

Evaluation of E-learning System to the Performance of Family Medicine MPH (Master of Public Health) Students

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Background: Electronically-Learning has created a new horizon in the world of education. The purpose of this is improving the quality of education and conserving (saving) time for teachers and students; this training can facilitate and strengthen the process of review. Since Mashhad University of Medical Sciences trains the applicants for family medicine as MPH virtually, we decided to study the efficiency of this method of trained students in this study.

Methods: This is a cross-sectional study on primary and secondary students of MPH family medicine in Mashhad University of Medical Sciences in 2013. The questionnaire contains personal information and factors related to the structure and content of education, training method and references page design, was set up. Then, validity of questioner using content validity method and its reliability using test to test were calculated. After collecting all the questionnaires, statistical analysis was performed by using SPSS-16 software.

Results: A total of 53 students were enrolled MPH family medicine. 68% (36 people) of students had a record of participation in virtual learning courses. 45% (25 people) considered taking courses virtually has influenced choosing this major. 89% (47 people) out of all certifies the course content provides their expectations. Besides, 77.5% (41 people) confirms the course material covers the expected goals. 74.0% (39 people) considered the course structure desirable and 57% (31 people) wanted to have similar virtual educational materials.

Conclusions: There wasn't any meaningful difference effect of virtual presentation between male and female students in their chosen field ($p = 0/58$). There wasn't any meaningful relationship between having the ICDL skills and choosing this major ($p = 0/09$, $r = 0/07$).

Keywords: Electronically-learning; Family Medicine; Students

بررسی کارایی سیستم آموزش الکترونیکی در دانشجویان دوره عالی بهداشت عمومی (MPH) پزشکی خانواده

مقدمه: آموزش الکترونیکی افق جدیدی را در دنیای آموزش ایجاد نموده است. هدف از این روش، ارتقا کیفیت آموزش همراه با حفظ زمان برای مدرسین و دانشجویان است. این روش آموزشی می تواند فرایند بازخوانی را تسهیل و تقویت کند. با توجه به اینکه دوره MPH پزشکی خانواده به صورت مجازی در دانشگاه علوم پزشکی مشهد اجرا می گردد، بر آن شدیم تا در مطالعه ای میزان کارایی این روش آموزشی را در دانشجویان بررسی نماییم. **روش:** این مطالعه به صورت یک مطالعه مقطعی-توصیفی بر روی دانشجویان دوره اول و دوم MPH پزشکی خانواده دانشگاه علوم پزشکی مشهد در سال ۱۳۹۲ صورت گرفت. ابتدا پرسشنامه ای که حاوی اطلاعات فردی و عوامل مرتبط با ساختار و محتوای مواد آموزشی، طراحی صفحات آموزش و شیوه ارائه بود، تنظیم گردید. سپس روایی پرسشنامه با استفاده از روش روایی محتوا و پایایی آن به صورت test to test محاسبه گردید. پس از جمع آوری کلیه پرسشنامه ها تجزیه و تحلیل آماری با استفاده از نرم افزار SPSS-16 صورت پذیرفت.

نتایج: تعداد ۵۳ دانشجو MPH پزشکی خانواده وارد مطالعه شدند. ۶۸٪ (۳۶ نفر) از دانشجویان، سابقه شرکت در دوره های آموزش مجازی داشتند. ۴۵٪ (۲۵ نفر) نحوه ارائه مجازی دوره را در انتخاب این رشته موثر می دانستند. ۸۹٪ (۴۷ نفر) محتوای درسها را با تأمین برآورد های مورد نیازشان و ۷۷/۵٪ (۴۱ نفر) محتوای درسها را با اهداف در نظر گرفته شده منطبق می دانستند. ۷۴٪ (۳۹ نفر) ساختار درسی ارائه شده را مطلوب می دانستند. ۵۷٪ (۳۱ نفر) با ارائه مجازی مطالب آموزشی مشابه موافق بودند. اختلاف معناداری بین دانشجویان زن و مرد در تأثیر ارائه مجازی این رشته در انتخاب آنان مشاهده نشد ($p = 0/58$). ارتباط معناداری بین میزان آشنایی با مهارتهای ICDL و انتخاب رشته وجود نداشت ($p = 0/09$, $r = 0/07$).

نتیجه گیری: شیوه آموزش مجازی یک روش قابل توجه در امر آموزش دوره MPH پزشکی خانواده محسوب می گردد و می تواند نقش قابل ملاحظه ای در برآورد نمودن نیاز های آموزشی دانشجویان ایفا نماید.

کلمات کلیدی: آموزش مجازی، پزشکی خانواده، دانشجو.

درابه مستوى تأثير اسلوب التعليم الإلكتروني عند طلب تخصص الصحة العامة (MPH) طيب العائلة

المقدمه: إن اسلوب التعليم الإلكتروني اوجد افق جديد في عالم التعليم. إن الهدف من هذه الدراسة هو رفع مستوى الدراسة مع الحفاظ على الزمان للمدرسين والطلاب إن هذا الاسلوب من الدراسة يسرل عملية استعادته المعلومات ويقويها. نظرا الى أن دورة MPH لطبيب العائلة يتم اجرائها بشكل مجازي في جامعه مشهر للعلوم الطبيه.

الاسلوب: تمت هذه الدراسة التي هي من نوع المقطعيه التوصيفيه على طلاب الدوره الاولى والثانيه MPH طبيب العائلة في جامعه مشهر للعلوم الطبيه في عام ۱۳۹۲ هـ.ش.

تم تصميم استماره تحتوي على معلومات فريده وعوامل مرتبطه با الرئيكليه و المحتوى التعليميتين. تصميم صفحات الويب. و بعد ذلك تم التحقيق حسب المعايير الإحصائيه من هذه الإستماره على اسلوب Test to test و استخدم البرنامج spss-16 لتحميل المعلومات.

النتائج: تم ادخال ۵۳ طالب MPH طبيب عائله في هذه الدراسة. قد اشترك ۶۸٪ (۳۶ شخص) في دورات مجازيه سابقه. اعتبر ۴۵٪ (۲۵ شخص) ان طرح هذه الدوره بشكل مجازي هو اسلوب موثر جدا في اختيار هذا المجال. اعتبر ۸۹٪ (۴۷ شخص) ان هناك مطابقيه بين محتوى المطالب و تأمين مطالبهم المستقبليه. اعتبر ۷۷.۵٪ (۴۱ شخص) ان محتوى الدروس مطابق للأهداف المنشوره. اعتبر ۷۴٪ (۳۹ شخص) أن فيكليه الدروس ايجابيه و اجاب ۵۷٪ (۳۱ شخص) الى أن اعطاء الدروس و الدورات بهذا الاسلوب بنعم. لم يكن هناك اختلاف زوقيه احصائيه بين الطلاب الذكور و الاناث ($P = 0.58$). لم يكن هناك رابط بين مستوى معرفه به ICDL و اختيار المجال ($P = 0.09$, $r = 0.07$).

الاستنتاج: يعتبر اسلوب التعليم المجازي اسلوب موثر في مجال دورات MPH طبيب العائلة ويستطيع لعب دور اساسيه في رفع احتياجات الطلاب.

الكلمات الرئيسية: التعليم المجازي، طبيب العائلة، الطالب.

ماسٹر پبلتھ سسٹم کے طلباء پر الیکٹرانیک تعلیمی سسٹم کے مفید اثرات

بیک گراؤنڈ: الیکٹرانیک طرز تعلیم نے تعلیمی دنیا میں انقلاب پیدا کر دیا ہے۔ الیکٹرانیک تدریس کا ہدف کم ٹائم میں مدرسین اور طلباء کے تعلیمی معیار کو بہتر بنانا ہے۔ اس روش سے اسباق کو دہرانے میں بھی مدد ملتی ہے۔ مشہد یونیورسٹی آف میڈیکل سائنس میں ایم پی ایچ لیول پر چونکہ الیکٹرانیک تدریس کا طریقہ اپنایا گیا ہے لہذا اس یونیورسٹی نے اس روش کے کارآمد ہونے کا جائزہ لینے کے لئے یہ تحقیق انجام دی ہے۔

روش: دوہزار تین میں مشہد یونیورسٹی آف میڈیکل سائنس میں ایم پی ایچ کے پہلے اور دوسرے سال کے طلباء نے اس تحقیق میں شرکت کی۔ پہلے مرحلے میں فردی اجتماعی امور نیز مختلف پہلوؤں سے نصاب کے بارے میں نکات پیش کئے گئے۔ اس کے علاوہ نصابی پیجز کی تشکیل اور تدریس کے طریقوں پر بھی نکات پیش کئے گئے۔

نتیجے: ایم پی ایچ کورس میں ترین طلباء نے داخلہ لیا ہے ان میں چھتیس کو الیکٹرانیک روش تعلیم کا تجربہ تھا۔ پچیس طلباء نے الیکٹرانیک روش تعلیم کو اپنے لئے مفید قرار دیا اور اکتالیس افراد نے اسے نصاب سے ہمبند بتایا۔ مجموعی طور پر طلباء نے الیکٹرانیک روش تعلیم کو مفید قرار دیا ہے۔

سفارش: ایم پی ایچ لیول پر الیکٹرانیک تدریسی روش ایک مفید اور موثر روش ہے اس سے طلباء کی تعلیمی ضرورتیں پوری ہوتی ہیں لہذا اس پر توجہ کی جائے۔

کلیدی الفاظ: الیکٹرانیک تعلیمی روش، ایم پی ایچ - مفید۔

INTRODUCTION

During the last decade, information technology phenomenon has influenced education and training arena and represented challenge to traditional educational systems (1). Although the dominant teaching method has been restricted to physical presence of teachers and students in classes so far, nowadays new communication methods have provided the possibility for teaching-learning process out of classes (2, 3). Supporting the needs of today's world, it is essential that new educational systems utilize IT in order to have active teaching-learning methods. E-learning is considered as a new approach by experts. Using this technology provides alternative methods for traditional ones while the educational purposes are achieved in lower charges (4). There are different learning tools such as voice, text, and picture in online environment which helps the mind to have multi-dimensional experiences in learning and also it provides the opportunity for problem-solving (5). E-learning is a new topic in learning and educational arena that provides long-term learning of anything, anyone, anywhere and anytime (6).

In fact, learners become responsible for learning task when IT is used in educational system. Moreover, it facilitates personal educational programs and lets learners to manage their development efforts. E-learning provides vast data resources for the learners and encourages active learning. The positive application of technology in information has increased its use (7).

Actually, a type of blended learning takes place in e-learning. There are different definitions of blended learning, the most common definition recognized by people is: a combination of virtual and physical environments. In 2006, Graham defined the characteristic of blended learning as setting face-to-face discussion with human transaction, information technology and text-based communication. Rainer and Meyson expanded this definition to a combination of technology and the use of educational method (8).

Virtual learning technology upgrades knowledge and performance, moreover, it has some advantages such as better use of time and ease of learning. This educational method can at least be as effective as traditional methods. Nowadays, virtual learning is used as a complementary for traditional methods at many universities (9). However, it is impossible to evaluate the success of a virtual educational platform without considering peoples' perspective toward it (10, 11). Sometime traditional chalk and blackboard teaching methods play an influential role in teaching-learning process including the use of computer as an education interface (12, 13)

MPH course is to empower family medicine working in the National Health System. It is designed for general practitioners that are working as family medicine. The content of the course includes management, protection and promotion of public health. Accordingly, learners improve capabilities for first-line management in health care based on families and society's needs. These courses are fundamentally designed as modular and e-learning; however, learners must coordinate with

authorities to attend special workshops and programs in specified times (14).

Since MPH/FM program is provided as e-learning in the country and University of Medical Sciences is one of the first centers that train experts in this field, no research has been conducted to evaluate this method. Therefore, we decided to analyze the effectiveness of e-learning method on students.

METHODS

This is a descriptive and cross sectional study that is an applicable plan conducted on MPH/FM students of University of Medical Sciences in 2013. The population study includes all 53 students of first and third semesters of e-learning MPH/FM program. Students of third semester have enrolled on January 2010 and the first semester on January 2011. Students received the CD of educational resources based on specified curriculum. Moreover, there were classes to solve problems and teach the selected subjects according to students' needs.

Data measurement tool was a questionnaire designed by the researcher. Firstly, a questionnaire was developed that included demographic information, factors of structure and content of the educational course, web page design and presentation method. It had 10 sections including general information (age, gender, having personal computer, time span of using personal computer, and familiarity with e-learning), factors of structure and content of the educational course (assessing the amount of curriculum and content with the time of the course, clarity of presented subjects, suggestions for presentation method to understand the content better, assessing web page design and software, assessing technical problems in holding the program, virtual presentation of educational content, and the structure of content presentation). Likert scaling (zero to five) was used. Finally, open-ended questions were asked such as strengths and weaknesses of the program, and providing opinions and suggestions for e-learning. Then, the validity and reliability of the questionnaire were approved by content validity and test-retest, respectively.

A trained researcher distributed the questionnaires among students while defining the subject, research purpose and how to answer. The questionnaires were completed in person, optional and without mentioning participants' names. Moreover, they were assured that the results of the research will have no influence on their final scores. After collection of questionnaires, data were coded and analyzed by SPSS-16. Significance level was (0.05) to define tables, diagrams, and indicators of mean, standard deviation and middle. Chi-square test and correlation were used to compare the tests' results.

RESULTS

53 students of MPH/FM program were studied with average age of 39 ± 5.7 and the ratio of male to female 3:2. 84% of the participants were married and 96% had personal computer. 43% used computer more than 3 hours during a day 41.5% were familiar with 4-7 skills of ICDL (Table 1). 68% of them (36 students) have had the experience of participating in e-learning courses. 45% (25 students) mentioned that

Table 1. Basic information of 53 students of MPH/FM Program of University of Medical sciences (first and third semesters)	
Data	Amount
Amount of using computer during a day	
Less than an hour	11 people (21%)
1-3 hours	13 people (24.5%)
More than 3 hours	23 people (43.5%)
More than 10 hours	6 people (11%)
Number of learnt ICDL skills	
No knowledge	28 people (34%)
1-3 skills	12 people (23%)
4-7 skills	23 people (43%)
Familiarity with ICDL skills	
Very much	4 people (8%)
Much	12 people (30%)
To some extend	22 people (41%)
Low	7 people (13%)

e-learning method was influential in the selection of the program. 89% (47 students) stated the content of the program provided their needs and 77.5% (41 students) said the content delivered the intended purposes. 74% (39 students) mentioned the presented structure was appropriate and 57% (31 students) agreed to have e-learning for similar courses. There was no significant difference between male and female students in the impact of distance learning ($p=0.58$). Moreover, there was no statistical significant relationship between the knowledge of ICDL (International Computer License Driving) and the selection of the program ($p=0.09$, $r=0.07$).

DISCUSSION

The present study aimed to study the effectiveness of e-learning educational system on students of MPH/FM Program. The population study included students of first and third semesters of family medicine program of University of Medical Sciences. More than half of the students agreed with virtual presentation of syllabus. Since the target is to train general practitioners of health system, it is a good cause to facilitate the transfer of educational data. In 2011 a study was conducted by Zolfaghari et al. to determine the effectiveness of blended learning among faculty members, nursing and midwifery students. The results showed that students and teachers preferred this method to the common teaching methods and there was a statically significant difference between students' average score and participation in compare with classroom methods. It is mentioned that blended learning is considered as a new approach that includes various different teaching-learning methods and brings more satisfaction among students and teachers. Moreover, due to its flexibility in learning and the capability to benefit from the advantages of both traditional and modern methods, it increases learning (15). Modern educational approaches such as e-learning can have a

positive effect on the rate of learning and also provide independency, self-study and ease of learning among learners (16, 17).

Doctors working as family medicine cooperate with a team including nurse, midwife, and pharmacy technician to provide medical-health services in the Health System. It could be expected that family medicine can transfer his/her knowledge to other members of the team. Actually, the flexibility of e-learning method lets learners to attend courses that meet their needs (18).

In the current study, most of the students declared the content of the course met their educational needs that presents the educational curriculum is appropriate. This result is in accordance with Sun et al research. They studied influential factors on students' satisfaction of e-learning. Curriculum content, usability, and teachers' attitude toward e-learning were the main factors in the level of students' satisfaction (19). Therefore, it could be concluded that appropriateness of curriculum content has impact on students' satisfaction. Moreover, since curriculum content of e-learning program is presented similarly to all learner, it could be expected that the content is available for everyone with more accuracy.

45% of learners said they selected the course because of its method; as Yaghobi et al. mentioned since there is no need of changing life style learner are interested in this method (20). With regard to the fact that students of this course are working in the Health System, e-learning provides an opportunity to learn without leaving their place of work and living.

Emami and his colleagues (2009) conducted a research on "e-learning in medical education". They stated that medical education in Iran, similar to many other countries, is provided in three levels including general medical education, specialist medical education and continuing medical education. Enhancing and developing medical education, scholars and educators recommended corrective measures in different seminars such as 1988 Conference in order to solve problems. One of the most important issues stated in this conference was the development of information technology in medical education. This new educational method is forming in Iran, as well. Some universities have held e-learning retraining courses. Consequently, e-learning method is developing in medical education, especially in basic sciences (15). According to the results, the students are satisfied with e-learning method which can be used an appropriate model.

Since both classroom and e-learning were held at the same time, it could be predicted that students had better access to the content. Thiele's research reached to similar results (23). E-learning has been used in different fields of medicine such as dentistry (18) and internal medicine (19) and yielded good results.

The results showed that there is no significant relationship between the knowledge of ICDL skills and selection of e-learning method. Therefore, this method can be used for a vast amount of learners. Moreover, no significant difference was presented between male and female students; that is consistent with Liaw's research (21). However, it is

inconsistent with Karami research which showed that men had more problems with e-learning method in compare with women that led to more interests among women to use virtual method (22).

Limitations of study included small number of sample, low knowledge about ICDL skills among half of the participants, no comparison with other virtual method in medicine and lack of evaluation of training on doctors' performance in the treatment of patients.

Considering that e-learning in medical education is one of the key issues of development of information technology, the results indicated that e-learning method was efficient in MPH/ FM program. It was presented that curriculum content

met the learners' need to a large extent. Therefore, this method can upgrade knowledge of doctors working in the Health System.

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Conflict of Interest: The authors declare that they have no conflict of interests.

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