AN INQUIRY OF MOBILE LEARNING WILLINGNESS IN HIGHER EDUCATION IN PAKISTAN

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Abstract

This study investigated the perception of students towards mobile learning in higher education in Pakistan. This study explains the conceptual model, based on the theory of planned behavior which explains the readiness of student; their beliefs influences intention to take up mobile devices for their learning purposes. Structural equational modeling was used to analyze data from 600 students. The results show that according to the theory of planned behavior university student's acceptance of m-learning is reasonably well. More specifically attitude and behavioral control positively influenced their intention to adopt m-learning. The results also give us information how to improve university student's acceptance of mobile learning in the higher education institutions of Pakistan.

Keywords: Mobile learning, Higher education, University, Theory of Planned behaviors

Introduction

Mobile devices in any organization are like a heart in the body. It collects, processes, and distributes meaningful data, converts them into information and fulfills the needs of individuals, groups and management functionaries for improvement in the decision making processes and performance of the organization. Due to its versatility, it performs and helps in diverse organizational tasking and improves performance and learning at individual and organizational level (Susan & Francis, 2017; Kwon, Kim, & Park, 2017; Seth & Lee, 2017; Sideri & Giannotti, 2013). According to learning theories, learning process becomes smoother, easier and progressive if it gets support from the environment, working tools, models, and techniques. Therefore, researchers recommend to precede individual progression, performance and learning with the latest informational and technological tools like Mobile Devices (Aragón, Jiménez, & Valle, 2016; Susan & Francis, 2017). In today's world of latest technology handheld devices made a remarkable change in the life of people especially students. For the last some years these hand held devices are used by students in many countries for learning purposes and many studies have also proved it very useful. Hand devices (e.g., PDAs and smart phones) are emerging fastly as part of daily life, particularly with university students. As it is the time of fast technology so this technology can affect intensively the learning process of university students. This study will help us to judge the readiness of the students to accept mobile devices in their studies. Moreover this study will help in identifying the new factors that affect the usage of these devices for learning.

Problem Statement

A lot of work has been done in last few years to see the effectiveness of Mobile Devices among students in learning organization in European countries. Research proved that the use of Mobile

devices has proven its utility in learning process (Huysman, 2009; Ahmad & Lodhi, 2014). Mobile Devices and there services are not very expensive in Pakistan but no work has been done to find the extent to which mobile devices are being used for learning purposes in higher education institutions. Moreover, no work is done to identify the factors affecting the use of smart phones for learning purposes among learners in learning organization in Pakistan. Such study can be useful in planning how we can use Mobile Devices effectively for learning purposes (Ahmad & Lodhi, 2014; Hameed, 2014).

Research Objectives

Thus objectives of my research are:

1. To determine the mobile learning readiness among learner in higher education institutions in Pakistan.
2. To determine the reasons that has the effect on the adaptation of mobile devices in among university students.

Literature review

Learning and Mobile Devices (IS)

Mobile learning is done by using mobile technologies (Alalwan, Dwivedi, Rana, & Williams, 2016). Learning with information and communication devices was first started by Argyris' (1977). He claims that learning would become easier and helpful in solving difficulties if it is supported by latest technologies. In the second phase of research, certain applications and hardware were developed for mobile devices to blaster learning processes and also to promote acquisition and maintenance of knowledge. New technological tools in hard and soft forms were

developed to contain the best packages and tools of learning, memory development. Network technologies were used for the access of memory contents (Joseph, 2014; Belle, 2016; Conklin, 2001; Hooff, Elving, Meeuwsen, & Dumoulin, 2011). Versatility, capacities and capabilities of the Information and communications systems are increasing day by day; they are capturing every aspect of human life, therefore behaviorist, social constructivists demand the regeneration of learning (Hameed, 2014; Alhabeeb & Rowley, 2017). Mobile devices are becoming the hubs of information and communications systems (mobile technology) and have created integrated networks, which plays the best possible role in facilitating learning by providing subroutines and infrastructure (Joseph, 2014; Belle, 2016; Aranda, Arellano, & Davila, 2017).

Major features of handheld devices are their placing, portability, immediate access to network and environment sympathy (Miertschin, Stewart, & Goodson, 2016; Ziden, Rosli, Gunasegaran, & Azizan, 2017; Narushima, Liu, & Diestelkamp, 2017). These attributes of m-learning can constitute different learning experience (Pimmer, Pachler, & Attwell, 2010; Ziden, Rosli, Gunasegaran, & Azizan, 2017). The advanced hardware and software of mobile devices gives more characteristics to manage, execute and engender information for teaching and learning (Pimmer, Pachler, & Attwell, 2010; Hameed, 2014; Ziden, Rosli, Gunasegaran, & Azizan, 2017).

Mobile devices support four types of learning i.e. personalized, informal, and collaborative and positioned learning. M-learning helps personalized learning when it allows student to learn at his/her own speed. It also supports informal learning when students learn on their way to universities in their vehicles etc. it also supports collaborative learning when students interact with other students to discuss about their studies and positioned learning is done when students use hand held devices for learning in the practical scenario (Swiss VBS, 2017; Nwaocha, 2016).

Research study find that perceived usefulness and personal innovation influences the adaptation of m learning when they investigate the factors of m-learning adoption with Chinese college students using the Technology Acceptance Model (TAM) which tells how people accept new system (Hameed, 2014). By incorporating Unified Theory of Acceptance and use of Technology (UTAUT) Venkatesh & Davis (2000) and Wanget al. (2009) discovered that five components which incorporates execution hope, exertion anticipation, social impact, saw perkiness, and self administration of learning were critical factors in receiving m-learning with Taiwanese understudies (Pimmer, Pachler, & Attwell, 2010; Agarwal & Garg, 2012; Marinova, Ruyter, Huang, Meuter, & Challagalla, 2017). Diverse looks into that three elements influence execution, anticipation, exertion expectancy, and self-administration of learning and three components impact the selection of m-learning of U.S. college. learner embrace m-learning while at the same time considering their capacity that how they will perform in m-learning. So we concentrated on the hypothesis of arranged conduct (Pimmer, Pachler, & Attwell, 2010; Marinova, Ruyter, Huang, Meuter, & Challagalla, 2017). Ajzen (1991) considers these factors as behavioral control. Mostly university students use mobile for calculator usage, text messaging, and English dictionary (Atefeh, Hasan, Behzad, & Mahdi, 2016; Miller & Martignoni, 2015; Eryılmaz, 2016). Handheld devices with numerous capacities, at that point the long battery life and great system scope are the most powerful factors in the instructive utilization of mobiles. Gender orientation significantly affects the instructive utilization of portable, however the scholarly major and course does not have any critical impact on instructive utilization of versatile by the college understudies (Morais-Storz & Nguyen, 2017). The specialized and technical issues of cell phones i.e. bring down determination organize speed and stage similarity ought to be set out

to begin m learning (Bhattacharjee, 2015; Dimovski & Škerlavaj, 2004; Kamarehei & Safari, 2015).

Among different versatile advancements which are accommodated learning, texting is the best one. A few examinations have additionally done here. SMS can be sent to understudies to educate their timetables, changes in plans, exams dates , marks and so forth and were utilized to direct understudies in learning (Miertschin, Stewart, & Goodson, 2016; Boxall & Purcell, 2016). An overview was done in Norway whose outcomes demonstrated that understudies look at SMS as a legitimate apparatus for spreading data, data about addresses and calendars and so on. The outcomes were sure despite the fact that message isn't straightforwardly utilized for learning purposes however to oversee learning exercises. Mobile correspondence likewise increments relational correspondence among individuals in a casual way (Aydin & Gormus, 2015; Barros, Ramos, & Perez, 2015). Nardi et al. (2000) suggested that for social interaction, informal communication is very necessary. To adopt this informal interaction in education environment promotes motivation of students; reduce learning pressure of students, and to improve a good relationship among teacher and student but empirical studies are required to support such arguments (Swiss VBS, 2017; Barros, Ramos, & Perez, 2015). Additionally, Kukulska-Hulme (2002) said that mobile devices can perform their work more efficiently as an extension of current learning tools instead of completely replacing them (Leipold, Bermeitinger, Greve, & Meyer, 2014; Seaman, 2002).

There is an instinctive association amongst learning and cell phones. At each phase of learning, there are forms that bring out the allegory of a learning and cell phones watches, stores, deciphers and standardizes this new learning (Packirisamy, Meenakshy, & Jagannathan, 2017; Cooperrider & Srivastva, 2017). Different applications and systems have been devised for

memorizing and learning, which has minimized the load on students (Apontea & Zapata, 2013). Mobile devices and mobile technology have devised supporting tools for learning at the individual and organizational level. Therefore, mobile devices is expected to fulfill the needs of an individual, a group of individuals, and the management functions for improving performance and decision-making process (Coetzer, Kock, & Wallo, 2017; Boxall & Purcell, 2016) . Socio-technological and all other theories support this whole phenomenon.

Mobile Devices and Theory of Planned Behaviors

Theory of planned behavior addresses individual engagement in certain behaviors in a certain space and time. Further it states that behaviors are driven by intentions, which are further based on the three constructs of an individual's attitude toward behavior, subjective norms, and perceived behavioral control (Ashkanasy, 2016). It guides individual intentions and attitudes toward action supported by favorable social norms. High levels of perceived behavioral control are the best predictors for behavioral intentions and planned behaviors. It is in human nature that it adopts all those objects, which are productive, facilitative, provide them better behavioral command and control (Alhabeeb & Rowley, 2017). So many external stimuli exert their force to change our behavior voluntarily or involuntarily by stating their assumed usability, utility and better control mechanism. We act for certain reasons, and from a construct which influences our decision (Schwenk, 2009). Mobile devices have pervaded workplaces in every walk of life. And with every coming day, steps are made by computer scientists to make user-machine interaction very easy and comfortable. It is now evident from the prevailing practices that even novice users operate mobile devices smoothly. Mobile devices, due to their utility, have made the environment eye-catching, interesting and relaxing. A stimulating environment has increased

learning intention and readiness. Augmented and virtual realities have reshaped the working and learning environment. Similarly, they have made our assignments very easy, faster and they have lessened memory load (Marinova, Ruyter, Huang, Meuter, & Challagalla, 2017). All three construct's objectives of TPB are mat therefore have proved their predictions and intentions for adopting Mobile Devices (Truong, 2009; Yi, Jackson, Park, & Probst, 2006).Besides the theory of planned behavior, technology adoption is also supported by the theory of reason action (TRA), Socio-technical Theory, Complementary Theory (CT) and the technology acceptance model (TAM) (Shareef, Kumar, Kumar, & Hasin, 2009).

Conceptual Framework and Research Hypothesis

The conceptual model has been taken from the previous studies of Cheon et al., (2012) and was also used in (Hameed, 2014). This model best explains the perception and readiness of the learners in any organization regarding the acceptance of hand held devices.

Attitude towards any behavior is the persons feeling about performing a specific task. The individual thinking that the students important to the person should perform the particular task or not is called subjective norm. The persons thinking that either it is easy or difficult for person to perform a task or not is called the perceived behavioral control.

The researches show that the attitude has the significant effect on intention (Ajzen, 1991). The second construct, subjective norm is related to behavioral intention. A people considering behavioral control are straightforwardly identified with their goal to play out the conduct. Behavioral control is expanded when people see that they have a bigger number of assets than anticipated obstructions and issues (Ajzen, 1991). According to technology acceptance model the attitude is dependent upon perceived ease of use and perceived usefulness. Perceived ease of use is that how a man imagine that to play out a specific assignment is simple or not while saw

helpfulness is that how a man conceives that to play out a specific undertaking is either valuable or not. Subjective norm is dependent upon instructor readiness and student readiness. Perceived behavioral control is dependent upon perceived self efficacy and learning autonomy. Self-efficacy is the person's beliefs about his ability and motivation to perform specific tasks (Alalwan, Dwivedi, Rana, & Williams, 2016). More specifically, individuals who believe that they can master a certain skill or an activity have more intention to perform the skill (Ashkanasy, 2016). Learner autonomy is the extent to which students are responsible and have control over the process of learning with Mobile Devices. Autonomy is a major contributor for the acceptance of any system (Hooff, Elving, Meeuwsen, & Dumoulin, 2011).

The hypothesis is also based on the same model to test and justify the acceptance, readiness and perception of the students in a learning organization, especially in university, which is considered as a creative and generative workplace and which shapes behaviors through learning.

Hypothesis

Thus the 9 hypothesis are

H1: student's attitude towards m-learning positively influence their intention to adopt m-learning.

H2: student's subjective norm toward m-learning positively influence their intention to adopt m-learning.

H3: students perceived behavioral control towards m-learning positively influence their intention to adopt m-learning.

H4: Student's perceived ease of use of m-learning positively influences their attitude towards m-learning.

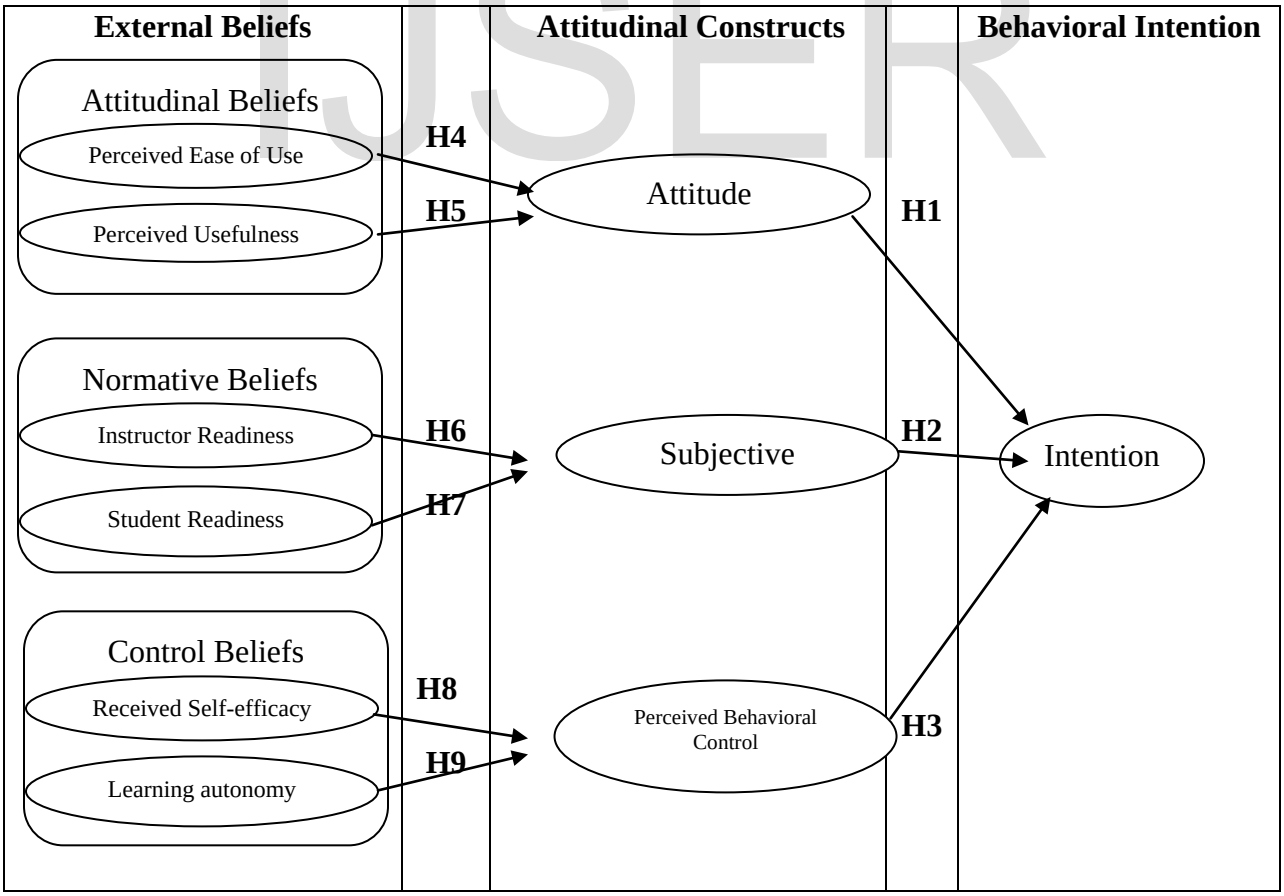
H5: Student's perceived usefulness of m-learning positively influences their attitude towards m-learning.

H6: perceived instructor readiness for m-learning positively influence subjective norm for m-learning.

H7: perceived student readiness for m-learning positively influences subjective norm for m-learning.

H8: students perceived general ability to perform m-learning positively influence their behavioral control towards m-learning

H9: students perceived learning autonomy towards m-learning positively influence their behavioral control towards m-learning.



Source: Cheon et al., (2012).

Methodology

a. Participants

In this study we used the non random sampling technique (convenience sampling) to collect data. The participants in this study were 600 (both graduate and under graduate) students of higher education institution in Pakistan. These students were of different departments i.e. engineering, computer sciences, telecommunication networking, pharmacy, environmental sciences, management sciences, earth sciences, developmental studies and geology.

b. Data collection

The survey consists of 30 questions (3 questions for each of 10 constructs) and these questions are taken from previous studies. In the questionnaire, 7 point likert scale is used ranging from totally disagree to totally agree. High scores indicated more positive perception towards m-learning.

c. data analysis

Data analysis is done by using both SPSS and AMOS. First of all the mean and standard deviation of each item , then the mean , standard deviation and chronbach alpha of each construct and then the chronbach alpha of all the constructs as a whole was find out by using SPSS. And then structural equational modeling was done in AMOS.

d. Research Design

The research is designed in such away so that the objectives can be achieved. The study was quantitative in nature. Data was collected through survey technique using self administrated structure questionnaire developed by Cheon et al., (2012). The targeted population was the students of higher education institution. These students were selected from different departments i.e. computer science, pharmacy, developmental studies, electrical engineering, computer engineering, mechanical engineering, telecommunication networking, civil engineering and the administrative heads and staff of the organization. Convenient sampling method was used to collect data from the targeted population. A convenient sampling technique was adopted on the premise that all those students working in the learning organization qualify to be included in the study.

e. **Instrument**

Self administrative questionnaire was used to get the set objectives of the study, which was developed by (Cheon et al., (2012). Questionnaire comprised of 30 questions. As there were ten constructs in the conceptual framework then three questions were asked about each construct so as a whole there were thirty questions in the questionnaire. The names of the construct were Attitude, subjective norms, behavioral control, Instructor/head readiness, Student readiness, perceived self-efficacy, and perceived ease of use, perceived usefulness and learning autonomy.

Findings

The results from the SPPS and AMOS shows show that there exist positive associations between different factors of the theory of Planned Behaviors which include constructs Attitude, subjective norms, behavioral control, Instructor/head readiness, Student readiness, perceived self-efficacy, perceived ease of use, perceived usefulness and learning autonomy has positive relation and impact with learning with the support of Mobile Devices. The detail of results are described in the below section.

Table: 1
Mean and standard deviation and Chronbach alpha of each construct

Construct	Mean	Standard deviation	Chronbach alpha
Perceived ease of use	5.02	1.66	0.81
Perceived usefulness	4.61	1.60	0.81
Attitude	4.39	1.56	0.84
Instructor readiness	4.21	1.60	0.81
Employee readiness	4.52	1.53	0.80
Subjective norms	4.47	1.48	0.75

Perceived self efficacy	4.38	1.51	0.82
Learning autonomy	4.34	1.50	0.79
Behavioural control	4.44	1.55	0.85
Intention	4.47	1.57	0.83

Table No.1 mean results show that data are not dispersed but concentrated to the center of the constructs, which shows data validity, reliability and meaningfulness. At the same time, the values for dispersions are very small, which supports our first argument. And secondly, all values of the Cronbach alpha are more than (.70), which support that the data collecting instrument and variables are valid, reliable and consistent. The highest value for the mean was 5.02, scored for 'Perceived ease of use' construct, which means that students accept Mobile Devices for learning if they considered them easy to use and operate. And the lowest value for the mean was (4.21), scored for 'Instructor readiness', which state that head or Instructor role in adopting Mobile Devices for learning is very less as compared to the factors. Highest variation in the responses were observed for the construct 'ease of use', which was scored as (1.66) and very less variation (1.48), was observed for the construct 'subjective norm', which employ that students were from the same learning organization.

Table No. 1 also shows the overall students intensions, acceptance, perception and readiness and attitude towards Mobile Devices for organizational learning. Perceived ease of use scored (5.02), perceived usefulness (4.61), attitude (4.39), Instructor readiness (4.21), Employee readiness (4.52), Employee readiness (4.47), Perceived self efficacy (4.38), Learning autonomy (4.34), Behavioural control (4.44) and Intention (4.47) values are higher than mid-point and have scores near to agree and strongly agree, which indicates that most of the respondents have the intention

to accept an Mobile Devices in their working environment. They considered it useful and easy to use and operate.

Table 2
Model fit indices

Fit indices	Values	Recommended guidelines	References
x2	1340.9	Non-significant	Klem, 2000; Kline, 2005
x2/df	2.9	<3	Kline, 2005; Tabachnick & Fidell, 2007
CFI	0.913	>=0.90	Hu & Bentler, 1999
TLI	0.901	>=0.90	Hu & Bentler, 1999; Kline, 2005
RMSEA	0.065	<0.08(good fit)	Kline, 2005; McDonald & Ho, 2002
Standardized RMR	0.146	0.15	Byrne, 1998; Hu & Bentler, 1999; Kline, 2005

Table 2 shows model fitness and values show best model fitness. The Model was best fit for all variables except X2. Value for X2 = 1341.9, which is more (>) 3 and insignificant and having matching the previous studies conducted by (Ashkanasy, 2016). All the rest of the statistic are smaller than their targeted values, which shows model fitness and acceptance for the study, and all the conditions were fulfilled for path analysis. In the results, all hypotheses were accepted, which means that there is a greater impact of the independent variable on the dependent variable or results. These results are also consistent with the previous studies conducted using theory of Planned Behaviors (TPB) in different settings and domains, shown in Table No.2. We can conclude easily that attitudinal, normative and behavioral control believes greatly influence the acceptance of the Mobile Devices for learning and favorable conditions support learning with Mobile Devices.

Path analysis

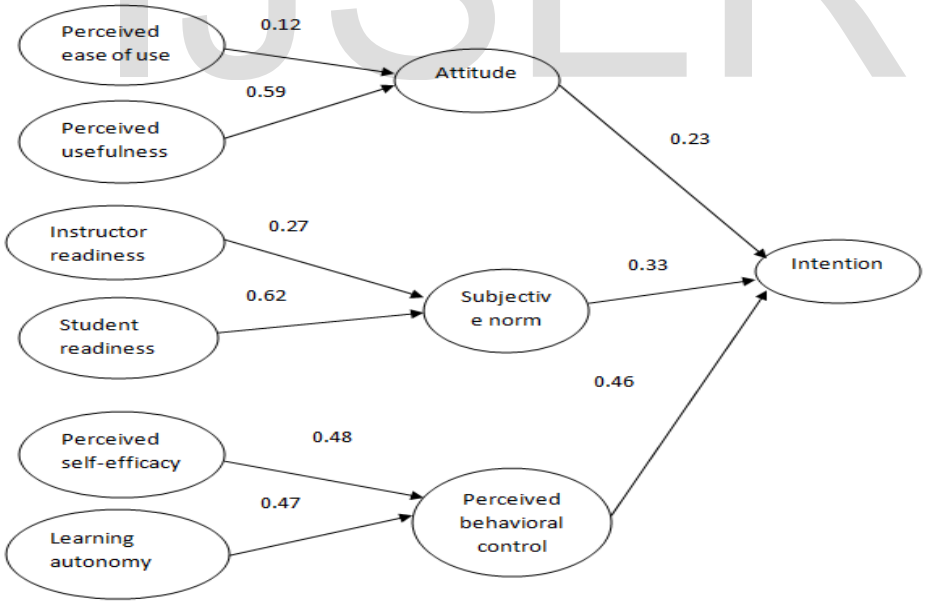


Figure No.2

The path diagram showed that perceived ease of use has 0.12 effects on attitude while perceived usefulness has 0.59 effects on attitude while attitude has 0.23 effects on intensions of the

students to accept Mobile Devices for organizational learning. Student's readiness has 0.62 and Instructor readiness has .27 effects on subjective norm which has alternatively has .33 effects on the intensions to accept Mobile Devices for organizational learning. Perceived self-efficacy and learning autonomy has 0.48 and .47 effects on perceived behavioral control which has alternatively.47 effects on accepting Mobile Devices for organizational learning.

		Estimate	Of	P
ATD	<---	PEOU	.12	***
ATD	<---	PU	.59	***
SN	<---	IR	.27	***
SN	<---	SR	.62	***
BC	<---	PSE	.48	***
BC	<---	LA	.47	***
INT	<---	ATD	.23	***
INT	<---	SN	.33	***
INT	<---	BC	.46	***

Hypothesis Results

Hypotheses were checked and accepted; known from the P values in Table No.3.Hypothesis will be explained one by one in the following lines.

Hypothesis No.1

According to the values for employee's attitude, 24% employee's attitude is influenced for learning with Mobile Devices. Current research shows that if the students have attitude towards learning then it will positively influence their intention to adopt Mobile Devices for

organizational learning. It means that if the employee thinks that Mobile Devices are useful and easy to use then they have more intention to adopt Mobile Devices for organizational learning.

Hypothesis No.2

Subjective norms play 34% role and role in the students' readiness and acceptance level for Mobile Devices in learning in the learning organization. Current research shows that if the worker has attitude towards learning then it will positively influence their intention to adopt Mobile Devices. It means that if the students think that Mobile Devices are useful and easy to use then they have more intention to adopt for organizational learning.

Hypothesis No.3

Perceived behavioral control has the most noteworthy 47% effect in acceptance, use and readiness of Mobile Devices for organizational learning. This hypothesis is also strongly accepted by our research. It means that worker perceive behavioral control of Mobile Devices learning will be increased for learning if they consider it easy to use.

Hypothesis No 4

Perceived ease of use having value 14% means that if the worker thinks that to use Mobile Devices for learning purposes is easy and they will not face any problem or difficulty while using Mobile Devices for learning purposes then he will be more attracted towards this and thus his this perceived ease of use for learning purposes have positively influence their attitude towards m-learning.

Hypothesis 5

It states perceived usefulness, which is 61% meaning that if the worker thinks that the use of Mobile Devices is useful for learning purposes and it and his progress will be increased by the

use of Mobile Devices then this will positively influence their attitude towards organizational learning.

Hypothesis No. 6,

The values for Instructor readiness is 28%, highest among all, means that if the Instructor and Instructor of a student's is ready to use Mobile Devices learning purposes and he encourage to use Mobile Devices for learning purposes then this attitude of Instructor will positively influence the subjective norms and this hypothesis is strongly accepted.

Hypothesis No.7

Student readiness and influence has 61% effects on using Mobile Devices for organizational learning. This hypothesis said that if the person thinks that his fellow worker are willing to use Mobile Devices for learning purposes this perceived students' readiness for learning will positively influence subjective norm for organizational learning.

Hypothesis No.8

Students perceived self-efficacy and general ability to use and operate Mobile Devices for learning has 49% effects. This hypothesis means that if worker perceive that he has the ability to use Mobile Devices for learning purposes and he will not face any difficulty while doing this then his perceived general ability to perform will positively influence their behavioral control towards organizational learning.

Hypothesis No.9 state and conclude that learning autonomy with regard to Mobile Devices has 48% effects and influence on organizational learning. This hypothesis said that if the worker perceived that he has learning ability and he can have control over the use of Mobile Devices for learning purposes then this worker’s perceived learning autonomy towards learning will positively influence the behavioral control of a employee towards organizational learning.

In general, these entire hypotheses conclude that, Mobile Devices has positive role in learning and Mobile Devices has potentials and utility for perceiving, accepting, readiness and using Mobile Devices for organizational learning.

Discussion

The purpose of this study was to identify factors that affect the adoption of m-learning and to know the relationships among those factors by using theory of planned behavior we found that university students attitude towards m-learning, subjective norms and behavioral control influenced their intention to adopt m-learning.the adoption of m learning should be viewed from multiple perspective. The research shows that perceived ease of use and perceived usefulness affects students attitude towards m-learning.it means that the students of university who think that mobile devices are useful are more likely to use mobile devices. University student's behavioral control was a key determinant in their intention to adopt m-learning. Self efficacy and learning autonomy of students significantly affects the behavioral control. Instructor readiness and student readiness both effects the subjective norms. Student's attitude, subjective norms and perceived behavioral control affects the intention of students to use mobile devices. Results show that intention is highly affected by behavioral control then subjective norms and attitude. The study has also been compare with the previous studies in Table no.4.

Table 4
Comparison with the Previous Studies

	Hypothesis	Accepted/rejected	Literature support.
H1	Student's attitude towards m-learning positively influences their	Accepted	(Hameed, 2014)

	intention to adopt m-learning.		
H2	Student's subjective norm toward m-learning positively influences their intention to adopt m-learning.	Accepted	(Hameed, 2014)
H3	Students perceived behavioral control towards m-learning positively influence their intention to adopt m-learning.	Accepted	(Ashkanasy, 2016)
H4	Student's perceived ease of use of m-learning positively influences their attitude towards m-learning.	Accepted	(Ashkanasy, 2016 (Hameed, 2014)
H5	Student's perceived usefulness of m-learning positively influences their attitude towards m-learning.	Accepted	(crook,2012)
H6	Perceived instructor readiness for m-learning positively influence subjective norm for m-learning.	Accepted	(Belle, 2016)
H7	Perceived student readiness for m-learning positively influences subjective norm for m-learning.	Accepted	(crook, 2012)
H8	Students perceived general ability to perform m-learning positively influence their behavioral control	Accepted	(crook, 2012)

	towards m-learning		
H9	Students perceived learning autonomy towards m-learning positively influence their behavioral control towards m-learning	Accepted	(Ashkanasy, 2016)

Recommendations

In order to increase students' positive attitude, meaningful information should be easily accessible by the Mobile Devices. Also, available services within students' comfort level of using Mobile Devices in order to ensure their confidence. Since instructors and heads significantly influence students' use of organizational learning, therefore, instructors and heads need to be more familiar with Mobile Devices and organizational learning. Emerging technologies could resolve the technical limitations of information technology, such as lower resolution, network speed, and platform comparability. However, it would be hard to shift a pedagogical culture to a Mobile Devices based format. The findings of this study can also help in the design of more user-accepted Mobile Devices based learning systems.

Conclusion

The Study found major contributing factors which affect the perception and readiness of students and working graduate students to adopt learning with the help of a Mobile Devices. The significant factors were attitude, subjective norms and behavioral control. It is important for practitioners and researchers to understand what makes end-users accept or resist a Mobile Devices and how to improve students' acceptance of Mobile Devices for organizational learning. To deploy a Mobile Devices in any organization, especially learning organizations, the

organization should think about long term implementation projects; develop ready-to-use manuals and guidelines, and standard operating procedures for Mobile Devices usage in different developmental stages. Policies regarding the prevailing organizational system and Mobile Devices usage should be developed and articulated among students and working graduates; they should be given orientation and usage training, so that they can feel it easy to operate, and can find it useful and feel that they can control and command the system. Their efficiency and effectiveness can be increased by orientation concerning the Mobile Devices. As sudden change is not welcomed by every user, a Mobile Devices for learning should be introduced in phases and its utility should be shown to the students. A New Mobile Devices should be within students' comfort level and they should feel confident even proud of using the latest Mobile Devices or tool for the organizational process and it should enhance their role. In this digital age, we are left with no other option than accepting Mobile Devices as a tool, moderator and mediator for organizational learning.

Bibliography

Agarwal, S., & Garg, A. (2012). The Importance of Communication within Organizations: A Research on Two Hotels in Uttarakhand. *Journal of Business and Management (IOSRJBM)* , 40-49.

Ahmad, N., & Lodhi, S. (2014). *Role of Knowledge management on organizational performance.* Abbottabad: COMSATS University.

Alalwan, A. A., Dwivedi, Y. K., Rana, N. P., & Williams, M. D. (2016). Consumer adoption of mobile banking in Jordan: Examining the role of usefulness, ease of use, perceived risk and self-efficacy. *Journal of Enterprise Information Management Vol. 29 Issue: 1* , 118-139.

Alhabeeb, A., & Rowley, J. (2017). Critical success factors for eLearning in Saudi Arabian universities. *International Journal of Educational Management, Vol. 31 Issue: 2* , 131-147.

Apontea, S. P., & Zapata, D. I. (2013). A model of organizational learning in practice. *Estudios Gerenciales 29* , 439-444.

Aragón, M. I., Jiménez, D. J., & Valle, R. S. (2016). Training and performance: The mediating role of organizational learning. *BRQ Business Research Quarterly* , 161-173.

Aranda, C., Arellano, J., & Davila, N. A. (2017). Organizational Learning in Target Setting. *Journal of Acadmy of Management vol. 60 no. 3* , 1189-1211.

Ashkanasy, N. M. (2016). Why we need theory in the organization sciences. *Journal of Organizational Behavior, vol 12, issue 4,* 512-536 .

Atefeh, P., Hasan, Z. M., Behzad, H., & Mahdi, A. (2016). Investigation The Effect Of Intentional And Accidental Organizational Forgetting On Organizational Learning Process. *Organizational Culture Management Winter 2016 , Volume 13 , Number 4* , 1179 -1200.

Aydin, E., & Gormus, A. S. (2015). Does organizational forgetting matter? Organizational survival for life coaching companies. *The Learning Organization, Vol. 22 Issue: 3* , 150-162.

Barros, V. F., Ramos, I., & Perez, G. (2015). Information systems and organizational memory: a literature review. *Journal of Information Systems and Technology Management, vol. 34,* 11-23.

Belle, S. (2016). Organizational learning? Look again. *The Learning Organization, vol.23, issue2(5),* 332 - 341.

Bhattacharjee, J. (2015). Constructivist Approach to Learning– An Effective Approach of Teaching Learning. *International Research Journal of Interdisciplinary & Multidisciplinary Studies (IRJIMS)* , 65-74.

Boxall, & Purcell. (2016). Strategic human resource management . *Human Resource Development Review, vol.16, issue 4* , 71-88.

Briz-Ponce, L., Pereira, A., Carvalho, L., Antonio Juanes-Méndez, J., & José García-Peñalvo, F. (2017). Learning with mobile technologies – Students' behavior. *Computers in Human Behavior Volume 72* , 612-620.

Coetzer, A., Kock, H., & Wallo, A. (2017). Distinctive Characteristics of Small Businesses as Sites for Informal Learning. *Human Resource Development Review* , 18-32.

Conklin, J. (2001). Designing Organizational Memory: Preserving Intellectual Assets in a Knowledge Economy. *Journal of Knowledge Management* .

Cooperrider, D., & Srivastva, S. (2017). *The Gift of New Eyes: Personal Reflections after 30 Years of Appreciative Inquiry in Organizational Life.* Emerald Publishing Limited.

Dimovski, V., & Škerlavaj, M. (2004). Organizational learning and information-communication technologies – a promising link. *Zb. International Research Journal of Interdisciplinary & Multidisciplinary Studies (IRJIMS) vol. 22, Sv. 1* , 7-19.

Eryılmaz, M. (2016). A Literature Review on Organizational Forgetting. *Letter and Social Science Series, November-December, No.4* , 63-73.

Hameed, N. (2014). *Mobile Learning Readiness in Higher Education in Pakistan.* Abbottabad: COMSATS institute of Information Technology.

Hooff, B. v., Elving, W., Meeuwsen, J. M., & Dumoulin, C. (2011). *Knowledge Sharing in Knowledge Communities.* The Netherlands : University of Amsterdam, Amsterdam School of Communications Research.

Huysman, M. (2009). An organizational learning approach to the learning organization. *European Journal Of Work And Organizational Psychologya, vol.3(4)* , 133-145.
Joseph, M. (2014). *Reference memory, working memory and adaptive forgetting : a comparative study in rats.* Lyon : Universit´e Claude Bernard.
Kamarehei, M., & Safari, A. (2015). Studying the relationship between organizational forgetting and empowerment of the employees; Case Study: Employees of Saipa Yadak. *Applied mathematics in Engineering, Management and Technology 3(2)* , 329-336.

Kwon, H., Kim, J., & Park, Y. (2017). Applying LSA text mining technique in envisioning social impacts of emerging technologies: The case of drone technology. *Technovation, Volumes 60–61* , 15-28.

Leipold, B., Bermeitinger, C., Greve, W., & Meyer, B. (2014). Short-term induction of assimilation and. *The Quarterly Journal of Experimental Psychology, vol.13, issue.4* , 1-19.

Marinova, D., Ruyter, K. d., Huang, M.-H., Meuter, M. L., & Challagalla, G. (2017). Learning From Technology-Empowered Frontline Interactions. *Journal of Service Research Volume: 20 issue: 1* , 29-42.

Miertschin, S. L., Stewart, B. L., & Goodson, C. E. (2016). Mobile Devices and Lifelong Learning: The Students' Perspective. *ASEE Annual Conference & Exposition.* Louisiana: ASEE.

Miller, K. D., & Martignoni, D. (2015). Organizational learning with forgetting: Reconsidering the exploration–exploitation tradeoff. *Strategic Organization, Vol. 14(1)* , 53–72.

Morais-Storz, M., & Nguyen, N. (2017). The role of unlearning in metamorphosis and strategic resilience. *The Learning Organization, Vol. 24 Issue: 2* , 93-106.

Narushima, M., Liu, J., & Diestelkamp, N. (2017). *I Learn, Therefore I am: A Phenomenological Analysis of Meanings of Lifelong Learning for Vulnerable Older Adults.* Oxford.

Nwaocha, V. (2016). *Database System and Management* . Nigeria: national open university of nigeria.

Packirisamy, P., Meenakshy, M., & Jagannathan, S. (2017). Burnout during early career: lived experiences of the knowledge workers in India. *Journal of Enterprise Information Management, Vol. 30 Issue: 1* , 96-121.

Pimmer, C., Pachler, N., & Attwell, G. (2010). Towards Work-based Mobile learning: What We Can learn from the Fields of Work-based learning and Mobile learning. *International Journal of Mobile and Blended Learning, 2(4)* , 1-18.

Schwenk, G. (2009). Evaluating Social Influence Relations: An Item-Response-Modeling Approach. *Metodološki zvezki, Vol. 6, No. 1* , 27-50 .

Seaman, J. (2002). *Accommodations for Cognitive and Academic Deficits.* New York: Woodcock-Johnson.

Seth, T., & Lee, J. (2017). Consensus and conflict: Exploring moderating effects of knowledge workers on industry environment and entrepreneurial entry relationship. *Journal of Business Research, Volume 78* , 119-132.

Sideri, S., & Giannotti, P. (2013). *Patent System, Globalization, and Knowledge Economy.* Milano: Centro di Ricerca sui Processi di Innovazione e Internazionalizzazione.

Susan, L., & Francis, Y. (2017). How to Lead the Way Through Complexity, Constraint, and Uncertainty in Academic Health Science Centers. *Academic Medicine, Volume 92 - Issue 5* , 614–621.

Swiss VBS. (2017). *Send in the Reinforcements: How the Mobile Revolution can Overcome the Forgetting Curve.* Ontario: Swiss VBS.

Ziden, A. A., Rosli, M., Gunasegaran, T., & Azizan, S. N. (2017). Perceptions and Experience in Mobile Learning via SMS: A Case Study of Distance Education Students in a Malaysian Public University. *International Journal of Interactive Mobile Technologies, Vol 11, No 1* , 34-54.