Egyptian instructors' perceived usefulness. This insignificant effect might be explained, in part, by the high degree of independence the non-Egyptian instructors have when developing their classroom environment.⁽³²⁾ Particularly, in individualistic cultures such as UK and USA, the opinion of superiors over accepting WBLs will not have any impact on individuals.

The findings of this study emphasize the importance of subjective norms in applying WBLs, especially in developing countries such as Egypt. Some important implications emerge from these findings. First, Egyptian

hospitality administrators should constantly encourage instructors to adopt WBLs for teaching. For example, WBLs use should be integrated in educational institutions' incentives policy such as a feature in nomination for a teaching award, or promotion. Second, hospitality administrators in developing and developed countries should constantly ensure student satisfaction with WBLs. When students have good experiences with WBLs, they provide positive feedback to their peers as well as their instructors. Third, hospitality administrators should understand the benefits of using other referent influences to intrinsically motivate an instructor to adopt WBLs in order to accomplish program or institutional objectives. For example, department chairs should motivate the more experienced instructors with WBLs to encourage and support the less experienced instructors who had never taught a course using the WBL. As a result of this motivation, the more experienced instructors might help their colleagues in the course development. Fourth, Egyptian mass media and experts should promote the benefits of using WBLs for teaching. This will increase the Egyptian instructors' acceptance of WBLs, which in turn will influence their intention to adopt them.

Furthermore, the results of this study revealed that computing self-efficacy and computing anxiety had significant influences on both the Egyptian and non-Egyptian instructors' perceived ease of use of WBLs. Instructors who were highly confident and who were less anxious about their computing skills, were more likely to perceive WBLs as easy to use. These findings emphasize the importance of instructors' ability and the high level of confidence in applying WBLs. The effects of instructors' self-efficacy and anxiety on the perceived ease of use were consistent with previous studies.⁽²⁾ Nevertheless, in this study, the influence of self-efficacy was more than the influence of computing anxiety. A possible explanation is that most of the instructors were members of Generation X who are considered "digital natives," or those that have grown up using technology such as computers, cell phones, and the Internet. Therefore, they were experiencing less computing anxiety. Hence, it is suggested that prior to the adoption of WBLs, instructors should be tested for any computing anxieties they may have. Furthermore, hospitality administrators should promote instructors' computing self-efficacy to help them obtain the ability necessary to use WBLs effectively. For example, educational institutions should constantly provide sufficient training to their instructors about WBLs use.

Consistent with previous studies,⁽¹⁶⁾ the current results reveal that perceived ease of use and usefulness of WBLs had a direct influence on the Egyptian and non-Egyptian instructors' intention to adopt WBLs. Thus, if instructors consider WBLs to be useful and easy to use, then they will be more likely to continue to adopt such systems. However, inconsistent with previous studies,⁽⁶⁾ the influence of instructors' ease of use on their intention to adopt WBLs was greater than the influence of perceived usefulness. Specifically, the perceived ease of use contributed two times more than the perceived usefulness. In essence, most instructors rated WBLs, especially non-Egyptian instructors who experienced Blackboard, as difficult to use. As a result, instructors' perceived ease of use had a greater influence than instructor' perceived usefulness in this context. Therefore, for a successful deployment of WBLs educational institutions should ensure that WBL is effective and easy to use with high functionalities. Another key implication for designers/managers relating to guidelines for the design of WBLs is that instructors' requirements should be taken into consideration when developing WBLs. for example, deploying WBLs that introduce the least computing anxieties.

Regarding instructor's individual characteristics, first, the findings suggest that gender did not reflect a significant correlation with the Egyptian and non-Egyptian instructors' intention to adopt WBLs. Consistent with previous studies,⁽⁹⁾ both male and female instructors had similar intention to adopt WBLs. Second, inconsistent with previous studies,⁽⁹⁾ the findings show a significant difference between younger and elder instructors in their intention to adopt WBLs. More specifically, younger instructors had higher scores than elder instructors on their intention to adopt WBLs. Possible reasons for such age differences are that younger instructors, compared to elder instructors had higher computing self-efficacy, lesser computing anxiety, and rated WBLs as easier to use and more useful. As a result, younger instructors, representing Generation X, had higher intention to adopt WBLs. Therefore, this study suggests that hospitality administrators should take into consideration such age differences in developing WBLs. In particular, hospitality administrators should gradually support elder instructors to adopt WBLs. Prior to adopting WBLs, hospitality administrators should promote the benefits of using WBLs for elder instructors, compared to traditional teaching methods. Additionally, they should constantly provide sufficient training to elder instructors about how to adopt WBLs effectively. Technical support should also be provided regularly during the implementation process of WBLs.

Limitations and Suggestions for Future Research

This study has three limitations. First, it investigated the non-mandatory effects of subjective norms; future research should clarify the mandatory effects of department chair influences, such as the obligatory use of WBLs in online learning. Second, this study assessed the influence of three psychological dimensions on instructors' intention to adopt WBLs; further research may assess the influence of these dimensions on students' intention to use WBLs. Finally, a conceptual model was developed and tested using a quantitative method; future researches may test the conceptual model using qualitative methods. But despite these limitations, this study has useful implications for both scholars and hospitality administrators.

Conclusion

The current study has proposed and tested a conceptual model to investigate the impacts of three psychological dimensions (i.e. subjective norms, computing self-efficacy, and computing anxiety) on instructors' intention to adopt WBLs in three countries: Egypt as an example of developing countries and the UK and the USA as examples of developed countries. The proposed model explained 52 percent of the variance in the Egyptian instructors' intention to adopt WBLs, and 42 percent in the non-Egyptian instructors' intention. The research results show that student, colleagues, superiors, media, computing self-efficacy, and computing anxiety had significant influences on the Egyptian instructors' intention to adopt WBLs. However, only four dimensions (i.e. students, colleagues, self-efficacy, anxiety) had significant influences on the non-Egyptian instructors' intention. Additionally, a significant trend was found in the data: as the instructors' age increased, their intention to adopt WBLs decreased. As a result, policymakers and hospitality administrators in educational institutions, particularly in Egypt, should pay special attention to such factors which have a determining role in increasing instructors' efficiency in design and implementation process of a successful WBL.

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الأبعاد النفسية التي تؤثر في تطبيق نظم التعلم القائم على الانترنت بين أعضاء هيئة التدريس بأقسام الضيافة: دراسة مقارنة بين الدول
النامية والمتقدمة

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بالرغم من تزايد أهمية استخدام الوسائل التكنولوجية الحديثة لتسهيل العملية التعليمية مثل النظم القائمة على استخدام الانترنت ، إلا أن هذا التزايد لم يقابلته زيادة في أعداد أعضاء هيئة التدريس بأقسام الضيافة الذين يستخدمون هذه الوسائل التكنولوجية في العملية التعليمية. أيضا عدد قليل من الدراسات السابقة تناولت العوامل التي تحدد تقبل أو رفض أعضاء هيئة التدريس لإستخدام التكنولوجيا الحديثة في التدريس. لذلك تهدف هذه الدراسة إلى تطوير نموذج لدراسة العوامل النفسية التي تؤثر في مدى تطبيق أعضاء هيئة التدريس بأقسام الضيافة لهذه النظم التكنولوجية في التدريس. تم دراسة ثلاثة عوامل نفسية لأعضاء هيئة التدريس: التأثير بأراء الآخرين عند إستخدام التكنولوجيا. امتلاك المهارة لإستخدام التكنولوجيا ، والخوف من استخدام التكنولوجيا. و للتعرف على تأثير هذه العوامل تم تصميم وتوزيع عدد 150 استمارة استقصاء بين أعضاء هيئة التدريس بعدد من الجامعات والمعاهد بمصر كمثال للدول النامية، و 150 استمارة استقصاء بين أعضاء هيئة التدريس بالمملكة المتحدة والولايات المتحدة كأمثلة للدول المتقدمة. تم تحليل عدد 208 استمارة استقصاء باستخدام نموذج إحصائي لقياس العلاقات بين العوامل (Structural Equation Modeling). أوضحت النتائج اختلاف العوامل النفسية التي تؤثر في استخدام أعضاء هيئة التدريس للنظم التكنولوجية بالدول النامية والمتقدمة. كما أظهرت النتائج أن أعضاء هيئة التدريس بالدول النامية يتأثرون بشكل كبير عند تطبيق التكنولوجيا في التدريس بأراء الطلاب ، وزملاء العمل ، ورؤساء العمل ، والخبراء ، ووسائل الأعلام ، وكذلك امتلاك المهارة أو الخوف من استخدام التكنولوجيا. لكن أربعة عوامل فقط كانوا المؤثرين في تقبل أو رفض أعضاء هيئة التدريس بالدول المتقدمة لإستخدام النظم التكنولوجية في التدريس وهم: أراء الطلاب ، وزملاء العمل ، وإمتلاك المهارة ، والخوف من استخدام التكنولوجيا. وأخيرا بينت النتائج تزايد رفض أعضاء هيئة التدريس لإستخدام النظم التكنولوجية في التدريس مع تقدم السن.