



Adoption and Implementation of E-Learning Framework for Shaikh Zayed University, Khost, Afghanistan

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

Ministry of higher education has recently launched an e-learning tool during the global COVID-19 pandemic in Afghanistan. Many higher learning institutions in Afghanistan have implemented e-learning tool because of its effectiveness as a learning approach. However, fewer studies have shown that there are still low adoption rate of e-learning in higher education institutions in Afghanistan. This study explored the rate of adoption and an implementation framework of e-learning in Shaikh Zayed University Khost, Afghanistan. The strategy of inquiry is quantitative and the instrument for determining the perceptions of target group is questionnaire. A total of 120 instructors have participated in the survey in which some of them were IT Administrators. The survey result revealed that 37.08% of contents delivery is traditional on chalk and talk based, 47.91% contents delivered by instructors using projector and 31.66% academic staff use lab sessions at Shaikh Zayed University. As a result, the ministry of higher education in Afghanistan needs to have guidelines to help higher education institutions to implement e-learning successfully and efficiently.

Keywords: *E-learning adoption model; Rogers' DOI model; implementation framework e-learning; Shaikh Zayed University.*

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1. INTRODUCTION

“Learning is the process by which people acquire new skills or knowledge for the purpose of enhancing their performance. Traditionally, learning is conducted in classroom setting. Advances in technology change the learning process. Information technology allows the learning process to be conducted virtually. E-learning is an innovative system of interconnected institutions to create, store and transfer the knowledge, skills and artifacts which define new technologies” [1].

“In general, e-learning can be defined as the usage of Internet technologies to deliver a broad array of solutions to enhance knowledge and performance” [2]. “E-learning is based on three fundamental criteria which are network, delivered to the end-user via a computer using standard Internet technology, and third, it focuses on the broadest view of learning that goes beyond the traditional paradigms of training” [3]. “E-learning also can be viewed as the delivery of course content via electronic media, such as Internet, Extranet, satellite broadcast, audio/video tape, interactive TV, and CD-ROM” [4].

“Therefore, e-learning can be defined as an innovation of learning and teaching using the digital media and computer technology that enable the information to be transmitted via networks towards assisting, simplifying, boosting and accelerating the educational processes and can be access regard-less of time and places” [5]. The aim of this study is to determine the perception of the academic staff of Sheikh Zayed University for adoption of e-learning system and based on their perception to design an appropriate implementation framework.

2. LITERATURE REVIEW

“Technologies are changing the style of learning from traditional chalk and talk to technology based learning process.

E-Learning has and will continuously change the method of teaching and learning in institutions of higher education countrywide. The main objective of e-learning is to increase the flexibility of obtaining knowledge besides the traditional lecture concept. However, it does not mean that the implementation of e-learning is to change or disregard lecture room or lecturers but it helps to strengthen the teaching and learning process by

utilizing technology. This also means that e-learning will not only change traditional learning system to online version, but also add values to learning experience as well as supporting new methods in teaching and learning in institutions of higher education” [5]

There are different tools and techniques that can be used in e-learning environment, the techniques adopted such as TV and radio broadcasting, internet, virtual classes and distributed learning. Lecturers and learners are benefits from e-learning in many areas and help them to access materials easy when they needed and recovered the information. The uploaded material remain for long time without any date of expired and it is available for all. E-learning increases the conductive between students and tutors during content delivery. Despite the desire to implement e-learning within educational institutes the roles of instructors and students are important. Therefore preparatory work should be done to incorporate these roles by creating a conductive environment for the adoption of e-learning. E-learning is difficult to implement without full support and help of instructors [6].

One strength of e-learning is that students can access the online resources at anytime, anywhere, and at any pace. Students can freely choose a time for studying whenever they want.

Here are some differences between learning in an e-learning environment and in a traditional class- room are as follows.

E-learning environments emphasize student activity, problem-centered rather than subject centered learning. Students have more chances to interact with learning objects directly. The study process much be more comprehensive and lengthy rather than divided into small classes. The teachers' role in teaching is varying from being the single information deliverer to being an organizer, guided, and instructing person [7].

One of the most important areas that technology can greatly contribute is education. Along with the fast emerging of the networking and communication technologies and advances, these applications reformed the learning and educational system. Educational technologies have rapidly developed in the recent years where new technology-based learning techniques and channels have been emerged

and utilize the communication, Internet, and computers technologies. E-learning is the main umbrella to all these methods since it refers to learning that is delivered via a range of electronic technologies [8].

“If we look the adoption of e-learning has given a lot of benefit to country such as United Kingdom and United States which provide mature education system. Malaysia as developing country has also implemented e-learning system in several higher learning institutions. However, the adoption of e- learning is still low; Although e-learning offers many benefits too” [5]

2.1 Online knowledge has distorted geography by shrinking distances and removing access barriers. Net- working (subscribing to focused knowledge content), Specialized Forums, Interest Groups and e- Conferences offer extraordinary means for knowledge transfer and partnership. In a recent paper by UNECA [9] argues that online or e-knowledge is the best thing ever to happen to African nations. Indeed, Internet provides a bonanza of knowledge. It is the new revolutionary instrument for accessing knowledge [10].

2.1 Determinants of E-learning adoption in Universities

Adoption in the perspective of this study refers to taking up and using e-learning systems for academic and educational purposes.

The factors that support or prevent the adoption of e-learning in higher education institutions have some propositions. These propositions are grouped into three main determinants of adoption (technology, organization and environment).

2.1.1 Technological factors

The technological factors are made up of the internal and external technologies that are related to the organization. Technology in this case does not only refer to the actual software and hardware features of the platform but also how well technology is adapted to the best practices of teaching and learning.

2.1.2 Organizational factors

These are the internal social mechanisms of the institution. organizational factors which were grouped into Organizational compatibility, Expected benefits/ Perceived usefulness, Size of the institution, Human and financial resources.

2.1.3. Environmental factors

In this context, the environment of a university include other competing universities, agencies such as NGO, Governments, Local authorities, Ministries and others. All these entities have an effect in one way or the other on the affairs of the university. E-learning adoption is not an exception [11].

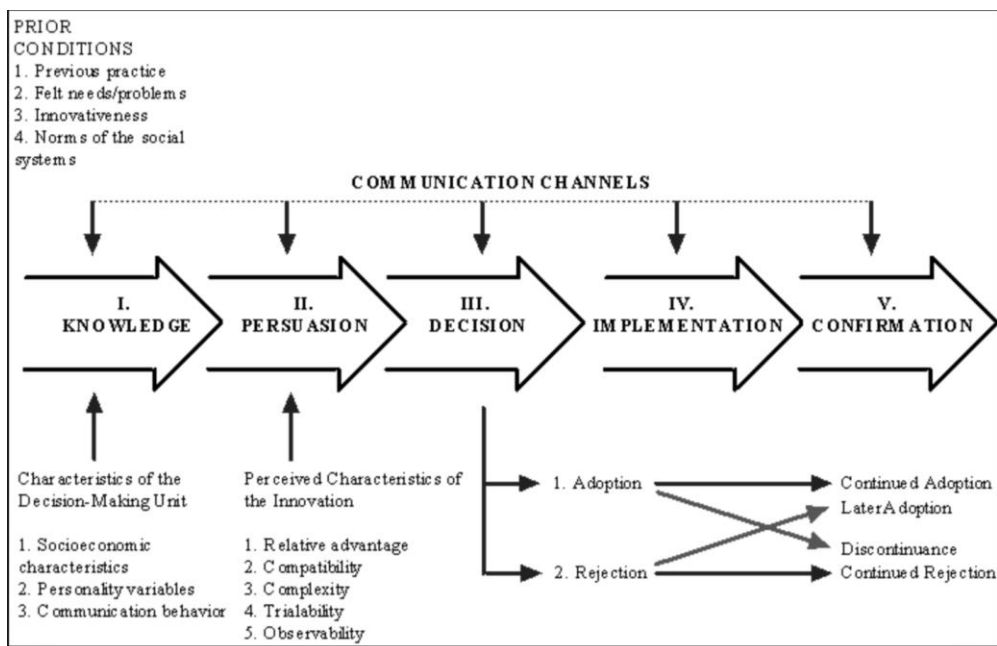


Fig. 1. Diffusion of Innovations

2.2 Diffusion of Innovation

According to Rogers [10,12] innovations are perceived to have attributes that have an impact on the decision to adopt, implement and use the innovations. Five characteristics of innovation were identified by [12], which impact on individual's attitude in the adoption process. These attributes are 'relative advantage', 'compatibility', 'complexity', 'trialability' and 'observability' as shown in Fig. 1. Relative advantage is the degree to which an innovation is perceived as better than the idea it supersedes. Compatibility is the degree to which an innovation is perceived as being consistent with the existing values and past experiences. Complexity is the degree to which an innovation is perceived as difficult to understand and use. Trialability is the degree to which an innovation may be experimented. Eventually, observability is the degree to which the results of an innovation are observable to others. Tornatzky and Klein [13] had conducted a meta-analysis on 75 studies based on Rogers' five innovation characteristics and other attributes proposed by other researchers and found only relative advantages, complexity and compatibility had a consistent relationship with innovation adoption.

Therefore, three characteristics of innovations of e-learning adoption will be used in this study.

3. METHODOLOGY

This section shows the study methodology framework and data collection necessary for the system be proposed and implement successfully. The adoption model and the implementation framework of e-learning are based on the data collected and a brief interview with the IT manager and top level leadership of the mentioned university.

3.1 Data Collection

In this research study, the instrument for data collection are questionnaire survey and interview conducted at Shaikh Zayed University to determine the perception of the academic staff for adoption and integration of e-learning system in their daily contents delivery. A total of 120 lecturers and 3 IT staff participated in the questionnaire survey out of 281 academic staff at Shaikh Zayed University. The questionnaire was designed into four sections, relative advantage, compatibility, complexity and adoption of e-learning respectively.

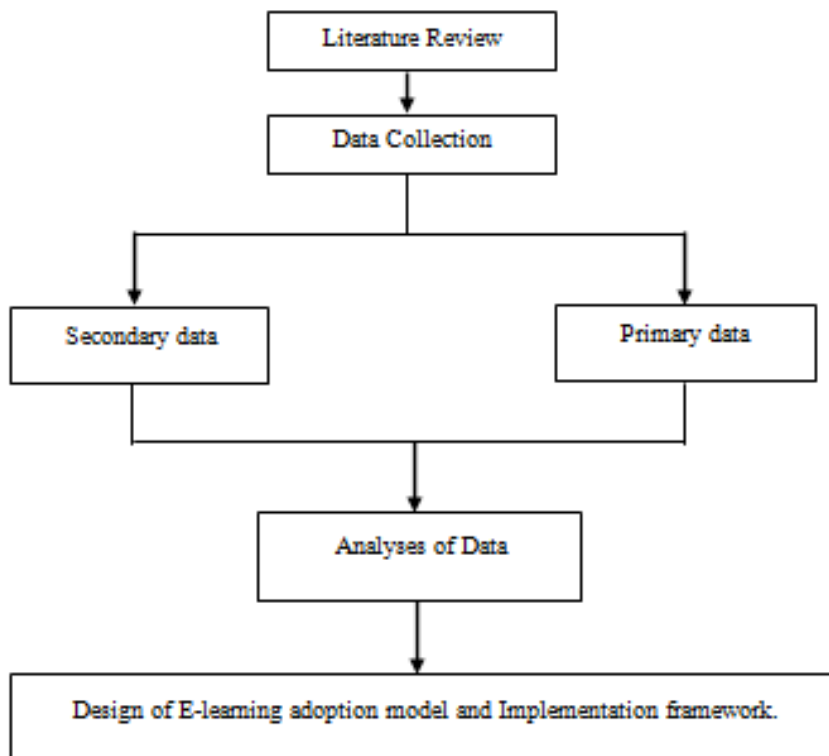


Fig. 2. Research methodology flowchart

4. RESULTS AND DISCUSSIONS

4.1 Staff Strength in Different Faculties

The following table shows the staff strength of the Sheikh Zayed University as of current date. The total number of staff consists of instructors from others provinces as well as from Khost province with specialization in various subjects. They are being assigned to different faculties [14].

4.2 Contents Delivery Methods

The delivery of educational contents is diverse in nature. Taking into the account various factors such as classroom size, no of lecturers and

other teaching staff, availability of buildings, no of faculties and departments, Shaikh Zayed University has included the following content delivery methods in all faculties and departments.

1. White board
2. Projector
3. Lab session

As per the information from SZU, figure 3 shows the average finding for the type of contents delivery at the present. The figure 3 shows that projector type is popular as compared to traditional method. The e-learning services is equal to zero that is why the SZU University wants to go for the e-learning to be implemented

Table 1. Staff strength (summary of statistic of SZU)

Faculty	Academic	Non-academic	Total
Medical	33	7	40
Engineering	22	5	27
Computer science	19	5	24
Agriculture	21	8	29
BBA	18	4	22
Journalism	12	5	17
Education	27	6	33
Political science	15	4	19
Social science	5	4	9
Islamic study	18	6	24
Pashto literature	23	5	28
Veterinary	5	4	9

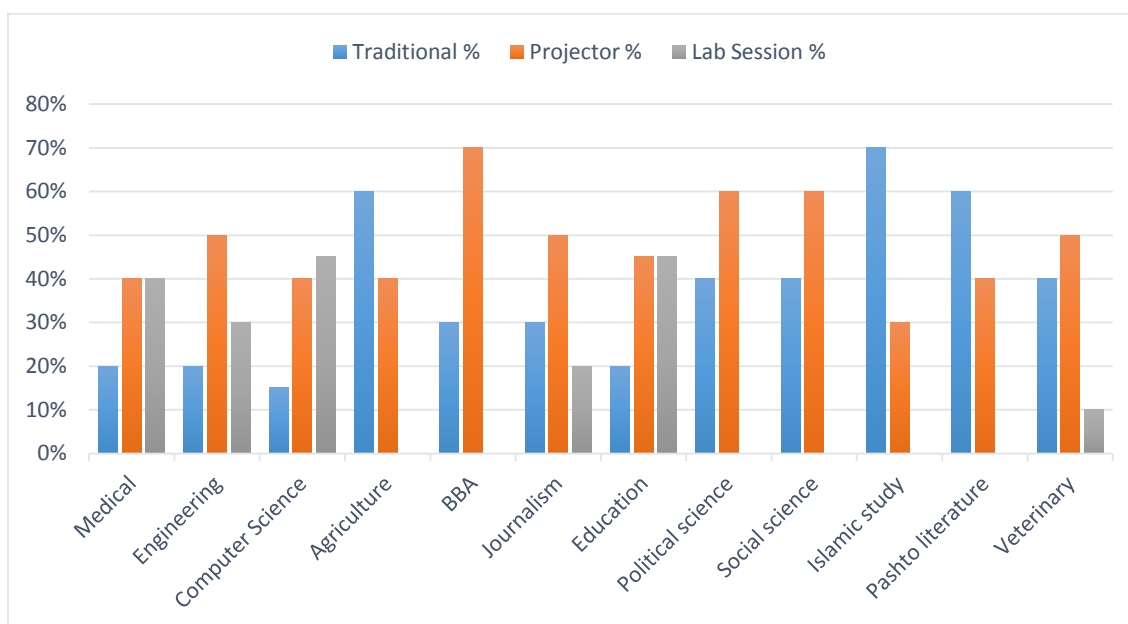


Fig. 3. Contents delivery

From the observation of the survey data analyses, it seems that all of the respondents are agree with the implementation of E-learning at Shaikh Zayed University Khost, Afghanistan, their perception was really encouraging for the implementation of E-learning. For the questions included in the survey questionnaire, the opinions were received with different attitudes and for determining the change behavior, the mean value of the survey was greater than the mentioned threshold value, which shows the agreement of staff for implementing E-learning at Shaikh Zayed University.

4.3 Adoption Model for e-learning

The Fig. 4 shows the proposed model after evaluating from the requirements as discussed above. The main requirements have been specifically outlined and some requires further recommendations which will improve the system.

4.4 The implementation framework for e-learning

The conceptual implementation framework as in Fig. 5 has been derived from the interview

conducted with the IT officer at Sheikh Zayed University. The fundamentals setup of e-learning system has been already discussed in the corridor of top leadership of Sheikh Zayed University.

In Fig. 4, the policy should be in place for user list and accessibility. Policy such as the user list policy is giving privileges to users to register themselves or provide username and password by relevant faculties and get enrolled them into the course. Along with that, the accessibility rights policy for their contents are also needed by identifying the level of users like students and lecturers. The administrations provide the detail of courses, students and lecturers. Then this information is handled by IT department ensuring for the registration. They convert traditional contents (pdf, MS word, power point) to electronics format and maintaining constant operation of e-learning system. Teachers should handle functions like providing notices on course, searching, creating and calendar since it is a daily routine. All of these materials will be stored into SZU repository and delivered through web or other delivery methods.

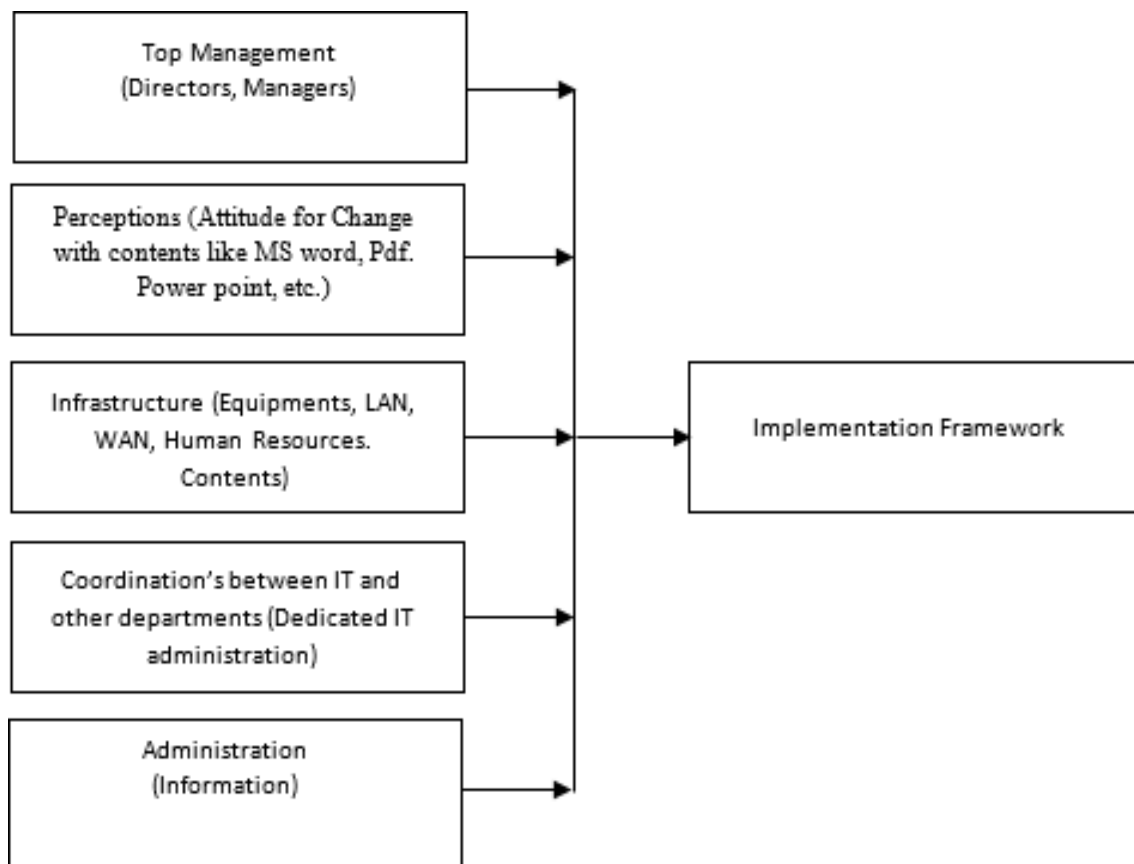


Fig. 4. Proposed model for e-learning setup

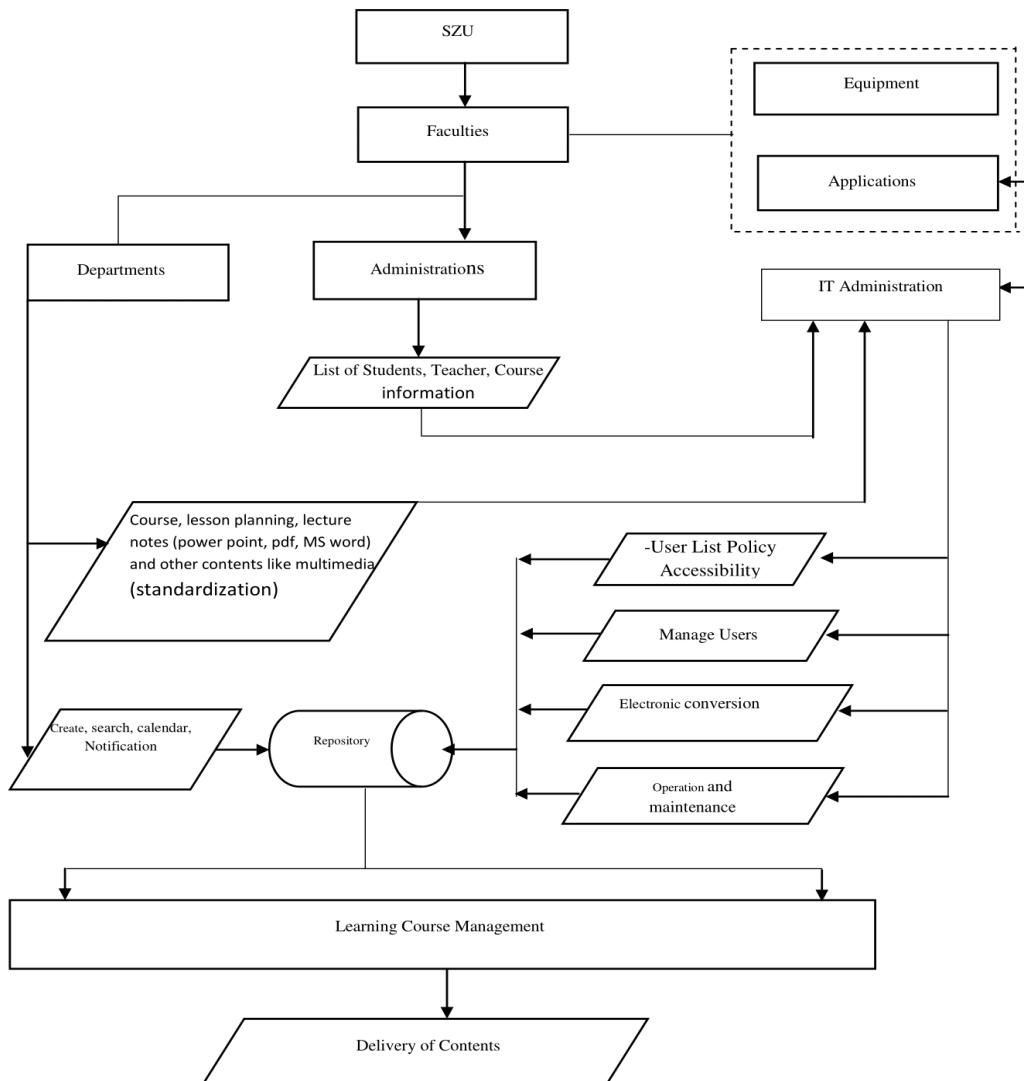


Fig. 5. Process Framework

5. CONCLUSION AND RECOMMENDATION

E-learning has been perceived as one of the solution to address the educational problems faced by many universities in developing countries. E-learning is becoming important and necessary for Sheikh Zayed University of Khost, Afghanistan since the current scenario of teaching methods are traditional based face-to-face with feedbacks in the form of exams and assignments from students. SZU has invested in infrastructure (LAN, WAN and equipment's) development to support and enhance teaching learning using ICT as a medium.

Nowadays all the adaptors are ready for e-learning. However, IT administrator requires

more training in technical areas to gain further knowledge and experiences. Moreover, e-learning requires fully dedicated people to manage and operate where significant amount of time has to invest in order to keep information updated. Currently, SZU has an IT person employed with various level of experience but sometimes get overburdened. In such case, SZU need to employ at least an IT person to concentrate fully on e-learning system.

Sheikh Zayed University (SZU) has a good support from Ministry of Higher Education (MoHE) and good infrastructure resources to encourage stakeholders to use ICT applications providing opportunities to create confidence level and the attitudes toward technology. The achievement of creating awareness had a great

impact on the adopters because this really encourages the teaching professional to realize the importance of ICT to incorporate e-learning materials.

CONSENT

As per international standard or university standard, respondents' written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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