ORIGINAL ARTICLE

The Challenges of E-Learning Faces in Medical Sciences Education from the Viewpoints of the Academic Staff

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Background: By the development of E-learning in the world and also in Iran, Tabriz University of Medical Science has been implementing and expanding E-learning. The investigation of its problems from the academic staffs' viewpoints, and proposing solutions in order to solve or eliminate the problem effects add to its advantages and provide sustainable basis according to the necessity of changing traditional education toward E-learning.

Methods: The present research is a descriptive study and the population under investigation involves the academic staff of Tabriz University of Medical Sciences who were selected randomly. The Validity and reliability of the questionnaires were evaluated and SPSS.15 software was used in order to analyze the data.

Results: Problems were classified into six approaches and twenty-four cases. The average of the administrative approach scores was 13.18 ± 1.96, electronic approach 11.66 ± 2.32, educational approach 13.39 ± 2.22, economical approach 9.62 ± 2.09, cultural and psychological approaches 20.43 ± 2.53 and finally social and cooperative approaches were calculated to be 10.09 ± 1.97.

Conclusions: The teaching board members believe that they do not have enough time or skills for compiling and evaluating E-learning materials and there is no proper culture for this, the attitude should be changed. Finally not only should the professors learn how to compile, use and to take rapid feedback, but it is also essential that they recognize their new roles (as learning facilitators) in realizing and expanding their mode of education, by their imaginative creations. Of course attendance of the professors without support of the universities and proper planning for enhancing the relationship between the professors and staff of information technology are not logical.

Keywords: E-learning; Learning problems; Medical Education; Academic Staff

الصعوبات الموجوده امام التعليم الإلكتروني في العلوم الطبيه من رؤية اعضاء الهيئة العلمية.

التمهيد : مع توسع التعليم الإلكتروني في العالم ومن بعده في ايران ، فإن جامعة العلوم الطبيه في تبريز ايضا في صدد توسيع التعليم الإلكتروني. مع وجود كل مزايا التعليم الإلكتروني فإن دراسة مشكلاته و تقديم حلول لها اوالحد منها من قبل المحاور المحورية لهذا التعليم ليس فقط لا يقلل من مزاياه بل بالنظر إلى ضرورة تغيير نهج التعليم التقليدي إلى التعليم الإلكتروني بل يدعم و يقوى خطوة الجامعة في هذا الطريق .

الأسلوب : هذه الدراسة هي دراسة توصيفية جامعة لأبحاث اعضاء مجلس العلمي لجامعة العلوم الطبية في تبريز والتي تم اختيارها عن طريق الصدفة. الادوات المستخدمه تشمل استماره دراسة المشكلات في وجهة نظرهم من حيث روايتها و ثباتها. و تم استخدام برنامج spss.15 لتجزية و تحليل المعطيات بطريقة الإحصاء الوصفي.

النتائج : مشاكل في ستة مناهج واربعه و عشرين حالة صنف و قيمت . متوسط درجات المنهج الإداري ١.٩٦ ± ١٣.١٨المنهج الإلكتروني ١٢.٣٣ ± ١١.٦٦ المنهج التعليمي ٢.٢٢ ± ١٣.٣٩ المنهج الإقتصادي ٢.٠٩ ± ٩.٦٢ و المنهج النفسي و الثقافي ٢.٥٣ ± ٢٠.٤٣ منهج التعاون و الإجتماعي ١.٩٧ ± ١٠.٠٩ حيث أن المشكلات المتعلقة بالمنهج النفسي و الثقافي كان لها الحصة الاوفر في المشاكل.

الإستنتاج : يعتقد الأساتذه انهم لايملكون الوقت و المهارى الكافيه لتدوين و تقييم المواد الدراسية الإلكترونية ، كما انه لما يحصل توعية مناسبة في هذا الإتجاه . يجب تغيير نظرة الأساتذه، في النهاية لا يجب تعليم الاساتذه كيفية التدوين ، او الإستفادة من المواد التعليميه الإلكترونيه و "طريقة الرجوع السريعه " فقط، بل من الضروري ، الإستفادة من هذه الأمور مع التطورات الجديدة لتكون موثره و فعالة في التعليم الإلكتروني، "بعنوان مسرع الحفظ" ، طبعا ان ننوع الحضور الفعال و المؤثرللأساتذه بدون دعم الجامعات و بدون تنظيم برنامج مناسبه لزياده الإرتباط بين الأساتذه و العاملين في مجال تقنيه المعلومات فإنه لتوقع غيرمعقول .

الكلمات الرئيسية: التعليم الألكتروني ، مشاكل التعليم ، التعليم الطبي ، الأساتذه .

چالش های پیش روی آموزش الکترونیکی علوم پزشکی از دیدگاه اعضای هیأت علمی

زمینه و هدف: با گسترش آموزش الکترونیکی در دنیا و به دنبال آن در ایران، دانشگاه علوم پزشکی تبریز نیز در حال اجرا و گسترش آموزش الکترونیکی است. با وجود همه مزیت های آموزش الکترونیکی بررسی مشکلات آن از دیدگاه محوری ترین مجری آموزشی یعنی اساتید و ارائه راهکارهایی برای حل یا کاستن اثرات این مشکلات نه تنها چیزی از مزیت های آن نمی کاهد بلکه با توجه به ضرورت رویکرد تغییر آموزش سنتی به آموزش الکترونیکی، دانشگاهها را در ادامه گام نهادن به این عرصه استوارتر می سازد.

روش: مطالعه حاضر یک مطالعه توصیفی و جامعه پژوهش، اعضای هیأت علمی دانشگاه علوم پزشکی تبریز بود که به صورت تصادفی انتخاب گردید. ابزار بکار رفته شامل پرسشنامه بررسی مشکلات از نگرش آنهاست که از لحاظ روایی و پایایی مورد ارزیابی قرار گرفت. جهت تجزیه و تحلیل داده ها و روش های آماری توصیفی با نرم افزار SPSS.15 استفاده شد.

یافته ها: مشکلات در شش رویکرد و بیست و چهار مورد طبقه بندی و مورد ارزیابی قرار گرفت. میانگین نمرات رویکرد اداری ۱۳/۱۸±۱/۹۶، رویکرد الکترونیکی ۱۱/۶۶±۲/۳۲، رویکرد تعلیمی ۱۳/۳۹±۲/۲۲، رویکرد اقتصادی ۹/۶۲±۲/۰۹، رویکرد روانشناختی و فرهنگی ۲۰/۴۳±۲/۵۳ و رویکرد اجتماعی و همکاری ۱۰/۰۹±۱/۹۷

استنتیجه گیری: اساتید معتقدند وقت و مهارت کافی را برای تدوین و ارزیابی مواد آموزش الکترونیکی ندارند و همچنین فرهنگ سازی مناسب در این زمینه صورت نگرفته است. باید نگرش اساتید را تغییر داد، در نهایت اساتید نه تنها باید چگونگی تدوین، استفاده از مواد آموزش الکترونیکی و «روش اخذ فیدبک سریع» را بیاموزند بلکه ضروری است تا شناخت هرچه بیشتر نقش های جدید خود در آموزش الکترونیکی (بعنوان کاتالیزور یادگیری)، با نوآورهای جدید خود این آموزش را محقق سازند. البته انتظار حضور پررنگ اساتید، بدون حمایت دانشگاهها و برنامه ریزی مناسب برای افزایش ارتباط اساتید با کارکنان حیطه فناوری اطلاعات، انتظاری نامعقول است.

واژه های کلیدی: آموزش الکترونیکی، مشکلات آموزش، آموزش پزشکی، اساتید

اکیڈمیک کونسل کی نظر میں الکٹرانیک تعلیم کے سامنے موجود چیلنجیں

بیک گراونڈ : دنیامیں الکٹرانیک تعلی۱٥٤م کے رائج ہونے کے بعد ایران کی تبریز میڈیکل یونیورسٹی نے بھی الکٹرانیک تعلیم کا منصوبہ لاگو کرنے کا پروگرام بنایا۔ الکٹرانیک تعلیم کی روش کے تمام تر مثبت نکات کے باوجود یونیورسٹیوں کی ا کیڈمیک کونسلوں کی نظر سے اس روش کے سامنے موجود مشکلات کا جائزہ لینے سے نہ صرف اس کی اہمیت میں کوئی کمی نہیں ہوتی بلکہ یہ بذات خود ایک مثبت امر ہے اور روایتی روشوں کو ترک کرکے نئی اور جدید تعلیمی روشوں کو اپنانے میں یونیورسٹیوں کے عزم میں اضافی کا بی باعث ہے۔

روش: اس جامع تحقیق میں تبریز میڈیکل یونیورسٹی کے اساتذہ نے حصہ لیا۔ رینڈم طریقے سے اساتذہ کا انتخاب کیا گیا۔ اور انہیں سوالنامی دئے گئے جن میں الکٹرانیک تعلیم کے مسائل پر روشنی ڈالی گئی تھی۔ سوالناموں کے نتائج کا ایس پی ایس ایس سافٹ ویژ پندرہ کے ذریعہ تجزیہ کیا گیا۔

نتائج: الکٹرانیک تعلیم کے سامنے موجودہ مشکلات کو چھے بنیادی مسائل اور چوبیس نکات میں بیان کیا گیا اس کے بعد ان کا تجزیہ کیا گیا۔ دفتری مسائل چھیانوی اعشاریہ ایک فیصدی تھے۔ خود الکٹرانیک مسائل چھیاسٹھ اعشاریہ ایک ایک فیصد تھے۔ اقتصادی مسائل باسٹھ اعشاریہ نوفیصد تھے اور نفسیاتی اور کلچرل مسائل تیتالیس اعشاریہ دوصفر فیصد تھے۔ سب سے زیادہ مسائل نفسیاتی اور کلچرل فیلڈ سے ظاہر کئے گئے اور خود کمپیوٹر فیلڈ کے مسائل بہت کم تھے۔

سفارشات: اکیڈمیک کونسل کے اراکین کا خیال ہے کہ ان کے پاس الکٹرانیک تعلیمی روشوں کی تدوین اور ان کا جائزہ لینے کیلئے کافی وقت نہیں ہے اسی طرح الکٹرانیک تعلیم کے لئے کلچر بھی بنانا ضروری ہے جو نہیں بنایا گیا ہے۔ اس تعلیمی روش کے لئے اساتذہ کے رجحانات کو بدلنا ہوگا۔ درحقیقت اساتذہ کو الکٹرانیک تعلیمی روشوں کی تدوین کرکے، الکٹرانیک تدریسی نصاب سے استفادہ کرنا ہوگا اور اس کے بعد تیز فیڈ بیک کی روش کو بھی سیکھنا ہوگا تا کہ اپنی جدت پسندی سے اس میدان میں مفید واقع ہوسکیں۔ البتہ اس میدان میں اساتذہ کی کامیابی کے لئے یونیورسٹیوں کے بھر پور تعاون اور مناسب منصوبہ بندی نیز اساتذہ اور فنی شعبے سے رابطے کے لئے سہولتیں قائم کرنا نہایت ضروری ہے ۔

کلیدی الفاظ : الکٹراینک تعلیم۔ مشکلات، طبی تعلیم ۔ اساتذہ

INTRODUCTION

With the emergence of World Wide Web (WWW), new terms and vocabularies have been brought up to the training literature field, especially medical sciences, which E-learning and training is one of them. Despite the breadth of this emerging phenomenon, there is not a common and unique definition for it. Commission to technology and adults learning (2001) defines E-learning as the whole training and learning experiences which are delivered through electronic technology such as internet, audio and visual tapes, satellite broadcasting, television and compact drives (CD) (1).The extent of the growing e-learning courses and projects have been started in mid-90s, and therefore , nowadays, we hear more about the improvement of learning processes rather than teaching methods at universities. E-learning not also facilitates transmission of new medical information, but also it improves the amount of knowledge and skills of those who are practicing medicine, creates equal learning opportunities for all, enhances quality of medical training and finally reduces medical costs (2).

On the other hand, individual disparities are not barriers for success in group training at universities; the teacher can choose appropriate tools and media for teaching and training students based on their learning style, in other words, each student applies with a special training strategy (3). In addition, this kind of training strategy provides possibility of lifetime learning in any field, for every person, in every place, any time. As studies show, the usage of E-learning has been considered as a plan at universities all over the world (4).

This method has been implemented or is being implemented in Iran, too. At Tabriz University of medical sciences, the thought of creating electronic training unit has been started in 2003 in medical education and development center. From February 2008, it has been called E-learning system (ELS) and started to hold training courses, practically in operational phase of this project, and currently it expands related activities and increases the extent of E-learning there. As the rapid expanding use of electronic tools in teaching and learning area is realized, analyzing the problems of this emerging phenomenon becomes kind of necessity. Understanding and facing these problems and issues either eliminate or reduce their effects and also considering the approach of changing traditional training method to electronic training makes universities firmer in stepping to this area. The failure of many famous and vast programs to reach their goals, justifies the importance of these problems. For instance, academic failure in electronic courses has been more than verbal courses in some cases (5).

Furthermore, as academic staff play an important and dominant role in this area, their approaches and attitudes are the first step in propelling educational system towards this way. Therefore, this study is aimed to analyze problems affecting E-learning from the viewpoints of academic staff and suggests some strategies to solve these problems. To facilitate the processes and getting comprehensive and better conclusion, the problems are divided into six approaches, and each of them is divided into 3 to 6 problems (totally, 24 problems) which include; administrative, electronic, educational, economical, psychological-cultural and finally social and cooperative approaches. Each of these approaches focuses on some aspects of failure causes of this training method.

Administrative approach: This approach mainly focuses on management of E-learning method. Also it emphasizes on the organizational issues including rejecting the plan because of being time-consuming for university, lack of standardization in preparation of their content or lack of appropriate quality standards, lack of time for academic staff and also weak relationships between them and staff working in information technology department (forinstance, community of continuing medical training).

Electronic approach: This approach has been considered as the main infrastructure of medical training and E-health which includes terms such as medicine, communication, information, and society (6). It discusses issues such as lack of adequate information about how to work with related hard and soft wares, lack of the adaptation and full compatibility, inaccessibility of students to the least electronic training (such as computer and internet), and finally, lack of appropriate technology at university due to the incompatibility of telecommunication network with modern standards or not making of current potentials.

Educational approach: According to the studies done in this area, this has been considered as the most important reason for the failure of E-learning (1). According to these studies, lack of skills for course designing, development, delivery, and information management creates the essential needs for this area. Quinn, Corry and Lee consider 11 roles for faculties who teach electronically which include; teacher, training designer, aware of information, technician, executer, lab facilitators, support staff, editors, librarians, graphic designers and assessment experts (7-8). Weak quality of training packages for E-learning, faculty resistance against accepting this kind of training, and disability in delivering some of the courses through this method are the main problems, especially in medical sciences field.

Economical approach: According to this approach, this kind of training follows a large amount of costs including costs for stabilizing programs and training and improving performance, hard and soft wares and technology-updating costs, and costs for creating physical location for live virtual classroom and related facilities.

Psychological and cultural approach: According to this approach, one of the main problems for implementing E-learning at universities is the unwillingness of faculties in the case of this method. In this training method, teachers' role is changed from an academic staff to a catalyst or learning facilitator (9). Lack of motivation among faculties to accept E-learning due to the weak basis of cultural building and unchanged traditional approach, technophobia, lack of trust in information technology, cultural defect and the way of electronic evaluation of students, and property right issues (lack of protection for property rights) are discussed in this approach.

Social and cooperative approach: In traditional training, 40 to 50% of contents are presented by the teacher and the remaining is learned through participating in classes, students' point of views and doing research (10). Therefore

it decreases the relationship between students, face to face cooperation, and competition among students and affects academic progress and personal development of learners, and lastly students cannot follow behavior and method of academic staff, especially in clinical courses.

METHODS

This is a descriptive study which has been done on 242 academic staff of Tabriz University of medical sciences. The sample size was determined using ratio estimation formula and through stratified random sampling in which the university rank was the stratified variable in this study. A verified researcher-made questionnaire including 6 approaches and 24 stratified problems was used for collecting the data. Considering the nature of study, statistical society and performed studies in this regard, the questionnaire was completed by visiting faculty members. The validity of questionnaire was certified through the content validity method, and its reliability was determined by Cronbach's alpha coefficient of. /76. Lastly, data were analyzed using SPSS15 and descriptive statistics including frequency, percentage, and mean± standard deviation.

RESULTS

In this study, through collecting the viewpoints of faculty members, the mean, standard deviation, minimum and the maximum of each approach in relation to E-learning were measured (table 1).

Among approaches, psychological and cultural approach (20.43±2.53), educational approach (13.39±2.22), and administrative approach (13.18±1.92) had the highest average scores, respectively. Also the least average score belonged to the economical approach (9.62±2.09). In order to analyze the problems of each approach, score of each approach was calculated.

As is shown in figure 1, the most shares of problems were related to the psychological and cultural approach (0.681), social and cooperative approach (0.672), and educational approach, respectively. Also the least share of problems was in the case of administrative (0.659), economical (0.641), and electronic approach (0.583), respectively. The most difficult problem in each approach was evaluated from academic staff's viewpoints, and the results are shown in Table 2.

Table 1. Descriptive indices for each approach of the challenges of e-learning faces in medical sciences education from the viewpoints of the academic staff.

Approach	Mean (SD)	Minimum	Maximum
Administrative	13.18 (1.92)	8	19
Electronic	11.66 (2.32)	5	18
Educational	13.39 (2.22)	6	19
Economic	9.62 (2.09)	4	15
Psychological and cultural	20.43 (2.53)	13	27
Social and cooperative	10.09 (1.97)	4	15
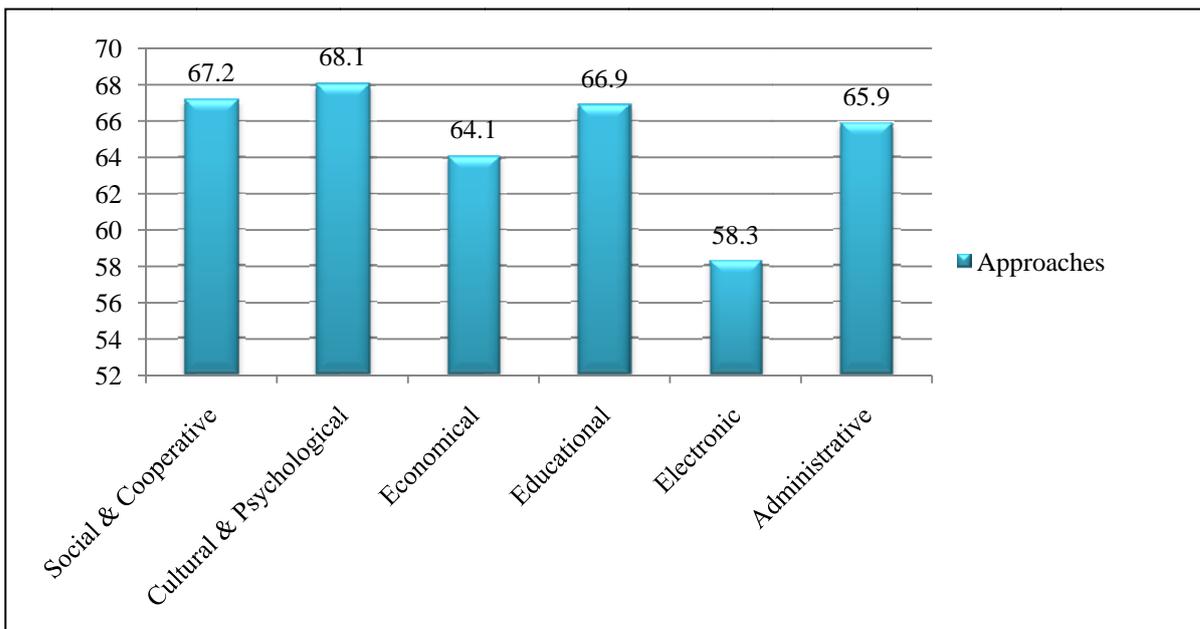
Figure 1. Score of each approach of the challenges of e-learning.
Values are in percentage.

Approach	Most problem	Very low	Low	Medium	High	Very high
Administrative	Lack of time for compiling and evaluating E-learning materials	2.1	7	9.16	4.36	38
Electronic	Lack of proper technology at university	4.5	7.15	8.31	26	7.20
Educational	Lack of adequate skill for compiling and designing courses	5.4	2.6	3.15	2.44	8.29
Economic	Hard and soft wares costs	4.7	5.9	24	6.32	4.26
Psychological and cultural	Lack of motivation and non-cultural building	5.2	8.5	4.24	3.41	26
Social and cooperative	Less communication and competition among students and its adverse effects	9.7	6.11	7.22	6.32	2.25

Table 2. The value of the most mentioned issues in each approach of e-learning challenges. *

Values are in percentage.

Among 24 analyzed problems, 10 most important problems were recognized, and some ways were suggested for solving those problems in the discussion part. These glaring problems can be seen in all areas. In administrative field, the most important problems include; lack of time for academic staff to compile and evaluate electronic training materials due to the high workload (38%, veryhigh), lack of communication and cooperation among academic and information technology staff (41.3%, high). In electronic area; lack of good technology at university (31.8%, medium), and in educational scope; lack of appropriate and adequate skills for designing courses, compiling, delivering, and managing information (44.2%, high), and also weak training quality of E-learning packages (37.2%, high). In economic area, the problems include soft and hard wares costs (32.6%, high), improper cultural building phenomenon (41.3%, high). Lastly, in social and cooperative scope, the most important problems include less face to face communication among academic staff and pupils (36%, high), and reduced competition and communication among pupils and its side effects (32.6%).

DISCUSSION

Considering the administrative area, the results indicated that the academic staff do not have enough time for compiling and evaluating E-learning materials due to the high workloads, and also they mentioned lack of communication and cooperation with staff of information technology field. Researches strongly indicated that the learning innovation and any change in research and educational system are useless without academic staff's companionship and acceptance (11). Therefore, appropriate strategies and programs should be done by universities in order to provide enough time for academic staff to work on this important area. Additionally, improving the relationship between academic staff and educational technology experts and skillful individuals in some special areas such as instructional designers, editors, graphic designers, directors, librarians…, help academic staff in these areas and solve the problems of this training method in administrative scope (8).

Lack of enough information and skills for course designing, compiling, delivering and managing information and also weak quality of E-learning packages are the most important issues in educational field. Finally, not also academic staff should be familiar with the new technologies, but according to Quinn, Corry and Lee (7-8),they also should be improved it through innovating new things. Nevertheless, expecting academic staff to go in this way is meaningless without university companionship and support. Furthermore, the focus should be on the content of training packages not on the appearance and the selling of packages which are considered more, nowadays. According to the electronically considered man, Clarke, the focus should be on the electronic aspect of E-learning project. He supports that first technology and then the content (perhaps, because the sale has been considered more)must be taken in to consideration. In fact, in recent years,the growing successful industry has been E-trade rather than E-learning. Producers of such plans are not familiar with training and learning processes, and so they face low costs which persuades them towards attracting more customers. Furthermore, they can compete better and earn more money through this way in countries with high demand for higher education (12).

One of the main problems regarding electronic field in Iran is lack of appropriate technologies at universities. This happens either because of mismatch of telecommunication network with updated standards or because universities do not use available potential and wide bandwidth. For both, the infrastructures should be considered, meanwhile, it should be paid attention that equipping universities cannot solely make a change at universities, and therefore to reach this goal, the academic staff should be empowered and the system should efficiently work on leading the learning procedures (11).

Studies done on the economic field indicated that hardware and software costs of E-learning and updating its technology are the most important problems in this area. Meanwhile, when a country knows that it can train effective pupils through non-attending methods, and is aware of their values

in different aspects after graduation, it will never stand backward from training them considering the low costs of this training method. Indeed, what spent for hard and soft wares in the beginning of the process will dramatically decrease costs in the subsequent stages up to 40 to 60%. In the future, return on investment includes a huge amount of money, as internet training market around the world is a market with a profit of 18 billion dollars per year. According to the Mc Graw, a successful innovation should decrease the costs in the future, improve the efficiency of system, help to keep essential capacities, and enable system to face successfully with pressures caused by competitive markets(1).

Furthermore, studies done on the social and cooperative scope indicated the decreased competition among students, its adverse effects on students' academic progress and personal growth and non-use of teacher's behavior and methods by students. Comparing media with each other, and especially with academic staff, is almost the permanent job of researchers working in technology field, but none of them has resulted good conclusions. It seems that the way which is suggested by Rudowski is the most effective way in this field. He suggests a blending learning method which is a combination of face to face and online training (13). The other way for solving these problems is "obtaining quick feedback" method, which quickly works on solving the problems of learners immediately after occurrence of a problem. For instance, short term exams are the best way for evaluating students' training success. In fact, training in each step is established based on the previous training stage. Therefore, recognizing and obtaining quick feedback clarify different stages of training correctly.

Finally, findings of studies in psychological and cultural field indicated lack of motivation among academic staff for accepting E-training, which perhaps is resulted from inappropriate cultural building and unchanged traditional attitude towards training. The effect of motivation on solving this problem has been proved in a study done by international training assembly. According to this study, 50% of academic staff mentioned negative emotions and uncertainty towards E-learning method (14). The other problem in this regard, is the reluctance of academic staff against changing their roles at university, but as the resistance is the spice of any change, so we should work on cultural aspect among academic staff in order to develop E-learning culture. Scientists emphasize on studying attitudes in order to understand the social behavior. Attitudes are the determiners of behaviors, and it implicitly means that changing people's behavior depends on changing their attitudes (13). Academic staff need an attitude which allows them to use technology and enforces risk taking among them, and inspires their thinking and continuous and lifelong learning. They can utilize various and related technologies through getting familiar with them, and so makes learning process more effective and interesting.

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