

Experiences with E-learning in Ophthalmology

Seema Dutt Bandhu, Swati Raje¹

Introduction: E-learning is the use of internet for the purpose of education. E-learning in medical education is at a nascent stage in our country. The present study was carried out with the purpose of introducing e-learning to third year medical students in the subject of Ophthalmology and taking feedback on their attitude towards the new methodology of teaching and evaluating. **Materials and Methods:** E-learning was introduced to the seventh semester students of MBBS in the subject of Ophthalmology. The topics were converted to web friendly format and used for teaching and evaluating. Feedback was taken from the students on completion of the term on their attitudes towards e-learning and their views on the scope of e-learning in medical education. **Results:** All the students agreed on the usefulness of e-learning in medical education. Eleven students (27.5%) found the medium of e-learning to be interesting, 15 (37.5%) considered it to be easy and accessible, 10 (25%) found it to be fast and easy, 4 (10%) considered it to be a medium which can give updated information. Twenty-three (57.5%) students considered that e-learning should be a medium of instruction in all the subjects, 15 (37.5%) students considered its usefulness in clinical subjects only. Twenty-eight students (70%) desired that e-learning should be used to provide important notes, questions, MCQs on all topics. **Conclusions:** E-learning is well accepted as a medium of instruction by medical students.

Key words: E-learning, medical education, methodology

E-learning is the use of internet technologies for the purpose of education. It serves to store the instructional material of diverse forms such as print, pictures, animations and videos electronically. The advantages of e-learning include the increased accessibility to information, ease in updating content, personalized instruction, ease of distribution, standardization of content, and accountability.^[1] The instructional material is available for access all the time by any number of users at their convenient time.

It permits the users to learn in their preferred learning style. Learners have control over the content, learning sequence, pace of learning, time and often media which allows them to tailor their experience to meet personal learning objectives.^[2] The medium of e-learning can be used for teaching and evaluation. The assignments can be designed to include outcomes assessment to determine whether learning has occurred.^[3] However, e-learning is not a replacement to traditional learning but complements it to form blended learning.^[4] Moreover, while multimedia learning programs have been praised for their educational superiority, actual use of these programs has sometimes failed to meet the expectations.^[5]

E-learning has been a medium of instruction in many fields of education including medical education since a number of years. In some medical schools, a privately owned computer was made a requirement for medical students.^[6,7] However, e-learning in medical education is still at a nascent stage in India.

Department of Ophthalmology and ¹Community Medicine, MIMER Medical College, Talegaon Dabhade, Pune, Maharashtra, India

Correspondence to: Dr. Seema Dutt Bandhu, 118, Tulip, Parmar Garden, Wanowrie, Pune - 40, Maharashtra, India. E-mail: seemabandhu2000@yahoo.co.in

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We carried out the present study with the purpose of introducing e-learning as a medium of education to medical students in the subject of Ophthalmology and evaluating the response of the students to the new method.

Materials and Methods

This was a cross-sectional study carried out in a private medical college in Maharashtra, India. The college has a Wi-Fi enabled campus. An educational website was developed by the faculty members of the department of Ophthalmology as a part of the project of an online course on e-learning. It was decided to use the website for teaching and evaluating the seventh semester MBBS students of the college. Photo-quizzes and text type of questions were prepared in Google Documents in required web friendly format. The concept of e-learning was shared with a few students initially. They were asked to discuss the concept with their peers and give their feedback on the interest shown. On receiving inputs of the students' interest and willingness to participate in e-learning, the e-mail addresses of the volunteers were collected. A total of 40 students from a class of 56 volunteered to participate in the study. This group was named the "OphthalmRevision" group. The concept was explained to them via e-mail. All the topics were converted to facilitate e-learning. Since huge banks of pictures related to Ophthalmology are available on the net, it was possible to create a photo-quiz on every topic. The e-learning was conducted asynchronously; online photo-quizzes were sent to the group on completion of topics in the class which could be accessed and responded to at a convenient time by the students but within a period of a few days. Apart from the photo-quizzes, questions for which there was one word or one line answers were posted. The responses of the students were assessed and communicated. The expected answers were posted online at the end of the assessment. The students could also choose the topic that they wanted to revise by clicking on the appropriate link on the website. Important internet site

in Ophthalmology were also shared with the students on the website. The website was free for use but needed permission for use from the owner.

Feedback on e-learning was taken from the students in the form of a questionnaire after completion of the seventh term. Feedback was taken on their past experience on the use of internet for educational purpose and their attitudes towards the present experience of e-learning. Their views on the scope of e-learning in medical education were taken [Appendix: The feedback form consisting of 10 questions pertaining to infrastructure, time and purpose for using internet and their opinions about its usefulness in learning various subjects of medical education].

Results

A total of 40 students, 18 male and 22 female participated willingly in the study. All the students had access to internet in the college campus. Thirty-six (90%) accessed the internet on their personal gadgets. Of these 36 students, 11 (30.5%) accessed internet from their mobile phones while the rest had access to internet on mobile and laptops/personal computer. Thirty-two students (80%) said that they had been using the internet for the purpose of education regularly, 2 (5%) used it occasionally 4 (10%) admitted to not using internet for education and two students did not respond to the question. All the students agreed on the usefulness of e-learning in medical education. Eleven students (27.5%) found the medium of e-learning to be interesting, 15 (37.5%) considered it to be easy and accessible, 10 (25%) found it to be fast and easy, 4 (10%) considered it to be a medium which can give updated information. Thirty students (75%) did not comment on the disadvantages of e-learning, 5 (12.5%) students considered the medium of instruction to be costly, 3 (7.5%) students found the speed of internet to be a disadvantage as a medium of instruction, 2 (5%) students felt that there was a lack of personal interaction in this method of education. Twenty-three (57.5%) students considered that e-learning should be a medium of instruction in all the subjects, 15 (37.5%) students considered its usefulness in clinical subjects only, 2 (5%) students did not comment on the question. Twenty-nine (72.5%) students did not comment on which subjects will e-learning be not useful, 2 (5%) students felt that e-learning will not be useful in forensic medicine, 5 (12.5%) felt so for PSM, 4 (10%) felt so for anesthesia and 1 (2.5%) felt for biochemistry. Twenty-eight students (70%) desired that e-learning should be used to provide important notes, questions, MCQs on all topics.

Discussion

Internet technologies are being used globally, across all cross-sections of society for the purpose of communication. However, its application in the field of education is not widespread. When the proposal to start e-learning in Ophthalmology was shared with the seventh semester students of the college, all the students of the batch did not volunteer to participate. Other studies have also reported similar findings that a sizable number of students make little or no use of existing e-learning offerings.^[7] There is a likelihood that precisely those students who need this course the most, will hesitate to attend it voluntarily.^[8] In our study group the number of boys and

girls was almost equal and there were no gender differences in computer usage though other research findings have identified gender differences in terms of interaction styles, approaches to, and uses of technology.^[8,9] The students who accessed internet from their mobile phones were at a disadvantage as compared to those who used laptops/PCs because of lower resolution of pictures. All the students agreed on the usefulness of e-learning. Studies in both the medical and nonmedical literature have consistently demonstrated that students are very satisfied with e-learning.^[3,9] Learner's satisfaction rates increase with e-learning compared to traditional learning, along with perceived ease of use and access, navigation, interactivity, and user-friendly interface design.^[3,9] Most of the students found e-learning to be interesting as has been shown in other studies that by enabling learners to be more active participants, a well-designed e-learning experience can motivate them to become more engaged with the content.^[10] The students also found the medium of instruction to be fast and accessible. Accessibility refers to the user's ability to find what is needed at a desired time which is possible easily with e-learning.^[4] Thirty students did not comment on the disadvantages of e-learning. The explanation for this could be a general discomfort with technology which makes the students who lack experience with computer technology to express themselves cautiously about its use in education.^[11] Few students commented that e-learning is a costly medium of instruction. However, a substantial body of evidence in the nonmedical literature has shown, on the basis of sophisticated cost analysis, that e-learning can result in significant cost-savings, sometimes as much as 50%, compared with traditional instructor-led learning.^[3]

Only some (5%) students commented that the medium of e-learning deprived the students of personal communication with the teacher because in this exercise, there was a regular exchange of ideas and information about the online content with the teachers. Moreover, most of the students do not see e-learning as replacing the traditional instructor-led training but as a complement to it, forming part of a blended-learning strategy.^[3] There is evidence for the effectiveness and acceptance of e-learning within the medical education community, especially when combined with traditional teacher-led activities in a blended-learning educational experience.

Most of the students commented that e-learning would be of more use in the clinical subjects as compared to the pre and para clinical subjects. This is because there is a variety of application based case scenarios which can be presented in text or picture or video form in the clinical subjects. The teachers could prepare a variety of questions and photo MCQs which create interest among the students. The response of many students that e-learning should be used for providing MCQs and other type of questions shows that students' participation in networks is motivated by the process directed at solving a problem.^[11]

Conclusion

E-learning is a feasible method of teaching and assessing in medical education. It is well accepted by the students and should be used in all the subjects in addition to traditional learning.

Appendix: Evaluation of E-learning – Students' feedback form

Name of the student.....

Semester.....

1. Did you participate in the E-learning exercise in the seventh semester?
2. Is the internet facility available to you on your mobile phone or laptop?
3. Do you access internet on the college campus, in the hostel or at home?
4. Do you use internet facility for the purpose of education?
5. Would you like E-learning to be a medium of education in the medical college?
6. What do you like about E-learning
7. What do you not like about E-learning
8. In which subjects do you think E-learning will be useful?
9. In which subjects do you think E-learning will not be useful?
10. Give your suggestions on E-learning.

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