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E-Learning System Acceptance Model: An Empirical Investigation

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Abstract This study empirically tested an e-learning system acceptance model. The proposed model consisted of 4 factors including personalization, perceived ease of use, perceived usefulness and e-Learning system acceptance. The data was collected from308 students who voluntarily participated in the study. Results of the study suggest that personalization was strong predictor of perceived usefulness and ease of use factors. Whereas, perceived ease of use and perceived usefulness significantly influenced intended behavior of learners towards e-Learning system acceptance.

Keyword: E-Learning System, Personalization, TAM Theory.

1. INTRODUCTION

Due to advancement in internet technologies, and emergence of sophisticated tools are now able to realize the notion of pervasive learning environment. Furthering this direction, researchers and practitioners have developed several innovative systems that facilitate e-learning environment (Garrison, 2011). Although e-Learning is complex term to define, and several definitions exit for this term. Resenberg (2001) considers e-learning as the use of Internet-based technologies in the delivery of learning solutions as a way of increasing skills, knowledge, and performance of the learners. This definition explains overall scenarios pertaining to e-Learning environment. For example, teachers and students (learners), through the internet, are now being able to share knowledge anywhere in the world via different sources such as email, and other interacting software. In addition, preparation of assignments and other related work though shared-desks are some of the classical examples of e-learning environment.

Although a great portion of work has been conducted in e-Learning domain in the past (Clark, and Mayer, 2016). However, most of the previous work focused on the technological development of e-Leaning systems. According to Sun *et al.* (2008) very few studies concentrated on the factors that affect learner's to adopt and make use of such systems. Recently, Burdi *et al.* (2017) developed an e-learning acceptance model to understand potentials learners' decision making towards e-learning systems acceptance. Although their (ibid) work was well justified from the extant literature, the model however was not validated in real world settings. This article attempts to test the model developed in (Burdi *et al.*, 2017) by collecting data from the real world settings.

2. E-Learning Systems Acceptance Model

The e-Leaning system acceptance model developed by (Burdi *et al* 2017) was based on well-known information system theory, the technology acceptance model (TAM). The model proposed in their study added a new factor in the TAM **(Fig. 2).** The newly introduced factor in the model is known as personalization. The model postulates that personalization is expected have a strong influence on perceived usefulness (PU) and perceived of use (PEOU), the two important tenets of TAM. Whereas, PU and PEOU are expected to have an impact on e-Learning system acceptance.

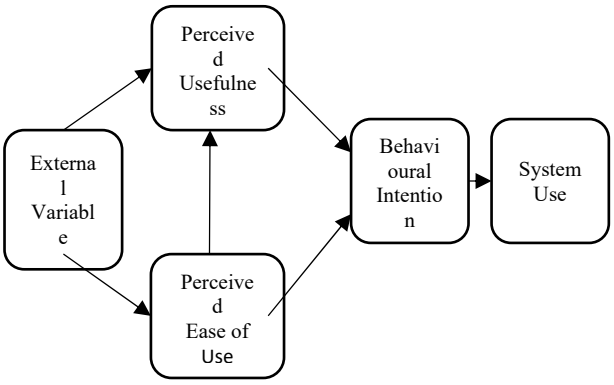

Fig.1: Technology Acceptance Model

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TAM (Davis, 1989) explains that PU and PEOU are strong predictors of technology acceptance and usage. TAM theory has been applied in several past studies (Abbasi *et al.*, 2011; Chandio *et al,* 2012; Naqvi *et al.*, 2016; Chandio *et al.*, 2017). TAM related hypotheses are presented as under:

H1: PU will have a positive and significant effect on ELS Acceptance.
H2a: PEOU will have a positive and significant effect on ELS Acceptance.
H2b: PEOU will have a positive and significant effect on PU of ELS.

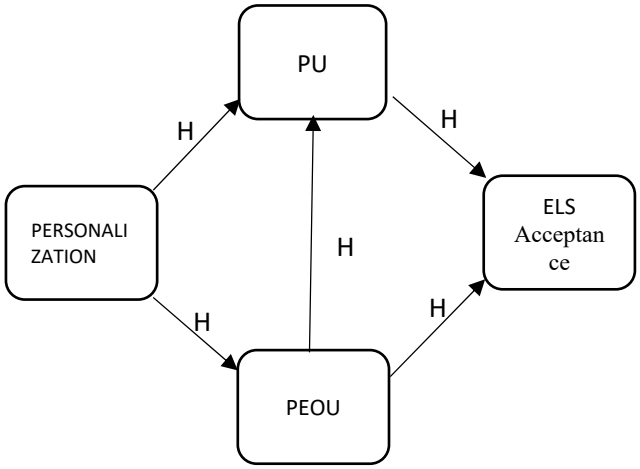

Fig. 2: E-Learning Acceptance Model (Burdi *et al.*, 2017)

Following hypotheses are related to personalization
H3a:PERwill have a positive and significant effect on PU of ELS.
H3b:PERwill have a positive and significant effect on PEOU of ELS**.**

3. RESULTS AND DISCUSSION

The model was tested using data obtained from final year students. Total 308 students voluntarily participated in the study. In order to obtain data, an instrument was developed from existing literature. Cronbach's alpha statistics was applied to check the reliability of instrument. It is noteworthy to mention here that 2 items i.e. PER1 and PER2 of personalization factor had very low reliability coefficients. As a results these two items were discarded from further analysis. After eliminating the problematic items, the final results are presented in **(Table 3.1).** Results suggest that all the factors had a high reliability coefficient values, which were greater than the threshold values (>= 0.7), as recommended (Hair et al, 2006).

Table 3.1: Instrument Reliability

Factors	Cronbach's Alpha Value
Personalization	0.89
PEOU	0.87
PU	0.93
ELS	0.90

In order to assess convergent and discriminate validity of the constructs/factors, and to obtain required matrices, authors specified a measurement model **(Fig 3),** which is important part of structural equation modeling (SEM) technique. Convergent validity of the factors used in the model was checked using two matrices, construct reliability (CR) measure and average variance extracted (AVE). As per recommendations (Hair *et al.*, 2006), CR value of the construct/ factor should be greater than 0.7 and AVE should be greater than 0.5 for convergent validity. Results presented in **(Table 3.2)** suggest that CR and AVE values of each construct respectively were higher than the recommended values. This confirm convergent validity of the factors.

Table 3.2: Factors reliability and AVE values

Factors	CR	AVE
PU	0.912	0.775
ELS	0.937	0.788
PEOU	0.897	0.744
PER	0.887	0.799

Discriminate validity (DV) of the factors was also confirmed in this study, as suggested in the results **(Table 3.2)** According to Hair *et al.* (2006), DV of factors is established when inter-construct correlations of each factor are lower than AVE value of the corresponding construct/factor.

Table 3.3: Discriminant Validity

Factors	PU	ELS	PEOU	PER
PU	0.880			
ELS	0.629	0.888		
PEOU	0.386	0.492	0.862	
PER	0.358	0.370	0.325	0.894

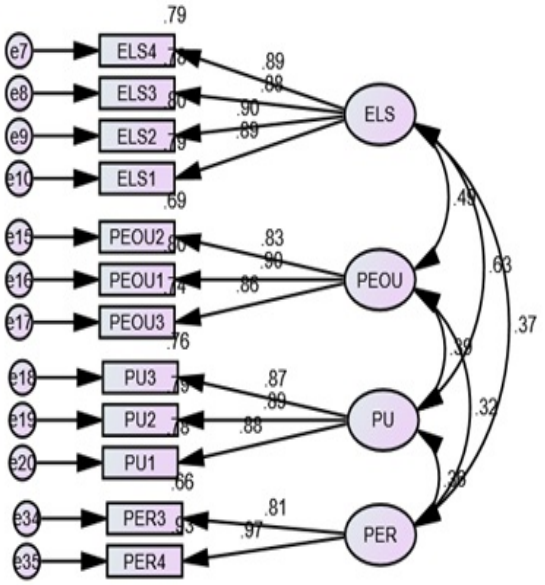

Fig. 3: Specified Measurement Model (standardized version)

3.3 Hypotheses Testing

In order to test hypothesized paths and the relationships among factors in the model, this study specified structural model i.e. 2nd phase of SEM, which is depicted in **(Fig. 4)**. There were 5 hypotheses proposed in the model.

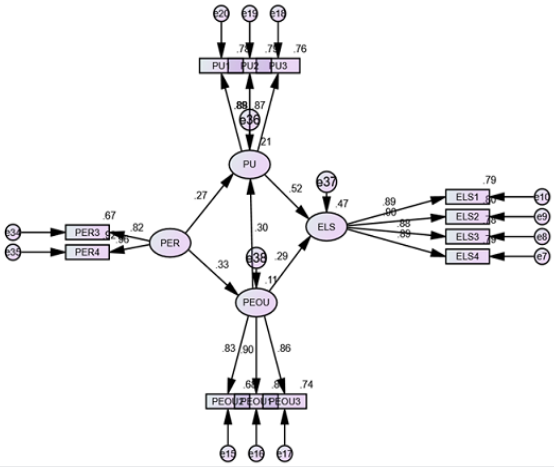

Fig. 4: Standardized Structural Model

Results **(Table 3 and 4)** suggest that all these hypotheses are positive and significant. Hypotheses H1, H2a, and H2b, related to PU and PEOU, were drawn from TAM. These findings suggest that PEOU and PU are strong predictors of intended acceptance behavior towards e-Learning systems. These finding are encouraging and provide significant insights in the body of knowledge in technology acceptance domain.

Table: 3.4 Hypotheses Testing

Regression Weights						
Constructs	**Correlations**	**Code Name**	**Estimate**	**S.E.**	**Critical Ratio**	**P**
PEOU	<---	PER	0.352	0.064	5.526	***
PU	<---	PER	0.296	0.065	4.562	***
PU	<---	PEOU	0.307	0.063	4.868	***
ELS	<---	PU	0.506	0.053	9.547	***
ELS	<---	PEOU	0.298	0.053	5.615	***

In addition the newly incorporated factor in the model i.e. Personalization, was also found a strong predictor variable of PU and POEU. It was however identified that the effect of personalization on PEOU (CR=5.524) was greater than its effect on PU (CR=4.562). Nevertheless, personalization had shown a strong effect on both PU and PEOU at p< 0.0001 level.

4. CONCLUSION

This study examined and tested an e-Learning system acceptance model. The model was based on TAM theory and personalization (incorporated as an additional factor). The findings of this study suggested that PEOU and PU are strong predictors of ELS acceptance, whereas personalization had a strong impact on both PU and PEOU. Although the main objective of this research was achieved, as can be seen from the finding obtained, it is however important to mention here the limitation of current study. As the study was conducted in cross-sectional settings (i.e. at one point of time), it is recommended that future research should further validate the findings obtained in this study through a longitudinal approach.

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