A comparative study of internet-based learning versus conventional learning in medical education

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Abstract

Background: Medical education is considered a very significant strategy in ensuring the quality of health protection. It represents the most dynamic structural element of good quality of protection **Aims and Objectives:** To do Comparative study of Internet based learning versus conventional learning in Medical education. **Methodology:** This was a cross – sectional study carried out in the MBBS Students during the 1 month period i.e. June –July 2019 in this study period with written and explained consent MBBS student both males and females were recruited for study into the Internet study group (Group A) (n=25) : In this students were given new health topics (students are not supposed of studied these topics as per academic curriculum) and online access to all search engines , online textbooks and access to All national and international journal by the digital library of a institute . Group B (n=25) : Students were taught by conventional teaching and learning method like Chalk and Board by the Academic expert teachers on the same New topics (students are not supposed of studied these topics as per academic curriculum). The statistical analysis was done by unpaired t-test and Chi-square test and analyzed by SPSS 19 version software. **Result:** The average age in both study group was comparable i.e. 21.12 ± 1.25 Yrs and 20.93 ± 1.76 was comparable (p>0.05,df=48,t=0.92); the male to female ratio was also similar i.e. 1.08 : 1 and 1.27 : 1 (X2=0.08,df=1,p>0.05) .The average Knowledge was higher in the Group A i.e. 16.78 ± 3.45 as compared to 13.34 ± 2.92 (P<0.05,t=5.68,df=48) . The average skill was significantly low in the Group A i.e. 8.34 ± 1.97 as compared to Group B i.e. 15.67 ± 2.34. **Conclusion:** From this it seems that as per the knowledge Internet based learning is very useful but for skill the conventional teaching and learning method was found to be very useful.
Key Words: Internet based learning, conventional learning, Medical education, MET (Medical Education Technology).

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INTRODUCTION

Medical education is considered a very significant strategy in ensuring the quality of health protection. It represents the most dynamic structural element of good quality of protection [1,2,3]. The term medical education means acquiring knowledge and psychological/ motoric skills, while medicinal training means acquisition of positive values and attitudes [4]. Medical education and training is not good unless the student acquired the nucleus or the minimum knowledge (cognitive aspect), the minimum of required skills (psychological/motoric aspect) and minimum of obligatory conduct values (affective aspect)[4]. The role of a doctor is to be an organiser, communicator and therapist in the following five activities: health promotion, disease prevention, treatment of the diseased, rehabilitation of the recovered, constant learning. Here we have compared i.e. Internet based learning versus conventional teaching method for the MBBS students.

METHODOLOGY

This was a cross –sectional study carried out in the MBBS Students during the 1 month period i.e. June –July 2019 in this study period with written and explained consent MBBS student both males and females were recruited for study into the Internet study group **(Group A)** (n=25) : In this students were given new health topics (students are not supposed of studied these topics as per academic curriculum) and online access to all search engines , online textbooks and access to All national and international journal by the digital library of a institute . **Group B** (n=25) : Students were taught by conventional teaching and learning method like Chalk and Board by the Academic expert teachers on the same New topics (students are not supposed of studied these topics as per academic curriculum). Knowledge of the was assessed immediately after the lecture using Structures Multiple Choice Questionnaire (25 Questions) and skill was assessed on the next day by 2 faculty members using Observation checklist with rating scale(with 10 check list and maximum rating 20). The statistical analysis was done by unpaired t-test and Chi-square test and analyzed by SPSS 19 version software.

RESULT

Table 1: Distribution of the students as per the age and sex

	Group A (25)	Group B (25)	p-value
Age (Yrs.) (Mean ±SD)	21.12 ± 1.25	20.93±1.76	p>0.05,df=48,t=0.92
Sex			
Male	13	14	X^2=0.08,df=1,p>0.05
Female	12	11	

The average age in both study group was comparable i.e. 21.12 ± 1.25 Yrs and 20.93±1.76 was comparable (p>0.05,df=48,t=0.92); the male to female ratio was also similar i.e. 1.08 : 1 and 1.27 : 1 (X^2=0.08,df=1,p>0.05)

Table 2: Distribution of the students as per the Knowledge

Knowledge	Group A (25)	Group B (25)	p-value
Mean ±SD	16.78± 3.45	13.34± 2.92	P<0.05,t=5.68,df=48

The average Knowledge was higher in the Group A i.e. 16.78± 3.45 as compared to 13.34± 2.92 (P<0.05,t=5.68,df=48)

Table 3: Distribution of the students as per the Skills

Skill	Group A (25)	Group B (25)	p-value
Mean ±SD	15.67 ± 2.34	8.34± 1.97	P<0.001,t=7.85,df=48

The average skill was significantly low in the Group A i.e. 8.34± 1.97 as compared to Group B i.e. 15.67 ± 2.34.

DISCUSSION

Interaction and repetitions are the cornerstones for learning any skill. Traditional learning has more human involvement; thus opportunity for repetition is curtailed so as to respect patient autonomy and prevent psychological stress to the patient as well as the student. E-learning involves technology and simulation, which can be repeated any number of times, exactly the same way or in changed scenario to improve the levels of learning. Innovations in technology and devices have brought a revolution in learning. The field of medical education cannot remain immune to the effects of this aptly called E-revolution. In the era of computers and hand-held devices, teaching and learning have gone far beyond the textbooks, venturing into various components of the digital world. The United Nations and WHO have acknowledged e-learning as a useful tool in addressing educational needs in healthcare workers, especially in developing countries [5,6] The three primary characteristics of e-learning are the nature of the learning experience, synchronicity of participation, and presence or absence of face-to-face instruction [7]. Depending upon the nature, the learning experience is termed 'didactic' when the learning material is literally handed over to the student and they cannot change it, and 'active' when the student has control over the learning process. In the Interactive type, the learning content evolves as the course progresses and co-learners interact; the instructors act as facilitators and help in the evolution of learning

COMMON MODALITIES FOR E-LEARNING Flipped classroom: Flipped classroom approach means that the tasks performed by the students are flipped or reversed between the class time and self-study time. Majority of the learning is done by the students themselves – before the class and outside the classroom – by utilizing online resources like videos, recorded lectures, PowerPoint presentations, and handouts provided by the teacher. The advantage of this type of blended teaching is that instead of merely information transfer, discussion and student-

centered learning and problem solving takes place. It means the shifting of the teacher from typical 'sage-on-the-stage' to the 'guideby-the-side' [8]. Indian experience with the technique has shown good acceptance by medical students [9]. Smartphones: Smartphones have great potential for elearning in medical education as they are handy, provide the required information at the point-of-care, and help in better decision-making. With the increasing usage of the smartphones and user-friendly apps by the medical students, this will further gain popularity. There are various mechanisms by which e-learning can be imparted by smartphones – e.g., apps like dosage calculators, growth charts, Curofy, Docplexus, SCAT; web-based features like PubMed for handheld devices; and social media apps like Facebook, WhatsApp, and YouTube [10]. These mechanisms have the potential to increase collaboration, problem-solving and networking in the medical students, allowing them to share images and data, and participate in blogs or video-conferencing. Clinical decision support systems: These are another breakthrough in e-learning where the clinician makes a decision keeping in mind the inputs provided by the support system and interpreting them with their own understanding. Typically, data is provided to the technology-enabled systems where it is analyzed and then decision-making options are given to the treating doctors, at the point-of-care (bedside, outpatient setting, etc.); e.g., UP TO DATE (http://www.uptodate.com/ home/product). Online education sites: Online sites such as Stanford Medicine 25 (https://stanfordmedicine25. stanford.edu) teach the art of bedside clinical examination – an art that is swiftly disappearing from the curricula of the medical students, owing to the over-importance of the theoretical concepts. Here e-learning can come in handy as the skills can be imbibed after watching the online content, revised when needed, and are a major assistance for self-directed learning – even during professional life.

While teachers' and students' perception Students have reported that they attain more knowledge by understanding the subject better, acquire better skills, feel more satisfied due to easy accessibility, flexibility, and increased interactivity with co-participants [11]. Lack of interaction with the teacher [12] and in-depth group discussion for clarification of concepts for complex topics has also been reported [13]. Various studies report that students prefer e-learning as a supplemental tool rather than replacement one [14, 15,16]. Teachers perceive that e-learning saves time in editing and updating of content [16], setting-up laboratory equipment, and repeating the experiments [17], which could be utilized for face-to-face classes [18]. They also do not have to worry about variation in content delivery [19]. The less tech-savvy generation of teachers consider imposition of e-learning as an additional burden because they think it is less worthy, have time-constraints in developing the content, and have lack of confidence in meeting the technical demands [20].In our study we have seen that The average age in both study group was comparable i.e. 21.12 ± 1.25 Yrs and 20.93 ± 1.76 was comparable (p>0.05,df=48,t=0.92); the male to female ratio was also similar i.e. 1.08 : 1 and 1.27 : 1 (X^2=0.08,df=1,p>0.05) The average Knowledge was higher in the Group A i.e. 16.78 ± 3.45 as compared to 13.34 ± 2.92 (P<0.05,t=5.68,df=48) The average skill was significantly low in the Group A i.e. 8.34 ± 1.97 as compared to Group B i.e. 15.67 ± 2.34. From this it seems that as per the knowledge Internet based learning is very useful but for skill the conventional teaching and learning method was found to be very useful these findings are similar to P.Mangala Gowri et al [21] they found that Knowledge on obstetrical palpation among students in web based group is effective in the mean score of 8.4 with 1.183 standard deviation and the standard error mean was 0.306 than that of students in the traditional group. Skill on obstetrical palpation revealed that the ability to do the obstetrical palpation skillfully was higher among students in traditional group in the mean score of 27.87 with 5.951 standard deviation and standard error mean was 1.536 but there was no significant difference between the traditional and Web based teaching to teach obstetrical palpation at the level of P<0.01.

CONCLUSION

From this it seems that as per the knowledge Internet based learning is very useful but for skill the conventoinal teaching and learning method was found to be very useful.

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