The Role of Readiness Technology Optimism Influences the Use of Mobile Computing Devices Among Students

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Abstract. Technology has transformed each organization in today's world, including services, manufacturing and retailing sector. Education sector has also adopted the latest technology to provide the state of art education services to students. Students are using mobile computing devices to learn the latest knowledge. Still in developing countries there is low intention to use technology among university students due to lack of readiness and difficult technology platforms to use the pressure of peer groups also influencing the usage of technology among students. Current Research Bridge the gap by examines the influence of perceived ease of use, subjective norms on technology readiness. That further led to improve intention to use mobile computing devices. Data were collected using closed ended questionnaire. Items adopted from literature .Population were students studding in public sector universities of Punjab, Pakistan. Survey was done to collect data from 400 respondents, where 230 were collected and 30 were partially filled. SEM (Structure Equation Modelling) technique was to statistically test the data by using the smart PLS 3 software. The results found significant between perceived ease to use and technology readiness optimism. However subjective norms influence on technology readiness optimism not supported. That provides depth inside of developing countries context. Moreover, mediation path between perceived ease to use , technology readiness optimize and intention to use was supported, that provide guidelines to the universities management to conduct seminars &training programs to improve technology readiness among students

Keywords: Subjective Norms; Perceived ease to use; Technology readiness optimism; intention to use technology; Technology adoption model (TAM) theory

1 Introduction

Technology plays inevitable role in the lives of human. In this era human cannot imagine surviving in this life without the technology. In the whole segments of life either in education, industrial sector, banking sector, and agricultural sector even in all operations of life the technology can make them possible. The tangible and non-tangible benefits of the businesses are now dependent the role and availability of the technology advancement. A lot of involvement likewise in the rapidness of the efficiency and effectiveness of the operations,

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meeting the demands of the customers, security development, and trade development all are dependent on the technology advancement. If people compare this life even the one decade ago cannot imagine the advancement of the information. The infrastructure of the technology made the boost accuracy level of the information.

In a single example like banking sector in a world millions of transactions and their accuracy level and the record maintained of these transactions are possible due to the involvement of the technology. The major thing in the adoption of the technology is that people's behavior in the acceptance of the attitude in the general impression in the decision-making authorities. The adoption of the technology is totally dependent the citizens acceptance. There are two main things in the variation of the decision making in the adoption of the perceived useful. (Hashim, 2018)Now humans want to live on another planet is only due the involvement of the technology.

A person lives in a country and can access to the whole world is only due to the advancement and involvement of the technology. A business that operations in one country and make the (Scherer, 2018) access in the whole world is possible only due to the involvement of the technology advancement. The cash flows, maintain of the working capital and the cash inflows and outflows are only possible and dependent the role of the technology. Employees that are working in one unit or at the single segment of the business and make transactions to access at the whole world fully dependent on the usages of the technology. The whole portfolio of the business tools from the level of the raw material to the finishing of the goods or selling of the goods and arranging of the meetings and maintain the record depending on the technology involvement. Now in the technology advancement the concept of the cloud computing on the base of internet is introduced and the software and the whole information available and accessible on the demand and the better utilization of the sources. (Ayesha et al., 2020).

This technology of the cloud computing is rapidly growing on the supportive and availability of the major educational materials without any cost to the other people. This is a very good source in the reduction of the barriers in the building of the technology .It is with the collaboration and interaction with the other peoples, and this is available in in source of social supportive context. Likewise, in the overcome of the problem of the language barrier this is a very good thing that can be available without any language barrier. In the whole world the major thing in the rapid growth of the educational level increases the motivational level of the other citizens. The whole world admits that without the awareness of the role of education in cannot be in the list of the more justice ways,

Education plays a vital role in the rapid growing of the any country and connects all the countries on a single platform. The education and the technology both are parallel that are in the thing that a technology without education cannot survive and cannot maintained its standards. On the other side education without the usage of the technology cannot be in the list of the development standards (Based et al., 2017).

The things that both things are integral in the maintain and enhancement of the standards both roles of the things are inevitable. The other thing is that without the acceptance both things the usages of the technology and rapid increasing the growth level cannot be able to include in the list of developed countries. Pakistan is one of the supreme bulbous countries in the world especially about the enthusiasm and the very good role of their citizens. The role of Pakistani citizens in every field of life is very good especially in the sports, science and technology, agriculture perspective its role is very good. In other words, the role of Pakistan in the Asian countries is supposing as a backbone. The indispensable thing in the area of military Pakistan is also more prominent and the successful achievements in the different fields like in the healthy activities the Pakistan is considered the higher potential.

In the round about more than six thousand Pakistani good engineers are working at the key positions of the world level. The roles of technology in the education or in the other any field is judged by the various theories that are in the more useful likewise in the technology acceptance model including various variables are more used in the explaining on the variables. Subjective norms are in the perceived and the affective deeds of the society that are in the adoption and using of the technology readiness model in the TAM model in the indication of the different scenario. The normative thing in that the behavior of the adoption is in that perceived perspective, and their motivation to comply with those people's views.(Kim et al., 2019)The relationship between the technology readiness and the intention to use is scholarly in the means of the contradiction context.

Some scholars said that the self-involvement is fully depending on the adoption and usages of the technology likewise in the contradiction opinion in the previous segments as in the usage of the TAM technology acceptance model 3 and its dimension included in the subjective norms and the intention to use is fully depending.(Nugroho & Andryzal Fajar, 2017)According to the study user's decision of adopting the cloud technology leads by the user's perceived risk and subjective norms which have a significant impact on the trust intention and cloud adoption. Any corporation who is thinking to give information security to their users in cloud technology must know cloud environment is not only affected by technical problems it has also affected by non-technical elements for example organizations users command knowledge, attitude, and behavioral control on the data which is stored in the company's cloud.

Besides, users' aim to believe in cloud technology is also contingently affected by the perceived risk which is linked with their knowledge and subjective norms which they adopted from their social networks it does just not depend on or directly impact by their attitude, perceived risk, and subjective norms against the cloud. perceived ease (PE) and perceived security (PS) are critical to whether e-filing users intend to use it. There's no relationship between the people's perception of usefulness and the degree to which they used electronic filing.

Secondly, ease usability could not possibly impact the intent to use of e-filing could not be medicated by the presence of relevant information technology. DJP as a portal for electronic filing services will only improve the quality of e-filing, and efficiency. In other words, both factors have been shown to increase the propensity for WPs to e-file for taxes. Perceived utility and perceived ease of use of belief have a substantial positive impact on the intent to implement m-commerce. If potential customers adopt m-commerce, they will only do so when it is useful and convenient for them, which furthers adoption. It's hoped that this research would identify the critical factors of two beliefs. New research suggests that self-efficacy has a positive impact on perceived user e-interaction, meaning that consumers with increased self-efficacy find it easier to use m-commerce channels.

2 Research Methods

2.1 Theoretical Framework

The research framework of current study as shown in Figure 1 depict the subjective norms, perceived ease to use and intention to use as technology readiness variables while subjective norms and intentions to use . Furthermore, technology readiness optimism item as a mediator amongst the association of subjective norms and intention to use and relationship of perceived ease of use and intentions to use behavior.

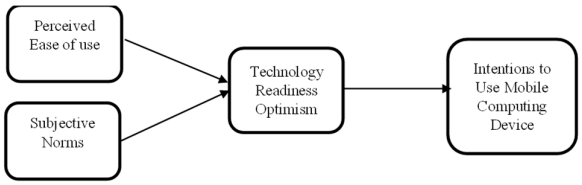

Fig.1. Theoretical Framework

2.2 Data Collection and Sampling

Data is collected based on a closed ended questionnaire by distributing the questionnaires in the target population. The target respondents are the students that are studying in the various institutions of Punjab, Pakistan. The sample size was 119 using the G power technique and the 95% is the confidence interval level and the medium size is 0.16. Moreover, in the literature the some studies were in the context by using the content survey basis. In the quantitative study and for to get the study more generalize the questionnaire of 400 were distributed among the public and private sector educational institutes of Punjab, Pakistan, From the total of 400 the responses of 230 collected where 2=30 were partially filled and rejected. 200 valid responses further carried on for statistical analysis to calculate the hypothesis.

2.3 Instrument development

The instruments were adopted from the different studies in order to measure the variables that are as shows in figure 1 the variables that are the subjective norms , perceived ease to use ,technology readiness and intention to use .The scale that is used bases on the five-point Likert scale 1 for SD (Strongly Disagree)2D (Disagree)3. N(Neutral) 4. A (Agree),5 SA(Strongly Agree)

Table 1. Operationalization of variables

Variables	Items	AVE	CR	References
Intention to use	4	0.723	0.878	Hashim, H. (2018)
Technology readiness optimism	4	0.631	0.910	Hashim, H. (2018)
Perceived ease of use	4	0.753	0.900	Hashim, H. (2018)
Subjective norm	4	0.733	0.890	Hashim, H. (2018)

2.4 Statistical tool for data analysis

Smart PLS 3 .0 research analysis software has been used to test the hypothesis. SEM Structure equation modelling technique has been used in this study to test the hypothesis. Following data analysis techniques has been used in this study the SEM , demographic analysis the analysis of CR and the AVE go make and suitability of the results in order to prove this study.

3 Results and Discussion

3.1 Respondent Profile

In the demographic analysis the male participation in the questionnaire is 53% and the female participants are 47%. The frequency level 18-25 years is 25% and in the age level26-32 frequency is 40% and 15% frequency in the age of 33-40, 30% frequency level in the age

holders of 40 years and above . In the respondents demographic analysis, the 30% are the participants that are bachelor and 40% are in the master level degree program 15% are the MS/MPhil holders and 15% are the PhD holders. Majority 60 % of the respondents are having experience more than 3 years and 10% are that experience is 2-3 years and and 30% of the respondents having experience less than one year.,

3.2 Assessment of measurement model

Sixteen items are used to portion five concepts in the present study, and that contains the outer model where items detailed as indicators while builds are denoted as latent variables. Confirmatory Composite Analysis (CCA) is accomplished through Partial least squared structural equation modelling (PLS-SEM) using SmartPLS software (Hair et al., 2020) for measurement model as shown in Figure 2. All constructs are reflective as adopted through nonfiction and in thoughtful measurement model the gauges to measure internal consistency by composite reliability (CR), the convergent validity of latent variable through average variance extracted (AVE).

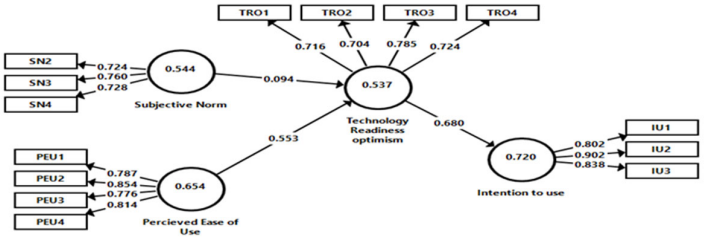

Fig.2. Measurement Model

The results of this study as in the above table each loading value of AVE is greater tahn0.40 on the same side the CR value of each construct is also greater than 0.50 that shows and proves that the model is convergent valid.

Table 3. Assessment Results for the measurement Model

Construct	Items	Loadings	CR	AVE
Intention to use (IU)	IU1	0.802	0.885	0.720
	IU2	0.902		
	IU3	0.838		
Perceived Ease of Use (PEU)	PEU1	0.787	0.883	0.654
	PEU2	0.854		
	PEU3	0.776		
	PEU4	0.814		
Subjective Norm (SN)	SN2	0.724	0.782	0.544
	SN3	0.760		
	SN4	0.728		
Technology Readiness optimism (TRO)	TRO1	0.716	0.823	0.537
	TRO2	0.704		
	TRO3	0.785		

	TRO4	0.724

Discriminant validity measured in the present study by using Fornell and Larcker's criterion, which is a well-known method to measure how constructs are distinct from each other in a model. Fornell and Larcker (1981) criterion stated that the square root of AVE comes in diagonal place, and it should be higher than the other constructs correlation values. Moreover, the results in Table 4 show that all diagonal values are higher than the corresponding correlation values which reflects the model is highly discriminant valid.

Table 4. Discriminant Validity Matrix using Fornell and Lacker's Criterion

	IU	**PEU**	**SN**	**TRO**
Intention to use (IU)	0.848			
Perceived Ease of Use (PEU)	0.694	0.809		
Subjective Norm (SN)	0.391	0.393	0.738	
Technology Readiness optimism (TRO)	0.68	0.59	0.312	0.733

3.3 Structural Model

The inner model comprises the relationships between constructs, including exogenous and endogenous, which is also termed as a structural model. In this study, two constructs attitude and Intention to use are endogenous while others are exogenous there are four direct relationships which are hypothesized from H1 to H4 as mentioned in literature section above. The bootstrapping procedure has been adopted to approximate normality by taking subsample and measure structural model using variance-based PLS-SEM technique through SmartPLS software as shown in Figure 3.

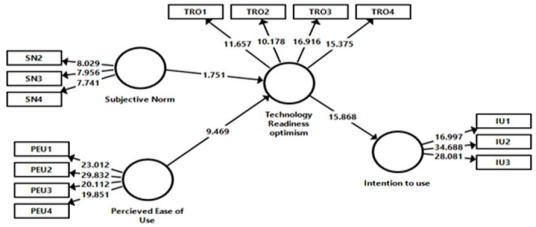

Fig.3. Structural Model

3.4 Assessment of Structural Model

Table 5 shows that all results of all direct relationships of current study. Hypothesis 1 proposed that perceived usefulness is significantly associated with Attitude. Figure 3 and Table 5 demonstrates a significant positive association between perceived usefulness and Attitude towards E-learning at (β= 0.408, t= 6.057, p-value< 0.05) supporting hypothesis 1. Hypothesis 2 postulates that Perceived ease of use has a significant influence on Attitude. Figure 3 and Table 5 demonstrate a significant association between Perceived ease of use and Attitude towards E-learning at (β= 0.355, t= 4.758, p-value< 0.05) supporting hypothesis 2. Hypothesis 3 articulated that Subjective Norms has significant association with intentions to use E-learning.

Figure 3 and Table 5 demonstrate a significant association between Subjective Norms and intentions to use E-learning at (β= 0.410, t= 5.737, p-value< 0.05) supporting hypothesis 3.

Table 5. Hypothesis Testing (Direct Relationships)

Hypothesis	Relationship	Std. Beta	Std. Error	T value	P Values	Decision
H1	PEU -> TRO	0.553	0.058	9.469	0.000	Supported
H2	SN -> TRO	0.094	0.054	1.751	0.081	Not Supported
H3	TRO -> IU	0.680	0.043	15.868	0.000	Supported

3.5 Mediation Analysis

Existing study exploited the bootstrapping method to scrutinize the incidental effects suggested by where a solitary inferential test of indirect effect is required. The bootstrapping analysis results shown in Table 6 represents the indirect effect (β=0.376) is significant with a t-value of 6.951 of hypothesis 5. The indirect effect confidence interval bias-corrected [LL=0.274, UL=0.478 does not straddle a zero in between indicating that technology readiness has significantly mediated the relationship between perceived usefulness and intention to use supporting the hypothesis 5. While the indirect effect (β=0.064) is significant with a t-value of 2.278 of hypothesis 4. The indirect effect confidence interval bias-corrected [LL=-0.016, UL=0.130 does not straddle a zero in between indicating that SN has significantly mediated the relationship between perceived ease of use and intentions to use supporting the hypothesis 5

Table 6. Hypothesis Testing (Indirect Relationship)

Hypothesis	Relationship	Std. Beta	Std. Error	T value	2.50%	97.50%	Decision
H4	PEU -> TRO -> IU	0.376	0.054	6.951	0.274	0.478	Supported
H5	SN -> TRO -> IU	0.064	0.038	1.684	-0.016	0.130	Not Supported

4 Conclusion

This study is cross sectional and data is collected in just in one shot of time. Future study can be in the longitudinal perspective by comparing the panel data. This study has a few limitations that this is conducted only in the one providence of the pakistan the largest one that Punjab, Pakistan. This can be adding the other TAM model variables in the comparative way between the moderation the culture of the other countries.

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