Analyze the Readiness for Acceptance to Practice an E-learning experience

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***Abstract*—** The implementation of e-learning system in higher education institutions as an emerged technology will not guarantee its adoption by faculty members. In fact, the existence of technology alone is not enough in encouraging knowledge sharing behavior among users.

The purpose of this study is to analyze the relationship between the perception of an e-learning experience as an emerged technology in higher education and the willingness to share this knowledge with staff members with their students. We characterized staff members' perceptions of an e-learning experience as a new technology by including an individual's psychological state of readiness and acceptance of technology; and to also practice this new experience with their students as an individual behavior. Technology Readiness Index and Technology Acceptance Model were integrated in order to explore staff members' perceptions of technology. The practice of staff members of this new e-learning experience with their students was characterized by the knowledge sharing behavior. We analyzed the responses of 400 participants from staff members in higher education using structural equation modeling. The correlated results showed that staff member's positive attitude on the perception of e-learning could increase the practice of this knowledge with students. A sense of insecurity towards this new technology also led to an undesirable effect on the staff member's perceptions of the ease of use of e-learning. Therefore, maintain a high degree of discomfort and insecurity towards an e-learning experience hinders enormously staff member's to share this knowledge with their students.

***Keywords*—**E-learning, Technology Readiness Index, Technology Acceptance Model, Sharing Knowledge Behavior, Structural Equation Model.

I. Introduction

In higher education, E-learning is becoming more and more a fundamental part of the student learning experience. In fact, e-learning is no longer considered as core business only for those universities with a mission for distance education but also its affordances are being systematically performed other education approach such blended learning which combines the strength of face-to-face and technology-enhanced learning that predominately campus-based universities. Hence, e-learning as web-based education is a part of the educational process on many levels of education that range from primary to higher education and then extending to the postgraduate level [1] and is ever more being seen as one of the most important vehicles for education reform today [2].

The flow of information in the e-learning system provides staff members and students with a platform for creating and receiving knowledge through discussions and interactive content sharing.

As new technology continues to intervene in education field, however, a staff member's subjective acceptance or rejection of the e-learning becomes the key factor in technology-based knowledge sharing behavior [3]. In other words, it is not sufficient to have an e-learning platform rather adopting it in the most effective way is of prime importance.

Several models have been developed to clarify the adoption and the diffusion behavior of innovations [4]. In fact, [5] proposed the Technology Readiness Index (TRI) to measure a person's propensity to embrace and use new technology to achieve goals at home and at work. TRI comprises four dimensions of technology belief that affect an individual's level of techno-readiness. The individual positive attributes such as optimism and innovativeness are referred to as being drivers of technology readiness, whereas the negative attributes such as discomfort and insecurity as inhibitors. In other side, to grasp the intentions to use new technologies, [6] nominate the Technology Acceptance Model (TAM). Perceived usefulness and the perceived ease of use are two particular beliefs addressed through TAM affecting the degree of technology acceptance. Perceived usefulness characterized as a prospective user's subjective probability that using new technology will increase his or her job performance within an organizational context. Perceived ease of use considered as a degree to which the prospective user expects the new technology to be free of effort. Perceived ease of use can reinforce the perceived usefulness of a technology; both influence an individual's acceptance of technology and his or her behaviors effectively. However, [7] declared that individual traits and experiences would affect the rapidity of a user's acceptance of new technology and subsequently influence the diffusion of information or knowledge. In fact, being well prepared and accepting the new technology will not be sufficient to transform this knowledge to reality only by having also the knowledge sharing behavior (KSB) to accomplish the deployment of e-learning system.

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In higher education, the successes of e-learning system have a simple indicator shown in the engagement of stuff members in this experience. This engagement is characterized by believing to be well ready having an attitude of acceptance and having a behavior of sharing this experience with others.

To explain staff members' differences of perception and willingness to share e-learning experience with their students we need to analyze all the cursus from readiness to practice. To analyze this relationship, we proposed an integrated model that incorporates TRI, TAM, and KSB. We characterized staff members' perceptions of an e-learning experience by including an individual's psychological state of readiness and acceptance of new technology; and we characterized also the practice of this new experience with their students as an individual sharing behavior state. We explored the impact of the staff member's psychological level of readiness to accept the use of e-learning system; it also emphasizes the effect of staff member's level of technology perception on his/her future sharing knowledge.

II. E-LEARNING IN HIGHER EDUCATION

Since, the introduction of the first web-based courses in the second half of the 1990s, e-learning has been considered as a hot topic in higher education. Therefore, giving a unique definition for e-learning has become a frustration exercise for many [8]. For the purpose of the present study, we refer by e-learning the use of LMS provided by many institutions throughout the world and in particular by Umm al-Qura University in delivering courses and training to their students and staff members. Particularly, we focus in this study on the perception of blended learning by students' community as an immerged technology education tool. In fact, the newly accepted approach in higher education is blended learning and is defined as a mix of face-to-face and online learning instruction with a goal of complementing each other and but not a substitute for traditional education [9].

Several institutions of higher education are seriously considering the introduction of blended learning, that simply combines classroom activities and online activities, as a way to transform traditional pedagogy for both on campus and distance education modes to maximize student learning and success [9].

In higher education, e-learning initiatives have a numerous benefits for both universities and students. Indeed, by giving students more flexibility in time and place that reduce time degree and enhancing learning experience, universities with strong and efficient e-learning system can streamline curricula to be viewed as innovative and that enhance their reputation and expand enrollment and increase their revenue.

Based on literature review, previous research in this area indicated that, the measurement of e-learning readiness is essential to support the successful of E-learning implementation in higher education [10]. They point out that adapting e-learning system without careful planning most likely ends with cost overruns, unattractive satisfaction results, and then failure.

They also state that like any other new technology, e-learning system require not only technological infrastructure but also readiness from all stockholders and specially student to be successful [11].

Thus, universities should assess their students' readiness for e-learning system before adopting this new technology. The implementation of e-learning can be preceded by measures the level of students as well as staff members readiness of e-learning system. Measurement of staff members' and students' e-learning system readiness enables institutions to design a system to fit the measurement results in order to be successful implementation [10].

III. TECHNOLOGY READINESS ACCEPTANCE MODEL

Previous researches have shown that having a positive or a negative beliefs concerning technology adoption is based on technology readiness ([12], [13] and [14]). The technology readiness and in more specific term Technology Readiness Index (TRI) as defined by Parasuraman [5] was proposed to measure the "*people's propensity to embrace and use new technologies for accomplishing goals in home life and at work*" ([5], p. 308). These beliefs assign a person's willingness to interact with new technology [15] as listed in table 1.

Table 1
Description of personal technology readiness factors

Factor	Description
Optimism	The expecting from the positive pertinence of technology.
Innovation	The authority of using technology.
Discomfort	The doubt about the guarantee that concerns ordinary people experience with technology.
Insecurity	The risk that people may have with technology-based transactions.

The TRI has been applied to a variety of context and has become a widely accepted metric for studying the behavior process behind the adoption of new technology [16].

To explain and predict the determinants of information technology users' acceptance or rejection of technology based on the theory of reasoned action (TRA) developed by [17], [6] proposed in his doctoral thesis the technology acceptance model (TAM). Since then, TAM has been tested and extended by many researchers and was empirically proven successful in predicting and explaining about 40% of behavioral intention to adopt a new technology [18]. TAM stated that technology acceptance behaviors are affected by users' intentions to use, which in turn is affected mainly by users' attitudes and perceptions of its usefulness. Perceived usefulness and perceived ease of use were the most important factors of new technology adoption [19].

Table 2
*Description of personal technology acceptance factors**

Factor	Description
Perceived Usefulness	The belief that using new technology will enhance his or her job performance.
Perceived Ease of use	The degree to which the prospective user expects a new technology to be free of effort.

*[6]

The technology readiness and acceptance model (TRAM) is an integration between the TRI and TAM models. First introduced by [20], TRAM represents the latest contribution to merge general personality dimensions of TRI with system specific dimensions of TAM. Thus, explaining how personality dimensions can influence the way people interact with, experience, and use new technology.

Several researchers stress the importance of TAM's external factors for providing a clear explanation of technology adoption behavior [21, 22]. In the first attempt to combine these two models, technology readiness was used as a predictor of TAM [20]. However, in a more recent study, factors comprising technology readiness have been linked directly to perceived usefulness and perceived ease of use as the most important dimensions of TAM, resulting in a more specific model [23].

Nonetheless, researchers using the TRAM model in their studies they did not tested the existence of the contributors and inhibitors TRI factors as described by Parasuraman and this missed confirming relations could weak the resulting conducting studies.

IV. Knowledge Sharing behavior

Essentially, knowledge sharing behavior is a contributory value that provides several perspective and definitions from researchers as well as from human practitioners since decades. [24] proposed that knowledge sharing is the behavior of providing and communicating knowledge. [25] have seeing knowledge sharing as a transfer behavior, through which people acquire knowledge from others.
While, the behavior of sharing the knowledge is considered as the norm that administration have to require in order to obtain long-term effects which is supposed would bring an opportunities for every members to be part of institution's asset. [26] defined knowledge sharing behavior as behavior's set which require exchanging of information or cooperation with others.

In addition, [27] defined knowledge sharing behavior as '... behavior by which an individual voluntarily provides other social actors with access to his or her unique knowledge and experiences'.

The main aspect of this definition is the idea that knowledge sharing is voluntary. According to Jarvenpaa and Staples, it is the willingness to share that distinguishes 'information sharing' from 'involuntary information reporting'[28].

However, [29] preconize that KSB requires explicit and tacit knowledge where explicit knowledge can be structured and stored in documents as described by [30] while tacit knowledge can be obtained by individuals through experience, skills and expertise as presented by [31].

Concerning the e-learning context and being homogeneous with the definitions cited below, the staff member possessing this knowledge sharing behavior meaning that he becomes genuinely and voluntarily ready to help students accessing to his knew e-learning experience. The emergence of the e-learning system in higher education institutions needs not only the study of the readiness to embrace this new technology but also need the willingness to share such knowledge also. Staff member from all discipline join e-learning experience in order to share their knowledge related to common interests and topics. Therefore, possessing this behavior of sharing knowledge, the e-learning experience will have a tremendous implementation success.

This study adopted an integrated model that incorporates TRAM, and KSB to examine a staff member's level of technology readiness and acceptance and his behavior to share e-learning experience. This was realized by analyzing the relationship between staff members' perceptions of technology from one side and his willingness to practice what he possess from this new technology from other side.
Thus, we deployed the term Readiness Acceptance Practice (RAP) to identify the study research model.

V. Research Model and Hypothesis

The main objective of the study is to analyze the relationship between the perception of an e-learning experience as an emerged technology in higher education and the willingness to use of this knowledge by staff members with their students. To understand the cursus from the perception of the e-learning system as an emerged technology until the act of sharing this knowledge by staff members as described in figure 1, we can established the following hypotheses.

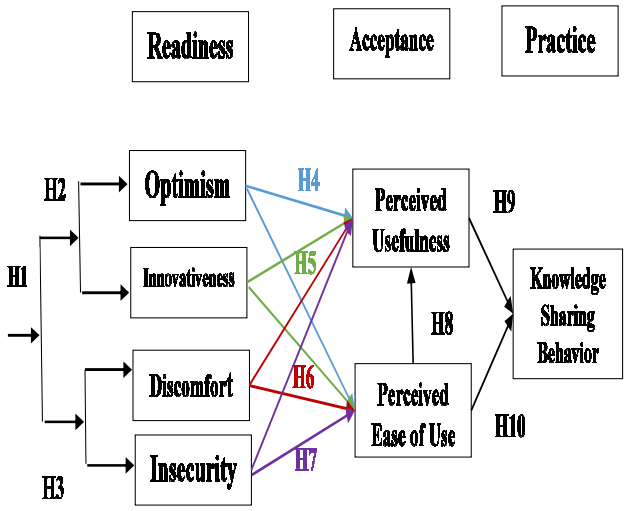

Figure:1 RAP Model Hypothesis

H1.

The contributors' dimensions are weakly correlated with the inhibitors dimensions but dimensions within the same group are highly correlated. This hypothesis highlights the existence of the controversy beliefs concerning technology which is the basis of the field of technology readiness.

H1a.

The optimism and discomfort factors are negatively correlated

H1b.

The optimism and insecurity factors are negatively correlated

H1c.

The innovativeness and discomfort factors are negatively correlated

H1c.

The innovativeness and insecurity factors are negatively correlated

H2.

The optimism and innovativeness factors that constitute the contributors dimension are highly and positive correlated.

H3.

The discomfort and insecurity factors that constitute the inhibitors dimension are highly and positive correlated.

H4.

People's perception of technology has a direct impact on their attitudes and willingness to adopt the new technology.

In fact, users with a positive perception of technology will believe that technology can enhance the efficacy of their daily lives [5].

H4a.

Staff members with higher levels of optimism have increased perceptions of usefulness.

H4b.

Staff members with higher levels of optimism have increased perceptions of ease of use.

H5.

People with innovative character is an early technology adopters and they rarely consider new technologies as complex or beyond their understanding [32]. These people detain a relatively positive attitude toward anything new and may share their beliefs with others in conformity with their previous experiences [33].

H5a.

Staff members with higher levels of innovation have stronger perceptions concerning the usefulness of technology.

H5b.

Staff members with higher levels of innovation have stronger perceptions concerning the ease of use of technology.

H6.

A person who regards the technology as uncontrollable is extremely unable to adapt this technology as confirmed by [34] where he found that outer barriers might prevent individuals from taking action.

Vice versa, individuals who are more adaptable to technology can decrease discomfort by demanding assistant from others or by increasing the ease of use [23]. [35] argued that developed information technology allows knowledge sharing unless being unfamiliarity with technology that may lead users to reject it.

H6a.

Staff members with higher levels of discomfort have lower perceptions of the usefulness of technology.

H6b.

Staff members with higher levels of discomfort have lower perceptions of the ease of use of technology.

H7.

The distrust of technology and the avoidance of computers is a result of feeling insecure using this new technology as reported by [36]. In fact, when individuals are unsureness about new technology, they are reticent to conduct knowledge sharing in their networks. In term of TRI users classification, [37] advocated that users with different levels on the TRI have different uses and future use intentions concerning information technologies. [38] adopted TAM in order to explore the factors that influence students' acceptance of mobile-based assessment. They proposed an integrated model by relating acceptance and motivational factors and they discovered that although the level of perceived usefulness has a positive effect on the intention to use of mobile-based assessment.

They suggested that student's intentions to use mobile-based assessment may be reduced by their preoccupation regarding network security.

Therefore, if students feel insecure about the use of mobile-based assessment, they tend to reject this alternative or complementary to paper based assessment delivery mode. These arguments lead to:

H7a.

Staff members with higher levels of insecurity have lower perceptions of the usefulness of technology.

H7b.

Staff members with higher levels of insecurity have lower perceptions of the ease of use of technology.

H8.

The level of Staff members' ease of use of technology will have a positive effect on the level of technology usefulness.

Based on their studies of the intention to use online learning, [39] demonstrated that ease of use can also enhance the intention to use online learning through the perception of usefulness. The argument was further supported in terms of its explanatory ability and level of explicitness ([40];[41]).

H9.

The level of Staff members' perceptions of the usefulness of technology has a positive effect on their intentions to engage in knowledge-sharing.

H10.

The level of Staff members' ease in using technology has a positive effect on their intentions to engage in knowledge-sharing.

VI. Methodology

A. Sample and procedure

To analyze the relationship between the perception of an e-learning experience and the willingness to share this knowledge by staff members with their students, a survey was conducted among staff members at Umm Al-Qura University's Makkah Campus. Participants in this study were 400 staff members attending training sessions for learning management system provided by the university. After pretreatment by eliminating missed responses, the sample obtained composed by 394 staff members. About 76% were male and 24% were female who reflected approximately the real staff member's distribution. Near 23% of staff members were from engineering, 12% were from college science, 25% from medicine, 31% were from administration and 9% were from education.

The data for this study were obtained using a questionnaire distributed and collected from staff members in the end of training sessions. The survey instruments used in this study were Parasuraman's Technology Readiness Index (TRI), Davis's Technology Acceptance Model (TAM) and Huang's and Xue's et al Knowledge Sharing Behavior (KSB) (see table 1).

After translation to Arabic, we devote a preface for the questionnaire to explain the objective of the survey by making analogy between e-learning system and technology, the assurance of confidentiality and anonymity of respondents and, the voluntary nature of respondent participation.

B. Measures

The questionnaire was designed to measure items adopted from prior research including: optimism (10 items), innovativeness (7 items), discomfort (10 items) and insecurity (9 items) [5]; perceived ease of use (5 items) and perceived usefulness (5 items) [6]; and knowledge sharing behavior as practice([30, 31]) (7 items) as presented in table 3 and described in Appendix. Constructs in the research model comprising the demographic information of the participants. All measures were in the category of self-assessment and each item question was scored on a Likert scale from 1 to 5, with a 1 rating indicating strong disagreement and a 5 rating indicating strong agreement.

Table 3
RAP Model Measures.

Factors	Constructs	References
Technology Readiness Index		**[5]**
	Optimism	
	Innovativeness	
	Discomfort	
	Insecurity	
Technology Acceptance Model		**[6]**
	Perceived Usefulness	
	Perceived Ease Of Use	
Sharing Knowledge Behavior		**[29]**
	Explicit knowledge	
	Tacit knowledge	

VII. Data analysis and results

As a pretreatment and before starting our empirical analysis, we conducted a thorough examination of the data; including checks for missing values, outliers, and characteristics of the variables used in our study. We employed for the descriptive statistics, exploratory factor analysis and confirmatory factor analysis the Statistical Package (IBM SPSS) version 20.0. To perform structural equation model we use the analysis of moment structure software (IBM AMOS) version 20.

A. Measurement Model

To identify the underlying structure in the RAP research model data (figure 1) we deployed a Structural Equation Model (SEM). In fact, SEM widely used in behavioral sciences, was adopted to specify the causal relationships that could exist between Readiness, Acceptance and Practice in the measurement RAP model. SEM, as multivariate statistical method, integrates both Confirmatory Factor Analysis (CFA) and regression or path analysis in order to simultaneously test the relationships among manifest variables, latent variables, and moderators, as well as error variables [42].

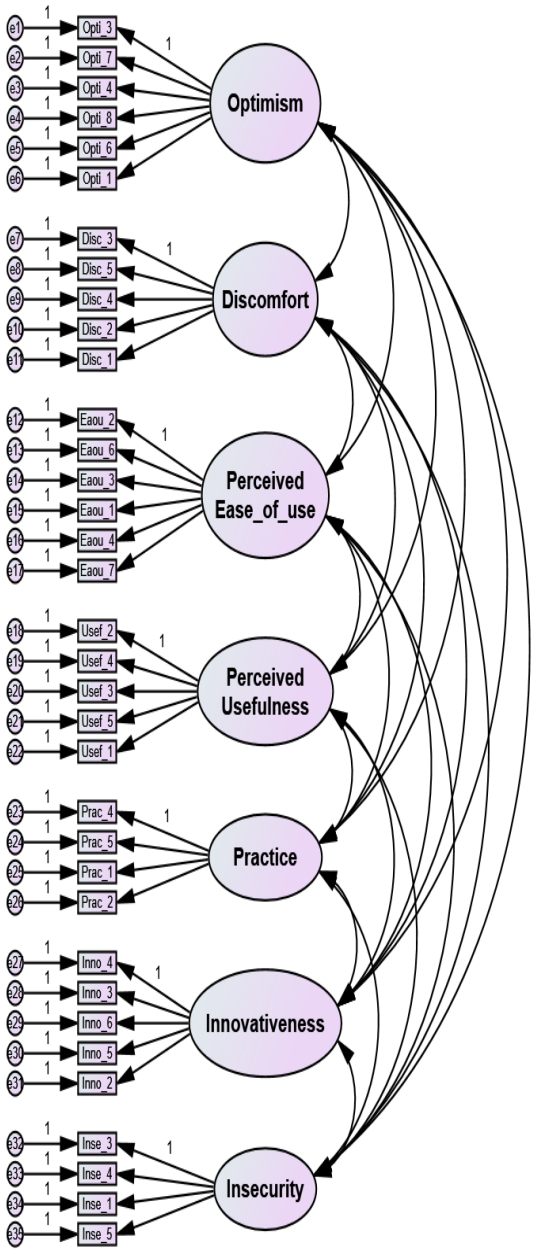

Figure 2. Retained Measurement Model

However, the considerable number of items (54 items) composing the questionnaire let the answers provided by staff members less accurate and consequently the number of factors could not be specified appropriately. To increase factor's reliability and to extract the dimensions of each construct of the RAP, Exploratory Factor Analysis (EFA) was conducted for several times to check the consistency of the proposed factors [43]. During this validation process, from communalities table we remove items with poor factor loadings less than 0.5 [44], that indicate a weak correlation with all other items. Thus, 31 items were reaming from RAP model factors and then CFA was carried out using the maximum likelihood estimation procedure to test the retained measurement model (figure 2). Factor structure refers to the inter-correlations among variables being tested in EFA.

Using the Pattern matrix shown in table 4, we can see that variables group into factors and more precisely, they load onto factors.

Table 4
Pattern Matrix

Matrice des types[a]

	Facteur						
	1	2	3	4	5	6	7
Opti_1	.572						
Opti_3	.877						
Opti_4	.795						
Opti_6	.675						
Opti_7	.809						
Opti_8	.701						
Eaou_1			.734				
Eaou_2			.918				
Eaou_3			.795				
Eaou_4			.672				
Eaou_6			.824				
Eaou_7			.605				
Prac_1					.832		
Prac_2					.832		
Prac_4					.921		
Prac_5					.844		
Usef_1				.671			
Usef_2				.917			
Usef_3				.856			
Usef_4				.912			
Usef_5				.770			
Inno_2						.580	
Inno_3						.705	
Inno_4						.759	
Inno_5						.676	
Inno_6						.702	
Insc_1							.729
Insc_3							.747
Insc_4							.729
Insc_5							.683
Disf_1		.757					
Disf_2		.835					
Disf_3		.928					
Disf_4		.875					
Disf_5		.888					

Méthode d'extraction : Maximum de vraisemblance.
Méthode de rotation : Promax avec normalisation de Kaiser.
a. La rotation a convergé en 6 itérations.

The Pattern matrix illustrates a very clean factors in which convergent and discriminant validity are evident by high loadings within factors great than 0.5 [45], and no cross-loadings between factors as shown in table 2. Factor analysis results showed 31 items loaded on seven RAP model factors (figure 2).

B. Reliability and Validity Assessment

In measurement theory, the two main issues are the reliability and validity analysis. The reliability of each factor, as a first conducted analysis, determines its ability to yield the same results on different trials [45]. Thus, the validity refers to the measurement of what the factor is supposed to measure [46]. Cronbach's alpha (CA) is the most commonly used as an estimate of reliability that measures internal consistency.

We performed convergent validity to show measures of constructs that should be theoretically related are in fact related.

The convergent validity was examined by Composite Reliability (CR) and by the Average Variance Extracted (AVE) [47]. The recommendation level for the internal consistency reliability is at least should be 0.7 and at least 0.5 for AVE [45].

Table 5
Convergent validity for the measurement model

Construct	Item	CA	CR	AVE
OPTIMISM	6	0.869	0.899	0.600
INNOVATIVENESS	5	0.850	0.856	0.545
DISCONFORT	5	0.932	0.934	0.739
INSECURITI	4	0.819	0.819	0.531
PERCEIVED EASE OF USE	6	0.897	0.899	0.598
PERCEIVED USEFULNESS	5	0.916	0.919	0.694
PRACTICE	4	0.923	0.923	0.750

The Crombach's alpha and Composite Reliability for all constructs are above the acceptable level of 0.7. These measurements as listed in table 5 indicate a high internal consistency. In addition, the overtaking of all constructs AVE of the level 0.5, provides strong evidence of convergent validity that ensure the real measure of the RAP factors.

In order to establish construct validity, [48] stressed the importance of using both convergent and discriminant validity which refers to test whether measurements that are not supposed to be correlated are in reality uncorrelated. Thus, when the correlation between any two constructs is less than the square root of the AVE then the discriminant validity is settled [49]. The rule is that variables should relate more strongly to their own factor than to other factor.

In table 6 the items on the diagonal represent the square roots of the AVE and the others elements are the correlation estimates and it shown that the square root of the AVE was greater than inter-item correlations and that conclude the approved of discriminant validity for each of the items.

Table 6
Discriminant validity for the measurement model

Construct	OPTI	INNO	DISC	INSE	PEOU	PEUF	PRAC
OPTI	0.775						
INNO	0.764	0.738					
DISC	0.231	0.217	0.860				
INSE	0.207	0.271	0.431	0.729			
PEOU	0.331	0.406	0.397	0.405	0.774		
PEUF	0.436	0.481	0.228	0.308	0.536	0.833	
PRAC	0.606	0.572	0.228	0.302	0.348	0.49	0.866

C. Overall model fit

For measuring the model fit, it is a common practice to deploy a variety of indices [50]. We can classify these indices into three categories as suggested by [51].

The first is the absolute fit indices category that measure how well the measurement model reproduce the observed data which include the Chi-square statistic, the goodness-of-fit Index (GFI) and the standardized root mean residual (SRMR). The second is the parasimonious fit indices category takes into account the model's complexity which include the Root Mean Square Error of Approximation (RMSEA) and the Adjusted goodness-of-fit Index (AGFI). The third is the incremental fit indices category that asses how well a specified model fit relative to an alternative baseline model which include the Comparative Fit Index (CFI), Normal Fit Index (NFI) and the Tucker-Lewis Index (TLI).

Table 7 shows the recommended critical level of acceptable fit and the result fit indices for the research measurement model estimated using CFA and the RAP model explored with SEM. The results shown in table 7 indicates that the two models as recommended by the three fit indices categories have achieved the standards for acceptance and have an excellent fit.

Table 5
Model fit indices

Fit indices	Recommended value	CFA Model	SEM Model
Absolute			
Chi-square/DOF	< 3	1.634	1.80
GFI	> 0.8	0.889	0.879
SRMR	< 0.05	0.038	0.070
Parsimonious			
RMSEA	< 0.05	0.040	0.045
AGFI	> 0.8	0.870	0.860
Incremental			
CFI	> 0.9	0.963	0.952
NFI	> 0.9	0.909	0.900
TLI	> 0.9	0.959	0.953

D. Hypothesis research results

The hypothesized structural RAP model was tested by SEM, which included the overall model as well as the individual tests of the relationships among the constructs and the results are illustrated in figure 3 (red color arrows are for non-significant paths).

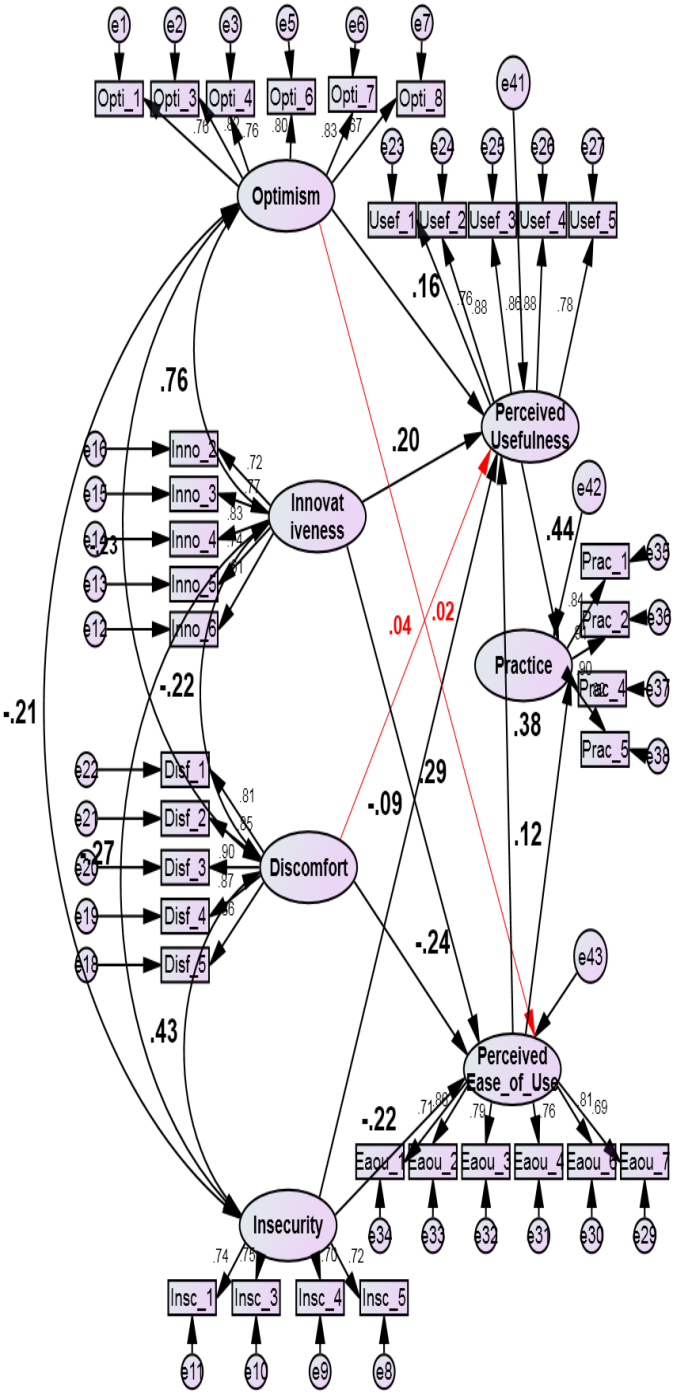

Figure 3. Model Hypothesis Result

The path coefficient analysis and the results of t value test serve as the basis of evaluation of the model hypotheses. The strength of hypothesized paths and whether the path is significant or not is evaluated by standardized path coefficient. It is recommended that the t absolute value be approximatively greater than 2 in such case the p-value is less than 0.01 as used by default by IBM AMOS software. The results of standardized coefficients β, the t values and the decisions of testing hypotheses are presented in table 6.

As drawn with red color in figure 3, H4a and H6b are the only two hypotheses that were not supported in RAP model (H4a: p-value > 0.01 and H6b: p-value > 0.01).

Table 6
Hypothesis model results

Hypothesis	Path	Path Coefficient β	t absolute values	Results
H1a	Optimism <---> Discomfort	-0.230	4.029	Supported
H1b	Optimism <---> Insecurity	-0.207	3.399	Supported
H1c	Innovativeness <---> Discomfort	-0.217	3.665	Supported
H1d	Innovativeness <---> Insecurity	-0.270	4.139	Supported
H2	Optimism <---> Innovativeness	0.764	8.320	Supported
H3	Insecurity <----> Discomfort	0.431	6.515	Supported
H4a	Perceived Usefulness <--- Optimism	0.165	2.037	Supported
H4b	Perceived Ease of Use <--- Optimism	0.018	0.209*	Not Supported
H5a	Perceived Usefulness <--- Innovativeness	0.197	2.283	Supported
H5b	Perceived Ease of Use <--- Innovativeness	0.285	3.089	Supported
H6a	Perceived Usefulness <-- Discomfort	0.038	0.723*	Not Supported
H6b	Perceived Ease of Use <--- Discomfort	-0.236	4.185	Supported
H7a	Perceived Usefulness <--- Insecurity	-0.089	1.551	Supported
H7b	Perceived Ease of Use <--- Insecurity	-0.224	3.647	Supported
H8	Perceived Usefulness<-- Perceived Ease of use	0.378	6.154	Supported
H9	Practice <--- Perceived Usefulness	0.441	7.014	Supported
H10	Practice <--- Perceived Ease of Use	0.122	2.057	Supported

The results of RAP model resumed in table 6 prove that all TRI hypotheses are confirmed (H1a, H1b, H1c, H1d, H2 and H3 having all a p-value less than 0.01). In fact, we note the weakly and negative correlation between inhibitors and contributors dimensions (H1a: β=-0.230; H1b: β=-0.207; H1c: β=-0.207 and H1d: β=-0.270) and in the other side the correlation within contributors dimension (H2: β=0.43) and within inhibitors dimension (H3: β=0.76) is positively high which define the two staff members beliefs categories.

Concerning the results obtained and expected for the positive correlation between optimism and perceived usefulness (H4a: β= 0.165) supported the hypothesis that staff members with an optimistic belief possess positive perceptions of the usefulness of the technology.

This confirmed that optimistic staff members believed that the technology would bring more benefits and more convenience to their lives. In similar way, the positive correlation between innovativeness and both acceptance factors such perceived usefulness (H5a: β=0.197) and the ease of use (H5b: β=0.285) meaning that staff members who enjoyed trying e-learning experience for the first time could build up professional

knowledge through frequent use of the e-learning system. They could establish perceptions of the e-learning experience unhesitatingly, meaning that their perceptions of the usefulness and ease of use of the e-learning system were relatively higher. In addition, it easier for them to make personal judgments of the information found on the e-learning system based upon their own professional knowledge.

The results in this study determined that the negative correlation between discomfort and perceived ease of use (H6b:β=-0.236) is insignificant and confirmed the expected symbol (negative). This may have been because staff members are able to adapt to the technology were computer native and used the technological equipment even outside their workplaces. In this sense, they had learnt how to use the technology through some method and finally overcome their discomfort and adopt the equipment. The insecurity, confirmed the expected symbol, was significantly and negatively correlated with the perceived usefulness of technology (H7a: β=-0.089) and with Perceived ease of use (H7b:β=-0.224).

This could be explained by the attachment of staff members to the security in order to protect delivered personal information through e-learning system. In addition, the more staff members feeling insecure using e-learning system the more he renounce the adoption of this new technology.

After the verification of the readiness factors hypotheses in TRI model, the acceptance factors in TAM hypothesis which states that a higher level of ease of use will lead to a higher level of perceived usefulness, was also well confirmed (H8:β=0.378).

The transition from perceptions to practice manifested through H9 and H10 was also supported. In fact, the perceptions of the usefulness (H9: β=0.441) and the ease of use (H10: β=0.122) of e-learning system by staff members facilitated the task of sharing of this experience with their students.

From RAP model results, we can conclude that the behavior of sharing the e-learning experience was highly influenced by the acceptance of this new technology by staff members. The acceptance of this new technology itself highly affected by the readiness of the staff members to e-learning experience.

VIII. Conclusion

The present study explored the relationship between the perception of an e-learning experience and knowledge sharing behavior of staff member in higher education as technology users. We recognized users' perceptions of e-learning as a new technology by including an individual's psychological state of readiness and acceptance of such technology. However, we analyzed the existence of the controversy beliefs which are the contributor and inhibitor feelings towards technology; one could then explore whether the four personality traits of TR are associated with staff members' perceptions of ease of use and usefulness of e-learning, and eventually influence staff members' sharing behavior toward e-learning use.

The current results highlighted the basis of the field of technology readiness manifested by a high correlation between the optimism and innovativeness from one side (H2) and discomfort and insecurity from other side (H3); in the meantime, a weak correlation between contributor and inhibitor dimensions was ascertained (H1).

Based on the research model hypothesis (H4, H5) we validated the existence of positive effects of contributor dimensions on staff members perceived ease of use and perceived usefulness of e-learning; while based on hypothesis (H6, H7), negative effects of significant inhibitor dimensions have been confirmed on them. In addition, the causal relationship between perceived ease of use and perceived usefulness in TAM (*i.e.* H8) was confirmed in this study as well.

In concluding this paper, it can be argued that since personality influences technology use, Universities should be aware of this relationship when initiating learning management systems. In other words universities must adopt their strategy on how to increase technology acceptance on the basis of staff member's personalities.

The overall findings of the present study demonstrated that improving staff member's degree perception of e-learning could enhance the practice of this knowledge with students. Consequently, the staff members should be motivated to develop their courses using e-learning system through the organization of awareness-increasing training sessions.

Results showed that an individual's positive attitude, such as optimism, toward TRI positively affects acceptance of technology; an individual's negative perception of TRI, such as discomfort, has a positive effect on his or her sense of the perceived ease of technology and compatibility in regard to prior experience and technology. A sense of insecurity also showed a significant effect on the individual's perceptions of the usefulness of technology. The results of this research demonstrated that improving an individual's degree of adaptability to technology could increase knowledge-sharing intentions in virtual communities. Meanwhile, the degree of the individual's discomfort with technology did not hinder knowledge-sharing intentions. This study was based on network questionnaires publicized in only a few virtual communities. Although the network questionnaire was free from temporal and spatial limitations, problems associated with random sampling may have been present and the external validity of this research may therefore have been reduced. Therefore, it is suggested that researchers find a typical community population and conduct a sampling inspection and long-term observation. In addition, this study only explored knowledge-sharing behavioral intentions within virtual communities, and not knowledge-sharing behavior.

This study noted that knowledge-sharing behavior, as an output of a learning process, is a long-term process which starts when learning begins and ends with its practical application. There are numerous moderating factors; however, in this process which this study could not clarify due to time limitations, these will be addressed in future research.

APPENDIX

MEASURING INSTRUMENT

PARASURAMAN'S TECHNOLOGY READINESS INDEX

Optimism	
Opt_1	Technology gives more control over their daily lives
Opt_2*	Products and services that use the newest technologies are much more convenient to use
Opt_3	You like the idea of doing business via computers because you are not limited to regular business hours
Opt_4	You prefer to use the most advanced technology available
Opt_5*	You like computer programs that allow you to tailor things to fit your own needs
Opt_6	Technology makes you more efficient in your occupation
Opt_7	You find new technologies to be mentally stimulating
Opt_8	Technology gives you more freedom of mobility
Opt_9*	Learning about technology can be as rewarding as the technology itself\\
Opt_10*	You feel confident that machines will follow through with what you instructed them to do
Innovativeness	
Inn_1*	Other people come to you for advice on new technologies
Inn_2	It seems your friends are learning more about the newest technologies than you are [reverse scored]\\
Inn_3	In general, you are among the first in your circle of friends to acquire new technology when it appears
Inn_4	You can usually figure out new high-tech products and services without help from others
Inn_5	You keep up with the latest technological developments in your areas of interest
Inn_6	You enjoy the challenge of figuring out high-tech gadgets
Inn_7*	You find you have fewer problems than other people in making technology work for you
Discomfort	
Dis_1	Technical support lines are not helpful because they do not explain things in terms you understand
Dis_2	Sometimes, you think that technology systems are not designed for use by ordinary people
Dis_3	There is no such thing as a manual for a high-tech product or service that is written in plain language
Dis_4	When you get technical support from a provider of a high-tech product or service, you sometimes feel as if you are being taken advantage of by someone who knows more than you do
Dis_5	If you buy a high-tech product or service, you prefer to have the basic model over one with a lot of extra features
Dis_6*	It is embarrassing when you have trouble with a high-tech gadget while people are watching
Dis_7*	There should be caution in replacing important people-tasks with technology because new technology can breakdown or get disconnected
Dis_8*	Many new technologies have health or safety risks that are not discovered until after people have used them
Dis_9*	New technology makes it too easy for governments and companies to spy on people
Dis_10*	Technology always seems to fail at the worst possible time
Insecurity	
Ins_1	You do not consider it safe giving out a credit card number over a computer
Ins_2*	You do not consider it safe to do any kind of financial business online
Ins_3	You worry that information you send over the Internet will be seen by other people
Ins_4	You do not feel confident doing business with a place that can only be reached online
Ins_5	Any business transaction you do electronically should be confirmed later with something in writing
Ins_6*	Whenever something gets automated, you need to check carefully that the machine or computer is not making mistakes
Ins_7*	The human touch is very important when doing business with a company
Ins_8*	When you call a business, you prefer to talk to a person rather than a machine
Ins_9*	If you provide information to a machine or over the Internet, you can never be sure it really gets to right place

TECHNOLOGY ACCEPTANCE MODEL

Perceived Ease Of Use	
Eaou_1	I would found E-learning platform easy to use
Eaou_2	It would be easy for me to become skillful at using E-learning platform
Eaou_3	My interaction with E-learning platform was clear and understandable
Eaou_4	I would find it easy to get E-learning platform to do what I want to do
Eaou_5	Learning to use E-learning platform would be easy for me
Perceived Usefulness	
Usef_1	Using E-learning platform would increase my productivity in course work
Usef_2	E-learning platform will enable me to understand student learning progress
Usef_3	Using E-learning platform will improve my course performance
Usef_4	I found E-learning platform useful
Usef_5	Using E-learning platform would increase my effectiveness in teaching

KNOWLEDGE SHARING BEHAVIOR

Conduct	
Prac_1	I often participate in knowledge sharing activities in my lab team
Prac_2	I usually spend a lot of time conducting knowledge sharing activities in my lab team
Prac_3*	I usually share my knowledge with the other members of my lab team
Tacit and Explicit	
Prac_4	I often share the reports and official documents from my work with the members of my lab team
Prac_5	I always share my manuals, methodologies and models with the members of my lab team
Prac_6*	I often share my experience or know-how with the members of my lab team
Prac_7*	I always share my know-where and know-whom when prompted by the members of my lab team

*item excluded from the analysis with low loading (less than 0.5)

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