

Critical Appraisal of e-learning through Mobile Devices in Medical Education

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Abstract

Summary: In COVID-19 pandemic, e-learning is the essential component of education system. All the schools, colleges, universities implemented e-learning program for the purposes of teaching and learning. Syllabus of new session is started for the said academic year through e-learning to minimize the academic loss and to coverup the academic session. Nowadays, medical education is full off with information technology solutions, computer--assisted learning has facilitated teaching of a wide range of topics, including basic science and advanced surgical procedures. The e-learning is totally depending upon the expertise in the handling of technology, electronic devices as well resource material available for the conduction of e-classes and one of the most important factors i.e. internet connectivity. In due course, mental status of students and teachers along with motivation from the teaching institute is also important factor for e-learning program. There were various challenges and disadvantages reported in previous research studies regarding e-learning, suggested for periodic need assessment of educational program, emphasize upon breach in between expected and existing system, resources management system, technical expert team, financial budget, mindset of the teachers and students and training sessions for development of e-learning culture.

Keywords: COVID-19, E-learning, medical education.

Introduction

E-learning is the need of the COVID-19 pandemic situation to overcome the educational loss. But students and the teachers are facing problems while conduction of e-learning sessions. Learning is the process which involves various psychomotor activities like critical thinking and ability to solve the problems. The precise aim of education system to provide the developers with the best learning tools, so learner can gain thorough understanding, skills and relevant information required for their career⁽¹⁾. In the field of education, technology

is not latest revolution but today education system is shifting towards techno based education modalities like app based learning, simulation and in COVID-19 pandemic online teaching⁽²⁾.

Information technology facilitate medical education and assist teaching-learning with wide range of topics, like basic science and advanced surgical procedures, online learning. For the development of field of medical education one should have to consider teaching strategies through advance technology⁽³⁾.

Nowadays students are more technology friendly, they search and learn most of the required information through various search engines. Up-to-date technologies is required for the upgradation of field of health care and medical education. Consequently, mobile phones are increasingly being used for various purposes as like video conferencing, chatting, entertainment, simulations which enhances the accessibility of information. Thus,

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the upcoming of health care and medical education exceedingly depend upon technological innovations.⁽⁴⁾

Mobile Apps facilitate various learning activities to engage and motivate to the students. Simultaneously, it increases the learner's attainment which eventually reflected into the retention of knowledge⁽⁵⁾. Presently various educational programs or applications are available in the cloud that helps the learner in learning process. Newer technologies are the blessing for today's teaching and learning progression.

Medical Education and Information Technology: Introduction of medical students and residents to information technology solutions is the need of the situation which familiarize the students with newer systems presents in clinical environments. The technology solutions can help undergraduate and postgraduate students to study clinical cases, simulation, decision making and management of electronic record⁽⁶⁾. Portable technology for medical education has been evaluated from several perspectives. Personal Digital Assistants became popular, predominantly due to their small size and ease of use for the mobile user⁽⁷⁾. Recent studies have further explored the use of mobile tablets in medical education. A survey among radiology residents found that 81% of the residents believed that they would spend more time learning if they were provided with mobile tablets for learning difficult cases⁽⁸⁾.

Introduction to mobile application: A mobile application is a designed computer program, which can be run on a mobile or tablet. Mobile applications can be run on desktops with windows version and desktop applications that run in mobile with the help of web application through mobile web browsers⁽⁹⁾. The term "app" is the short form of the word "software application". It was listed as "Word of the Year" by the American Dialect Society because of its popularity⁽¹⁰⁾. These newer smartphones could be named as "app phones" to differentiate them from older version of smartphones⁽¹¹⁾. Apps are the software designed programs that run on a computer or mobile device to accomplish and facilitate difficult as well as vast task. It is well equipped with faster processors, enhanced memory, advance technology batteries and extremely competent operating systems that easily perform multifaceted functions in least duration⁽¹²⁾.

Necessity of Mobile App for E-learning: E-learning is the experience of learning through mobile

or wireless computing devices which promoting learning in such a way that knowledge content is always available and accessible anytime, anywhere for the learner. The development of smartphones, tablets and small size laptops with improved capacity and functionality, upgraded memory, bigger screens, the facility to access the highspeed internet and freely downloadable software facilitate e-learning through wide range of uses which enhances communication, diagnostics, self-monitoring with the help of several apps⁽¹³⁾. Users like students and faculty members of various are progressively using mobile devices at the workplace^(14,15); appears to be the part of a technological revolution in medical as well as other sectors⁽¹⁶⁾. Recognizing and keeping up-to-date with developing technology that support workplace as well as distance learning in today's pandemic situation, but it is a key challenge for medical educators⁽¹⁷⁾. Technology time to time provides help to the learner for enhancement of the knowledge and the skillfully offer a form of dynamic scaffolding⁽¹⁸⁾. The medical educators need both the factors that gain the knowledge and take part in learning processes, by recognizing and integrating the spirit of learning through participation as well as the distinct attainment of knowledge⁽¹³⁾. So, Mobile App is the need of the era to acquire medical education with conventional teaching methodologies.

Mechanisms of e-learning: E-learning that comprises of three key components as follows⁽¹⁹⁾.

1. Technological flexibility- it is the portable feature of installed hardware and software that enable wireless net connection.
2. Learners' mobility- it means learners can gain knowledge through various sites at a time.
3. Mobile learning processes- it is the process which includes both the technology and the learners in mobile mode.

E-Learning Approach: Mobile learning approach comprises of three important factors- Active instructor or teacher, Active learner and Creative pedagogy for effortlessness-learning process⁽²⁰⁾.

1. Active Instructor: the person facilitates students, engage them throughout learning process in side or outside the classroom via teaching, assigning work or with continuous assessment.
2. Active learner: the student engage him/herself with self-study, home assignments, self-assessment,

group discussion at digital platform, access course content anytime as he/she want, share as well as exchange knowledge or resulted findings with colleague companion

3. Creative pedagogy: the learning process where instructor and learner mutually agree for teaching content, which create encouragement in the students and keep them active throughout the learning process by collective learning, discussion on genuine issues, emphasis on challenging themes.

Role of student's in E-learning: Students plays important role in four modes- Performance, Satisfaction, Behavior and Motivation.

Performance: E-learning may help the students for learning at anywhere as per ease of learning environment. It facilitates quick learning with new activities, creative thoughts, actions and required skills. Thus, the e-learning allow the learners to improve their study and personal skills through numerous tasks as like communication, critical analysis, problem solving and challenges in learning environment ⁽²⁰⁾.

Satisfaction: The learners satisfaction is the very most important thing depends upon usefulness of the technology, instructors skill as well as quality content learning material, that perceived usefulness directly reflected in to higher satisfaction.

Behaviors: Learners behaviors changes with the content, ease of technology, layout, design of mobile applications. Learners good performance also have the positive effect on their behaviors which boost the moral and increase the positivity. Comfort in using technology also effect on learners' behavior. The appealing interface, layout, colors and overall appearance also influence the learner behaviors.

Motivation: learners performance, satisfaction and positive behaviors motivate the learner for further learning process and also encourage for personal needs, desires and determination.

Advantages of E-learning: Laptops, tabs or mobiles playing an important role in medical education, students and techno savvy faculty using various app as well as software for teaching-learning purpose. Most of the medical students using mobile devices for sharing experiences or notes, access the information, learning new things, clinical case discussions. Nowadays, medical practitioners also using mobiles or various apps

for learning or updating themselves with evidence-based information in the competitive era. In the such pandemic situation and distance mode education; mobile devises playing vital role of teaching and learning in medical curriculum.

Considerations for learning Mobile Apps: The learning mobile app should be enough readable and consistence about the contrast colors, type and font of the text. Outlet of the app should be attractive, appealing and noticeable as compared to routine apps. Minimum distractors should be used in Apps for learning purpose except navigators. Make the application in simple format and comfortable as common users can use it easily. Soothing colors should be used to reduce irritation and strain on the eyes for curtailing of visual fatigue.

Challenges of E-learning through mobile app: As per researches regarding e-learning, commonest obstacle of implementing e-learning program is insufficient groundwork of the teachers. So, faculty development program or sufficient training as well as attitude of adoption regarding newer technics of teaching and learning is very important.

Familiarity of power point presentation is the major issue influencing on e-learning interface. In the recent research study, students reported that technical dysfunction in the mobile during online learning is the common scenario found to be triggering factor. Due to small screen of mobile; they were not comfortable to learn science portion which totally depend upon images, analysis. Poor internet connectivity is also the interrupting issue in the e-learning program. There are various problem in e-learning like technology, system quality, data security, self-efficacy of teacher or students and traditional attitude.

Discussion

The technology is the part and parcel of the life in today's scenario, the medical education needs to cope up with the challenges in the education system during COVID-19 pandemic. The researcher suggested that the integration of e-learning into curricular to facilitate learning and learning practice is the need of the education system. The challenges for e-learning are the poor motivation, connectivity, undue expectations, lack of resources, skill and suitability for the content, mere viability of resources is not sufficient but preparedness of the faculty also important. E-learning link the various resources in several variable formats in efficient way due

to its ease and flexibility to use at any time anywhere. On one click learner can connect with the teacher for continuous teaching-learning process. To mitigate the challenges and disadvantages of the online learning, one should have to work on policies of university or institution, design and delivery of the curriculum, learning outcomes in the form of assessments and feedback of the student. For successful implementation of e-learning program in developing countries, it is recommended that effective evaluation and controlling of the e-resources and maintenance of hardware is necessary. Proper training of the teaching staff as well as students to access the advance technology should be incorporated in the university academic calendar as a part of curricula. Partial assignments should be conducted through e-learning mechanism so as to minimize the future discomfort for assessment and evaluation system. Management should motivate the teachers and students through some incentives and competition respectively for the purposes of e-learning. University should allot the separate budget for e-learning mechanism considering a parallel system of teaching-learning and assessment-evaluation.

Conclusion

Periodic need assessment and evaluation of educational system is very important fact. The teaching learning strategies plays important role in the education system. For implementation of newer teaching method like e-learning needs piloting in the same setting to avoid upcoming hitches. So, to sidestep future challenges and expected disadvantages, one should emphasis on need assessment, gap in between present and expected system, resources management system, technical expert team, financial budget, mindset of the teachers and students and adequate training sessions to develop comfort during the teaching and learning.

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