Utilisation of e-Learning in the Teaching of Preclinical Year Students in a Medical Program

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ABSTRACT

Medical teaching is an apprentice-type training, where teachers and students have to physically meet in teaching and practice sessions. However, this notion is being challenged by introduction of virtual instructional methods. The present day students belong to Generation Y; they have high affinity for all things virtual since they have been introduced to this world from an early age. The aim of this paper is to describe the changes in utilization of virtual tools in teaching and learning of preclinical medical students in a public university. The trend of e-learning practices of lecturers teaching the pre-clinical years was observed over the last 5 years. Data was obtained through module guides, feedback during annual curriculum review and the changes observed in notional hours over the years. Results shown that the utilization of i-learn had drastically increase in the last 3 years. The usage was minimal in 2014/15; it reached full utilization for module preparation in 2015/16. This platform was used to provide module information as well as for posting learning material for tutorials, practical and directed self-learning sessions. All pre-clinical lecturers were familiar with i-learn format and training was provided as required. The use of other peripheral technologies, such as Facebook and twitter, were still limited, partly due to the opinion that students would be distracted by other content within this social media realm. As some of the contents were taught by virtual learning, face-to-face time was reduced.Hence, the utilization of e-learning the Faculty of Medicine UiTM was centered on using the university's learning management system. Familiarity with e-learning has been achieved within

the last 5 years and the Faculty is moving forward in on-line learning content and course development.

Keywords: *e-learning, medical teaching, instructional methods*

INTRODUCTION

Medical education is traditionally divided into basic science and clinical teaching(Bhutta et al., 2010). Over the last 30 years, a shift towards student centered and blended learning had ensued (Harden & Hart, 2002; Seifer, 1998). University Technology MARA (UiTM), Malaysia has a well-defined e-learning policy, governance and implementation plan(Endut et al., 2012), developed since 2005. The UiTMe-learning governing body had done an excellent job in promoting and supporting online learning activities. Almost all faculties and academic programmes within UiTM run a percentage of their courses by blended learning, defined as a hybrid of method of learning, usually referring to combination between face-to-face and online learning (Cenejac, 2017).

Replacing even a portion of face-to-face teaching with virtual instruction can be very challenging for some academics, especially in the medical fraternity. The notion that face-to-face is more effective than virtual learning is entrenched among teachers in higher learning institutes (Kim & Bonk, 2006). Medical education components of knowledge, skills and attitude are thought to work best in traditional campus learning. This method is believed to ensure comprehension of subject matter and student engagement. The skills are taught by direct observation of the teacher by the students and of the students by the teacher.

However, at the turn of the century enormous progress had been made in the medical field, partly as result of the unravelling of the human genome. This had led to an avalanche of knowledge in medical sciences. The use of traditional method of teaching had led to stagnation of curriculum (Bhutta et al., 2010). The incorporation of new knowledge into medical teaching is in this conservative setting slow, leading to disadvantages in terms of future practice. Some academics even believed that knowledge taught during medical school days would be obsolete by the time the students

graduate. Such is the rapidity of knowledge evolution in the field. Students have to be taught the skill of self-learning andlecturers need to learn how to teach students to do this. Thus novel exploratory learningtools have been introduced such as Problem-based learning (Bhutta et al., 2010).

At the same time, the explosion of technology and the internet had enabled the students to obtain information at their fingertips. The avalanche of information has to be managed. The combination between e-learning and face-to-face teaching is, to some extent, inevitable. The Faculty of Medicine UiTM decided to embark on e-learning in 2013. This paper aims to describe the progress of e-learning in the Faculty since then until the present day.

METHODS

The trend of e-learning practices of lecturers teaching the pre-clinical years was observed over the last 5 years. Data was obtained through module guides, feedback during annual curriculum review and the changes observed in notional hours within the years.

RESULTS

After the decision to venture into e-learning was made, two sessions within the Annual Curriculum Review Workshop (ACRW) 2014 were dedicated to the deliberation of this subject. One session focused on implementation of information technology and multimedia in teaching/learning in the Faculty; while the other was on exploring student readiness for e-learning. The conclusion of the discussions was that the Faculty would embark on e-learning on a large scale, involving all lecturers. The process would begin by utilizing UiTM's learning management system (i-learn). The Faculty also made a commitment towards the training of lecturers on the technical aspects of content development for online learning.

Faculty utilization of UiTM e-learning management system (LMS) had drastically increase in the last 3 years. The usage was minimal in 2014/15; it reached full utilization for module implementation in 2015/16. This platform was used mostly for communication and uploading learning content such as

tutorial questions, practical materials and directed-self learning packages. All pre-clinical lecturers were strongly encouraged to be familiar with the LMS format. Training and technical support were provided as required. The use of peripheral technologies (such as *Facebook* and *twitter*) in teaching were still limited, partly due to the opinion that students would be distracted by other content within this social media realm. Basic science disciplines met and decided on the topics that could be taught by e-learning. The features of the topics include ease to understand and ready familiarity of students with the content of the topics. This had led to some reduction in face-to-face time. The notional hours of the preclinical years has successfully been reduced in recent years due to re-shuffling of certain topics, however this reduction is only minimally contributed by conversion to virtual learning.

Students' point of view on e-learning implementation was obtained from the survey conducted prior to the ACRW 2014 workshop. Students found little difficulty in navigating technical aspects of virtual learning, as they were familiar with the internet and its associated hardware and software. The most challenging aspect of implementing virtual learning was poor internet connectivity. A more recently obtained student feedback in 2017 found a reported improvement in internet service in campus, but still was deficient in certain areas, especially at the student hostel, where students did most of their learning.

Students also wished to have more material posted online and would like the lecturers to be more available for an online discussion. However, many students (47.6%) were unsure if they would be able to manage their time well with online learning. E-learning in the Faculty was managed through appointment of an e-learning coordinator, who answers directly to the Deputy Dean (Academic and Student). In the early phase of e-learning implementation within the Faculty, lecturers were encouraged to attend training sessions provided by the UiTM's e-learning governing body. These had resulted in production of a few teaching videos and teaching packages. The unsatisfactory internet connection was also one of the factors hindering lecturers in developing e-learning content. Since significant amount of time had to be invested in creating e-content, poor internet would render the execution of the program difficult. Thus, the investment was seen to give a meager return.

DISCUSSION

The findings in this short study were discussed according to pertinent headings in e-learning, with the results reflected against the current body of literature.

E-Learning Policy and Governance

Online education has become an important strategy in higher education. In 2004, 2.35 million students had enrolled in online courses in the United States (Kim & Bonk, 2006), this figure had increased to 6 million in 20157. The Malaysian Higher Education Blueprint 2015-2025 also stated that 70% of courses has to employ blended learning by 20258.

UiTM e-learning policy was already in-line with the above Malaysian Higher Education Blueprint. The Faculty, while acquiescent to the University's policy, had been slower in formulating a clear e-learning policy and implementation plan. Although e-learning governance was well demarcated, the task of planning and implementing e-learning still lacked a clearly defined line, resulting in uncertainty among some of the lecturers as to the guideline or procedural aspect of blended learning development and its channel of endorsement within the Faculty.

Incorporating e-learning into a programme is more complex than it appears; requiring substantial individual and organizational change (Zentel et al., 2004). Application of e-learning requires a shift in comprehension and behavior of those involved (Aswathy & Jagannath, 2017). Many academics still view e-learning as impersonal, constraining and not flexible enough to adapt to the diverse need of the students (Kim & Bonk, 2006). On the contrary, an effective e-learning design has the opposite characteristics from the above features, that is: personalized, flexible and non-limiting. Academics must be compelled to grasp pedagogical methods that are effective in virtual learning (Kim & Bonk, 2006), this is important to ensure success of the blended program. Training in the Faculty need to focus on both technical skills and pedagogical proficiency. There is a need to scale-up and entrench innovation in the pedagogy of e-learning in medicine.

Another policy and governance issue is pertaining e-learning budget allocation. Funds are needed to train of human capital (lecturers, administrative staff and students) as well as in acquisition software and hardware (Embi, 2011) such as better internet service or a high quality equipment used for content development. These item could incur significant cost to the Faculty and should be viewed as an investment. Thus, e-learning could be a high risk undertaking and requiring proper management, because otherwise it may lead to a non-return in investment and financial ruin for the institution. Its failure could lead to an expensive crash such as the fall of UK e-University or a small painful demise of a section within the institution (Salmon, 2005).

The Learning Management System

The management system used by the Faculty is UiTM'si-learn system, a commercially purchased system from a local vendor (Embi, 2011; Embi et al., 2011). Lecturers mainly use this system for communicating with and posting learning content for students. This was comparable with usage within other institutions of higher learning, particularly at the early stages of its e-learning usage (Salmon, 2005). As the time progressed, lecturers may be encouraged to use other components of the system, especially those that promote student involvement in learning such as on-line group work and use of portfolio.

E-Learning Training

Training and support is critical for on-line learning (Kim & Book, 2006), academics involved in online teaching plays a different role compared to the traditional lecturer (Kim & Book, 2006). The most important skill required was of moderating or facilitating learning sessions as well as ability to plan an online course (Kim & Book, 2006). Training on effective pedagogical methods in e-learning is valuable to non-educationist experts such as lecturers in the Faculty. Their exposure on various learning methods may make them better at constructing their teaching sessions, especially in relation to the most preferred method by many e-learning instructors: the constructivist method, where students construct their leaning based on the contents or on-line activities posted (Kim & Book, 2006). They would also benefit in knowing that students preferred content designs that were relevant,

project-based, interactive, collaborative, "supports and encourages" inquiry, provides more choice and control over their learning (Salmon, 2005). These are the characteristics of the constructivist method that had resulted in effective implementation of the e-learning component (Salmon, 2005).

Apart from lecturers, students may also be trained to be effective online learner.This include providing knowledge on how e-learning is constructed and the learningoutcome is and how it could be achieved. Students may also be taught to on ways to self-regulatetheir learning (Kim & Book, 2006).

E-Content Development

E-content development in Malaysia utilizes the strategy of pairing the contentexpert (lecturer) with a development unit (Embi, 2011; Embi et al., 2011). The involvement of the Faculty's lecturersin this activity is mostly confined to specific projects by specific innovators. Most of thelecturers do not significantly engage in this activity. This intelligent body of academicsneed to be appropriately directed to this innovation zone by appropriate motivationalrewards by Faculty management.

E-Learning Integration into Teaching and Learning

At present, although the e-leaning practice of the Faculty is only rudimentary, allcontent posted are integrated with face to face learning. A study involving 1635 lecturersfrom 26 institute of higher learning in Malaysian showed that majority of lecturers agreedthat e-learning activities have increased (Embi, 2011), that e-learning is beneficial to students and thatit has a positive impact in students' performance (Embi, 2011). Nevertheless, the effectiveness of e-learningimplementation in the Faculty has to be studied and the results conveyed to thelecturers in order for improvements to be made in the number of lecturers involved increating online learning content and in encouraging use of an effective method ofconstructing such learning.

Challenges in Implementing e-Learning in the Faculty of Medicine

The biggest challenge in e-learning implementation in the Faculty isunsatisfactory internet connectivity. This is especially so in the students hostel, wheremost students access their on-line learning (Embi, 2011). In addition, many students rely on thecampus wireless network to do the learning (Embi, 2011). This challenge must be tackled seriously.

Proposed Improvements

On reflection, a few focused area can be identified to improve e-learning in theFaculty. The first is to develop a clear policy and implementation plan on e-learning. Thiswould lead to a more concrete e-learning implementation.The last few years have been an exploratory foray for most Faculty's lecturersinto the realm of E-learning. The overall prevailing sentiment is supportive of onlinelearning and aspiration to increase its use. At the beginning of the journey, manylecturers, especially the seniors, expressed their objection of students using theirsmartphones, tablets or other communication devices in class. Now, these devices areused as part of student engagement by using real time quizzes and polls during teachingsessions.

The strategy in adopting e-learning in medicine should embrace innovations. Research need to be performed ascertaining the core characteristics and the cultural values of the Faculty. We need to understand where we came from in order to figure out where we are going. The faculty need to reflect on its past ideas and actions to come to a conclusion on its identity and then chart its future direction. A small tweak in the Faculty's sail could lead to a whole new journey and ending at an entirely different destination.

In doing this, the Faculty may identify its needs and develop programs to match its own culture. This ought to be done within the overall context of common development needs of the medical program (Salmon, 2005). In developing on-line courses, the Faculty can begin by identifying its fundamental capabilities, existing strengths (what is it good at, what makes it special) and figure out a strategy on how to take advantage of these points (Salmon, 2005).

Unique features of the Faculty and niche expertise of the lecturers can be harnessed to construct new on-line courses. This courses could be tailored further to meet the general demand and requirement of the medical and health fraternity. Such an approach would create specialized or distinctive courses, while simultaneously avoid production of similar courses as offered by other institutions.

Another aspect that needs to attention is research on effectiveness of e- learning.Although studies have shown that the both students and lecturers view on line learning as advantageous and has encouraging impact on learning outcome (Embi, 2011; Embi et al., 2011), there need to be objective measurement on its effectiveness, such as correlating its use with examination results and clinical assessment scores.In addition, research to discover a novel ways to deliver blended learning should be encouraged. The user-friendliness of the learning management system could lead to complacency among the lecturers. Introducing and familiarizing lecturers with peripheral technologies could lead to new ways in conducting teaching and learning.

CONCLUSION

The utilization of e-learning the Faculty of Medicine UiTM was centered on using the university's learning management system. Familiarity with e-learning has been achieved within the last 5 years and the Faculty is moving forward in on-line learning content and course development.

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