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E-LEARNING READINESS AMONG MEDICAL EDUCATORS IN UNIVERSITI SAINS ISLAM MALAYSIA

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ABSTRACT

Recent advances in information technology has made e-learning feasible in many fields of education. Medical education is not any different. This survey is conducted among all the medical educators in Universiti Sains Islam Malaysia (USIM) assessing their readiness and attitudes towards e-learning. A cross-sectional questionnaires assessing the IT skills, Internet usage, attitude, perceived benefits and usage of e-learning among USIM medical lecturers were used. Data gained were then analyzed. The response rate was 92%. Female (56) made majority of the respondents. 44 of the educators aged 25-34 with 56% had teaching experience of <5 years. Majority of the respondents rate their skills as intermediate in using the software. 56% uses the Internet for more than 3 h per day. Majority agreed that e-learning benefits the students in many ways. Majority also willing to learn and integrate e-learning in their teaching modalities. Despite this, many have not used e-learning in delivering lectures and accepting assignments at time of the survey. Nevertheless, while majority of medical educators are willing to incorporate e-learning in their teaching, many still have not used it. Improvement of infrastructure, training and support to all medical educators are required for successful implementation of e-learning.

Keywords: E-learning, Medical Education

1. INTRODUCTION

The conventional methods of teaching in many medical school involved in face-to-face meetings between the educators and the students. Nowadays with the advancement of Information Technology, e-learning has been accepted worldwide as one of the teaching modalities (Khogali *et al*., 2011).

E-learning refers to the use of Internet technologies to deliver a broad array of solutions that enhance knowledge and performance (Rosenberg, 2001). There are many advantages of e-learning which include increase in product utility (Wentling *et al*., 2000), learners satisfaction (Chumley-Jones *et al*., 2002) and cost effectiveness (Gibbons and Fairweather, 1998).

The use of e-learning hugely depend on two parties which are the educators and learners. Research has shown that readiness among educators in using e-learning is closely dependent level of confidence and adequate training (Agboola, 2006). Implementation of e-learning will not be successful if the educators are not ready in adopting e-learning in their daily teaching modalities.

The objective of this study is to assess the attitude and readiness among medical educators in Universiti Sains Islam Malaysia (USIM) in adopting e-learning.

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1.1. Related Work

The concept of e-learning can bring different meaning to different people. This is reflected in many terms used to refer to e-learning such as Internet-based learning, online-learning, web-based learning, distributed learning or computer-assisted instruction. However, those term can be concluded into two general modes of e-learning which are distance learning and computer assisted instruction (Ruiz *et al*., 2006).

1.2. Concepts

Multimedia learning is said as the origin concept of e-learning (Masie, 2002). The combination of two or more media (such as text, graphics, animation, audio, or video) in a multimedia software resulting engaging content that will increase learners' interest and change their learning behavior (Masie, 2002). The utilization of various media in e-learning might be benefitting medical education.

1.3. Technological Components

According to (Ruiz *et al*., 2006), there are four component to success e-learning implementation which are: (i) Content; (ii) Content Management; (iii) Content Delivery; and (iv) Standard.

1.3.1. Content

All instructional material, ranged from a plain text document to a large instructional modules that rich with multimedia elements. Smith (2013) called this as digital learning object. He defined digital learning as digital materials grouped and structured in a meaningful way to fulfill specific learning objectives. Combination of learning materials will form larger teaching material such as lessons, modules, activities or complete course based on course requirement (Littlejohn, 2003) (such as case-based learning, tutorials, simulations).

1.3.2. Content Management

This includes all administrative functions required to ensure the availability of learning materials to users (learners, teachers and administrators).

Learning-Management System (LMS) for example, is Internet-based application that facilitates deliveries of learning materials and tracking all e-learning activities for the hosting institution 24 h a day (Johnson *et al*., 2004). This includes simplifying and automating administrative tasks, track learners' achievement and competencies. It also operates as a repository for instructional resources. Other examples of content management include portals, search engine, digital libraries and repositories.

1.3.3. Content Delivery

This is done in two ways; synchronous or asynchronous (Wentling *et al*., 2000). In synchronous delivery, the communication between users happens in real time such as instant messaging, internet chat forum and teleconferencing. On the other hand, asynchronous delivery doesn't happen in real time. Users are free to arrange their on timing and schedule for learning activities.

1.3.4. Standard

This is required to ensure compatibility and usability of learning materials across various computers systems. This also important to promote widespread use of the learning materials (Fallon and Brown, 2002). Example includes Sharable Content Object Reference Model (SCORM).

1.3.5. E-Learning in Medical Education

Several studies were done to investigate the impact of e-learning for medical related course students reported equivalent performance between e-learning and traditional methods (Gibbons and Fairweather, 2000; Chumley-Jones *et al*., 2002). Chumley-Jones *et al*. (2002) for example reviewed 76 studies from the medical, nursing and dental literature on the utilization of web-based learning. They suggest that medical students who use web-based learning methods gained equivalent achievement with students who use traditional methods. On top of that, in line with nonmedical literature (Gibbons and Fairweather, 2000; Chumley-Jones *et al*., 2002) suggest that e-learning would contribute on cost saving especially on printing and distribution of educational material.

Interestingly, students from both medical an nonmedical course consistently demonstrated satisfaction with e-learning approach and they perceived it as a compliment rather than replacement of traditional training method (Gibbons and Fairweather, 2000; Chumley-Jones *et al*., 2002).

Given the e-learning benefits to medical students, this study intend to investigate readiness among medical educators in this university.

2. MATERIALS AND METHODS

This is a cross-sectional study where questionnaires from "E-Learning Readiness Survey" adapted from Marc Rosenberg (2001) were used to assess the attitude and readiness among USIM medical educators in using e-learning. The questionnaires were divided into six categories which are demographic data, skills in software applications, internet usage, perceived benefits of e-learning, attitude towards e-learning and current usage of e-learning. Data was then analysed.

3. RESULTS

Response rate was 92% (34/37). Female (56%) made the majority of the respondents. 44% of the respondents were 25- 34 years old followed by respondents aged >56 years old (23%) (**Fig. 1**).

About 56% (19) of the respondents had less than 5 years experience while 32% (11) had more than 10 years experience in teaching medical students (**Fig. 2**).

About 50% (17) of respondents were in pre-clinical field, 35% (12) were in clinical field while 15% (5) did not specify their field of expertise (**Fig. 3**).

In terms of the skills in software applications, majority of the respondents rate their skills as intermediate (i.e., able to create a variety of templates, complex table and manage data) in Microsoft word processor, spreadsheet and power point. While in terms of copying, printing and scanning, majority rated as an advance user (i.e., able to manage a large complex document, create table of content or end note). While many stated they are still at beginners stage when it involves databases and statistical software.

All of the respondents used internet for emailing, information search and educational purposes (i.e., using online journals). About 73% (25) of the respondents used internet for social networking (i.e., Facebook and Yahoo Messengers).

Majority of the respondents responded positively towards the perceived benefits of e-learning. It was noted that 23% (8) strongly agreed and 50% (17) agreed that e-learning enhances teaching (**Fig. 4**).

About 68% (23) agreed while 12(4) strongly agreed that e-learning increase students access to teaching materials (**Fig. 5**).

About 62% (21) agreed that e-learning increases interaction (**Fig. 6**) with students while 41% (14) agreed that e-learning makes teaching more efficient.

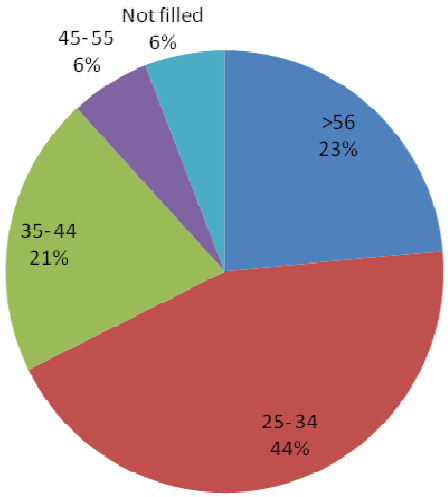

Fig. 1. Age distribution among the respondents

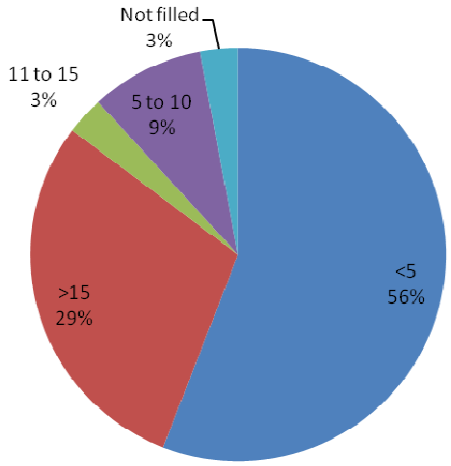

Fig. 2. Teaching experience among the respondents

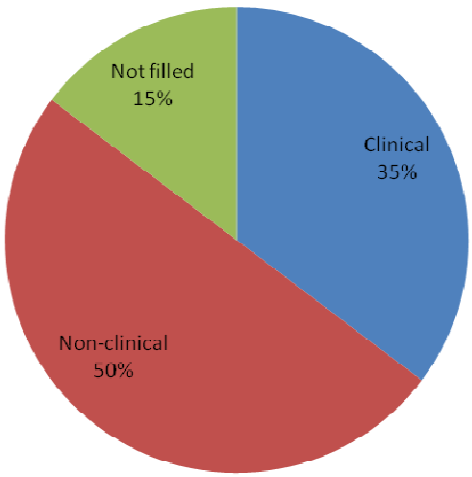

Fig. 3. Field of teaching among respondents

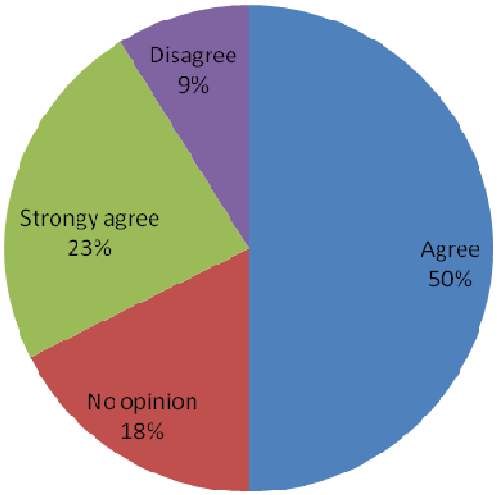

Fig. 4. E-learning enhances my teaching

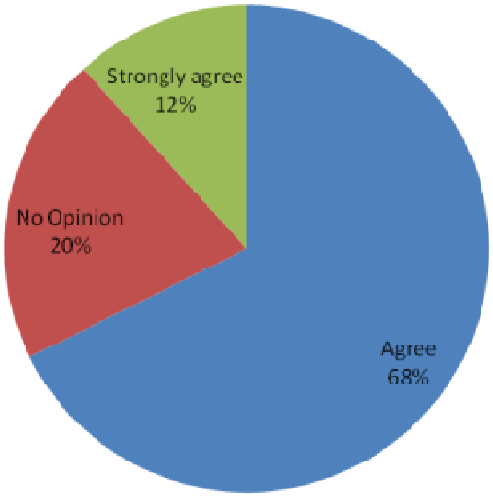

Fig. 5. E-learning increases students access towards teaching materials

Nevertheless, a divided opinion was noted on the statement that 'e-learning meets my teaching needs'. Where 38% (13) had no opinion on it, where else 38% (13) agreed to the statement and 12% (4) disagreed (**Fig. 7**).

On attitude towards e-learning, the response was encouraging. 62% (21) were willing to learn on usage of e-learning, while 65% (22) agreed to make the most of e-learning once training received. When asked on their preference either conventional methods or e-learning, 6(2) strongly agreed and 44% (15) agreed that they prefer to use conventional methods rather than e-learning. While 15% (5) had no opinion on this matter (**Fig. 8**).

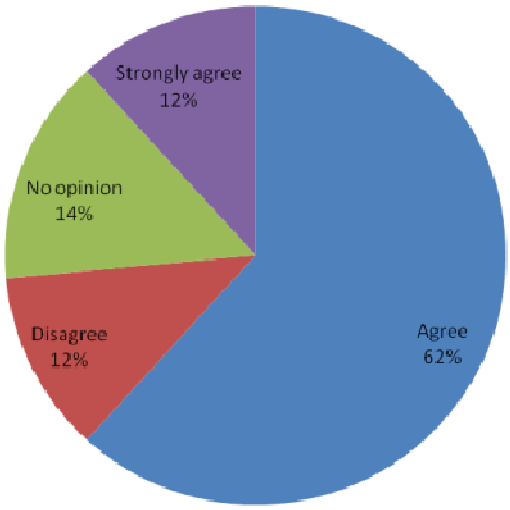

Fig. 6. 'E-learning increases interaction between me and my students'

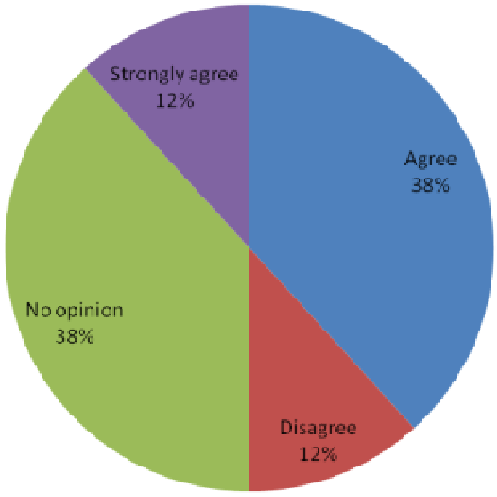

Fig. 7. 'E-learning meet my teaching needs'

Interestingly to note that there was a mixed reactions on the statement that 'Conventional methods are superior thane-learning', 15(5) strongly agreed followed by 32(11) agreed while 32(11) disagreed and 18% (6) had no opinion. Majority of the respondents (20% strongly agreed and 65% agreed) feels that e-learning compliment the conventional methods of teaching. Meanwhile, 50% (17) of the respondents willing to incorporate e-learning in the next teaching session and 68% (23) willing to use e-learning in future teaching session. 71 agreed and 20% strongly agreed that they need more training session on e-learning.

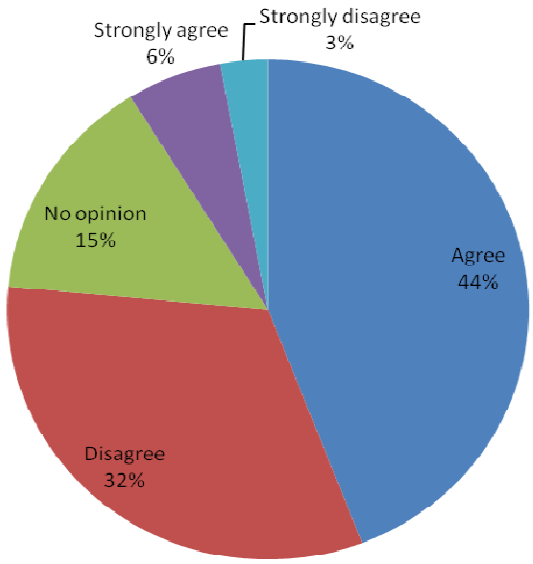

Fig. 8. 'I prefer to use conventional methods than e-learning'

On the aspect of current usage of e-learning on the other hand, majority (47%) of the respondents stated that they have never provide course materials online, while 35(12) never communicate with students via email, 47(16) never participate in discussion forum and 56% (19) never accepted assignments via online.

4. DISCUSSION

From the survey it can be noted that the respondents can be mainly divided into two major groups which are the senior generation with those aged more than 45 years and above with more than 10 years clinical experience and those who are relatively new in the field of medical education with less than 5 years experience in teaching and aged 25-34 years old. With this fact in mind, it is interesting to determine any such differences in the attitude and readiness between those who are experienced enough in the field of medical education (more than 10 years in teaching) than those who is relatively new towards e-learning.

4.1. Software Familiarity

Majority of the respondents are familiar when it come to software applications. This include in the usage of word processor, power point, spreadsheet, printing, scanning and copying. There was no difference in skills proficiency noted between the senior and the younger educators. Besides using internet for emailing, educational purposes and searching tools, it is interesting to note many of the educators are actively using it for socializing even among the senior educators. Five from eight of those who thought more than 10 years uses internet for socializing. This proves that despite being senior, many are able to adapt and utilize new technology in daily life.

4.2. Benefits

On the perceived benefits of e-learning, the response was positive. Majority of the respondents agreed on the fact that e-learning enhances teaching, increase students access to teaching materials, increase interaction with students and made teaching more efficient. However on the statement of 'e-learning meet my teaching needs', not everyone agrees to it. When analysed further, it was found that those who disagreed with the statement are all from the non- clinical field and had less than five years teaching experience. On the other hand, those who agreed with the statement, majority (7/13) are from clinical background with various range of teaching experience. Ironically one would expect that those who agreed with the statement should be more from non-clinical rather than clinical background. This is because teaching clinical skills requires multi-directional approach such as clerking patients, hands on experience, face- to-face, bedside teaching together with lectures and reading medical textbook (Ward *et al*., 2001). This somehow does not reflect in the response received.

4.3. Attitude

Majority of the respondents had a positive attitude towards e-learning. Many of them willing to learn and make the most of e-learning once training received. However on the on the statement of 'Conventional methods are superior thane-learning' and preference towards conventional methods of teaching, a mixed opinion was noted. 50% (17) of the respondents prefers conventional methods than e-learning and 47% (16) stated that conventional methods are superior thane-learning. When analysed further it was noted that majority (75%) who prefers conventional methods are those from the younger age group (less than 45 years old) and who had less than five years teaching experience. On the other hand, those who prefers e-learning and disagree with the statement stating conventional methods are superior thane-learning, are those who had more than five years experience in teaching. One would expect that those who had more experience in the field of medical education are those who are most reluctant to change and adopt e-learning

in their teaching. However the response was opposite. This can be explained perhaps that from experience, an educator will know at which part of the conventional methods that is lacking and at which point that e-learning can be used to strengthen and solidify materials that have been thought. Murphy and Greenwood (1998) reported that younger lecturers showed a significantly higher level of confidence that the older counterparts in the usage of computers in teaching. Muse (2003) on the other hand conclude that age does not affect the level confidence. Muse (2003) added that the confidence will grow if the users value the tools used and this can be achieved mainly through practice and training (Muse, 2003). Besides it being less costly than conventional methods, e-learning promotes independent learning through materials that can be updated regularly (Kulier *et al*., 2009). e-learning can be accessed anywhere at any time as well as it can be learned at a pace that best suit learner's own wish, made e-learning unique and has a place in the current teaching modalities (Jorge *et al*., 2006). Such flexibility cannot be offered by the conventional method. This has led many to agree on the fact that e-learning compliments conventional method.

4.4. Readiness

On the readiness of using e-learning, it can be noted that the percentage increases with time with 50% (17) willing to incorporate e-learning in the next teaching session and 68% (23) willing to use e-learning in future teaching session. This can be explained from the fact that as time passes by there will be more training received, better infrastructure and hence more confidence among medical educators in using e-learning.

Despite the positive response, many still have not incorporate e-learning in their current teaching modalities. This perhaps can be due to lack of training received, low level of confidence, inadequate infrastructure as well as readiness among the learners or students from the receiving end to use e-learning. Attitude among the medical students need to be assessed too. This is so to know what are the perceived benefits of e-learning and which is their preference in having an effective way of learning. So far many literatures have shown that students are satisfied with the increasing use of e-learning (Chumley-Jones *et al*., 2002; Gibbons and Fairweather, 1998). Interestingly students do not see e-learning as a replacement for the conventional methods or learning, but they see it as a compliment (Chumley-Jones *et al*., 2002).

5. CONCLUSION

In conclusion although many lecturers have positive attitude and perceived e-learning has multiple benefits, not many use e-learning as a teaching tools. This can be due to the lack of provision of appropriate infrastructure, training and support. Nevertheless, e-learning is regarded by many as compliment and not as replacement to the conventional teaching methods. All efforts need to be geared up towards successful implementation of e-learning. Our future work will involve comparing the e-learning readiness of the current medical students, also known as generation Y and the impact it has on the future of medical education.

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