Research Article

Evaluation of the Level and Distribution of Articles on Electronic-learning in Medical Sciences in the Iranian Journals of Medical Education

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Abstract

Background: Today, information technology and communications play an important role in the promotion of education quality. Some pedagogical studies have been conducted with a focus on electronic learning. This study aims to evaluate the level and distribution of articles on electronic-learning of medical sciences in the Iranian journals of medical sciences.

Methods: To collect data, English- and Persian-language scientific-research journals in medical sciences published from 2011 to the end of 2015 were evaluated. Titles, keywords, and methods were searched in the most reliable journals to extract articles in line with the study objectives. The data were analyzed based on descriptive statistics using Excel software.

Results: According to the results of the current study, only 1 journal allocated more than 10% (14.6% of all evaluated articles) of its published articles to e-learning in medical sciences (totally 14.6%). The highest ratio of articles on e-learning in medical education to the total articles was found in the Iranian Bimonthly of Education Strategies in Medical Sciences (0.146) and strides in development of Medical Education (0.094); and the lowest ratio was found in the Journal of Advances in Medical Education and Professionalism (0.31).

Conclusions: Limitations such as hardware and software infrastructures, as well as lack of interest and time by professors were considered as barriers to study electronic skills and technology sciences and their institutionalization within the curriculum.

Keywords: Education, Medical Sciences, Electronic Learning, Journals

1. Background

Today, with the advancement of technology and the development of new communication methods, as well as specialization and the increase in speed and quantity of knowledge production, the need to teach effective methods is more pressing than ever before (1). Electronic learning (e-learning) refers to a set of educational activities performed through audio, visual, computer, network, and virtual instruments (2). Information technology (IT) can be applied in non-invasive computer-aided studies (3). There is an increasing trend toward e-learning instead of traditional learning in the developed countries (4). Changes caused by IT and communications result in the formation of fundamental changes in curriculums and teaching classes, specifically in the student-teacher relationships (5). In e-learning, learners show more flexibility and can study as they wish (6). This type of education is mainly student-oriented; in other words, it emphasizes self-learning (7).

Many of the problems in educational systems, such as inequality in access to educational centers, qualified teach-

ers, and educational services, as well as the high costs of education, can be eliminated by e-learning (8). Eradicating the issue of physical spaces and distances is a great advantages of e-learning, compared with traditional learning, as it results in more facilitated and simultaneous education in different regions, along decreased costs in learning and transportation (7). As there is no physical limitation on the virtual environments, they are accessible at any time and under any circumstances using a PC or cellphone and the user can benefit from available applications such as educational websites, virtual classes and workshops, videos, books, and lectures on communications, education, and learning (9).

Recent advances in the realms of IT and communication, in addition to providing improved quality of life, create new opportunities in line with social and economic development (10). Educational systems try to apply e-learning parallel with common educational methods because of its advantages such as high flexibility in educational methods, content management, synchronous and asynchronous interaction between student and teacher, organization and structuring the course, and student as-

sessment ([11](), [12]()). Transition to qualification stage in universities turned virtual education into a competitive advantage ([13]()). The nature of educational materials in different realms of medical sciences necessitates the application of multimedia to facilitate learning in students ([14]()).

There is a particular emphasis on e-learning development in the evolutionary and innovative packages of medical sciences education. According to this document, the following were noted as expected outputs: establishment of a virtual university; training human power specialized in virtual environment; updating curriculums to be applicable in virtual environments; advancing IT infrastructures at line and staff levels to set up e-learning; designing a motivational model in medical sciences universities to develop virtual activities; and designing international models of virtual education ([15]()). Hence, the need to drive educational systems, especially medical education, toward increased and effective use of virtual environment capacities, is greater than ever. Different studies are conducted on e-learning, but according to the authors' best knowledge, there was no existing study on the share of pedagogical studies, especially in medical education. The number of studies conducted on e-learning can indicate the level of interest and engagement of pedagogical researchers with this topic, which can provide the context for science production in this field. The current study aims to evaluate the distribution of articles on e-learning in medical sciences published in Iranian journals of medical education, to draw a scheme of the current status in this regard. Understanding of the current quo can assist in more effective planning and more realistic decision-making.

2. Methods

To evaluate the distribution of e-learning articles in medical sciences published in the Iranian journals of medical education, the current study evaluated the journals that were specifically active in this field and listed in scientific-research publications at the time (according to the official information portal of the commission of journals, Deputy of Research and Technology, Iranian Ministry of Health and Medical Education as well as Iranian database of publications). In the current study, the Persian-language journals published from early 2011 to the middle 2015, as well as English-language journals regularly published from early 2011 to the end of 2015 were analyzed. According to the results of the current study, different types of articles, excluding review articles, were evaluated. To evaluate the routinely published volumes, the special issues were excluded.

According to the online contents of Journal of Educational Research in Medical Sciences, the journal did not publish a volume in 2015; in addition, the website of Journal of Medical Education indicated that no volume was published from 2010 to 2014. Therefore, both journals were excluded from the study. The magazine of e-learning distribution in academy (MEDIA) was also excluded, because the journal exclusively concentrated on e-learning, and its field was different from those of other journals.

The title, keywords, and methods of articles published in each issue were independently evaluated to collect data, and articles on e-learning were extracted. Finally, nine articles were selected for evaluation, seven of which were excluded as their topics were not in line with medical education. To sort the data, the study employed a researcher-designed showing showing the name of the journal, affiliated university, date of publication, number of published issues, total number of published articles during the publication period, number of articles on e-learning in medical education, and the ratio of articles on e-learning in medical education to total articles. The obtained data was analyzed using descriptive statistics with Excel software.

3. Results

The number of published issues, articles, and articles on e-learning in medical education during the period of publication are shown in [Table 1]().

According to [Table 1](), the highest and lowest numbers in published issues and articles belonged to the Iranian journal of Medical education and research in Medical education, respectively. According to the data shown in the the the Iranian bimonthly of education strategies in Medical Sciences was the only journal that allocated about 10% of its publications to e-learning followed by research and development in Medical education with a 0.095 ratio; the lowest ratio, 0.031, belonged to the Journal of Advances in Medical Education and Professionalism. The highest ratio belonged to the issue 4, volume 11 (2011), Iranian Journal of Medical Education. This issue allocated 5 out of 13 published articles to e-learning. The indicates indicates ratio instead of percentage, because ratio is normally smaller than the equal amount in percentage; hence, the authors believed that ration amounts are more influential, compared with the percentage.

4. Discussion

The current study aimed at evaluating the distribution of e-learning articles in medical education published in journals of medical education. According to the results of the current study, the distribution of e-learning articles in medical education was 10% in 1 studied journal only. There

Table 1. Study Outputs

Journal	University of Medical Sciences	Start of Publication	Number of Issues	Number of Articles	Number of E-learning Articles in Medical Education	Ratio of Articles on E-learning in Medical Education to Total Articles
Iranian Journal of Medical education	Isfahan	2001	47	522	44	0.084
Journal of Medical education development	Zanjan	2008	13	126	10	0.079
Research in Medical education	Guilan	2007	10	84	5	0.059
Iranian bimonthly of education strategies in Medical Sciences	Baqiatallah	2008	21	199	29	0.146
Educational development of Jundishapur	Ahvaz	2010	13	118	12	0.060
Strides in development of Medical education	Kerman	2004	14	201	19	0.094
The journal system of Shahid Sadoughi University of Medical Sciences	Yazd	2006	15	126	11	0.087
Journal of advances in Medical education and professionalism	Shiraz	2013	11	98	3	0.031
Future of Medical education journal	Mashhad	2011	16	138	10	0.072
Research and development in medical education	Tabriz	2012	8	95	9	0.095

are a few points to comment on this finding: it is likely that a proportion of articles on medical education, though small, is published in non-educational journals of medical sciences and/or journals of Islamic Azad University, or journals of Iranian ministry of health and Medical education. In addition, some journals of e-learning such as the magazine of e-learning distribution in academy (MEDIA) published by the Iranian ministry of health and Medical education, and information and communication technology in educational sciences by the Islamic Azad University should be added to the list. A proportion of research and articles on e-learning were not of sufficient quality to be published in scientific-research journals. Hence, according to the aforementioned points, the measured ratios indicated the level of tendency toward e-learning in medical sciences researchers.

There are some limitations on e-learning studies. Some of the limitations are attributed to software and hardware attainments in this field. Despite the interest of some professors to use IT and communication in teaching and education, inadequate infrastructures of universities create barriers to the conduction of extensive and qualitative researches as well as the application of different models of e-learning. Lack of interest and weakness of professors in the application of modern educational tools should be noted as other important limitations. Since dealing with e-learning is costly and time-consuming, the heavily engaged professors who do not show any interest in e-learning are not expected to conduct qualitative, evolutionary, and applicable studies in this area.

A glance at Iranian educational system shows that, unfortunately, pedagogical studies do not lead to effective, sustainable, and inclusive changes. The educational system of Iran is still concentrated on traditional teaching methods and lecturing; and PowerPoint is the symbol of technology usage, the excessive and inappropriate employment of which resulted in a modern monologue in classes [16]. It seems that educational transformation documentation on e-learning can be achieved through fundamental planning. There are some solutions that can be

noted such as making culture, the operational familiarity of decision makers and administrators with the virtualization process, optimal use of technology together with training specialists, and allocating an adequate budget.

To drive toward modern educational plans and apply new technologies in educational realms, training a generation of educational managers, teachers, and experts who are interested and believe in e-learning is of great importance. Along with training professional human resources, the educational system should also be provided with hardware and software infrastructures. Such infrastructures are necessary to train human resources and drive toward evolutions in the educational systems. To achieve this, it is essential to plan for the educational systems at a macro level. It is noteworthy that e-learning alone cannot solve the problems of educational systems and, in fact, it is an instrument to contribute to the development of education quality. E-learning does not play a fundamental role in educational systems.

Distance education, as a form of e-learning, is rapidly growing, specifically in higher education. However, it should be considered that along with its benefits for virtual educational it is associated with some weaknesses such as poor student-teacher interactions, which prevents the generalization of this method to other educational levels.

However, different aspects of the employment of any educational tools should be considered: for example, identification of advantages and disadvantages, and exact planning to maximize the benefits and controlling the possible risks. More research is required to attain adequate knowledge, suitable infrastructures and understanding of the demand to apply the results of the performed studies. Therefore, professors interested in the investigation of medical education are encouraged to pay more attention to e-learning studies based on quality and realism. The current study concentrated on Iranian local journals; it would be worthwhile to conduct a similar study with expanded aims on international reliable journals of medical education to attain more knowledge about the impact of e-learning studies on medical education, methods, and applied techniques.

4.1. Conclusion

E-learning studies constitute a small part of educational studies presented in Iranian journals of medical education.

Supplementary Material

Supplementary material(s) is available here.

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