

The Acceptance of E-Learning among Students and Faculty of College of Medicine and Dentistry, Jouf University.

Corresponding Author:

Dr.Ayesha Mallick

Assistant Professor

Family & Community Medicine Department

College of Medicine , Jouf

university, Sakaka, Aljouf

KSA

Other Authors:

**Maryam Bakr Humud, Lubna Abdulrazaq Alfaleh, Afkar Bader Alkhaldi, Mariyah
Mohammed Alruwaili, Shaima Naif Alsharari, Rawabi Ibrahim Asaheimi**

Abstract: BACKGROUND: *The use of computers in Medical education has been in continuous development since the early 1960s. Its adoption however, has been limited. E-learning can be defined as the use of information and communications technologies (ICT) or the Inter and intranet in educational activities. Evaluation of perceptions about E-learning as a method of teaching and learning was needed in College of Medicine and Dentistry, so that E learning methods could be applied assisting students and faculty in increasing their knowledge and skills to ensure competent performance, better patient care and enhanced community services.*

AIM: *The aim of the study was to evaluate the perception of E-learning methods amongst Medical and Dental students as well as faculty of Jouf University. The objectives of the study were assessment of participants' knowledge and vision about E-learning as well as their preferred E-learning method.*

METHODOLOGY: *Cross-sectional study was carried out using a structured questionnaire involving students and faculty members of College of Medicine and Dentistry registered in the year 2018-2019. Sample size was 256 data was collected after approval from LCBE, via convenience sampling. Analysis was done on SPSS.*

RESULTS: *90% of the participants agreed that they understood the term E-learning and 83% agreed that incorporating E learning in the college was useful However, they don't see E-learning as replacing the traditional method rather most of the participants suggested a blended learning system with more active involvement of activities via the Black Board and improvement of PBL and TBL rooms.*

CONCLUSION: *Our results show that almost two thirds of the faculty members and students agree that E-learning methods are, more flexible, can provide more comprehensive information, can improve PBL and TBL sessions. It is time saving, eco-friendly and supports the students various learning styles.*

Keywords: *E-learning, online learning, medical studies, dental, Saudi Arabia*

Introduction:

The use of computers in Medical education has been in continuous development since the early 1960s. Its adoption however, has been limited by the programming process of entering data through punch cards and the limitations of relatively primitive computer languages. Although the earliest attempts to apply computer applications in Medical education started in 1961, major developments in computer-assisted instruction occurred in quick succession in the late 1960s at several American Medical colleges[1].

E-learning can be defined as the use of information and communications technologies (ICT) or the Internet in educational activities. E-learning is also learning mediated by technology, such as the Intranet, and multi-media based computer applications. E-learning systems enable students to extend their learning experiences beyond the borders of a classroom by using both online and offline learning resources. Such activities usually increase the interaction among students and between instructors and students. Because of the nature of Medical education, E-learning systems require specialist design to accommodate more practical sessions, and more student involvement in Medical procedures and operations [2, 3].

The use of Internet technologies to enhance knowledge and performance offers learners control over content, learning sequence, pace of learning, time, and often media, allowing them to tailor their experiences to meet their personal learning[6] objectives. According to a study by Jorge et al on diverse Medical education contexts, E-learning appears to be at least as effective as traditional instructor-led methods such as lectures. Students do not see E-learning as replacing traditional instructor-led training but as a complement to it, forming part of a blended-learning strategy. Innovations in E-learning technologies point toward a revolution in education, allowing learning to be individualized (adaptive learning), enhancing learners' interactions with others (collaborative learning), and transforming the role of the teacher [9].

A survey conducted in Botswana describes how students are engaged within groups through E-learning techniques to observe how the technique helps learners in learning a module or subject. Number of surveys was conducted among the students and the staff members concerning the impact of Group-Based learning and E-learning [10].

Medical students are required to learn a great deal of new information in a short period of time before taking exams and evaluations. Therefore, they have little to no time to review what they have learned. Medical students are overloaded with a tremendous amount of information. They have a limited amount of time to memorize all the information studied. The overload of information creates a feeling of disappointment because of the inability to handle all the information at once and succeed during the examination period.

In a research published in the Journal of the American Medical Association. They found that 27% of Medical students had depression or symptoms of it[4, 5].

The use of technology to enhance learning is not a new undertaking, in the field of medicine and the potential benefits of technology integration (improved motivation, enhanced instructional methods and increased productivity) have been well documented[6]. PBL is based on the assumptions that learning is a constructive, collaborative, contextual, and self-directed process. In the context of PBL the use of multimedia in PBL problems is supposed to provide implicit contextual information, such as visual, auditory, or other nonverbal cues that are absent in paper or oral presentations[7,8].

Medical education is undergoing rapid globalization challenges which need to be adopted to not only move with the times but also facilitate the students. E-learning not only provides a more interactive preface during lectures in college but also provides a flexible time schedule for students to access reading materials, lectures and discussion via discussion board.

E learning was already implemented in subjects like Islamic studies and Arabic in Jouf University and evaluation of perceptions about E-learning as a method of teaching and learning was needed in College of Medicine and Dentistry, Jouf University so that E learning methods could be applied assisting students and faculty in increasing their knowledge and skills to ensure competent performance, better patient care and enhanced community services [11].

Aim of the study:

The aim of the study was to evaluate the perception of E-learning methods amongst Medical and Dental students as well as faculty of Jouf University and their vision about its applications and effectiveness.

Materials and methods:

Design and sampling: Cross sectional study.

Setting: College of Medicine and Dentistry, Jouf University.

Study participants: All students and faculty enrolled in the College of Medicine and Dentistry, Jouf University in the academic year 2018-2019.

Sample size: The sample size was calculated using open EPI sample size calculator. Total population was 744 our sample size was 256.

Sampling technique: Convenience sampling.

Inclusion criteria: All students and faculty enrolled in the College of Medicine and Dentistry, Jouf University in the academic year 2018-2019.

Tool for data collection: A structured questionnaire was used, validated through a pilot study.

Collection of data: Academic year 2018/2019.

Ethical consideration: The study was conducted after approval of ethics review committee of Jouf University.

Confidentiality: was maintained by coding the questionnaire.

Statistics: Data analysis was performed using SPSS version 21. Descriptive statistics were carried out to assess the frequency and relations of the variables

Study subjects: All Medical and Dental students and faculty of Jouf University (2018-2019) will be invited to take part in the study.

Sample size: The sample size will be calculated using open EPI sample size calculator.

Sampling technique: Convenience sampling

Results

A total 256 participants responded to the questionnaire from the College of Medicine and Dentistry the distribution is shown in Table 1.

TABLE 1: Socio demographic characteristics

Descriptive statistics n=256

		Total n	Total n (%)	Male	female
College of Medicine	Student	148	58%	57	91
	Faculty	41	16%	23	18
		189	74%		
College of Dentistry	Student	54	21%	41	13
	Faculty	13	5%	8	5
		67	26%		

90% of the participants agreed that they knew about E-learning, however when asked about effectiveness of E-learning as compared to traditional learning only 58% of the participants were of the view that E-learning was more effective than traditional learning. In response to an open ended question about E-learning most of the participants suggested a 'blended' learning style rather than a purely traditional style.

83% of the students and faculty members said that it would be useful to incorporate E-learning in medical and dental studies as shown in Fig 1 while Fig 2 shows the preferred method of E-learning chosen by participants, 16% of the participants did not choose any method.

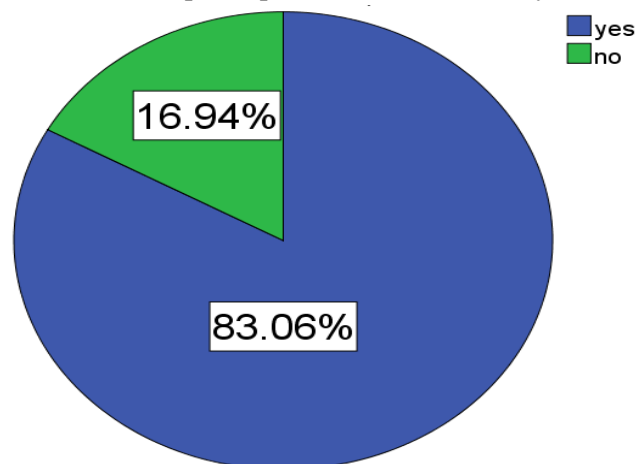


Figure 1: Usefulness of incorporating E-learning in medical and dental studies.

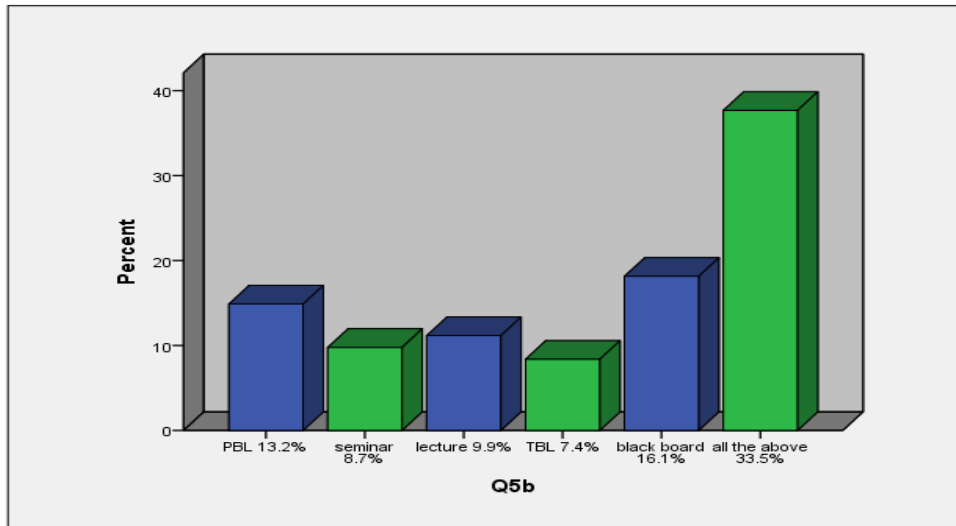


Figure 2: The preferred method of application of E-learning

More than 70% of the participants agreed that E-learning methods were cost effective, ecofriendly, saved time and supported the various learning styles of students.

Discussion

Table3: Comparison of current with previous studies concerning E-learning

	OUR STUDY	PREVIOUS STUDIES
Are E-learning methods ecofriendly & can provide comprehensive information?	The results show that >70% agree that using E-learning methods are ecofriendly lower cost, increase interest level, and can cater to various learning styles.	According to Coleman and Ehrlich, incorporating E-learning methods had advantage of lowering cost, increasing interest level, and capability for generating a large amount of material. Coleman KA, Ehrlich LR, Emerging technologies: Learning from history, in Proceedings of the Eighth Annual Symposium on Computer Applications in Medical Care. Washington, DC, IEEE Computer Society Press [internet]. 1984[cited on 2018, 20Feb], [975-981] available from: Researchgate

	OUR STUDY	PREVIOUS STUDY
Do you think that E-learning is more effective than traditional learning?	Our study shows that only 58.26% of participants said that E-learning was more effective than traditional learning and in response to an open question most participants suggested 'blended learning' methods supported by E-learning.	<p>According to Ruiz et al students do not see E-learning as replacing traditional instructor-led training but as a complement to it, forming part of a blended-learning strategy (Ruiz et al, 2006).</p> <p>Another study done on blended learning strategy in Altay state Medical University showed that students do not see E-learning as replacing traditional instructor-led training but as a complement to it (Trukhacheva & Pupyrev,2012).</p> <p>Jorge G Ruiz, Michael J Mintzer and Rosanne M Leipzig, The Impact of E-learning in Medical Education, IT in medical education [internet], 2006, [cited 2018 5 March] 81:3, [207-212] available from: Ovid</p>

Conclusion:

Our results show that almost two thirds of the faculty members and students agree that E-learning methods are:

- More flexible
- Can provide more comprehensive information
- Can improve PBL and Team based learning (TBL) sessions
- It is time saving and ecofriendly and
- It supports the students various learning styles.

References:

1. [Coleman KA, Ehrlich LR: Emerging technologies: Learning from history, in Proceedings of the Eighth Annual Symposium on Computer Applications in Medical Care. Washington, DC, IEEE Computer Society Press [internet]. 1984[cited on 2018, 20Feb], [975-981] available from: Researchgate
2. Ruiz JG, Mintzer MJ, Leipzig RM; The impact of E-learning in Medical education; Acad Med.; [internet] ,2006 Mar [cited on 2018,10 Feb] 81:3 [207-12] available from pubmed.
3. Tania F. Bertsch,Peter W. Callas,Alan Rubin,Michael P. Caputo ,Michael A. Ricci, APPLIED RESEARCH: Effectiveness of Lectures Attended via Interactive Video Conferencing Versus In-Person in Preparing Third-Year Internal Medicine Clerkship Students for Clinical Practice Examinations (CPX)[Internet], 2006, [cited on 2018, 15 Feb], Published online, [4-8], available

from:<https://www.tandfonline.com/doi/citedby/10.1080/10401330709336616?scroll=top&needAccess=true>

4. Yusoff MS¹, Abdul Rahim AF, Baba AA, Ismail SB, Mat Pa MN, Esa AR., Prevalence and associated factors of stress, anxiety and depression among prospective medical students, *Asian J Psychiatr*, [internet], 2013 [cited on 2018,10 Feb], 6:2, [128-133] available from pubmed
5. Mudassir Khan, Mohd Ayyoob. "The scope of E-learning in the computer science & technologies." *International Journal of Computer Science Engineering and Information Technology Research (IJCSEITR)* 6.6 (2016): 93-98.
6. Rotenstein LS, et al. Prevalence of Depression, Depressive Symptoms, and Suicidal Ideation Among Medical Students A Systematic Review and Meta-Analysis. *JAMA* [internet]. 2016, [cited on 2018, 8 Feb], 316:21 [2214–2236] available from: doi:10.1001/jama.2016.17324.
7. Masego B. Kebaetse, Oathokwa Nkomazana and Cecil Haverkamp. Integrating eLearning to Support Medical Education at the New University of Botswana School of Medicine” *The Electronic Journal of E-learning*[internet],2014, [cited 2018 25 Feb] 12:1[43-51], available online at www.ejel.org
8. Dolmans DH¹, De Grave W, Wolfhagen IH, van der Vleuten CP, Problem-based learning: future challenges for educational practice and research. *Med Educ* [internet], 2005, [cited on 2018, 1 March], 39:7 [732-41]
9. George, A. S. P. R. I. D. I. S., et al. "Assessment of e-Learning Methods in Public Administration. The Case of the Greek National School of Public Administration and Local Government." *International Journal of Human Resource Management* (2013).
10. Kuo-Hung Tseng¹ Feng Kuang Chiang² Wen-Hua Hsu³ Interactive processes and learning attitudes in a web-based problem-based learning (PBL) platform [Internet]. 2008 [cited 2018 March 5] 24:3 [940-955.]. Available from: science direct
11. Jorge G. Ruiz, MD, Michael J. Mintzer, MD, and Rosanne M. Leipzig, MD, PhD The Impact of E-learning in Medical Education, *IT in medical education* [internet], 2006, [cited 2018 5 March] 81:3, [207-212] available from: Ovid
12. **Gupta, Manmohan, and Mala Sharma. "A study on attitude of senior secondary school students towards E-Learning in relation to their gender, residential backward and nature." *International Journal of Engineering, Science and Mathematics* 7.1 (2018): 418-432.**
13. Sivakumar Venkataraman , Subitha Sivakumar, Engaging Students in Group Based learning through E-learning techniques in Higher Education System, *International Journal of Emerging Trends in Science and Technology-IJTEST* [internet], 2015, [cited 2018,1 March,] 2:1 [1741-1746] available from: <http://ijetst.in/article/v2-i1/5%20ijetst.pdf>
14. AJAYI, OLUSOLA OLAJIDE, and OLUFUNKE ESTHER AJAYI. "E-LEARNING: A KEY TO ACTUALIZING SUSTAINABLE EDUCATIONAL DEVELOPMENT IN AFRICA." *International Journal of Computer Science and Engineering (IJCSE)* 3.3, May 2014, 109-116
15. Masego B. Kebaetse, Oathokwa Nkomazana , Haverkamp. Integrating eLearning to Support Medical Education at the New University of Botswana School of Medicine, *The Electronic Journal of E-learning* [internet], 2014, [cited on 2018, 20 Feb] 12:1[43-51], available online at www.ejel.org