Computers in Human Behavior 55 (2016) 932–939

Contents lists available at ScienceDirect

Computers in Human Behavior

journal homepage: www.elsevier.com/locate/comphumbeh

Full length article

Faculty of medicine students' attitudes towards electronic learning and their opinion for an example of distance learning application

Baris Sezer

Hacettepe University, Faculty of Medicine, Department of Medical Education and Informatics, Sıhhiye, Ankara, Turkey

ARTICLE INFO

Article history:
Received 8 January 2015
Received in revised form 9 October 2015
Accepted 15 October 2015
Available online 13 November 2015

Keywords:
E-learning
Attitudes
University students
Technology integration

ABSTRACT

The impact of technology on every aspect of life has resulted in a change in the curricula of many Faculties of Medicine all around the world. The longstanding classical sense of education in Faculties of Medicine has given way to integrated and interactive applications, and more active applications, e.g. electronic learning (e-learning), have been distinguished among others over the last decade with the help of ever-developing technology. The first stage of this research involved assessing attitudes of 414 first-, second- and third-year students at the Hacettepe University Faculty of Medicine towards e-learning. The second stage, involving a session of "Ethics and Professionalism" within good medical practice (GMP), was synchronously conducted as a distance learning application with the participation of 17 students which was followed by receiving students' opinions. This study revealed that students' attitudes toward e-learning were neutral. With regards to the variables of gender, classroom level and academic success, faculty of medicine students' attitudes towards e-learning significantly differed in the variables of gender and academic success whereas it did not differ in the variable of classroom level. On the other hand, the students expressed that the distance learning application they had was very beneficial in terms of time. However, the students stated that the session of distance learning had limits for communication.

1. Introduction

Developments in the information age have had impacts on education as well as on most of the fields. This impact has resulted in the formation of new paradigms in the education-learning process. One of these paradigms is electronic learning (e-learning) (Yurdugul & Alsancak-Sırakaya, 2013). E-learning brings information to students using a variety of technologies (e.g., internet, communication networks such as corporate intranet, mobile phones). E-learning is a learning system that is enriched by audio–visual elements, can offer educational contents and various tests supporting these contents, can facilitate accessibility to necessary relevant information and, most importantly, provide an interactive environment.

E-learning provides a variety of benefits such as ease to students (Poole, 2000), flexibility (Chizmar & Walbert, 1999), stimulate the interactivity (Dascalu et al. 2014) and collaborative study with students and teachers from different schools (Yurdugul & Alsancak-Sırakaya, 2013; Zhang, de Pablos, & Qingkun, 2014). From the perspective of medical education, it is very obvious that alternative learning methods are needed in consideration of the increasing number of students, lack of communication between the instructor and the students, cognitive load due to heavy course programs, and difficulty in learning for students packed in lecture theaters. E-learning alone can be used as a teaching tool for medical education, or to create a blended learning environment (Pearson Foundation, 2011).

One e-learning application is distance learning. Distance learning is a concept in which at least one of three items, teacher, students and course content, is located in a different place, and a learning method that combines these three education items to produce an effective learning by means of several technologies (İşman, 2011; Picciano, 2001; Simonson, Smaldino, Albright, & Zvacek, 2009). However, the terms such as e-mail, e-state, and e-commerce became widely used when internet technologies came into our lives. Therefore, the term *e-learning*, which is a more specific concept, appears to be preferred more when it comes to distance learning (Driscoll, 2002; Gülbahar, 2009; Urdan & Weggen, 2000). Education can be offered either synchronously or asynchronously with e-learning (Driscoll, 2002; Veerman, Andriessen, & Kanselaar, 2000; Yücel, 2006).

Theoreticians' perspective on distance learning began to change, which was reflected in the definitions, as the weight of techno-

E-mail address: barissezer13@hotmail.com

http://dx.doi.org/10.1016/j.chb.2015.10.018
0747-5632/

logical developments in daily life increased in the second half of 1990s. One important different approach is "equivalency theory". Simonson et al (2009) reports that equivalency theory is based on the theory, "The more equivalent the learning experiences of distant learners are to those of face-to-face learners, the more equivalent will be the outcomes". In other words, if the students can be offered equivalent experiences of learning, what they learn will also be equivalent.

Horton (2000) describes a wide range of learning activities that can be provided in the networking environment. This description is encouraging in that distance learning experiences that are equal to face-to-face learning experiences can be provided. It becomes apparent when reviewing the described activities that almost any type of learning activities used in the face-to-face teaching environment has forms that can be used for distance learning in the networking environment. In the networking environment, a great number of teaching methods can be applied, such as presentation, discussion, demonstration, question/answer, brain storm, case study, information-hunting, collaborative learning, and problem-centered learning. It is possible for those who learn with this method to gain experiences in reading, writing, observing, listening and doing (Şimşek, 2002).

The student is the critical element to affect the success of e-learning. Quality learning experiences of students are not only presented with teachers preparing for the class or their effort. Student properties are very important (Simonson et al. 2009). The utilization levels of students from a designed education environment vary by their individual differences (Kuzgun & Deryakulu, 2004). During an educational design process, one of the elements to be analyzed first is the student when initiating the stage of analysis which is the initial stage (Akkoyunlu, Altun, & Soylu, 2009; Fer, 2009; Şimşek, 2009; Smith & Ragan, 2005). Although the design of a blended e-learning environment is a problem that can be overcome more easily for students in a small classroom, it is very important to bring out student properties on the basis of university or in an international design (Smith & Ragan, 2005).

This study is therefore aimed at contributing to analyzing the students in teaching-design processes of distance learning centers that offer services of a larger scale. There four main domains regarding student properties to consider in the designing of an e-learning environment: 1) cognitive properties, 2) physical properties, 3) affective properties, and 4) social properties (Smith & Ragan, 2005). The attitude of students, which is the subject of this research, is a dimension to be investigated under the third dimension according to the classification above.

In e-learning, the association between students' cognitive, physical, affective and social properties is often investigated in research conducted with the student element. Some of the most investigated variables include in particular "self-sufficiency, experience with computer or internet, cyberphobia, behavioral intention" (Liaw, 2008; Sun, Tsai, Finger, Chen, & Yeh, 2008). Students' attitudes toward e-learning attract attention of researchers.

Faculties of Medicine, which is one of the favorite departments of a university and usually accepts students with the highest score, have attempted to make their curricula avail on facilities and opportunities of this age. Although medical education involves a very dense theoretical education by its nature, practical education is a must in medical education. Formal education cannot be therefore replaced with distance learning. However, distance learning contributes to formal education in medical education. Perhaps, one exception can be applied to *Continuing Medical Education*, which needs no practical education.

The curricula of many Faculties of Medicine have undergone several changes all around the world due to the above mentioned changes. The longstanding classical sense of education in Faculties of Medicine has given way to integrated, interactive and active applications (e.g., problem-based learning, inquiry-based learning), and more active applications such as e-learning have been distinguished among others over the last decade with the help of ever-developing technology. The World Health Organization (WHO) 2015 publication "e-learning for undergraduate health professional education" lists the following general preservice e-learning components (WHO, 2015):

- non-networked computer-based;
- Internet and local area network-based e-learning;
- psychomotor skills trainer;
- virtual reality environments;
- digital game-based learning.

Various studies on preservice education in medical faculties suggest that e-learning is integrated in the curriculum. One of such studies was conducted by Moreira, Smith, & Foxcroft (2009) in the Medical Faculty of Porto University. The study covering 201 medical and 32 dental students at third grade aimed to assess the effectiveness of web-based education by setting up a virtual immunology module. The modules included various course content, presentations and videos. The effectiveness of web-based education was assessed by evaluating the grade average of the final examination. The study indicated higher average exam grade among students supported by the web-based approach compared to peers educated with the traditional approach. The positive results of e-learning in medical faculties were also suggested in similar studies (Albarrak, Aboalsamh, & Abouzahra, 2010; İşleyen, Bozkurt, & Zayim, 2010; Monova, Alexeev, & Kossekova, 2010; Smolle, 2010; Weicha, Heyden, Sternthal, & Merialdi, 2010).

Distance education is a form of e-learning. As seen above in the WHO report, e-learning in preservice education is not addressed under distance education. It is almost never mentioned in the whole report. This is surprising. This is perhaps because of the prejudgments of medical educators about distant education as part of e-learning. Therefore, the views and experience of stakeholders involved in medical faculties on distance education are important.

Distance learning in medical education may help students to learn collaboratively outside lecture halls, interact with the content, progress based on individual pace, access materials any time, retrieve course presentations whenever they need and exchange knowledge. Distance education also allows interaction and exchange with students in other countries. This would facilitate intercultural exchange, an important factor in education (Zhang et al. 2014). From the perspective of medical faculties, though, studies on the perception of e-learning among medical students are not sufficient. This survey aims to contribute to filling in the gap.

In this context, the first stage of this research involved assessing the attitudes of first-, second- and third-year students in Faculty of Medicine towards e-learning. The second stage of the research involving a session of "Ethics and Professionalism", a component of good medical practice (GMP), was synchronously conducted as a distance learning application which was followed by receiving students' opinion. In order to achieve this general purpose, the following sub-problems were asked and tried to answer:

1. What is the attitude of students towards e-learning?
2. Does the attitude of medical students towards e-learning differ by their gender?
3. Does the attitude of medical students towards e-learning differ by classroom levels?