Original Article

Initial experience of eLearning research module in undergraduate medical curriculum of Dow University of Health Sciences: Development and students perceptions

Masood Jawaid[1], Junaid Ashraf[2]

ABSTRACT

Objective: To describe the course development and student perception of eLearning Research module for the undergraduate medical students of Dow University of Health Sciences, Karachi.

Methodology: In December 2011 and January 2012, Dow University of Health Sciences (DUHS) started first six-weeks eLearning Module of Research Methodology for the 1st semester MBBS students. All university campuses have digital libraries equipped with computers with networking and internet facility. 'Articulate Studio 09' was used to made flash based presentations with interactions followed by assessment with the use of kwik surveys. Student perception was evaluated after each session by quantitative and qualitative methods.

Results: Total 539 students of all three colleges affiliated with DUHS completed the evaluation Form. Most of the students (492, 93.1%) rated highly the overall layout of eLearning module. Text of the module was found to be clear and informative by 81.1%. Contents were judged as not according to student's level of understanding by 34.5%. Overall experience of the first session was rated excellent by 23% and good by 64% with (cumulative 87.2%). However, students had mixed opinion about requirement of their computer skills for this eLearning module. Qualitative evaluation showed very good experience of students and they want more topics to be covered with this modality.

Conclusion: This module proved to be not only a good experience for our faculty members about eLearning instructional design and its execution but was also rated very highly by the students. Our experience will be helpful for other institutes as well, who are planning to start eLearning in their medical curriculum.

KEYWORDS: eLearning, Research, Perception, Online course, Evaluation.

How to cite this article:

Jawaid M, Ashraf J. Initial experience of eLearning research module in undergraduate medical curriculum of Dow University of Health Sciences: Development and students perceptions. Pak J Med Sci 2012;28(4):591-596

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INTRODUCTION

"There is no going back. The traditional classroom has been transformed."

This was reported by Web-Based Education Commission in 2000.[1] Education and training is one of the largest sectors in the world economy with a growth rate of 35.6%[2] and recently there has been considerable interest in the potential for the development of e-learning in educational institutes.[3,4] In just a few years, e-learning has become part of the mainstream in medical education. While e-learning means many things to many people,

basically it is concerned with the educational uses of technology.[5] e-Learning is being recognized as having the power to transform the performance, knowledge and skills landscape.[6] It is viewed as having the potential to improve the quality of learning, access to education and training, reduce the educational cost and at the same time improve the cost-effectiveness of education.[7]

Many higher education institutes are adopting e-Learning modality as a means of solving learning and performance problems, reduce faculty workload and maximizing students learning experiences, while other institutions are hopping onto the bandwagon just because they do not want to be left behind others.[8] Dow University of Health Sciences, Karachi being one of the largest universities of public sector in Pakistan is working on innovation in the field of medical education ever since its inception in 2003. The university comprises of three undergraduate medical colleges located at three different campuses. The current undergraduate medical curriculum has a student research component in the 7th semester (4th year). The University is in the process of developing a modular curriculum with vertical and horizontal integration of basic and clinical sciences in two spirals and teaching of research methodology is an important component of the curriculum. However it has been recognized that introduction to research methodology right from the very beginning creates a process of understanding of advancement of knowledge in the students and makes them more research oriented doctors. For this reason in the new curriculum research methodology has been introduced right from the first year. The number of instructors / facilitators available to teach almost 800 students in all three medical colleges at one time is a major limitation. Taking advantage of the fact that as all three medical colleges of the University are well equipped with strong Information Technology (IT) department and have state of the art digital libraries with intranet and internet facilities and dedicated staff, the university decided to start Research module in eLearning tutor-less format to make most of its strength like IT department and digital libraries.

Since students are an important stakeholder in any educational institution, accommodation of their perception and attitude is an important factor in fostering a congenial educational environment. Any new teaching methodology requires evaluation by this group and due importance has to be given to make sure that all learning experiences provided to the students improve their learning and satisfaction. Currently there exists a gap in the research exploring the experiences of e-learners.[3] Reasons being majority of e-learning research has focused on creating the value of e-learning course designs and interface, instructional methods or facilitator interventions. The objectives have been teacher-focused rather than student-centered, aimed at investigating the pedagogic worth of e-learning innovations and courses. Asking students about their experiences of e-learning gives important, individual, and often inconsistent results and this in itself is good reason for listening to students more often. This is especially important if one has to avoid making assumptions about students experience from teacher-centered view.[2,3] The purposes of this study was to describe and discuss the process involved in developing a pilot undergraduate eLearning module of Research and analyze the students' perception towards this eLearning experience.

METHODOLOGY

eLearning Research Module: A six week module of e-learning was developed on basic topics of research for undergraduate MBBS students and was used for the first time in the months of December 2011 and January 2012 concurrently to all the students of the first semester MBBS at three campuses of the university in groups. Groups were formed to utilize maximum number of computers in the digital library. Basic topics of research were covered which included research topic selection, literature search, study designs, questionnaire making, objective writing and types of scientific papers. Each topic was created as a standalone learning object (online interactive lecture with quiz and interactions followed by online assessment)

e-Learning content are supposed to be designed and developed in smaller manageable chunks known as learning objects (LO).[9] LOs as e-Learning's equivalent to traditional classroom lessons (like study design is one LO for this module). It is one chunk of important information that students can experience and understand in one sitting.

Interactive Flash based lectures: The process of creating the online interactive flash based lectures with PowerPoint 2010 (Washington, DC) and 'Articulate Studio 09 (New York, NY)'[10] was as follows: 1) develop the rough storyboard, 2) make the text slides in power point, 3) Add animations and picture to enhance presentation and understanding, 6) incorporate the learning
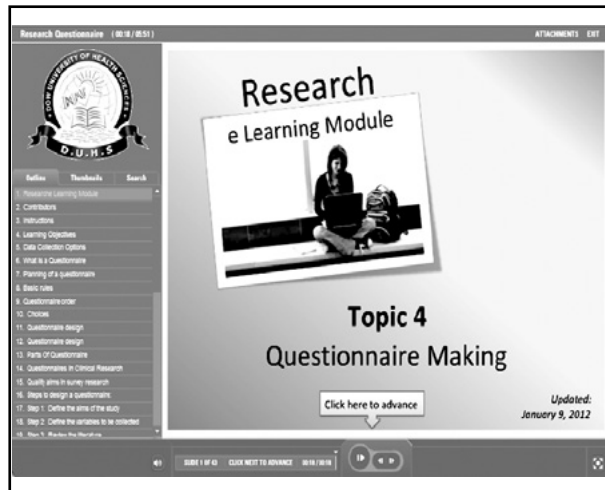
Fig.1: Screenshot of flash based lecture for eLearning Research Module. The lecture was produced using PowerPoint (Washington, DC), and Articulate Studio (New York, NY). Interactions and self-test questions (not shown) were added in the lectures to allow students to review as they proceeded.

games, 7) incorporate articulate interactions, 8) publish the product with articulate presenter, 9) correct any issues noted during the test, 10) load the final module to the main server and share with intranet to digital libraries of all three campuses.11) Password protect the directory with activation at specific time according to students timetable.

The presentation was programmed in such a way that student can only view slides one by one in forward direction without any jump however, they can view previous slides at any time if required. This package is capable of adding voice narration with the slides but as our digital libraries are not equipped with headphones, we resorted to only graphics and animation.

Online Assessment: Once students completed the interactive lecture, they were required to take an online test comprising of ten multiple choice questions with single best option over the topic created with www.kwiksurverys.com.[11]Apart from test there were question regarding students perception of this mode of instructional strategy and an open ended remarks option as well. The result of this assessment was stored online in database which was then exported in excel format once all groups completed one session (LO). Results of multiple choice options were analyzed with Microsoft Excel and SPSS version 17 and result was posted in digital libraries of respective colleges and one copy sent to examination department.

RESULTS

Total 539 students of all three colleges completed the feedback Form. Two hundred seventy eight students were from Dow Medical College, 225 from Sindh Medical College and 36 from Dow International Medical College. Most of the students (492, 93.1%) rated the overall layout of eLearning module as either excellent or good (Table-I). Text of the module was found to be clear and informative by 81.1%. However contents were not judged as according to student's level of understanding by 34.5%. Overall experience of the first session was rated excellent by 23% and good by 64% with (cumulative 87.2%) Table-I.

Onsite facilitator's ability to resolve technical problem during the module was rated good or excellent by 81.7%. However, students have mixed opinion about requirement of their computer skills for this eLearning module (Table-II).

Qualitative evaluation by remarks (optional for students) showed in-depth feelings of students

Table-I: Student perception of eLearning Research Module (n= 539).

Questions	Options	n (%)
How would you rate the layout of the e-learning session (Presentation and assessment both)?	Excellent	171 (31.7)
	Good	321 (59.6)
	Fair	40 (7.4)
	Average	0 (0)
	Poor	7 (1.3)
The text of the session was clear and informative	Strongly Agree	95 (17.6)
	Agree	342 (63.5)
	Neutral	92 (17.1)
	Disagree	5 (0.9)
	Strongly Disagree	5 (0.9)
Contents of the session are according to your level of understanding?	Strongly Agree	85 (15.8)
	Agree	164 (30.4)
	Neutral	104 (19.3)
	Disagree	126 (23.4)
	Strongly Disagree	60 (11.1)
Overall, experience of this session is:	Excellent	124 (23.0)
	Good	346 (64.2)
	Fair	56 (10.4)
	Average	3 (0.6)
	Poor	10 (1.9)
How would you rate this e-learning session compared to other lectures you have taken in the traditional classroom setting	Excellent	196 (36.4)
	Good	250 (46.4)
	Average	79 (14.7)
	Below average	10 (1.9)
	Poor	4 (0.7)

Table-II: Students opinion of technical issues
relating to Research eLearning Module (n=539).

Questions	Options	n (%)
Please rate your facilitator's ability to resolve problems with the technical issues related to your course?	Excellent	112 (20.8)
	Good	328 (60.9)
	Average	90 (16.7)
	Below average	5 (0.9)
	Poor	4 (0.7)
Do you think, you need more computer and internet skills for this session?	Strongly Agree	85 (15.8)
	Agree	164 (30.4)
	Neutral	104 (19.3)
	Disagree	126 (23.4)
	Strongly Disagree	60 (11.1)

about the module. Some of the representative remarks were:

"It has been a really interesting session. It was very different from the usual classes that we have at this college."

"Thank GOD finally I found something interesting here...!"

"Good initiative. Keep it up. I hope the whole curriculum should be based on e-learning"

"Well I think that it was a great experience for me. I had never experienced any such thing before. This session made me really learn, and develop my interest which lacks while studying in a classroom. I suggest that these activities should be done more frequently because it is according to what students demand and want. This e-learning made me think the other way of research which is easy to understand. I don't find anything to be improved in it. It's simply Perfect way of Study!"

However not all comments were positive, such as:

"In my opinion, I'd recommend more usage of multimedia, including, not only mere presentations, but in addition to that, video and/or audio clips, to increase the interest, and make the session, well, overall, more informative."

"Presentation was too long to be remembered. While reading the last slide, first slide was flowing out of the mind. So limitation of lecture should be kept in mind."

"Make the page some more animated so as to make e-learning less boring"

"The whole session was quite helpful and interesting but it could have been even more interesting if students were demonstrated verbally as well, as the direct interaction with the demonstrator eliminates the confusion related to many unanswered questions."

DISCUSSION

To our knowledge, this is the first report of institutional utilization of eLearning modality at undergraduate level from Pakistan. We have presented here the structure and implementation of module with the help of clinical faculty without any professional instructional designers. Its execution involved working within the existing university facilities. Students overall response was highly positive and they were pleased with the university's initiative.

Assessment is an essential part of learning. Essentially, it is assessment that reinforces the learning approach which a student adopts.[12] Each session was followed by assessment to reinforce the concept of assessment drive learning,[13] very much evident by one of students comment:

"The session was quite exciting and the test threat really worked and made me read each word with concentration. :)"

eLearning authorizing software "Articulate Studio 09" was utilized to make interactive flash based lectures as it is powerful yet user friendly tool. It works side by side with Microsoft PowerPoint which most of us are already familiar with. One major advantage of the 'Articulate Studio 09' software is that it enhances the appearance of standard PowerPoint files by allowing the course designer to add self-test questions, interactions, provide a search function and a navigable menu.

There are number of studies reporting successful implementation of eLearning course with the use of this software alone (e-learning program on children's palliative care,),[14] with other modalities like videos (clinical assessment training)[15] or within Virtual Learning Environment (VLE) as a SCORM package (undergraduate exercise physiology course).[16] In the current era, almost all higher education institutions are operating at least one virtual learning environment.[17] Use of VLEs was mainly supplementary face to face teaching in education. Initially we planned to use an open source VLE 'MOODLE'[18] but due to large server resource utilization (concurrent users issue), we used 'articulate studio 09' software as independent capacity. Of course utilization of VLE makes many administrative tasks easier and we can use it own built-in quiz feature for assessment. Despite that, we were successful in using a free survey tool 'www.kwiksurveys.com' for student's online real-time assessment. One drawback of this software was that there is no feedback feature and it required much more manual work for result tabulation.

Students are not feeling very comfortable about their technical skills in term of eLearning module

usage. There are multiple reasons for this. One reason being, there is no formal introduction session for students, we take it for granted that as it is very easier to use all students have necessary skills. However, although more than 50% of students were happy but there are substantial number of students who found it difficult. Another reason is internet browser flash plugin issue at some computers in digital library. Browser was not allowing last 'online test click' to open in a pop up window. Although that problem was resolved afterward but some students were much anxious as attendance for the session was also dependent upon successful submission of online test. In the next module implementation, we are planning to address both of these issues by a small introductory session before the module and fine tuning of all computers in the digital libraries beforehand. Moore et al.[19] while evaluating the experience of blended e-learning supported by the Blackboard VLE at Sheffield Hallam University admitted that they expected students to raise concerns about access to the internet, and low levels of computer skills. However, not a single student when approached raised the first issue and computer skills were seen as being comfortably overcome by clear interface design and introduction to how the use VLE during the course.

One of the main issues for implementation of e-Learning in any institution means reconstituting roles for faculty members.[20] In most cases, faculty is expected to undergo immediate change and become e-Learning experts. Faculty members cease to exist as mere facilitators or tutors, and they are often forced to assume the role of content experts, instructional designers, graphic artists, media producers, programmers and instructors. This is perhaps the main reason faculty resist any effort to implement e-Learning! After all, who would want to execute six jobs and get paid for the only one? These strong statements do not mean to suggest that faculty cannot become e-Learning faculty but they should be educated, trained and provided a reasonable time to bring a gradual change. Even then not everyone can perform each and every task of developing e-Learning course and modules. Faculty members should be adequately rewarded for engaging in eLearning content development activities which need not be monetary. For example, institutions can introduce content development competitions. The same experience from faculty members was gained during our implementation of first eLearning module as most of the faculty resists and is found reluctant to work for this new development, for the above mentioned reasons.

eLearning materials are reusable. We are also re-using our LOs and currently MBBS fourth semester is having the same eLearning research module in their schedule. Streaming of lectures remains, in the faculty view, as the most easily implementable method for on-line learning.[21] Faculty at universities in Pakistan, in general, are not yet well familiar with the many other possibilities for on-line learning and how eLearning may have an impact on their teaching strategies. eLearning faculty development is an important concern at our university just like in any other institute. We are planning to hold training workshops for faculty members to experience the new world of teaching and training as eLearning have the potential and can change the way business is conducted in education.

CONCLUSION

The first experience of eLearning module was well appreciated by the students. The faculty and IT department got to know how to implement and also learnt lessons for further improvement in the next projects. It is planned to conduct training workshops of eLearning for the faculty members to prepare eLearning modules both on campus and off campus in basic and clinical subjects as well as using this modality in blended form. A dedicated server equipped with LMS will be used for this purpose. Its implementation will require faculty motivation and strong IT support.

ACKNOWLEDGEMENT

Conflict of Interest: Both authors are actively involved in planning and implementing of this eLearning module.

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