A cross sectional study to find out the awareness and use of E-learning methods among medical students of a cosmopolitan city of central India

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Abstract
Background: E-learning is defined as acquisition of knowledge and skill using electronic technologies such as computer and Internet based courseware and local and wide area networks. E-learning encompasses a pedagogical approach that typically aspires to be flexible, engaging and learner-centred.
Methods: It is a cross sectional study done in 3 months of study period (September 2016-December 2016) in government medical college of Indore city. 150 medical students between age group 18-25 years were selected by simple random sampling method for data collection. Pre-designed, semi-structured questionnaire which assess the awareness regarding e-learning were used.
Results: 100% study population were aware of methods of e-learning. Most of the study population preferred chalk and board (66.7%) and power point presentation (27%) while dictation and transparency were less preferred method for learning. 55.4% study population felt that e-learning helps in increasing their interest and helps in building their concept toward the topic (57%).
Conclusion: Nearly half of the study population feel that e-learning helps in increasing their interest towards the topic. It helps to increased access to information and ease in sharing of information.
Keywords: Awareness, e-learning, medical students.

Introduction
E-learning is defined as acquisition of knowledge and skill using electronic technologies such as computer and Internet based courseware and local and wide area networks(1). Typically used to describe media such as CD-ROM, Internet, Intranet, wireless and mobile learning. The term was introduced in 1995 when it was all called "Internet based Training", then "Web-based Training" (to clarify that delivery could be on the Inter- or Intra-net), then "Online Learning" and finally e-learning, adopting the in vogue use of "e" during the dot com boom(2). E-learning can be used by medical educators to improve the efficiency and effectiveness of educational interventions in the face of the social, scientific, and pedagogical challenges noted above. It has gained popularity in the past decade; however, its use is highly variable among medical schools and appears to be more common in basic science courses than in clinical clerkships(3,4).
Types of E-learning
There have been two common e-learning modes: distance learning and computer assisted instruction. Distance learning uses information technologies to deliver from a central site, instruction to learners who are at remote locations. Computer-assisted instruction (CAL) uses computers to aid in the delivery of stand-alone multimedia packages for learning and teaching\(^5\). In the process of learning the teacher aims at providing knowledge to the taught through various means and methods. The system is called traditional method of learning but the present education system aims at providing the teacher and the learner to be a literate of technology. Technology improves the quality of education by facilitating learning by doing, real time conversation, delayed time conversation, directed instruction, self-learning, problem solving, information seeking and analysis, and critical thinking, as well as the ability to communicate, collaborate and learn\(^6\). E-learning encompasses a pedagogical approach that typically aspires to be flexible, engaging and learner–centred; one that encourages interaction and collaboration and communication, often synchronously or asynchronously\(^7\). E-learning is electronic learning, and typically this means using a computer to deliver part, or all of a course whether it's in a school, college, part of training or a full distance learning course\(^8\).

Aims & Objectives
(1) To assess the awareness about the methods of E-learning. (2) To find out advantages and disadvantages of E-learnings as felt by study population.

Methodology
It is a cross sectional study done in 3 months of study period (September 2016-December 2016) in government medical college of Indore city. 150 medical students between age group 18-25 years were selected by simple random sampling method for data collection. Pre-designed, semi-structured questionnaire which assess the awareness regarding e-learning were used. Students not within the defined age group and not given consent for being part of study were excluded. Written consent was taken from each students prior to filling the questionnaire. Data collected and entered in Microsoft Excel sheet. Data were analysed using SPSS software version 20 using appropriate statistical tests like frequencies and chi square tests.

Results
This study revealed that the mean age of the study population was 21.7 years with standard deviation of 2.13.

Table 1- Table showing demographic distribution of the study population

| Demographic profile                                  | Options   | No. of Participants(150) |
|------------------------------------------------------|-----------|--------------------------|
| Age of Participants                                  | 18-19 years | 26(17.3%)                |
|                                                      | 20-21 years | 50(33.3%)                |
|                                                      | 22-23 years | 38(25.4%)                |
|                                                      | 24-25 years | 36(24%)                  |
| Gender                                               | Male       | 98(65.3%)                |
|                                                      | Female     | 52(34.7%)                |
| Region of schooling                                  | Rural      | 50(33.3%)                |
|                                                      | Urban      | 100(66.7%)               |
| Medium of education during schooling period          | English    | 106(70.6%)               |
|                                                      | Hindi      | 44(29.3%)                |

In our study 100% study population were aware of methods of e-learning. Most of the study population had urban region of schooling and their medium of education during school period was English.
Most of the study population preferred chalk and board (66.7%) and power point presentation (27%) while dictation and transparency were less preferred method for learning. Most of the study population were accustomed to use computer & internet and about 13% were facing difficulty in using computer.

Table 3 Table showing advantages and disadvantages of E-learning as per study population (N=150)

Table 4 Table showing view and effects regarding e-learning among study population (150)
In this study 20% study population felt that e-learning methods provides latest information, 26% believe that authenticity of the information is questionable whereas 50% agreed with both above. About 60% had felt that it increased the access to information and ease in sharing of information and about 31% considered that their performance was improved by e-learning methods. In most of the study population main reason for difficult access to e-learning was non availability of internet and poor speed of internet. Maximum students felt that methods of e-learning either act as an aid to class based learning or should be integrated with class based learning.

Table 5 Table showing relationship between area of schooling and ability to use computer & internet among the study population (150).

| Ability to use computer and internet                      | Area of schooling | Total |
|-----------------------------------------------------------|-------------------|-------|
|                                                           | Rural | Urban |       |
| Find difficulty                                           | 12    | 8     | 20    |
| Language problem                                          | 2     | 1     | 3     |
| Both of the above                                         | 1     | 1     | 2     |
| Accustomed to use of computer and internet               | 35    | 90    | 125   |
| Total                                                     | 50    | 100   | 150   |

Chi-square value= 9.75, P value=0.021(significant)

Difference in the area of schooling is significantly related to the ability to use computer and internet. About 90% of study population with urban background were accustomed to use of computer and internet as compared to only 70% study population with rural background.

Figure 1 Showing different measures taken by study population to improve their understanding

About 45% study population preferred to make flowcharts and diagrams while 23% were using online videos and lectures and 23% had preferred frequent verbal repetition to improve their understanding.

Discussion

In our study the result for demographic profile by the respondent comprises that 65.3% are male and 34.7% are female which are quite similarly with the study done by Azliza Yacoba et al\(^9\) where there were 59.8% male and 40.2% were female. In our study awareness towards technology was about 100% among study population which was similar to the findings of Azliza Yacoba et al\(^9\) in which the awareness of students towards technology usage is 99.5%. There is only 0.5% unaware with the technology usage.

In our study we found that many students felt that with use of e-learning methods they performed better and it helps to improve the memorising ability as well as the interest of the students.
towards the subject which is concurrence with the study done by John Fus prow et al\(^{(10)}\) in Nigeria and another study done by Azliza Yacoba et al\(^{(9)}\) in which they found that e-learning system is useful in their study where the percentage of agree shows 46.90% and strongly agree 32.10%. In our study we found that methods of e-learning act as an aid to class based learning or should be integrated with class based learning similarly Theresa An himatic et al\(^{(11)}\) in their study done in England concluded that E-learning blended with classical class based learning can provide an educationally superior alternative to traditional learning and they also state that E-learning can’t replace class based learning but supplements it while in another study of Arun Gaikwad et al\(^{(12)}\),

It has been observed that a group of people who oppose to the concept of e-learning saying that it is informative and does not impart the knowledge of the subject. On the other hand, some people oppose classroom learning saying that self learning with the help of computers and other e-material is always better than classroom learning as it does not motivate for self learning. In our study we found that the students who used methods of E-learning for a longer time period had more improvement in their performance which was similar to the findings of Theresa An himatic et al\(^{(11)}\) in which duration for which the methods of E-learning have been used was related to the improvement of their performance.

In our study we found that there was difference in the area of schooling with the ability to use computer and internet. About 90% of study population with urban background were accustomed to use of computer and internet as compared to only 70% study population with rural background. Similarly Deepshikha Aggarwal\(^{(1)}\) in her study state that One of the common disadvantages to e-learning is that some students, especially those for whom English is not their native language, have difficulty communicating and being understood. Another group of students may experience computer or technology anxiety, which may in turn impact their learning and their final grades and Dr.SS Kadam et al\(^{(13)}\) in their study described the Demerits of E-learning was need for suboptimal Time management and Equality of access to learners of all backgrounds and parts of society.

**Conclusion**

In this study we concluded that nearly half of the study population feel that e-learning helps in increasing their interest towards the topic. It helps to increased access to information and ease in sharing of information. The main reason for difficult access to e-learning is either non availability or poor speed of internet. Difference in the area of schooling is significantly related to the ability to use computer and internet.

**Recommendation**

1. Measures should be taken at school and college level to provide internet facility to students for learning purpose. It can be done by setting e-libraries. (2) Facilities like internet and computer should also be provided in rural areas.

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