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Original Research Article

Assessment of knowledge, attitude and skills towards e-learning in first year medical students

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ABSTRACT

Background: With digitization the e-learning modalities are being increasingly used by medical students. These often help the first MBBS students to overcome limitations of conventional teaching methods like didactic lectures. However, e-learning is not official part of medical education in India and the awareness about its use among medical students need to be evaluated. Aim and objective of the study was to assess the extent to which MBBS first year students use e-resources for learning as well as to assess knowledge, attitude, skills and habits of first MBBS students towards e-learning.
Methods: A questionnaire of twenty five questions on various aspects of e-learning was administered to the first MBBS students at two medical colleges. The data generated from responses was compiled and analyzed on SPSS to get insight on various aspects of e-learning.
Results: Out of 236 students surveyed 77.97% were aware about the academic websites related to first MBBS subjects. 90.68 % accepted that e-learning helped in understanding topics, 84.32% recommended conventional teaching to be supplemented with e-learning. However there was no statistically significant difference between responses from two groups i.e. female and male students ($p>0.05$).
Conclusions: The majority of first MBBS students use e-resources for learning various topics in anatomy, physiology and biochemistry. The e-resources have made a positive impact on overall learning especially anatomy. e-learning can supplement conventional teaching in the first year of medical training.

Keywords: Attitude, First MBBS students, e-Learning, Knowledge

INTRODUCTION

E-learning can be considered as a new method of learning using computers, internet and e-resources.[1-3] Electronic gadgets help to access educational material outside traditional classroom teaching, where a professor teaches. E-learning resources provide easy access to information and are being widely used for self-directed learning by medical students. Conventional teaching through lectures forms the backbone of teaching in the first year of the undergraduate medical course in India. It broadly fulfills the requirement of universities, institutes as well as students. However, conventional teaching has inherent limitations. e-learning is supposed to help user overcome these limitations.[2-4]

Now a day, computers have become integral part of our life and have positively influenced the field of education. Computers are important tools for storing, processing, analyzing, sharing and distributing the data or information. Because of their utility, computers and internet have become important technological tools in

educational and academic proceedings too. Computers assisted learning has become quite popular amongst students of all faculties and medical field is no exception for that.[1-5] Computers and e-resources have made the process of learning simpler, easier, fun-filled and efficient as well. It has thus enabled students and teachers to overcome few limitations of traditional classroom teaching. However e-learning has its own advantages as well as disadvantages.[6] Hence, we conducted this study to assess the extent to which MBBS first year students use e-resources for learning and understanding first year subjects.

Aim and objectives of the study was to assess the level of computer literacy and patterns of using gadgets for e learning in first year MBBS students. Whether e-learning modalities are helping medical students for better understanding of subjects? To assess student's perception of the impact of e-resources on various aspects of their learning. To compare difference between responses from two groups i.e. female and male participants. We also wanted to evaluate the need and feasibility of utilizing e-learning. Thus we tried to gather information about knowledge, attitude, skills and habits of first MBBS students towards e- learning.

METHODS

This cross sectional study was conducted after getting clearance from institutional ethics committee. A questionnaire comprising of 25 leading questions was administered to the first MBBS students of private medical college of Udaipur and Indore. 300 students from these two colleges were considered for this study population.

The inclusion criterion was clear that only first MBBS students were given the questionnaire after taking informed consent. Equal number of male and female students were planned to be enrolled. The students who didn't give consent for participation were not enrolled in the study as per the exclusion criteria.

Out of the 300 students only 236 gave consent to participate in this study. The sample (n=236) was divided into two subgroups males and females comprising of 118 participants each. The study period was two months during April 2018- May 2018 after the first session exam. The participants were asked to choose and tick the appropriate response to each question. In few questions multiple responses were allowed. As defined in the project methodology the identity of the participants was not disclosed on the response sheet. The participants were also assured that their responses will not alter the academic assessment and were encouraged to provide feedback with free mind. The examiners were made blind to the student's identity by cross analysis of the data generated from one college by the faculty from another college. The data generated from the students of the two colleges was compiled on excel sheet and statistical analysis was done on SPSS to get the response information in percentage for each question. Subgroup analysis was performed on male and female participants as two separate groups. Student's t test was applied to test the level of significance for responses from these two groups i.e. males and females. The p value <0.05 was considered significant.

RESULTS

Evaluation of those 236 student's responses has been summarized in (Table 1 and Figures 1-5). All of these students have smartphone and few (20%) have laptop too. As expected, all of them were conversant with internet use and have personal high speed internet connection. Maximum were aware of various educational web sites related to academic subjects' anatomy, physiology and biochemistry, 45% of the student's access internet every day; 32% spending less than one hour while 35% up to 2 hours every day.

However, many of them spend more time on social sites like Facebook, WhatsApp, YouTube etc. instead of educational web sites. Though they study videos or animations of anatomy dissection, embryology or pathways related to biochemistry and physiology; 70% like to study anatomical relations.

Table 1: Summary of responses on various aspects of e-learning.

Question asked/ Aspect evaluated	Yes(%)	No(%)
Conversant with use of internet	93.22	6.78
Awareness about academic websites	77.97	22.03
More time spent on social sites than e-learning	58.9	41.1
e-learning improves topic understanding	90.68	9.32
Study videos or animations of 1st year subject	91.1	8.9
e-learning helps in writing exams	64.83	35.17
Prepare notes of topics learnt online	50.42	49.58
Take e-learning tests	27.97	72.03
Insecurity about e-learning in mediocre students	25.42	74.58
Preference for e-learning over group study	54.66	45.34
Recommend provision of free internet by institute	90.68	9.32
Recommend institutional e-learning portals	93.64	6.36
Require training program for e-learning	72.03	27.97
Recommend conventional teaching supplemented with e-learning	84.32	15.68

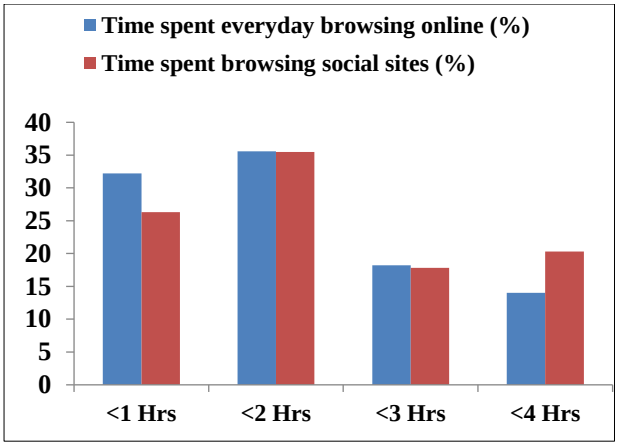

Figure 1: Comparison of time spent every day in browsing.

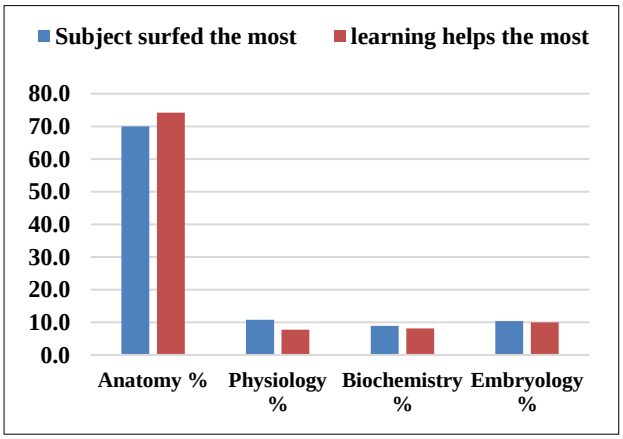

Figure 2: Comparison of subjects surfed Vs e-learning help.

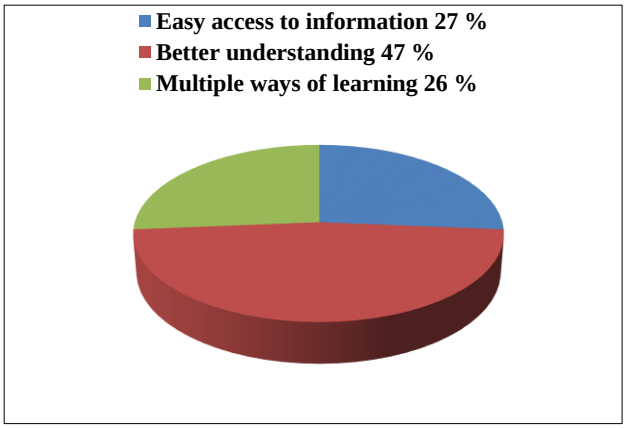

Figure 3: Reason to try e- learning.

Majority of the students prefer to learn new topic/concept from teacher in conventional way. However, 90% of the students accepted that e-learning improves subject understanding and surfing internet is preferred over referring to lecture notes or discussion with peers, 65% conveyed studying online help them write answers in exam.

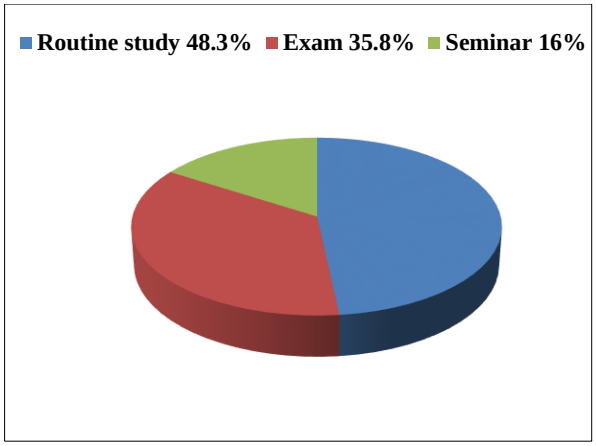

Figure 4: Perception about e-learning helps the most preparing for exam/ seminar.

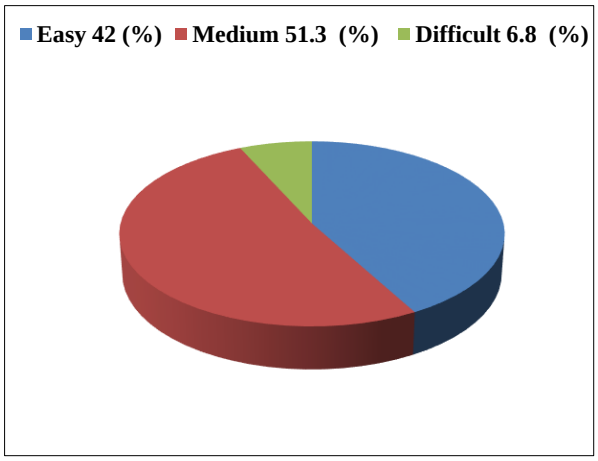

Figure 5: Perception about level of difficulty in e-learning.

Surprisingly only 50% make notes of topics learnt online and only 28% like to take post e-learning tests. The reasons to try e-learning might be better understanding, easy access to information and multiple ways and options of learning. Majority students responded that e-learning help the most while preparing for routine study than exams, 75% said that e-learning will not create sense of insecurity in mediocre/average student. Though majority said that finding relevant information online is not difficult only 54% prefer e-learning over group study.

There was unanimous opinion that conventional teaching should be supplemented with computer and web based e-learning for which 72% students recommended the need for training for optimal utility of e-learning. Majority also suggested that provision of free internet at institutes and provision of dedicated e-learning portals at institute portals will improve overall learning. Subgroup analysis was performed on male and female participant's responses. However, there was no statistically significant difference between responses in these two groups as the p value was found to be more than 0.05.

DISCUSSION

First MBBS curriculum is too vast for the given time frame of one year. The number of students in a class is usually high and the student teacher ratio is poor, especially in private medical colleges. Traditional didactic lectures are the best way to deliver necessary subject information to a large group of medical students in one class. However, there are many inherent disadvantages associated with this teaching system that is, teachers find it difficult to actively engage the learners. On the other hand students find it difficult to sustain interest in the subject/topic during the lecture session. Students are passive participants in this teaching method and feel less motivated to focus and learn. Interaction between student and teacher is very limited.[6-8] Academically weak or mediocre students often find it difficult to keep pace with the proceedings of the lecture. The teaching efficacy largely depends on skills, experience and efforts of the teacher. A medical teacher is expected to explore ways to overcome these inherent disadvantages of conventional teaching. But there are no ready solutions and these need to be customized as per the necessity and facilities available at institutes.

With availability of gadgets like computers, smart phones and easy access to information over internet, MBBS students are using e-learning modalities for studying and understanding medical subjects. Assessment on knowledge, attitude and skills towards e-learning is crucial before planning for computer training in the undergraduate program.[9,10] Medical students refer textbooks and classroom notes to study and prepare for assessments in first year MBBS. However many times students do not understand certain topics and either skip them or just try to mug up. To resolve this issue e-learning might be of help and students have already started using it.

The material that is available on various websites includes 1) general information about the medical curriculum as well as subject specific information, 2) lectures in the form of power point presentations, 3) videos for practical classes and dissection, 4) animation on biochemical/ physiological processes and etio-pathogenesis of diseases, 5) simplified videos and analogies for complex concept, 6) clinical scenarios and cases explained for better understanding of a topic, 7) topic wise self-assessment modules along with model answers, 8) blogs with answers to the queries, 9) latest developments and research information on any topic, 10) information on newer topics that has yet to find place in textbooks.[3,6,11-14]

These e-learning resources are available as open educational resources that can be accessed free of cost or one needs to register to view the content. However, few of them are paid services. These e-learning resources are available at various educational websites like university/institutes official web-pages, PubMed, WHO website. Academic blogs, open information sites like Wikipedia, You-tube, various publishing houses or even privately designed websites etc. medical students frequently visit these sites and use the information provided for e- learning.[9,12-14] However there is scarcity of data about the utility and use of e-learning modalities in first year medical students.

Audio-visual aids help in creating and keeping interest during learning. Watching dissection videos on YouTube and Power Point Presentations with a voice-over narrative seem to be popular among students. Watching animation helps them understand complex topics and concepts in less time. E-learning uses range of audio and visual inputs that can help learner in achieving the knowledge objectives.[13-15] On the other hand traditional learning books are limited only to provide textual and graphic information to learners. Latest updates are available over internet which is often not published in textbooks that students refer to. Students find it easy to search information online than to ask directly to the teachers especially if they miss the lecture or practical due to their absence. It is quite faster than searching the same information in various textbooks.

Computers and e-resources also take care of individualized learning needs of the learners. A learner is free of the limitations of time, availability of instructor, availability of resources like classroom and other factors. One can learn freely without being affected by the performances of other learners. It facilitates presentation of information in a structured and ordered manner which makes learning easy and interesting. E-learning positively influences learner's participation in the actual process of learning as interest and excitement is maintained over larger time span. The learner can work on his/her weaknesses in real time especially by repeating the video or learning it through different link/website. Both slow and rapid learners are benefitted by adjusting the speed of presentation.[9] It reduces the time taken to comprehend difficult topics. These are few limitations of traditional learning which can be addressed by e-learning.

Nonetheless e-learning also has got limitations. It's always liable to be underused and if not applied properly, it may fail to help students achieve learning objectives. Students miss hands on experience which they actually get in real laboratory. It may be expensive as compared to traditional teaching. It needs to be verified by the authority and updated regularly which may be tough and expensive.[13-15] Students may become casual towards classroom lectures, practical and dissection etc. Inefficient handling of computers, gadgets, e-resources and online content may further add to problems.

Effectiveness of traditional teaching depends on availability of efficient and motivated teachers. With rapid changes in medical field and future needs, it has become necessary for medical teachers to keep themselves abreast with latest developments in respective

fields, gain new information, learn skills and apply these in the classrooms. This is often perceived to be tough by many teachers especially by the senior or elderly ones.

In order to transfer knowledge, information, concepts to students, combination of varied teaching methods is often required. These will vary as per the student's caliber and needs. Along with the traditional classroom teaching, computer assisted learning can be a major teaching method that can fulfill the educational and academic demands. The role of computers in this respect is beyond dispute and their contribution in educational process seems immensely significant. These positive aspects are counterbalanced by the few disadvantages. This method does not fulfill all the academic expectations of universities, teachers or students. Motivating and training teachers to use computers in education is a challenging task. This may be financially demanding like the cost of purchasing and maintaining computers and hardware etc. Thus e-learning should not be viewed as a solution to counterbalance faculty shortage.

Whether its traditional way or e-learning, students tend to quit if they find it difficult to get information or comprehend a topic. E-learning compliments serious learners. However, one can easily get distracted by social sites while surfing the internet over mobile or computers. The role of teachers in classroom remains undisputed. Even though computers have become part of the overall education process, it cannot fully replace teachers. It is the teacher who helps student, gain knowledge and develops wisdom instead of merely gathering information. Teacher can assess student face to face and know his strengths and weakness, providing solutions to overcome them, simultaneously. Hence, further studies are suggested for comparison of e-learning with conventional learning. Finally, an integrated approach using both the methods i.e. traditional supplemented with e-learning seems the best for better outcome in medical education.

CONCLUSION

Author found that first-year medical students are using e-resources for understanding and learning various topics in anatomy, physiology and biochemistry. There was no statistically significant difference between responses from female or male students. These resources have made a positive impact on various aspects of their learning especially anatomy. From the findings authors conclude that e-resources are a useful supplement to conventional lecture-based teaching in the first year of medical training. One can be optimistic about e-learning as a great power which must be used wisely for getting the desired results.

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