Original Research Article

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

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, fever 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.*

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 is 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 increase 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].

2.2 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).

2.2.1. 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.

2.2.2 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.

2.2.3. 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].

2.3. 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.

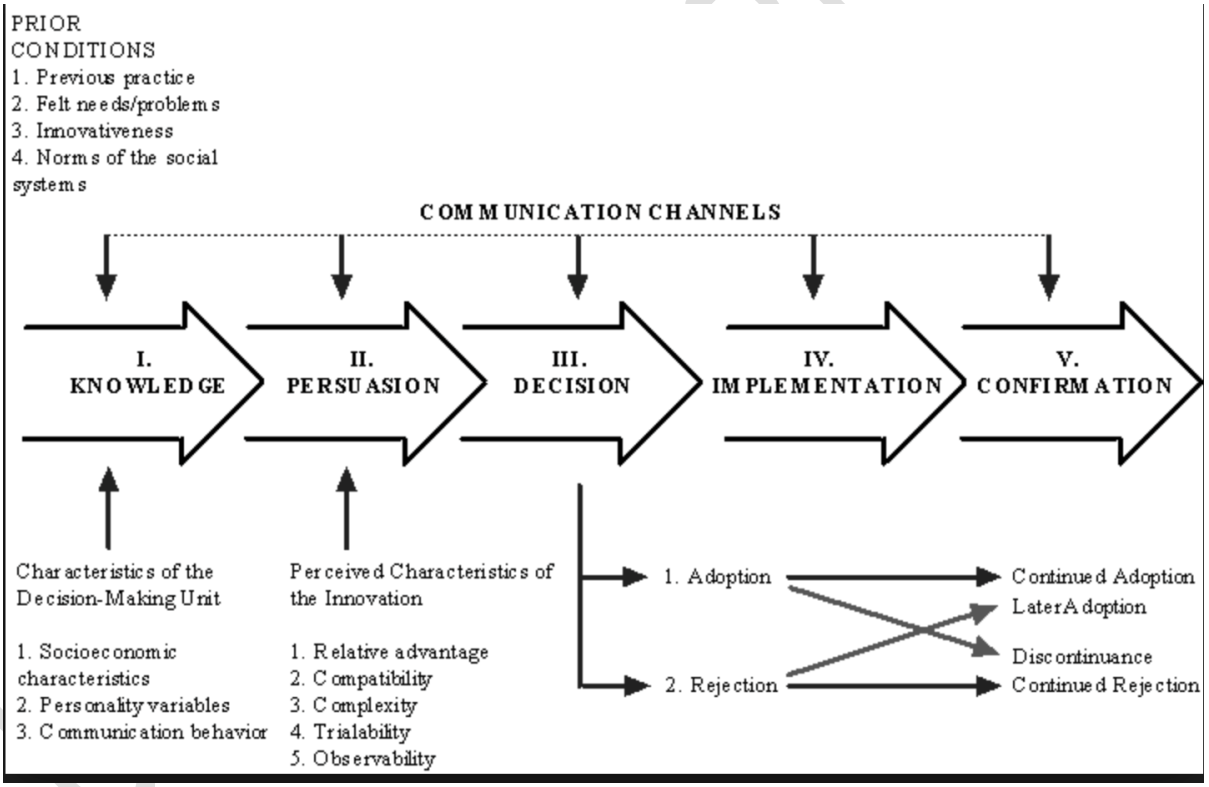

Fig. 1: Communication Channel

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.

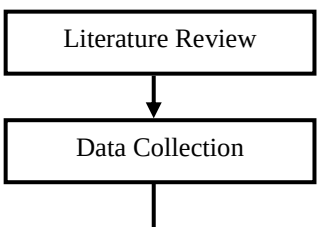

Fig. 2. Research Methodology Flowchart

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 IT staff participated in the survey. The questionnaire is designed into four sections, relative advantage, compatibility, complexity and adoption of e-learning respectively.

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.

Table 1:: Staff strength (Summary of Statistic of SZU)

Faculty	Academic	Non-academic	Total
Medical	33	7	30
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

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

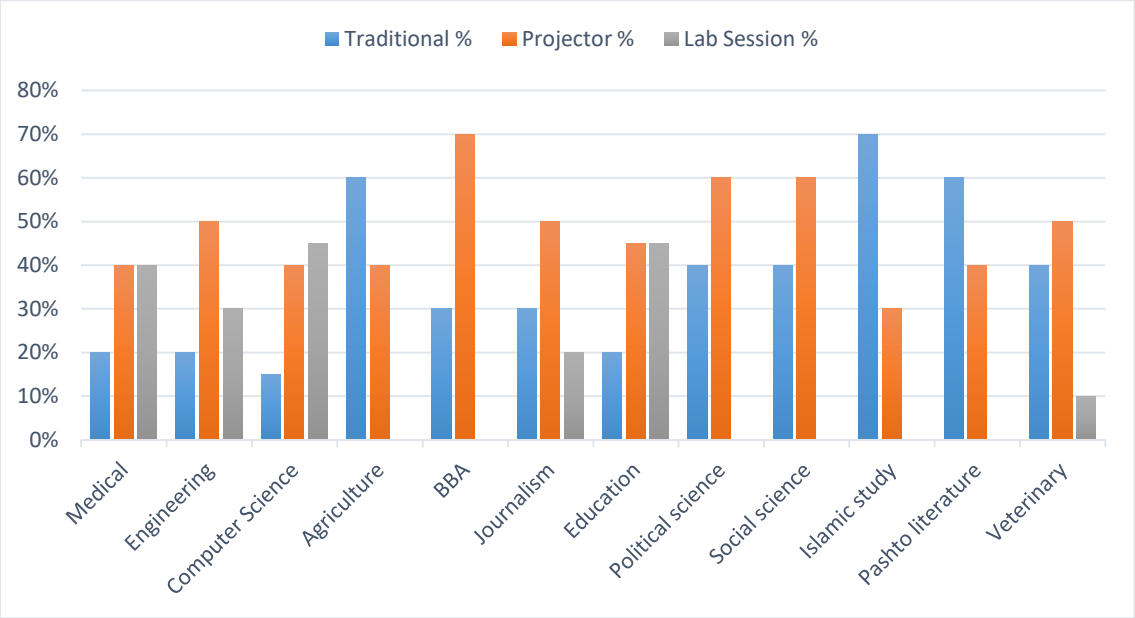

Fig. 3: Contents delivery

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.

4.3 Adoption Model for e-learning

The figure 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.

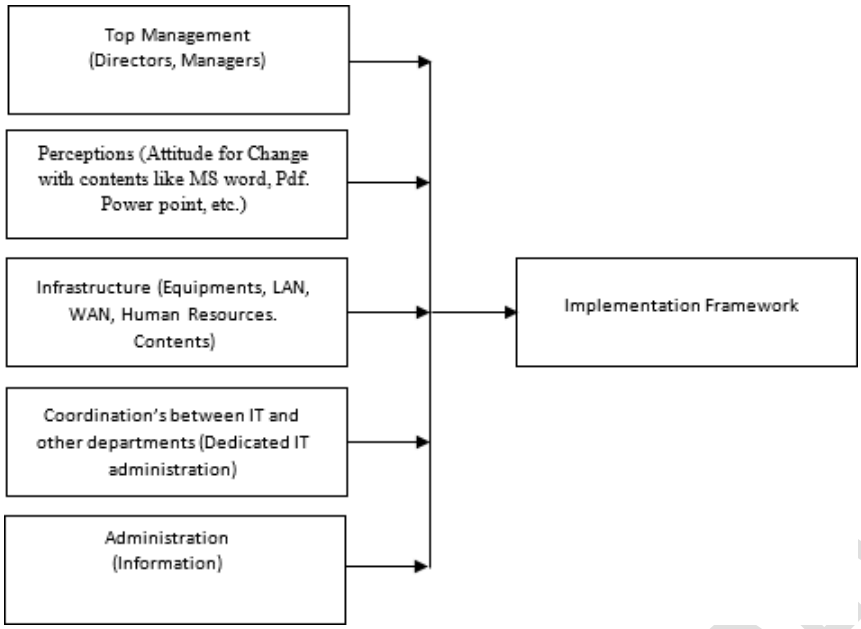

Fig. 4 Proposed model for e-learning setup

4.3 The implementation framework for e-learning:

The conceptual implementation framework as in figure 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 Sheik Zayed University.

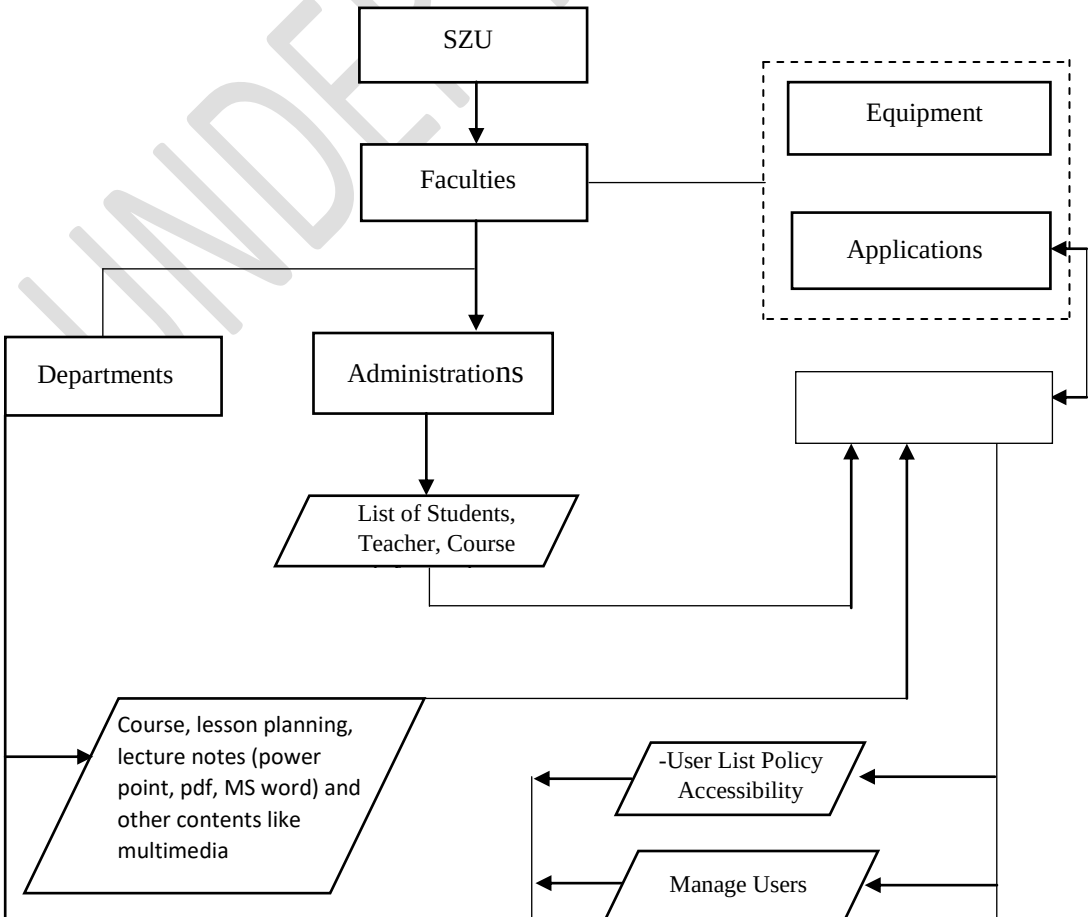

Fig. 5 Process Framework

In figure 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.

4. 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.

References

[1] J. S. Metcalfe, "The economic foundations of technology policy / equilibrium and evolutionary perspectives," *Handbook of the economics of innovation and technological change.,* 1995.

[2] H.-M. H. G.-D. C. Shu-Sheng Liaw, "Surveying instructor and learner attitudes toward e-learning," *Computers & Education,* vol. 49, no. 4, pp. 1066-1080, 2007.

[3] M. J. Rosenberg, E-Learning: strategies for delivering knowledge, New York: McGraw-Hill Companies, 2001.

[4] H. M.Selim, "Critical success factors for e-learning acceptance: Confirmatory factor models," *Computers & Education,* vol. 49, no. 2, pp. 396-413, 2007.

[5] S. S. H. Haron, "An investigation on predictors of e-learning adoption among Malaysian e-learners," in *2010 International Conference on Science and Social Research (CSSR 2010)*, 2010.

[6] Y. O. Fadlelmoula Abd Alla Idris, "Challanges Facing the Implementation of e-Learning at University of Gezira According to View of Staff Members," in *2015 Fifth International Conference on e-Learning (econf)*, 2015.

[7] E. KANNINEN, "LEARNING STYLES AND E-LEARNING," TEMPERE UNIVERSITY OF TECHNOLOGY, 12.12.2008.

[8] S. Al-Sharhan, A. Al-Hunaiyyan and H. Al-sharah, "A new efficient blended e-learning model and framework for K12 and higher education: Design and implementation success factors," in *2010 Fifth International Conference on Digital Information Management (ICDIM)*, Thunder Bay, ON, Canada, 2010.

[9] J. L. Hamel, "Knowledge for sustainable development in Africa: towards new policy initiatives," *World Review of Science, Technology and Sustainable Development,* vol. 2, no. 3-4, pp. pp 216-243, 2005.

[10] W. N. Professor Allam Ahmed, "Challenges and Opportunities of E-learning Networks in Africa," vol. 49, no. 2, pp. 86-92, 2006.

[11] S. L. B. R. B. Eric Ansong, "Determinants of E-Learning Adoption in Universities: Evidence From a Developing Country," *Journal of Education Technology Systems,* vol. 46, no. 1, pp. 30-60, 2017.

[12] G. P. a. M. Roberts, "Adoption of new information technologies in rural small businesses," vol. 27, no. 4, pp. 467-484, 1999.

[13] L. G. T. A. K. J. KLEN, " Innovation Characteristics and Innovation Adoption-. Implementation: A Meta-Analysis of Findings," *IEEE TRASACTIONS ON ENGINEERING MANAGEMENT,* vol. 29, no. 1, 1982.