

FEASIBILITY OF APPLICATION OF E-LEARNING IN INDIAN FIRST YEAR MEDICAL STUDENTS : STUDY TO ASSESS INFRASTRUCTURE, SKILLS AND ATTITUDE

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Abstract

E-learning modalities are rampantly being used to overcome limitations and to supplement conventional teaching modes viz. lectures in many international and some Indian universities. AYUSH university of Chhattisgarh is planning to implement e-learning module in first year MBBS students. On this ground, we aimed to assess the level of computer literacy and patterns of computer usage of first-year medical students, their attitude towards e-learning and thus feasibility of application of e-learning in an Indian scenario. Hundred first year medical students were recruited for the study of which 5 backed out. 95 students were assessed with the help of detailed questionnaire regarding various relevant aspects including the availability of personal computer/Smartphone and internet facility, computer and Internet skills and attitude towards e-learning. Only 19% students were found to possess all necessary components needed to follow e-learning program regularly when laptop/computer is used as interface for e-learning, whereas 75 (79%) students were found to possess all necessary components if smartphones are used as interface for e-learning. We conclude that many students lack one or more of necessary components needed for successful implementation of e-learning viz. infrastructure and skills, but this hurdle can be overcome by using smartphone based e-learning module.

Keywords : E-learning, Attitude, Skill, Study Pattern

Introduction

Owing to vast medical curriculum, limited hours available for classrooms and a large number of students in the classroom, conventional mode of teaching which is lecture centered, plays a major role in medical teaching. This is because lectures clearly stand as a feasible way to cater knowledge to the large subset of students within a limited time.^(1,2) However lectures do harbor certain disadvantages as an inability to attract active participation from students and to generate uniform interest throughout for all students. Further success of lecture to effectively deliver knowledge depends on academic expertise and oratory skills of the teacher, also on variable grasping abilities of the students, all of which are subjective.⁽³⁾ Need for a

complementary platform to cater the education as more objective tool associated with more of learner's control over it becomes evident on this background.

E-learning which is referred to as use of internet or resources to deliver knowledge and skills, lectures being rampantly used in many leading universities blending it with conventional teaching learning activities⁽⁵⁾. Specifically pertaining to medical education, e-learning can be used to improve the efficiency and scope of knowledge distribution towards students and at least partially overcome the challenges listed above. Additionally it can also be used as an efficient tool to explore many ever expanding horizons of medical education including genomics, proteomics, evidence-based

Results

The characteristics of Study group are as shown in Table 1.

Study population included a total of 54 male and 41 female students. Best gadgets owned were categorized into personal computer / laptop (20%), shared computers / laptop (6%) and smart phones (68%) (Fig. 1). Superiority of gadget was considered as personal computer > shared computer > smart phone. Eighty-five students were found to possess smart phones. There was no significant difference ($p=0.1$) in the type of gadget owned in male and female student sub-groups. Best available internet connections were categorized as low bandwidth which included 2nd generation (2G) internet connection (50%) and high bandwidth which included 3rd generation (3G) / wireless fidelity (WiFi) / Dongle / Broadband connection etc. (39 %). The category of internet connection differs significantly between male and female students ($p=0.02$). While access of internet connection is higher in male students (92%) compared to females (85%), more females (62%) had access to high bandwidth compared to male students (30%) (Fig. 2). Remarkably high number of students from both ($p=0.5$) male (96%) and female (95%) were found to be active on social networks.

For assessment of status of skills to use e-learning interface, they were questioned regarding level of skills in computer / laptop / smart phone use in respect to various tasks and it was found that 63% (64% of male and 61% of female) students were having sufficient skills for basic tasks needed for e-learning interaction when using laptop / computer but 79% (80% male and 79% female) were found to be having sufficient skills to use smart phone effectively for the same purpose. It was also observed that 83% (87% male and 78% female) students possess sufficient internet skills for e-learning. (Fig. 3)

It was found that only 18 (19%) students possess all, adequate gadget, internet facility and skills to follow e-learning program regularly when laptop

/ computer is used as interface for e-learning (Fig. 4A). Whereas 75 (79%) students possess adequate gadget, internet facility and skills to follow e-learning if smartphone is used as an interface for e-learning (Fig. 4B).

Study pattern of students was also assessed to help optimization of implementation of e-learning (Fig. 5).

Fifty-four percent students were found to be using computer or internet regularly for supplementing their studies with a variable frequency of daily (9.4%) weekly (26.3%) and monthly (19%). It was found that 21% students study singly on their own while other 54% prefer to do group study. 14% students regularly go to the library while 18% go occasionally and 68% never go to library. Only 3% students know about computer and internet facility available in the institute library. More students preferred black-board (45%) over using power point (7%) in the classroom for teaching while 47% students preferred the combination of both. 22% students claimed that they were conversant with e-learning in some form.

Large subset of students (62%) supported implementation of e-learning to supplement conventional lectures (median=2, interquartile range 2-3, 'Agree' on 8 point Likert scale), but even more (74%) said that web-based learning programs are not able to replace classroom teaching (median 7 IQR= 5-7, 'Disagree' on 8 point Likert scale). Only 16% students agreed clearly to the statement that e-learning will create sense of insecurity in mediocre students while 62% refused to accept this hypothesis (median=8, IQR=6-8, 'Disagree' on 8 point Likert scale). In opposed to previous experience 56 % students said that provision of free laptop will enhance learning process and 12% were against distribution of free laptops (median=4 IQR=2-5, 'Can't say' on 8 point Likert scale).

Discussion

Response rate

95 out of selected 100 students opted to

be explored for the implementation of e-learning and can be successfully supplemented with various modes of e-learning. The majorities of students are eager to supplement their studies

with online material and will respond positively to e-learning modules. Barring few students there was no sense of insecurity regarding learning in others.

Table 1 : Characteristics of study group

Parameters		Male (n=54)	Female (n=41)	P Value
Age		19.8±1.86	18.98±1.23	0.02
Best gadget owned	Personal computer	11	8	0.1
	Shared computer	5	1	
	Smart phone	37	28	
Best internet connection	2G	35	13	0.02
	3G/WiFi/Dongle/Broadband	15	22	
Social network activity		52	39	0.5
Sufficient computer skills (laptop / p.c.)		35	25	0.8
Sufficient internet skills		47	32	0.3
Use computer & internet for learning	Daily	17	2	0.4
	Weekly	15	10	
	Monthly	8	10	
	Never	25	19	
Preferred learning mode in classroom	Black-board	29	14	0.01
	Power Point	6	1	
	Combination	19	26	

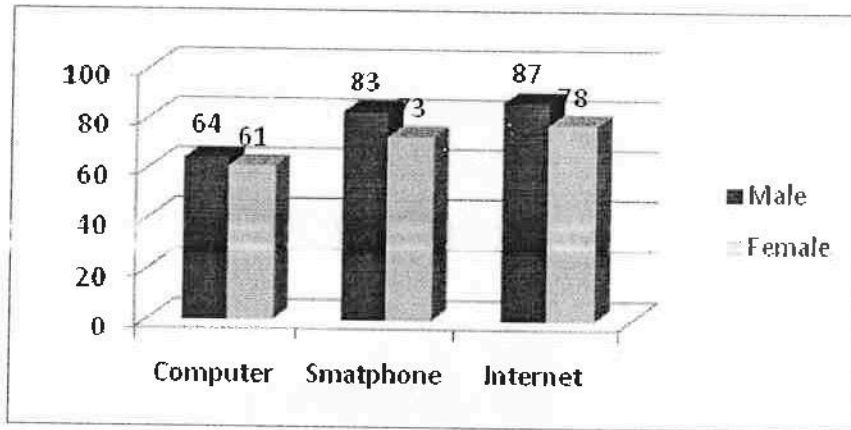


Figure 3 : Students with compatible skills (%)

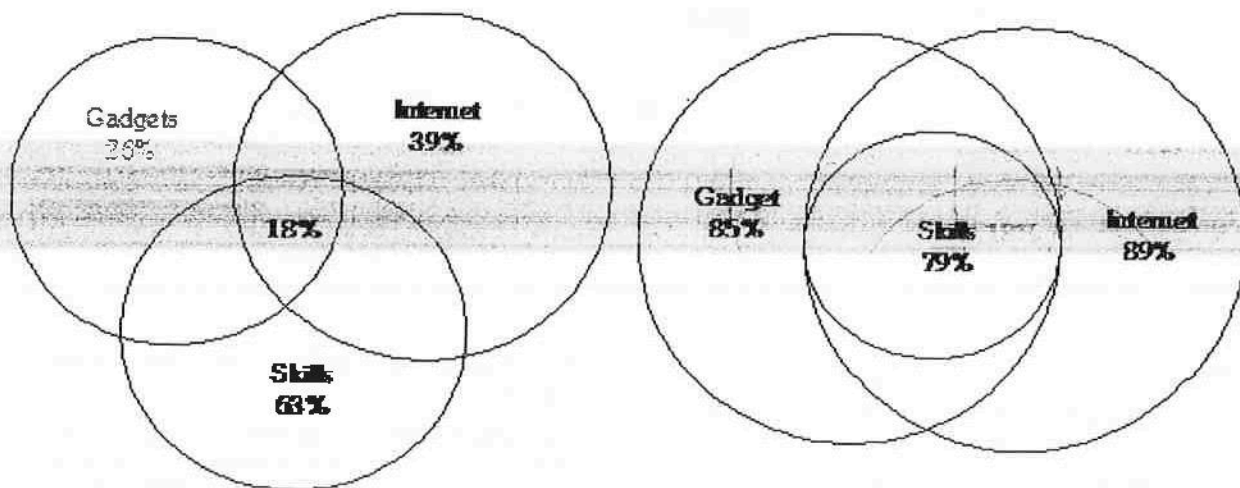


Figure 4 : Feasibility of implementing e-learning using computers / laptop (A) and smart phone (B) interface

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