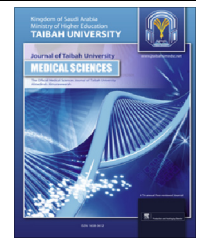




Taibah University
Journal of Taibah University Medical Sciences

www.sciencedirect.com



Educational Study

‘Blended learning’ as an effective teaching and learning strategy in clinical medicine: a comparative cross-sectional university-based study

**Naeem Makhdoom, FACHARZT ^{a,*}, Khalid I. Khoshhal, ABOS ^b,
Sami Algaidi, Ph.D ^c, Khaled Heissam, MD ^{d,1} and Mohammed A. Zolaly, SB-Ped ^e**

^a Department of Otorhinolaryngology, Taibah University, Almadinah Almunawwarah, Kingdom of Saudi Arabia

^b Department of Orthopaedic Surgery, Taibah University, Almadinah Almunawwarah, Kingdom of Saudi Arabia

^c Department of Anatomy, College of Medicine, Taibah University, Almadinah Almunawwarah, Kingdom of Saudi Arabia

^d Department of Family Medicine, Faculty of Medicine, Suez Canal University, Egypt

^e Department of Pediatrics, Taibah University, Almadinah Almunawwarah, Kingdom of Saudi Arabia

Received 14 October 2012; revised 10 November 2012; accepted 4 January 2013

KEYWORDS

Blended learning;
E-learning;
Family medicine;
Learning strategy;
On-line learning;
Traditional learning

Abstract *Objective:* Blended learning is a relatively new technology-based teaching approach. Few attempts have been made to use this approach in medical education. The aim of this study was to assess the effectiveness of blended learning in studying family medicine as an example of a clinical medical science.

Methods: This comparative cross-sectional study involved 121 fourth-year medical students, at the clinical phase of a family medicine course at the College of Medicine, Taibah University, Almadinah Almunawwarah, Kingdom of Saudi Arabia. The students were randomly divided into two groups: 61 taught by the traditional approach (face-to-face) and 60 taught by blended learning (both electronic and face-to-face). The effect of blended learning was evaluated from responses to the Dundee ‘ready education environment measure’ questionnaire. Clinical skills were assessed with the ‘objective structured clinical examination’; knowledge gain was assessed from a written multiple-choice examination; and problem-solving, critical thinking, decision-making skills and attitude were assessed in written and oral examinations based on clinical scenarios.

Results: Blended learning was statistically significantly better than traditional learning in all domains of the educational environment, except for social perception, and in all types of examination: written, objective structured clinical and case scenarios.

Conclusion: The findings suggest that medical students, as adult learners, are open to new methods of learning. The blended learning approach is an effective method for teaching family medicine and may be applicable to other clinical medical sciences.

© 2013 Taibah University. Production and hosting by Elsevier Ltd. All rights reserved.

* Corresponding address: Associate Professor, Department of Otorhinolaryngology, College of Medicine, Taibah University, P.O. Box 30001, Almadinah Almunawwarah, Kingdom of Saudi Arabia. Tel.: +966 4 8460008; fax: +966 4 8461407.

E-mail: dr.naeem.m@hotmail.com (N. Makhdoom)

¹ Formerly, Department of Family Medicine, College of Medicine, Taibah University, Almadinah Almunawwarah, Kingdom of Saudi Arabia. Peer review under responsibility of Taibah University.



Production and hosting by Elsevier

Introduction

Medical education is facing various challenges in teaching tomorrow's physicians. Technological advances have become integral parts of our lives and changed them forever, increasingly with each new generation. Such changes mean that medical schools must adopt new teaching methods, while maintaining excellence in medical education. The new methods include electronic (e-learning), on-line or web-based and problem-solving-based learning. These methods shift teaching from a largely teacher-centred, product-based activity to a more student-centred, process-based activity. This strategy encourages students to be active in the experience of learning rather than being passive learners.¹ Ford et al.² stated that "integrating teaching, learning and technology is a mandate, not an option, and doing any less would border on professional irresponsibility." While cost is a significant barrier, such innovations can have a large impact on self-directed learning, especially when human resources are scarce.

The method of combining electronic and face-to-face learning, known as 'blended learning', is gaining popularity as increasing numbers of medical colleges use the Internet as the digital repository of teaching and learning forums.³ E-learning provides possibilities for devising new educational tools, for learning by interactivity, self-paced study and easy access. To overcome the lack of a teacher in a real classroom, face-to-face teaching should be included in the course. Blended learning translates this theory into practice.⁴ The term describes models of learning that combine several instructional methods, such as use of digital resources (or e-learning) alongside traditional teaching.⁵ Blended learning allows adaptive, collaborative learning and transforms the role of the teacher from a disseminator of knowledge to a facilitator. Therefore, a combination of traditional and on-line learning in particular or e-learning in general creates a more integrated approach for both instructors and learners. It is well suited for practice-based disciplines like the medical sciences.⁶ Studies reported in both the medical and non-medical literature have consistently shown that students are satisfied with e-learning;^{7,8} however, they do not see e-learning as replacing traditional instructor-led training but as a complement, forming part of a blended learning strategy. Another benefit of e-learning for teaching family medicine and other clinical sciences is that it can be delivered at any time and any place and can be tailored to individual learning needs. Although blended learning was originally promoted to save costs and increase efficiency, it was found to enhance learning, information dissemination, creation of learners' communities and networking and to support learners in choosing the ideal content.⁹

The traditional approach in medical education is the well-established didactic method, whereas blended learning is a relatively new, promising, technology-enhanced trend.⁵ There has been limited research on the appropriate use of blended learning for clinical medicine studies.^{10–15} The purpose of this study was to determine the effectiveness of a blended learning approach in teaching family medicine as an example of clinical medicine, by comparing it with delivery of the same course face-to-face by the same teachers.

Materials and Methods

Study design

This comparative cross-sectional study was carried out at the College of Medicine, Taibah University, Almadinah Almunawarah, Kingdom of Saudi Arabia, in the year 2009–2010. The study was approved by the local research ethics committee, and all participating students gave informed consent.

Participants

During the 10-week family medicine course, a traditional didactic course, 121 fourth-year medical students (in a 5-year BSc–BMed programme) participated in the study. Students were randomly divided into two groups: 61 students (31 males and 30 females) who followed the traditional (face-to-face) course and 60 students (30 males and 30 females) who followed the course with a blended learning strategy (e-learning plus face-to-face learning). The intended learning outcomes of the course and detailed study guides were relayed to both groups.

Teaching methods

Students following the traditional course received lectures, participated in clinical rounds, kept a logbook and attended seminars. The objective of the clinical rounds was to help students to achieve clinical skills, such as collecting patient data, communication, clinical examination and problem-solving on the basis of evidence. All the clinical training was done at family health care centres. During their training in clinical settings, the students worked in groups of five to eight. The logbook contained case studies and preventive activities such as vaccination, health education and participation in community surveys. A seminar was given at the end of each week to address students' concerns about their cases. The students could interact with their tutors outside the classroom during staff office hours, which were 6 h per week divided into three sessions.

The students who received blended learning were taught by the traditional methods and also by use of an electronic course management system. Both students and teaching staff were trained in use of this system. Unique, person-specific log-in details were generated for each student and participating staff, with an option for interaction among the group members. The tutors had access to all groups in order to monitor their pace and directions. The system was supported with options for video conferencing, a discussion board and e-mail. The tutors uploaded all their lectures and video demonstrations of basic clinical skills, such as clinical examination of various body systems, measuring blood pressure and examination of a mass. The students uploaded their logbooks and received feedback electronically. The blended learning group also had the option of chatting or discussing learning issues through a discussion board, student forum or video conferencing, individually or in groups. The students worked in groups of five to eight, both during their training in clinical settings and for e-learning. Each tutor was assigned time to log in to the system and to spend an average of 6 h/week divided into three to six

Download English Version:

<https://daneshyari.com/en/article/3484387>

Download Persian Version:

<https://daneshyari.com/article/3484387>

[Daneshyari.com](https://daneshyari.com)