

Professional Practice of Medical Training in the E-Learning System: The Conceptual Model Based on a Critical Review

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Abstract

Background and Purpose: In education of medical science courses, there has been a growing orientation towards replacing traditional teaching in with E-learning education. Since the modern system of education is based on self-directed learning, e-learning requires special powers to deal with new-emerging challenges and professionally encounter the learning environment. The purpose of the present research is to explain and provide a conceptual model for professional competency in this system.

Methods: In this review, different internet and library resources, indexed in Scirus, Pre Quest, Scopus, IEEE, SID, Magiran, Eric, Taylor and Francis, and Google Scholar from 1990 to 2015 were searched using the following keywords: function, manner, ethics, conduct disposition, netiquette, values, academic fraud, moral professionalism, and behavior ine-learning in combination and separately. The Critical Review methodology and Carnwell and Randolph structures were used. The most recent and richest resources that were more relevant to the issue were selected and their information was extracted.

Results: Among review of 98 articles, documents of 34 relevant and valid articles were extracted. Based on the results, Digital Literacy, study skills, Cyber Ethics, and Netiquette were considered the main components of scientific and ethical competency in e-learning. 40 components were included in these dimensions.

Conclusions: Although there is general interest in e-learning, the target population (learners) are not prepared to use such an environment and require strong support. In this paper, we provided a summarized scheme and conceptual pattern fore-learners to move towards promotion of learning.

Keywords: PROFESSIONAL FUNCTION, E-LEARNER, E-LEARNING, CRITICAL REVIEW

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Introduction

The 21st century is called the century of communications and speed, which is associated with continuous changes. Creating new educational system, called the e-learning system, also rises from this technology. Considering the benefits of e-learning, there has been a daily-increasing demand for e-

learning at universities (1). Today's world demands that modern tools, methods, and approaches be used in all fields, including medical sciences (2). The organizations involved in medical education are currently looking for taking advantage of this new method of learning (3).

In medical science education in other countries, there has been an increasing tendency towards replacement of traditional teaching with electronic lessons, in order to fulfill the students' needs in ease of access to information and other capabilities of technology (4). Therefore, the debate is no longer focused on whether e-learning

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technology should enter medical education environment or not, but is focused on the way it should enter the field of education and planning to use this issue (5). As e-learning is a learner-centered model, it requires aware and expert learners to act professionally. Computer skills are the primary requirements for participation in the electronic environment (6).

The learning environment, external stimuli, and intense social pressures in this area encounter learners with serious challenges (7). On the other hand, problems caused by technology may deviation the learning process in this area (8). A professional learning system requires that all people entering this area be aware of all the ethical issues and relevant laws and bound to implement them. A professional learner cannot improve their learning without knowledge of the necessary infrastructure in this field.

More no believes that professional identity of teachers and learners in the new learning system requires modernization. Therefore in today's informational society, learners should re-create their knowledge about ongoing changes in the teaching-learning process. As stated, the profound changes in the structure of learning and lack of related competence to deal with this new situation have put many under pressure (9).

Professional practice is a complex and multi-dimensional concept and becomes more complex in e-learning system, because the context of education is faced with new-emerging challenges that require qualified teachers and intelligent learners. Considering the importance of using e-learning in the field of medical sciences, the present study aimed to provide a conceptual model for professional qualifications of medical training in this system, based on a critical review.

Methods

The present critical review study aimed to provide a conceptual model for professional qualifications of medical training in this

system. As the researcher aimed to provide a model, it was necessary to combine various concepts of the issue and re-create concepts. The critically review methodology and compilation structure of Randolph Carnwell were used (10, 11). According to this structure, in the first and second steps, to achieve related articles, the structure of the issue was first defined and then the following keywords were searched: professional function, manner, ethics, conduct disposition, netiquette, values, academic fraud and moral professionalism, and behavior in thee-learning. In the third step, the most recent resources in the study field were searched among multiple electronic resources indexed in Scirus, Pre Quest, Scopus, IEEE, SID, Magiran, Eric, Taylor and Francis, and Google Scholar from 1990 to 2015.

Hence, the available and rich resources in line with the field of study were studies and relevant reference books were used for a comprehensive view. Several papers were found in the initial search. In the fourth step, the researcher selected more relevant articles, based on the inclusion and exclusion criteria. Finally, among 98 articles studied, 34 relevant and valid articles were extracted and categorized into "related and completely relevant" and "dependent" research. Then, the related articles were separately studied and the main concepts of each article were extracted. Despite the comprehensive importance in e-learning system unfortunately, the concept of necessary competencies was not found in studies. Thus, it was necessary that the researchers obtain all aspects and components of professional practice in e-learning system with collecting views and results to finally propose a functional model. In this study, literature review was continued until saturation.

Results

A total of 34 articles were investigated. In the fifth and sixth steps, texts were critically reviewed in details. After investigation of

Table 1. Dimensions and components of professional function in e-learning

Dimensions		Components
E-Learner digital Literacy		Internet Knowledge Real Student Miss Presentation Academic Fraud Use of Communication Ways Plagiarism Harmful Action Writing Assistance
Study Skills		Planning Time Management Progress Surveillance Critical Thinking Problem Solving Panic Control Study Technique Adequate Habits Innovation Self-Identifying Self-Support Learning Styles Ethical Competencies
Cyber Ethics		Personal Privacy Intellectual Property Right Copy Right Access Right
Netiquette	Value Based E-L Behaviours	Commitment Responsibility Respect for Academic Regulation Faithfulness Cyber Bulling Consent Authority
	Etiquette	Autonomy Impartiality Pleasant & Polite Tolerance No Male Violence (what do you mean by this?) Confidentiality Euphemism

different views and key concepts of each research, the similarities and differences were clarified. As the researchers have each considered the issue from specific perspective, the researcher tried to decrease concepts through critical view and extract generic and general concepts for the integrity of the proposed model, which was carried out in the seventh step, called monitoring the findings. The results proposed four major

dimensions as main dimensions of professional medical practice in e-learning system, including the following: Digital Literacy: According to the available documents, there has been an emphasis on the following issues: 1) Internet knowledge, Plagiarism, Real student, Miss-presentation, Academic fraud, Harmful action, and Writing assistance

Use of communication ways is discussed in digital literacy element. Briefly, effectiveness of e-learning requires research on highly-effective factors in this area, such as learners. Research shows that several learners, applying for this type of education, do not have the necessary preparedness (12, 13). On the other hand, the wide gap in education literature in traditional education sometimes doubts that this type of training is useful for all learners (14). Digital literacy is defined as the combination of older forms of communication and the ability to understand and use multidimensional information and is today considered necessary knowledge (15-17).

2) Study skills: Factors considered in this area include: surveillance progress, critical thinking, problem solving, panic control, study technique, time management, adequate habits, innovation, self-identifying, self-support, learning styles, ethical competencies, self-regulation, and planning. With the advent of new information technologies every day, more information is given to the readers; therefore, the present era is called "information era". The human mind is involved by a growing category, called digital mind, whose new circuits pass on reading high volume of information, available online. Scientists state that the mind adapts itself to the way we live. In the meantime, planning, selection of resources, and correct study methods with time management, stress management and self-direction are of great importance (18-21).

3) Cyber Ethics: cyber space is where the physical and virtual reality interacts. Privacy personal, intellectual property right, copy right, and access right are the main components (22-27).

4) Netiquette: The virtual network and online communications have dos and do not, called netiquette. These etiquette and behaviors rise from ruling values or moral virtues, which are considered the people virtues and it is necessary that each learner know and implement them (28-32). Table1 shows

dimensions and components of professional practice in e-learning.

Discussion

The findings suggest that digital literacy, study skill, cyber ethics, and netiquette are the main dimensions of professional practice in e-learning in medical education. For example, Tiber considers the binary world a chaotic world that every individual should be able to process, in addition to data management (33). Researchers have also tried to create a special framework for the development of the digital world in the competitive environment to prevent the information unrestrained (34). Given the global village, extensive interaction with the world, and constructing international universities, it is necessary to preserve and promote the authenticity and value of this technology (35). Kung believes that the growth of cyber literacy and critical thinking together can ensure the development of e-learning (36). Research has shown that many students who enter educational areas after graduation do not have the necessary skills to work in cyberspace (37). In 1974, Paul Zurkowski raised the so-called information literacy and considered it necessary for the information era (38). Investigations carried out in Iran shows severe deficiency in technical skill of using cyberspace in various academic societies (37). It is necessary that teachers and learners get help from technology and try it as a factor in promoting education.

Medical knowledge continues to expand and its education is getting more complex each day. New learning methods have developed to assist organizations, involved in education (39-43). Graduates in this field should equip themselves to new knowledge every day. Thus, they remain as learners of the medical science. Considering the distribution of these individuals among the whole country, e-learning has a greater necessity, both at school and graduation as continuing education. These modern training methods

are so important that education professionals consider dominance of these techniques more important than content expertise in a learner (44). However, infrastructures in developing countries are considered major obstacles to the creation of e-learning (45). If the content and education is managed properly in virtual education system, an efficient and successful system will be created (44) and this is not possible, unless learners, beside teachers, act professionally and committed in all aspects.

The strengths of this study included considering all aspects of professional practice in the form of a model, while the present study had also some limitations. The first limitation was in the process of data collection; in the search, conducted based on keywords, many articles considered only one dimension of competence and many papers have attempted to consider the learner's role in learning; therefore, the researcher needed to analyze the e-learning system. In the end, it is suggested that researchers examine the scientific and technical competencies from the perspective of faculty members and students by considering above-mentioned factors.

Conclusion

World Summit 1998 announced in a statement that higher education institutions have to set up new educational environments to coordinate with the information era (46). Despite the general interest in e-learning, the target populations, namely learners, are not ready to use such an environment and need decisive support (47). In general, the present article briefly provided a summarized scheme and conceptual pattern for e-learners to move towards promotion of learning. Based on the results of this study, the main components of scientific and technical competencies include digital literacy, study skills, cyber ethics and netiquette. In addition to the present study, it seems that further research is required to investigate the role of teachers, as the

opposite side of learner, in the e-learning system.

Conflict of Interest

The author declares no conflict of interest.

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