Original article:

ASSESSMENT OF MEDICAL STUDENT'S ATTITUDE AND PERCEPTION ON E-LEARNING- SURVEY FROM A MEDICAL INSTITUTE IN TELANGANA STATE, INDIA

***Padmavathi Vutukuru[1],Suguna Dumpala[2],KrantiTekulapally[3]**

[1] Associate Professor, Department of Pharmacology, Mallareddy Medical College for Women, Suraram, Hyderabad

[2] Associate Professor, Department of Community Medicine, Mallareddy Medical College for Women, Suraram, Hyderabad

[3]Assistant Professor, Department of Pharmacology, Mallareddy Medical College for Women, Suraram, Hyderabad

Corresponding author*

Abstract

Introduction: In recent times, Information and communication technology is increasingly used for social networking as well as educational purposes.Certain initiatives by the universities in developing countries promoted e- learning in medical education. This study was aimed to assess the overall attitude of medical students towards e learning and factors affecting e-learning among Medical students.

Methods:, A semi structured questionnaire focussing on the access to technology, use of technology for learning, skill in technology and attitude towards e learning,was administered to 150 phase II undergraduate medical students in this cross sectional study.Data from 132 completed questionnaires were statistically analyzed using Rates, percentages and Chi-squared tests adopting SPSS version 20

Results: Overall 61.4 – 87.1% of students had unlimited access to technology.The association between knowledge and skills amongstudy subjects in using technology wasfound to be statistically significant at 0.05 level. The range of percentages of students who perceived e learning useful was 59.1%-90.2%. Overall attitude of students towards e- learnning was positive. (More study subjects are in the III Quartile who achieved between 27.5to 32 score out of 35). Association between Perceived usefulness of technology and Attitudes towards e-learning was checked by Chi-squared test, which was statistically significant at 0.05level.

Conclusion: The overall positive attitudes and perceived usefulness among the study groups concludes thate-learning courses have great potential in improving medical education and hence should be promoted.

Key words:e–learning, Attitude, Perceived usefulness

Introduction:

Currently, medical education is undergoing a paradigm shift from a teacher centered approach towards a learner centered approach. This shift has necessitated new methods and approaches like e-learning and online continuing medical education[1-3].E-learningprovides a broad array of solutions that enhance knowledge and performance using the internet technologies[4]. Computing devices are extensively used in educational institutions since more than few decades[5]. Though the computer, web-based and mobile-based technologies created interest among students for social networking, they are as well being utilized for educational purposes. It implies student's familiarity of these technologies and their skills for using them[6].E-learning creates a well-organized and efficient learner centered academic ambience by providing opportunities to access and update the knowledge. Therefore, adopting such modern tools of learning, medical students can be equipped with the current medical knowledge and skills for their application

in evidence based clinical practice.

The Medical Council of India's Vision 2015 document is emphasizing non-didactic teaching–learning methodology, which also recommends adopting newer teaching methodology in the form of e-learning[7].Dr. NTR University of Health Sciences, Vijayawada launched a Gateway portal facility in 2008, to facilitate the usage of its e-resources for better access of academic content by teaching faculty and students of its affiliated medical colleges[8]. Furthering this initiative, the University of Health Sciences sensitized the faculty and students of Mallareddy Medical College for Women (MRMCW) in 2014 to access the academic content in their mobiles and laptops outside the physical library. However, informal dataindicated that many MRMCW students are not utilizing this portal either due to inaccessibility, lack of necessary skills or negative attitude towards e-learning. Student attitude and behavioral intentions are critical for the success of e-learning[9]. Furthermore, literature suggests that users develop a positive attitude to use a particular system (perceived usefulness) that determines their attitude and behavioral intention[10].This argument is also supported by Davis et alwho observed a linear and positive relationship between perceived usefulness and usage of technology than other variables[11].Since a strong connection between attitude and behavior exists, measuring attitudes has an important role in analyzing student's behavior. For achieving this, research is warranted on the assessment of the attitude and perception of medical students on e-learning to promote effective implementation of this method.

Aims and Objectives

This study was aimed to enhance the quality of Teaching–learning process adopting e-learning in medical education. The objectives of the present study were to assess the overall attitudes of medical students towards e-learning technology and to evaluate the factors influencing those attitudes and the corresponding data are presented in this paper.

Materials & Methods:

To assess the overall attitude and perception of e-learning among medical students, a cross-sectional study was conducted at Mallareddy Medical College for Women (MRMCW), Suraram, Rangareddy district,Telangana State, India. MRMCW has an annual intake of 150 MBBS female students. The subjects (sample size =150)comprised of II year medical studentsand the study was conducted from November 2015 to March 2016, after obtaining due approval from the Institutional Ethical Committee and informed verbal consent from study subjects.The recruitment of the study subjects was purely voluntary and those students who were not inclined to participate were excluded.

A validated semi-structured Questionnaire was used. Data related to the age of the study subjects, occupation of the head of the family, education level and family income based on Modified Kuppuswamy's social class classification[12]was recorded. Students were questioned on their level of access to technology on and off campus; the use of various technologies and their levels of skill in using those, were assessed by using rating scale from "1" 'not skilled at all' to "5" 'very skilled. Student's attitude towards e-learning and perceived usefulness of technology was determined by their agreement or divergence with several statements about the importance of Information and Communication Technology (ICT) in medical education on a 5 point Likert scale. Primary outcome–access to technology, attitudes and perceived usefulness was measured in numbers, percentages, and proportions using chi-square test by SPSS version 20.

www.ijbamr.com P ISSN: 2250-284X , E ISSN : 2250-2858

Observations & Results

Out of 150 subjects, 132 (88%) completed the questionnaire and the same were considered for statistical analysis.**Table-1** show the age of the study subjects which ranged from 18 to 21 years. Most of them were 19 years (56.1%), followed by 20 years (25.8%) and the least are 21 years (6.8%). In the present study, nearly 94% were from urban while rural students comprise 06%. Our survey findings revealed that around 88.3% belong to I and II Socio-Economic Status.

Fig-1 illustrates that overall (61.4–87.1%) of students had no problem to access to technology. The association between socioeconomic status and access to technology was tested by Chi-square test which showed that there is no significant association (p-value 0.870).

The knowledge and skills among study subjects in use of technology was assessed and the results of association are shown in **Table-2**. Use of computer for Games,web,web-mail,digital material, web-phone, web-conferenceand smart phonewere statistically significant at 0.05level.

Table-3shows the perceived usefulness of technology in learning among study group, wherein 59.1%-90.2% subjects strongly agreed/agreed as compared to 0-6% who strongly disagreed/disagreed. Association between perceived usefulness of technology in learning and attitudes towards e-learningwas statistically significant at 0.05level.

Fig-2 demonstrated the distribution of study subjects by overall Attitude towards e-learning. Results indicate that 50% (median) of study subjects achieved 27.5 score against a total score of 35. In the I Quartile (25^{th} to 50^{th} percentile, a very small number of them achieved 26 to 27.5. However, more study subjects are in the III quartile (50^{th} to 75^{th} percentile) who achieved between 27.5 to 32 score which shows a positive attitude towards e-learning.

The participants were asked to list three ways in which the technology could be useful in their studies. Majority (89%) of them felt that e-learning should be integrated with traditional medical education for better understanding of the subjects. A great challenge, which was stated by the study group (63%), was that there is vast information on the Internet; they could not distinguish the authenticity of the sources of information. They also wanted free Wi-Fi on the college campus for 24x7 days.

Discussion:

A cross-sectional study was conducted to assess the overall attitude towards e-learning and the factors influencing those attitudes among medical students. In this study, a pre-validated semi-structured questionnaire was administered to study subjects (medical students) who are in 2^{nd} professional year of MBBS with a common age groups(Table 1) much akin to our neighboring countries[13].It is also observed that there was no significant association between socioeconomic status and access to technology unlike the studies which linked SES to access and use of the Internet by Fox[14]. Access to technology represents an initial factor that influences student attitudes towards e-learning and their willingness to use it.The overall access to technology among medical students ranged between 61.4–87.1% which reflects the wide spread use of computers and the Internet. The results are closer to the findings of a study conducted in South India (79%)[13] but higher when compared to North India (56.2%)[15].

In the present study, it was found that the use of computer for Games, web, web-mail, digital-material, web-phone, web-conference and smart-phone were statistically significant at 0.05 level among medical students. These findings are in accordance with a similar study conducted in Iran

www.ijbamr.com P ISSN: 2250-284X , E ISSN : 2250-2858

(p=0.001; r=0.82)[16]. An attempt was also made to assess the perceived usefulness of technology in learning among study group which indicated that majority of the students are in agreement with perceived usefulness of ICT in medical education. As per the Technology Acceptance Model (TAM) report perceived usefulness and perceived ease of use jointly predict the attitudes towards using technology[17]. The results of the present study also demonstrated a statistically significant association between perceived usefulness of technology in learning and attitudes towards e-learning.A perusal of the literature indicates a correlation between positive computer experience and positive attitudes, competence and comfort with computers[17]. In this study, it was observed that the subjects felt confident, enjoyed, interested in exploring online courses. They also strongly believed that e-learning would give them an opportunity to acquire new knowledge and enhance their quality of learning.

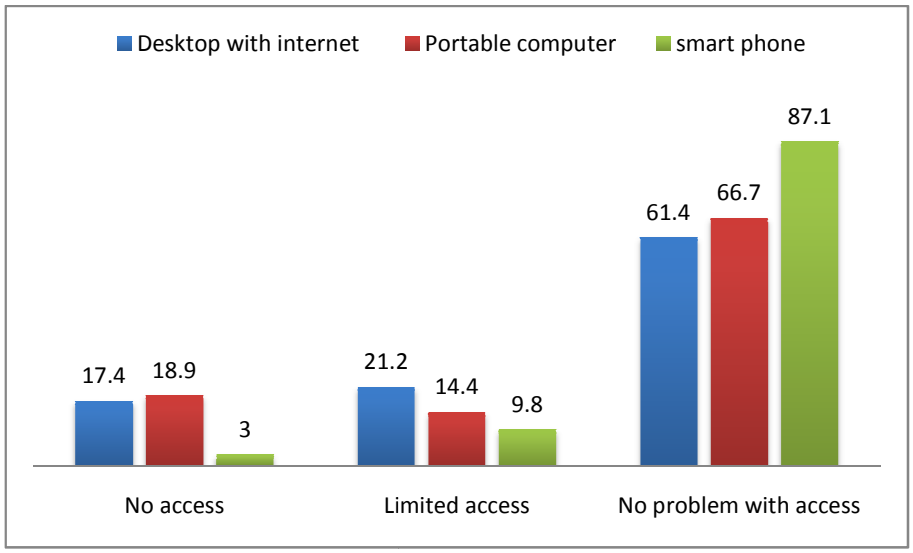
Conclusions:

The overall positive attitudes and perceived usefulness among the study groups concludes that e-learning courses have great potential to improve medical education at institute level, state and national level. It should be promoted since it has a great impact on the society.

Acknowledgements

The authors express their gratitude to the Dean MRMCW, Faculty, Department of Pharmacology and II MBBS Students (2014 batch) for their encouragement and participation in this study.

Figure -1 Distribution of study subjects by Access to Technology



www.ijbamr.com P ISSN: 2250-284X , E ISSN : 2250-2858

Table -2 Associations between Knowledge on use of Technology and Skills among study subjects

Type of technology	p-value
Use a computer to create presentations (PowerPoint)	0.132
Use computer to play games	*0.0005
Use the computer web	*0.008
Use the web to look up reference information e.g. online dictionary	0.357
Use the web internet to send or receive e mails	*0.0005
Use the web to share photographs or other digital material	*0.0005
Use the web to make phone calls (Skype)	*0.0005
Use the web for web conferencing (Skype)	*0.0005
Use a smart phone to text people	0.129
Use a smart phone to access information services on the web	*0.003
Use a smart phone to send or receive e mails	*0.0005

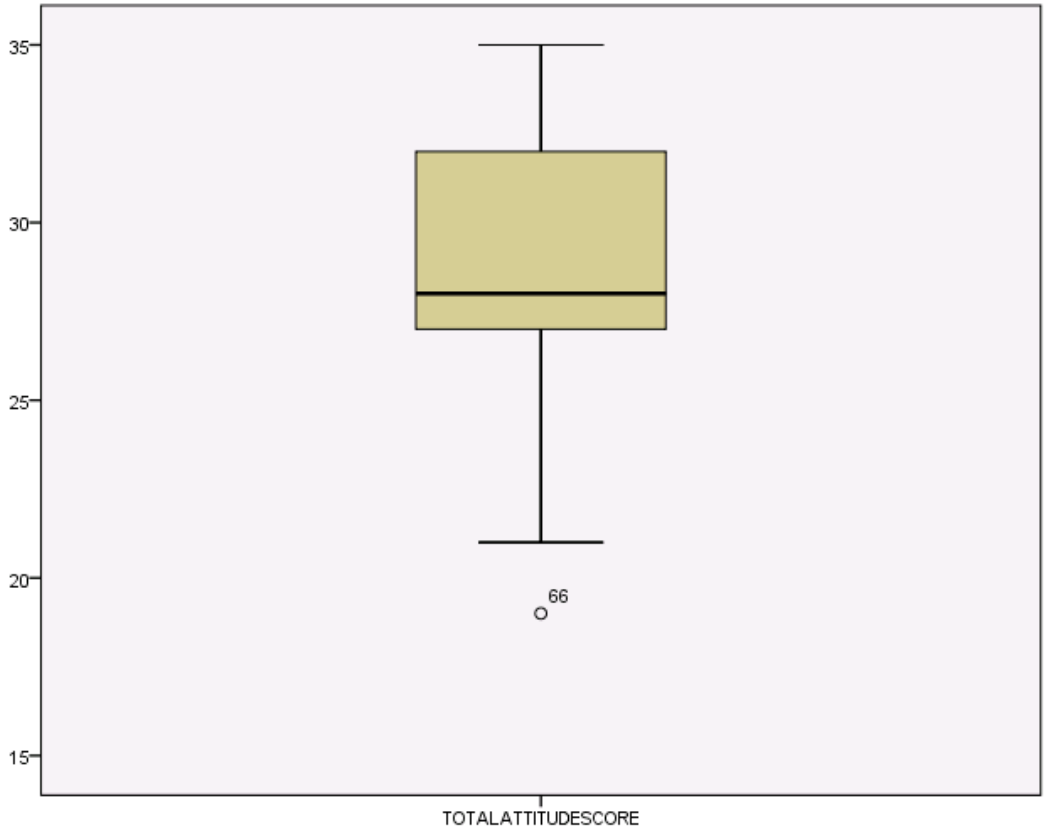
* p-value significant at 0.05 level.

Table-3 Distribution of study subjects by Perceived usefulness of Technology in learning

In studies, how useful do you think it would be to:	Disagree N (%)	Agree N (%)
Create and present multimedia shows(Powerpoint)	1 (0.8)	112 (84.9)
Create spreadsheets(Excel)	8 (6.0)	78 (59.1)
Download or access online audio/video recordings of lectures	5 (3.8)	114 (86.4)
Use the web to access NTRUH based services (enrolment/sign-in)	4 (3.0)	99 (72.7)
Use of smartphone to access web based NTRUH based services (enrolment/signin)	5 (3.8)	98 (74.3)
Use instant messaging chat on the web to communicate, collaborate with other students in the course	3 (2.3)	110 (83.3)
Use web to share digital files related to your course (sharing photos, audio files, web sites)	0	119 (90.2)
Use web conferencing or video chat to communicate or collaborate with other students	6 (4.6)	99 (72.7)

www.ijbamr.com P ISSN: 2250-284X , E ISSN : 2250-2858

Fig-2 Distribution of study subjects by Attitude towards e-learning



References

1. Clark D. Psychological myths in e-learning Med Teach 2002; 24:598-604
2. Albarrak AI, "Assessment of Medical Informatics Skills of Undergraduate Medical Students at College of Medicine", King Saud University; Journal of Administrative science. 2010; 7 (1):1-10
3. Nian-Shing Chen, Kinshuk, Yi-Hung Wang, "Cyber Schooling Framework: Improving Mobility and Situated Learning," Advanced Learning Technologies, IEEE International Conference on, pp. 290-292, Fifth IEEE International Conference on Advanced Learning Technologies (ICALT'05), 2005Deb, **Journal** of Computational Methods in Sciences and Engineering 11 (s1), 115-125, **2011**.
4. Rosengberg M. E-learing. Strategies for Delivering Knowledge in the Digital Age. New York: McGraw-Hill, 2001
5. Trucano, Hawkins & Iglesias, 2012, Retrieved from http://blogs.worldbank.org/edutech/ some-more-trends on 11.02.2015
6. MCI Vision 2015 (2011). Retrieved from http://www.mciindia.org/tools/announcement/MCI_booklet.pdf on 11.02.2015
7. http;//www.ntruhslibrary.com retrieved on 11.02.2015
8. Zhang, Ping & Swati Bhattacharyya (2008), Students' views of a learning management system: A longitudinal qualitative study, Communications of the Association for Information Systems (CAIS), 23 (20), 351-375

9. Chau, P., Hu, P. (2001). Information technology acceptance by individual professionals: a model comparison approach. Decision Sciences, 32(4), 699-719
10. Mathieson K(1991). Predicting user intentions : comparing the TAM with theory of planned behavior. Information systems research,2(3),173-91
11. Davis F(1989). Perceived usefulness, perceived ease of use, and user acceptance of Information technology, MIS quaterly,13(3),475-87
12. http://www.ijph.in/text.asp?2015/59/2/156/157540 Modified Kuppuswamy socio-economic status scale for the year 2014, retrieved on 11.02.2015
13. Unnikrishnan B, kulshresthav, saraf A, Agrahari A C ,Prakash S, Samantaray L, Parida A . Pattern of computer and internet use amongmedical students in coastal south India.South East Asian journal of Medical Education 2008;2(2):18-25
14. Fox S. Digital Divisions. Washington, DC: PEW Internet & American Life Project; 2005
15. Khan Amir Maroof, Pawan Parashar,[1] and Rahul Bansal,How are our medical students using the computer and internet? A study from a medical college of north India, Niger Med J, V.53(2); Apr-Jun, 2012
16. Okhovati M.1 PhD, SharifpoorGhahestani E.* MSc, IslamiNejad T.2 PhD, HamzezadehMarzooni M.3 BSc, MotamedJahroomi M.4 MS Attitude, Knowledge and Skill of Medical Students Toward E-Learning; Kerman University of Medical Sciences ISSN: 2228-5849 Bimonthly of Education Strategies in Medical Sciences2015;8(1):51-58)
17. Davis F, Bagozzi, &Warshaw P (1992). Extrinsic and intrinsic motivation to use computers at workplace. Journak of Applied psychology,22(14),227-30