

Unified Theory of Acceptance and Use of Technology Model towards Awareness of E-Learning through Massive Open Online Course: An Empirical Study

Author's Details:

⁽¹⁾Mubeena Qamar ⁽²⁾Ms. Mahvish Kanwal Khaskhely ⁽³⁾Mr. Waqar Ahmed Sethar ⁽⁴⁾Ms. Iffat Batool

⁽¹⁾ ⁽²⁾ ⁽³⁾ ⁽⁴⁾Mehran University of Engineering and Technology (MUET), Jamshoro, Sindh, Pakistan
mubeenaqamar@yahoo.com; mahvish.khaskhely@faculty.muuet.edu.pk; waqar.sethar@faculty.muuet.edu.pk.

*Correspondence: mubeenaqamar@yahoo.com

Abstract

E-Learning is playing very important role in present educational scenario. This study awareness about e-learning tools through Massive Open Online Courses (MOOCs) among the students of University of Sindh. Several studies have been conducted on various aspects of e-learning and bringing latest technological excellence among students worldwide.

Total 516 questionnaires were filled out by under-graduate and masters level students of University of Sindh. Smart PLS technique was used to analyse and interpret the data to achieve objective results.

Study findings revealed that 30.6% participants were aware of e-learning through Massive Open Online Courses while 13.6% expressed a moderate level of awareness with Massive Open Online Courses. However, this study concludes that Massive Open Online Courses should be accepted as technology for learning where positive results are completed to be gained for Unified Theory of Acceptance and use of Technology factors such as performance expectancy, effort expectancy, social influence, computer self-efficacy and facilitating conditions.

There is a hug number of students of Sindh University who don't know about e-learning through MOOCs because there is lack of awareness of MOOCs and there are no internet availabilities in departments for students.

It is very beneficial for those who cannot afford fees for learning course they can take benefits from these courses with free of cost to learn their class assignments easily and if they cannot understand class lecture properly, they can understand that by completing online course.

Lastly, suggestions are provided to enhance awareness through workshops, seminars, trainings and e-learning to motivate students for taking benefits of latest innovations.

Keywords: self-efficacy, UTAUT mode, MOOCs, E-learning.

1. Introduction

University of Sindh is one from the oldest universities of Pakistan, founded in 1947. This university has 8 faculties and about 50 different departments where about 30,000 students are enrolled. Due to huge number of students, lack of resources and less research facilities, students are facing difficulties to seek knowledge as per universal standards. The world become global village and competition in every aspect of life is increasing day by day. The job market relates to international market due to internet and increased innovations. It is the need of time that students shall be updated in their respective subjects at advance level, which is only possible with the increased communication with world. To connect with world is not possible with limited resources so internet is the only media which can help in this regard. Through internet connection any students can get help to self-study, online tutors and online courses through Massive open online course (MOOC).

This research study was exploratory in nature and is an attempt to measure what extent MOOCs are already being used by students. To test performance expectancy, effort expectancy & facilitating conditions on computer self-efficacy.

2. Literature Review

2.1. MASSIVE OPEN ONLINE COURSE

Massive open online courses (MOOCs) obtained a lot of media attention from the business suppliers, from education practitioners and from technologically inclined sectors of the public. Massive open online course (MOOCs) has undergone rapid growth recently and has drawn significant interest from various populations. MOOCs as an essential opportunity within educational practices as demonstrated by very high dropout rate there are still many concerns as to how meet the need of the students. Kyudong h.jeong (2019)

Benefits of the MOOCS today students can easily learn lots of things for free and at affordable prices and get certified. They can choose their own timing for their convenience. They get peer to peer review which authenticates there learning more affectively and get more feedback. HEC also recognizes some of the course today for the universities students which helps them to earn credit hours too.

This study concentrated on computerized value issues in massive open online course (MOOC) situations. MOOCs have developed in the advanced education scene as a component of a developing efforts to stretch out learning chances to a more extensive scope of students.

E-Learning:

The term eLearning was approved at the tech learn conference by US master Elliott Masie in (1999), e-Learning is the use of information technology to configure, convey, regulate, and broaden learning.in 2000s communication apps became increasingly prevalent such as smartphones and tablets. Training activities are guided by online applications within the e-learning environment. DeLone and McLean (2003).

E-learning implementation enhanced as students that the structure is helpful to their learning. There are many words used to express online learning that is delivered through the internet, cover from Distance Education, to computerized electronic learning, online learning, internet learning and many more. electronic Learning provide courses that are distributed to somewhere other than the classroom where the professionals teaching via internet. courses are also delivered via a DVD, CD-ROM.

E-learning is the way of thinking isn't replacing the conventional method of learning instead it gives another technique and methodology that provides open doors much faster knowledge transmission.

E-learning described as the use of information system infrastructure to provide information and guidance to individuals, primarily via an internal network or the internet e-learning broadly explains system which provides and disseminates information and aims to improve performance' (Rosenberg, 2001: 11).

E-learning can organise the growth of information that students need to learn to enhance their learning skills. This growth has also led to overloading of information during training, resulting in ineffective training when learners are unable to retain all the information presented. It is a very effective way of delivering online courses. The resources are available from anywhere and at any time thanks to its convenience and flexibility. Anyone who is studying part time or working full time will benefit from web-based learning.

UNIFIED THEORY OF ACCEPTANCE AND USE OF TECHNOLOGY

The unified theory of acceptance and use of technology (UTAUT) invented by Venkatesh (2003) Unified Theory of Acceptance and Use of Technology (UTAUT), which consisted of four fundamental variables performance expectancy, effort expectancy, social impact, and facilitating conditions. It's are being utilized in numerous nations and it is important to acquire a better comprehension of the effect of culture on technology implementation. The UTAUT model attempts to clarify the user's intent to use the information system and its subsequent use actions. (Venkatesh 2003)

Using UTAUT, academics and students showed attitudes towards using e-learning. However, students were more susceptible to social influence and demonstrated strong interaction effects on moderators such as gender, age and voluntariness.

For facilitating conditions, did not regard the relationship between intention to use and usage behaviours as significant, but age had a direct effect on usage behaviour. Likewise, Jong and Wang (2009) modified the

UTAUT model to theorize that all model variables influence both university students' intention to use and their actual use of technology, it showed that student behavioural intention was determined by performance expectancy, attitude toward using technology, facilitating conditions, self-efficacy, and social influence while only behavioural intention, attitude toward using technology, and social influence predicted system usage.

PERFORMANCE EXPECTANCY

Performance expectancy is construed as one 's belief that adopting Information and communications technology in one 's own profession may help in attaining enhanced job performance. Further explained, performance expectancy has its roots from the perceived usefulness, extensive motivation, fit, relative advantage and outcome expectation. This has been amplified by various studies where it was found that performance expectancy is a chief factor in predicting the intention of adopting ICT in once own profession. Venkatesh (2003)

Effort Expectancy:

The term effort expectancy can be clarified as the degree of ease related with the use of the system observed without any difficulty of use intricacy and convenience being its significant segments. Information and communication technology considered as an expert tool has become imperative from it makes the work of medical experts simple and smooth. Efforts expectancy is an individual think of it as simple to utilize a system turns into the measuring stick of its achievement. Davis (2003).

On account of activity of PCs, web, cell phones including the structures of program and equipment and their application to medical services is important so effort that are needed to learn the system and reporting system—which are probably going to make their activities easy. Ven- katesh, Morris, Davis, and Davis (2003).

Social Influence

Social impact, is the degree to which an individual thinks, how significant it is that others feel or admit that He /She should utilize the new system; the impact which an individual has over the others, whom he thinks significant, concerning the utilization of a specific system, is additionally comprehensive. The idea that ICT can be utilized for the purpose of trade is deceitful in the modern world. Maya Louk, H. L. (2014).

Facilitating conditions:

Refers that individual knowledge is available of the organizational and technical infrastructures need to use the intended program Ghalandari, (2012).

Facilitating conditions are the factors expected to directly effect on system use as the degree to which an individual believes that an organizational and technical infrastructure exists to support the use of the system. Taylor, S. and Todd, P. A. (1995)

Facilitating Conditions (FC) is the available organizational support towards the system., including training and advancement, available resources and ICT infrastructure (Venkatesh et al., 2003). In this context, it is the individual perception of how well the university offers and provide facilitating condition.

Self-Efficacy

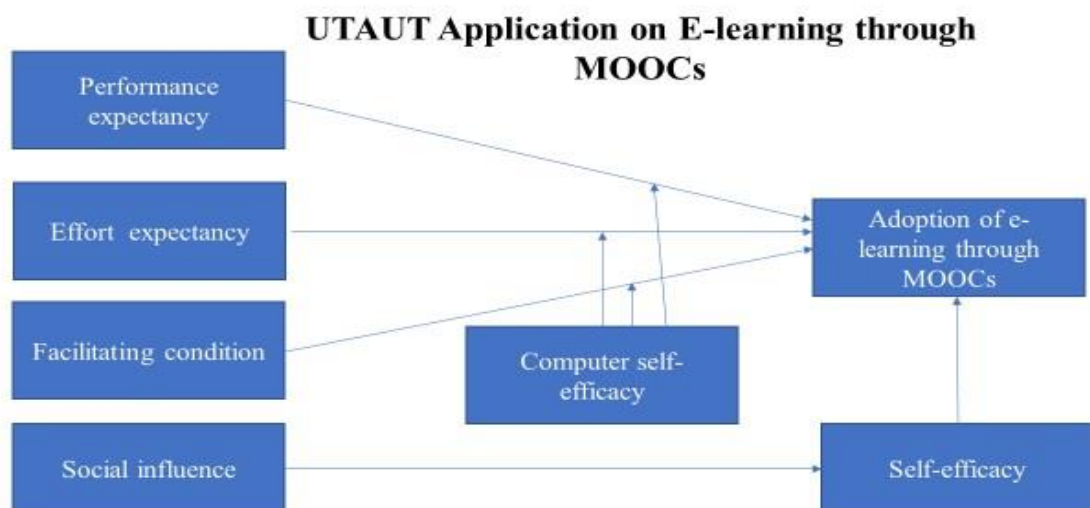
Self-efficacy is described as individuals' spirits or confidence about their abilities, that they will deliver the assigned job or any other activity at satisfactory level, which impact on their lives. Self-efficacy convictions decide how individuals feel, think, encourage themselves and perform. Such convictions produce these different impacts through four significant procedures. Dishman (2019)

People want to achieve their objectives and expect high level of results but sometimes they become fail to

deliver or receive dissatisfactory results, this can cause anxiety and de-motivation towards their goal. An energetic assessment of efficacy requires contribution with beating snags through perseverant efforts. A few mishaps and troubles in human interests fill, helpful need in encouraging that achievement which requires continued efforts. After individuals become convinced, they have the stuff to succeed, they continue despite of difficulty and rapidly bounce back from hindrances. By staying it out through tough times, they develop more ground from troubles (San Diego: Academic Press, 1998).

Conceptual Framework

Conceptual Framework



This study defines major constraints in adoption of E-learning through MOOCs through social learning performance expectancy, effort expectancy Facilitating Conditions. This study has dependent as well independent variables.

3.1. Hypothesis

H1 The relation between performance expectancy, effort expectancy, facilitating condition and adoption of e learning through MOOCs is moderated by self-efficacy.

H2. Performance expectancy has positive significantly effect on the self- efficacy

H3 There is a significantly positive effect of effort expectancy on dependent variable.

H4. There is a significant relationship between the dependent variables and facilitating conditions.

H5 There is a significantly positive effect of social influence on self- efficacy.

4. Research Methodology

This study is quantitative in nature and data was collected by using a questionnaire. The questionnaire was developed by using adopted scale of measure for each variable.

Nature of data collection is cross-sectional as it fulfills the specific condition of the study. 600 questionnaires were distributed among the students and they were later collected back from 516 respondents. Few of them were rejected because of the improper information. Among accepted responses, 282 were collected from male students while 217 were collected from females. After data collection, the data was inserted and analyzed in SMART PLS 3.

600 surveys were dispersed among the understudies and they were later gathered back from 499 respondents. Not many of them were dismissed due to the inappropriate data. Among acknowledged reactions, 282 were gathered from male understudies while 217 were gathered from females. After information assortment, the information was embedded and investigated in SMART PLS 3.

4.2. Population

The population of this study is University of Sindh's undergraduate students presently enrolled in any

undergraduate program.

Results and Discussion

Demographic Statistics

This Demographic factor tells that the clear majority of most of respondents was male with having level of 56.5% and females where 43.4 who participated in research study.

The outcomes demonstrate that 224 respondents have the age gathering of "under 21-

25 years" which contributes 40.3%. In the age gathering of "19-20 years" 137 respondents are contributing with having extent 27.5%. and the respondent's reaction that have demonstrated at the age section of "26-30 years" 110 with having extent of 19.8%. While the respondents having at the age of 18 is extent of 3.2% and 1.6% have age section of 31-35 and to the "36-40 years" separately having extent 0.2% 1. Consequently, among all age sections in research the outcome will most affected by respondents of the section of 21-25 years.

Hypothesis Testing

Hypothesis is a statement about relationship between two or more variable

H1. Computer self-efficacy and self-efficacy was found significant by having ($P=0.011$) $T=2.536$, test statistics shows difference relative to the variance probability is less than 0.05 it means it has a positive relationship with self-efficacy.

H2. The hypothesis regarding effort-expectancy and self-efficacy having $T=1.589$ and $P=0.012$ shows significant effect on self-efficacy.

H3 Facilitating Conditions and Self Efficacy have a $T= 2.079$ and $P=$

0.038 which shows that facilitating condition have a positive effect on self-efficacy it has a significant relationship.

H4 Performance expectancy and self-efficacy have positive relationship by having $T=8.431$ and $P= 0.00$.

H5 Self Efficacy and MOOCs both have a significant relationship by having $T=7.581$ and $P= 0.000$.

H6 showed the significant relationship between Social Influence and Self Efficacy with $T=2.879$ and $P=0.004$.

Table 0-1 Hypothesis Testing

| Variables | Sample Mean (M) | Standard Deviation (STDEV) | T Statistics (OSDEV) | P Values | Result (Significance) | |
|---|-----------------|----------------------------|----------------------|----------|-----------------------|---------------|
| Computer Self Efficacy | 0.11 | 0.043 | 2.536 | 0.011 | Hypothesis Accepted | $P \leq 0.05$ |
| Effort Expectancy > Self-Efficacy | 0.08 | 0.048 | 1.589 | 0.012 | Hypothesis Rejected | $P \leq 0.05$ |
| Facilitating Conditions > Self-Efficacy | 0.103 | 0.049 | 2.079 | 0.038 | Hypothesis Accepted | $P \leq 0.05$ |
| Performance Expectancy > Self Efficacy | 0.389 | 0.046 | 8.431 | 0.000 | Hypothesis Accepted | $P \leq 0.05$ |
| Self-Efficacy > MOOCs | 0.372 | 0.049 | 7.581 | 0.000 | Hypothesis Accepted | $P \leq 0.05$ |

5.3. Discussion.

In this Research, the quantities information was gathered through questionnaire to assess the student's behavior towards awareness of e-Learning through MOOCs. 600 questionnaires were distributed among the students of UoS, 56.5% were male respondents while 43.5% were female. Majority of students who shared their opinions were male. The age of most of the respondents (44%) was in between 21– 25.

The undergraduate students gave the most responses were mostly enrolled 73%. This investigation elucidates the impacts of self-efficacy on effort expectancy, performance expectancy, facilitating condition

and e-learning through MOOCs. The investigation was drawn based on hypothesis of unified theory of acceptance and use of technology by Venkatesh (2003). The results analysis was conducted in smart PLS software to find the results. A quantitative study approach was adopted, and the information were gathered through a questionnaire survey. The gathered survey questionnaire was analyzed in Smart-PLS to get the result.

We identified that those students who used MOOCs free online courses they improve cross cultural relationships which leads to collaboration between institution educators and learners locally and internationally, their inspiration toward e-learning through MOOCs gives us an obvious sign that we should urge students to adopt e- learning.

Similarly, it shall be ensured that e-learning framework should be structured as one of the necessary courses in the undergrad programs. The investigation of the e-learning acknowledgment assessment still has confinements. Performed assessment was dependent on Sindh university students' observations.

E-Learning through MOOCs acknowledgment was not only for the study hall or just to finish the essential test. The students were likewise self-anxious and mindful of its skillfulness. We found that e-learning through MOOCs impacted self-efficacy expectation toward the e-learning entrance.

It was identified that social influence has significantly affected self-efficacy. So, it was founded that effort expectancy had no impact on self-efficacy. Concerning impacts, that area directed the relation between performance expectancy, effort expectancy, facilitating condition and selection of e-learning through MOOCs is moderate by self- efficacy.

The facility chance that isn't acceptable in universities, students regularly download the whole relevant course once and share with companions or on organizations' LAN for perusing disconnected. This may have influenced their reactions on encouraging conditions making its impact unimportant.

Enrollment in MOOCs is free, beside from the couple of exchanging costs and that clarifies, why students cannot pick a stage over another. Students who had effectively taken an interest, demonstrated an inspirational frame of mind towards understanding according to them, better time the executive's abilities and quicker web association speed required for the productive and continued with use of MOOCs.

5.4. Conclusion

This research found that why many students were not aware of e-learning through MOOCs. Lack of enough time, slow internet connectivity and lack of awareness were identified as the major constraining factors in students' participation.

The UTAUT model proposed in this study not only contributes in several ways to the existing literature but it would also help researchers and practitioners in better understanding of user behaviors towards MOOCs. This research has value because it reveals multiple significant relationships that explain why individuals choose MOOCs for leaning and why they continue to use MOOCs platforms.

According to the current study, those small number of students are found to be highly active, who were aware of e-learning through MOOCs. These students are also greatly concerned about learning new skills to advance their career. The research also found that only 30.6% of the survey participants are aware of e-learning through MOOCs. It was further revealed that about 13.6% of the students expressed a moderate level of satisfaction with MOOCs.

In order to improve on MOOCs usage by students in university of Sindh, we propose that universities should promote the use of MOOCs by providing resources such as internet access and computer labs, this will encourage those who do not have computing devices and cannot afford internet services to use MOOCs. Universities should also come up with activities that will influence. MOOC designers must ensure good instructional quality by using the right interactive approaches this is likely to improve student engagement

with MOOCs especially experience learning while using them. Students those are effectively taken an interest demonstrated an inspirational mentality towards experience, better system and quick web services and speed required.

This study found that MOOCs were acknowledged as innovation for realizing where positive outcomes was picked up for UTAUT factors such as performance expectancy, effort expectancy, social learning, facilitating conditions impact on self- efficacy result clarify that 34% students are aware of e-learning and favored MOOCs for learning and more than 50 % students could not have the alternative to complete the learning assignments if no-one was instructing them to act.

It is suggested that authorities from university of Sindh shall take a prompt action to increase awareness in students through workshops, seminars, trainings, webinar to motivate students for taking benefit of latest innovation. The world is very fast in research, overall environment and behaviors are being changed in days or some time in hours. To compete this world, we need a very fast technology to equip and update us, which is not possible all the time from traditional way of learning.

To ensure all suggestions, University administration should provide computer labs, and internet excess, good WIFI facility and VPN services so students adopt e-learning through MOOCs easily.

5.5 Recommendation for Future Research

University of Sindh should organize the training and workshops for the awareness of e- learning through MOOCs it is very helpful for those students who cannot properly understanding assignments and lectures so they can take benefit from these courses.

Factors that are needed to improve such as lack of time and slow internet connectivity, non-recognition of MOOCs certificates by professional bodies, and non-realization of the benefits of e-learning through MOOCs were responsible for low level of enrollment and active participants in MOOCs.

University administration should provide computer labs, and internet excess, good WIFI facility and VPN services so students adopt e-learning through MOOCs easily. University of Sindh need to intensify efforts at creating awareness of the benefits of MOOCs among the students of Sindh University.

References

- i. Delone, William H., and Ephraim R. McLean. (2003) "The DeLone and McLean model of information systems success: a ten-year update." *Journal of management information systems* Vol 19.4 pp. 9-30.
- ii. Venkatesh, Viswanath, et al. (2003) "User acceptance of information technology: Toward a unified view." *MIS quarterly* pp.425-478.
- iii. Jang, Yong Ju, Nam-Kyung Yeo, and Jong Hwan Wang. (2009) "Cutting and suture technique of the caudal septal cartilage for the management of caudal septal deviation." *Archives of Otolaryngology–Head & Neck Surgery* No.135 Vol.12 pp. 1256-1260.
- iv. Ghalandari, Kamal. (2012) "The effect of performance expectancy, effort expectancy, social influence and facilitating conditions on acceptance of e-banking services in Iran: The moderating role of age and gender." *Middle East Journal of Scientific Research* No.12 Vol 6 pp. 801-807.
- v. Taylor, Shirley, and Peter A. Todd. (1995) "Understanding information technology usage: A test of competing models." *Information systems research* Vol.6 No.2 pp.144- 176.
- vi. Dishman, Rod K., et al. (2019) "Self-efficacy, beliefs, and goals: Moderation of declining physical activity during adolescence." *Health Psychology*.
- vii. Venkatesh, V., Morris, M.G., Davis, G.B. and Davis, F.D. (2003). *User acceptance of information technology: Toward a unified view*, *MIS Quarterly*, Vol 27 No pp. 425- 478.
- viii. Taylor, S. and Todd, P. A. (1995). *Understanding Information Technology Usage: A Test of Competing Models*. *Information Systems Research*, Vol. 6 pp. 144-176
- ix. Bandura, A. (1994). *Self-efficacy*. In V. S. Ramachaudran (Ed.), *Encyclopedia of human behavior* (Vol. 4, pp. 71-81).

- x. Venkatesh, Viswanath, et al. "User acceptance of information technology: Toward a unified view." *MIS quarterly* (2003): 425-478.
- xi. Bandura, (1993) "Perceived self-efficacy in cognitive development and functioning., " *Educational psychologist*, vol. 28, no. 2, pp. 117-148.
- xii. Dulle, Frankwell W., and M. K. M.Majanja. (2011) "The suitability of the Unified Theory of Acceptance and Use of Technology (UTAUT) model in open access adoption studies." *Information development* vol. 27. No.1 pp. 32-45.
- xiii. Jung, (2007) "Changing faces of open and distance learning in Asia.," *International Review of Research in Open and Distributed Learning*, vol. 8, no. 1, pp. 1-6.
- xiv. K. Jordan, (2015) "Massive open online course completion rates revisited: Assessment, length and attrition.," *The International Review of Research in Open and Distributed Learning*, vol. 16, no. 3, pp. 341-358.
- xv. M. W. McClure, (2019) "MOOCs, Students, Higher Education and Their Paradoxes.," *Preparing Students for Life and Work. Brill Sense*, pp. 157-178.
- xvi. Hatlevik, O.Edvard, et al.(2018) "Students' ICT self-efficacy and computer and information literacy: Determinants and relationships." *Computers & Education* vol.118 pp. 107-119.
- xvii. Bandura. A. (1977) "Self-efficacy: toward a unifying theory of behavioral change." *Psychological review* vol. 84. No.2 pp. 1-91.
- xviii. Bandura, Albert. (1986) "The explanatory and predictive scope of self-efficacy theory." *Journal of social and clinical psychology* vol. 4.No. 3 pp.359-373.