



New Trends and Issues Proceedings on Humanities and Social Sciences



Volume 4, Issue 2 (2017) 230-236

ISSN 2421-8030

www.prosoc.eu

Selected Papers of 1st International Congress on Nursing (ICON-2017) 16 – 18 March 2017 Grand Park Lara Convention Center, Lara – Antalya, Turkey

The use of e-learning program in nursing education

Sefika Tugba Yangoz ^{a*}, Department of Public Health Nursing, Faculty of Health Sciences, Akdeniz University, 07058, Antalya, Turkey.

Cigdem Okten ^b, Department of Public Health Nursing, Faculty of Health Sciences, Akdeniz University, 07058, Antalya, Turkey

Zeynep Ozer ^c, Department of Nursing, Faculty of Health Sciences, Akdeniz University, 07058, Antalya, Turkey.

Suggested Citation:

Yangoz, T. S., Okten, C. & Ozer, Z. (2017). The use of e-learning program in nursing education. *New Trends and Issues Proceedings on Humanities and Social Sciences*. [Online]. 4(2), pp 230-236. Available from: www.prosoc.eu

Selection and peer review under responsibility of Prof. Dr. Nesrin Nural, *Karadeniz Technical University*, Turkey
©2017 SciencePark Research, Organization & Counseling. All rights reserved.

Abstract

Over the past decade, the rapid developments and growth of information and communication technology (ICT) have had a profound influence on nursing education. E-learning has grown tremendously has been integrated into education and training. The aim of this review is to examine the effect of e-learning program in nursing education. Akdeniz University electronic databases center including MEDLINE, CINAHL, Sciencedirect, Cochran library were searched published studies in English with "e-learning, nursing education, nursing students" key words and 554 articles were reached by the search results. By the analysis, published 2011-2016, the original six manuscripts have been sampled. A cross-over design study examined the effect of lecture and e-learning methods were compared, no significant difference was found between two methods. In another study, the effect of using e-learning versus lecture of nursing students was examined. Students were indicated to be pleased with the e-learning program. Another study evaluated the effectiveness of an e-learning intervention on pain management for nursing students, it was found to be useful. In another study, experiences of e-learning in a midwifery training package and student's views were evaluated, the students generally welcomed to e-learning however they suggested face-to-face learning. Another study tested the effectiveness of an e-learning program to increase pediatric medication management among students who take pediatric nursing courses, e-learning program is an effective learning method than lecture program. In another study, the effects of e-learning, lectures and role playing on learning, retention and satisfaction of nursing students were evaluated, it was found lectures to be a significantly more effective teaching method than role playing and e-learning. Results of this review showed that students' satisfaction with e-learning was lower than traditional lecture instruction. However different and well planned e-learning programmes can support the development of nursing students' skills, knowledge and attitudes.

Keywords: E-learning; nursing students; nursing education.

* ADDRESS FOR CORRESPONDENCE: **Sefika Tugba Yangoz**, Department of Public Health Nursing, Faculty of Health Sciences, Akdeniz University, 07058, Antalya, Turkey.

E-mail address: tugbayangoz@akdeniz.edu.tr / Tel.: +90 242 310 61 03

1. Introduction

With the rapid development of information communication technologies, internet technologies and web-based applications have created unprecedented chances for conducting learning. This situation has led to the exponential growth of electronic learning (e-learning) in recent years (Cheng, 2011; Pourghaznein et al., 2015). E-learning is one method of delivering 'online' instruction and relates to web/computer based programs and virtual learning environments. These can be delivered using different media sources (CD-ROMs, DVDs) and can either be student or instructor led (Manochehr, 2006; Barker et al., 2013). In other words, e-Learning is learning utilizing electronic technologies to access educational curriculum outside of a traditional classroom. In most cases, it refers to a course, program or degree delivered completely online.

Information communication technologies covering e-learning programs are increasing in higher educational institutions as a means of communication and knowledge sharing (Muirhead, 2007; Barker et al., 2013). And, these programs are also used in nursing education. This is of particular necessity in nursing profession, because nurses need access to updated information on diseases, treatments, drugs, and, new skills (Pourghaznein et al., 2015). E-learning program combines important principles such as student activity, individual learning, rapid response, and repetition according to requirements. Additionally, it encourages independent skills; allows flexible working; fosters the development of skills in time management, organization and self-pacing; and provides an opportunity for practicing computer abilities. It also contributes to methodological diversity and to changing the focus away from teaching to learning in the same way as lifelong learning (Reime et al., 2008; Abdelaziz et al., 2011). An e-learning system also provides a configurable infrastructure that integrates learning material, books and services into a single solution to quickly, effectively, and economically create and deliver training or educational content. It has become an important alternative to classroom learning (Anaraki, 2004; Abdelaziz et al., 2011). This method has in fact provided a new paradigm of teaching and learning which enables everyone to learn anything anywhere and at any time throughout their lives (Emami, 2009; Pourghaznein et al., 2015). Other benefits of the program are meeting the greater diversity of student needs, increasing the flexibility of provision, enhancing the integration of study with work and leisure, meeting individual needs (The Higher Education Funding Council for Education, HEFCE, 2005; Barker et al., 2013). Purpose of the study is to examine the effect of e-learning program in nursing education.

2. Method

This study was conducted following guidelines defined in the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Protocols) (PRISMA-P) (Moher et al, 2015).

2.1. Search strategy

We conducted a systematic literature review to evaluate the study results within effect of e-learning program in nursing education. Akdeniz University center electronic databases including MEDLINE, CINAHL, Scencedirect, Cochrane library were searched studies published in English with "e-learning and nursing education" "e-learning and nursing students" key words in June 2016. Search results reached in the 554 articles. Repeated work (duplications) has been identified with the EndNote X5 program. The titles and abstracts of the studies were reviewed by a researcher. Also references of the determined studies had reviewed. Investigation of the articles published 2011-2016, which can be accessed in full text, the original six articles have been sampled (Fig. 1).

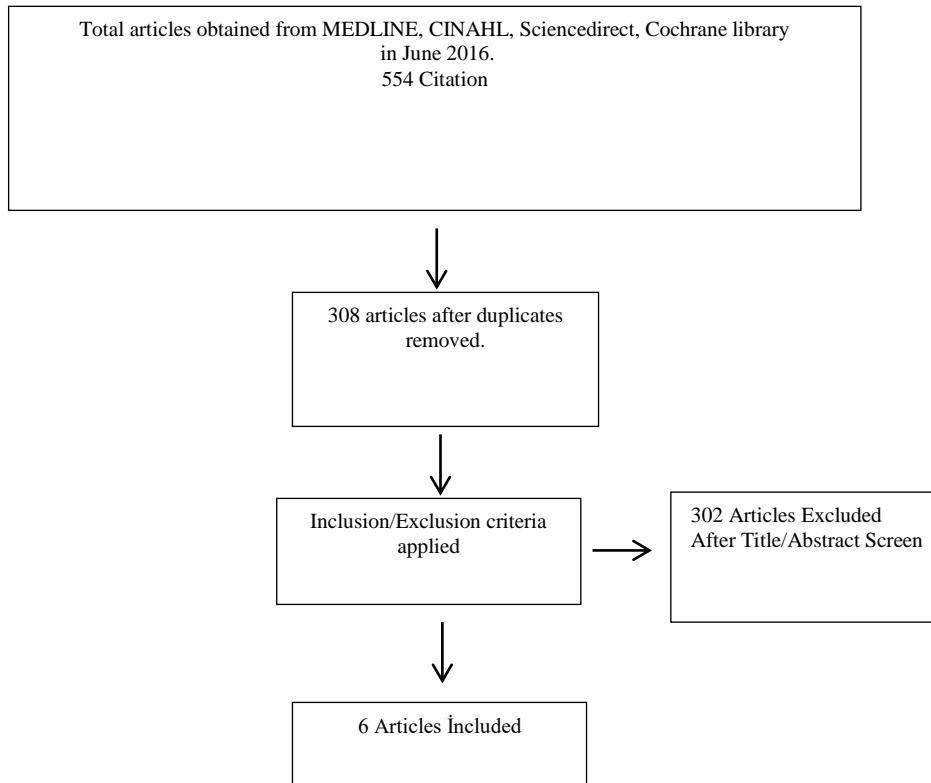


Figure 1. Study selection process. A flow chart illustrating the study selection process, according to the PRISMA-P guidelines.

The inclusion / exclusion criteria for review are stated below. The inclusion criteria in the systematic literature review are defined according to PICOS (Centre for Reviews and Dissemination 2009).

P (Population): The research conducted with the nursing students using the e-learning program in nursing education constituted the target group of this study.

I (Intervention): Quasi-experimental, cross-over, qualitative, historical comparison, randomised cohort and experimental studies based on e-learning program are included.

C (Comparison): It is aimed to compare the effects of e-learning method on nursing students' learning outcomes.

O (Outcome): The results of the e-learning program applied to the nursing students constituted the primer results.

S (Study design): Because randomized controlled trials were not reached, quasi-experimental, cross-over, qualitative, historical comparison, randomised cohort and experimental studies related to the topic published in English were selected.

Exclusion criteria for systematic literature review are:

- Unreachable articles
- Systematic review
- Metaanalysis

3. Results

Using the search criteria previously defined, 6 studies were selected for further review. Studies were examined in terms of study design, subject, intervention, outcome measure and results.

A quasi-experimental study was conducted by Abdelaziz and colleagues (2011). In this study, the effect of using electronic learning versus lecture of nursing students at a large state faculty where experience with and access to computer facilities are limited were compared. Two hundred seventy-six second-year nursing students from both gender was included in the study. A control group used traditional classroom lectures and a study group used an e-learning cardiac disease program. For the purposes of this study and to collect data, five tools were developed. Five tools were cardiovascular knowledge assessment sheet, observation checklist for central venous pressure and electrocardiogram procedures, 7-point semantic differential scale, opinionnaire sheet, cardiovascular education program (e-learning lecture). For the students in the study group, orientation session was done 1 week prior to the beginning of the program to teach students how to use the educational program. For the students in the control group, the instructor lectured for two periods (from 08:00 a.m. to 12:00 p.m.) on Sundays by a 15-minute break, for 1 month, for the study group, instructor uploaded two modules per week for 3 weeks. After implementation of the program, study and control groups were asked to fill out a 7-point semantic differential attitude scale evaluating the attitude of nursing students versus using e-learning and lectures in nursing education. Students in the study group were indicated to be pleased with the e-learning program as a teaching method, but they did not wish to take another e-learning program except if they had computer and Internet at home.

A cross-over design study was conducted by Mehrdad and colleagues (2011). In this study, the effect of lecture and e-learning methods on nursing students' learning outcomes in the context of Iran were compared. Thirty two in three year nursing students was included in the study. The study was applied in two phases. In the first phase, students received traditional education with 2 hour lecture every week during the first four weeks. In the second phase; students were taught how to use the e-learning educational program. The course content was divided into 9 parts and each part lasted up to 30 minutes. Students' learning outcomes were evaluated a final test was administered based on educational content. According to the study, no significant difference was found between two methods in general but students reported better "capability" and "independency" in e-learning method while lecture was obtained higher scores in "effectiveness on learning" and "motivation" characteristics.

Another study a randomised cohort design was conducted by Keefe and colleagues (2012). In this study, the effectiveness of an e-learning intervention on pain management developed for nursing students were evaluated. Two hundred six students were included in the study. Students were drawn from the undergraduate masters nursing course between september 2007–2010. Two variants of an e-learning on pain management were developed, a section focusing on pain assessment and the other on pharmacological management. Nursing students (n=42) were randomly assigned a section. Students in the e-learning program were invited via email to undertake one of the RLOs (reusable learning objects) developed for the study. Students were given two weeks to complete the RLO. After, students' e-learning outcomes were evaluated with Ferrell and McCaffrey's Nurses Knowledge and Attitudes Towards Pain Survey. The non-intervention standard group (n=164) received only the compulsory pain lectures already incorporated into the nursing programme. After this, all students were again done a pain knowledge questionnaire. Questionnaire results were compared between e-learning and non-intervention standard group analysed for each resource and year of study. According to the study, introducing e-learning to enhance pain education in nursing was found to be useful.

A qualitative interpretive approach was conducted by Barker and colleagues (2013). In this study, experiences of e-learning in a midwifery training package and student's views were evaluated. Either year three or year four (final year) fifty one students was included in the study. A purposive sample of students was invited based on whether they had already undertaken their maternity experience or

Yangoz, T. S., Okten, C. & Ozer, Z. (2017). The use of e-learning program in nursing education. *New Trends and Issues Proceedings on Humanities and Social Sciences*. [Online]. 4(2), pp 230-236. Available from: www.prosoc.eu

where about to do so. Therefore participants were well placed to evaluate e-learning in relation to midwifery care. Students were given a 12 week placement in maternity care course with an e-learning program. Data of study were collected using audio taped focus group discussions (FGD) because the students were homogenous groups. FGD comprised of five groups in this study. Data were recorded, transcribed verbatim and analyzed using a framework approach. In the result of the study, the students generally welcomed to e-learning however they suggested that it should be “supplementary” to face-to-face learning.

A historical comparison study was designed by Lee and Lin (2013). This study examined that the effectiveness of an e-learning program to increase pediatric medication management among students who take pediatric nursing courses. Three hundred and forty nine students in two- and four-year programs who were taking pediatric nursing courses (both lectures and practicum) were included in the study. Eighty students in the comparison group received regular pediatric courses and 269 students in the intervention group received an e-learning program. The e-learning program was developed via the five phases of the ADDIE model (analysis, design, development, implementation, and evaluation). Students in both group were given 10–15 days of lectures over five weeks. The students in the intervention group were given e-learning program and the students in the comparison group were given the regular lecture course only. Students in both the intervention and comparison groups were given a pediatric medication management scale (pretest), after the lecture course was completed (post-test 1) and after the clinical practicum was completed (post-test 2). According to the study, using an e-learning program on pediatric medication management is an effective learning method than lecture course.

A quasi-experimental study was conducted by Pourghaznein and colleagues (2015). This study evaluated that the effects of e-learning, lectures and role playing on learning, retention and satisfaction of nursing students. Sixty nursing students who take medical-surgical nursing- II course in their fourth semester were selected as an experiment (n=31) and control groups (n=29). The educational content was applied as e-learning and role playing during one semester (experiment group) and as lectures in the next semester (control group). Data were collected a three-part author-made questionnaire (demographic information, theoretical knowledge (20 MCQ), and satisfaction (12 questions on a five-point Likert scale)). Students were asked open-ended question that students’ opinion about the entire course at the final. As a result of this study, it was found lectures to be a significantly more effective teaching method than role playing and e-learning.

4. Discussion

Increased accessibility of the Internet has created a new portal for education resources with enhanced satisfaction and efficacy. Known for its recipient-oriented approach, e-learning has extended learning experiences beyond face-to-face lectures and textbooks to enhance individualized student preparation and accommodate learning preferences (Wunschel et al., 2010; Back et al., 2014). The six studies in this review validate and demonstrate the potential for e-learning in nursing education at the nursing school.

All studies in this review reported different interventions including differences in: the size of e-learning programmes, the number of modules undertaken and the time taken to complete them (Sinclair et al., 2015). In the four study, study group used an e-learning program and control group used traditional classroom lectures (Abdelaziz et al., 2011; Keefe & Wharrad, 2012; Lee & Lin, 2013; Pourghaznein et al., 2015). Only in the one study, a role play method was applied to students with e-learning (Pourghaznein et al., 2015). Other study, students were given traditional education and then e-learning was applied (Mehrdad et al., 2011). Another study, e-learning program was given and then the opinions of the students were taken (Barker et al., 2013).

With the development of e-learning platforms can use text, graphics, animations and videos (among others), which can significantly enrich the learning experience for nursing education. The

Yangoz, T. S., Okten, C. & Ozer, Z. (2017). The use of e-learning program in nursing education. *New Trends and Issues Proceedings on Humanities and Social Sciences*. [Online]. 4(2), pp 230-236. Available from: www.prosoc.eu

literature on e-learning demonstrates the variety of teaching method that can be given by this medium, which includes case-based, theoretical knowledge and surgical skills teaching (Jayakumar et al., 2015). According to the results of the study, e-learning program was delivered through the method including theoretical knowledge in the five study (Abdelaziz et al., 2011; Mehrdad et al., 2011; Keefe and Wharrad, 2012; Lee and Lin, 2013; Pourghaznein et al., 2015). After applying an e-learning program in the one study, the opinions of the students were taken (Barker et al., 2013). In the two studies, e-learning program was enriched using platform like video and role playing (Lee & Lin, 2013; Pourghaznein et al., 2015). Other enrichment method hasn't been mentioned in other studies.

5. Conclusion and Recommendations

As a result of this review, no strong generalisations concerning the effect of e-learning on nursing education. Students' satisfaction with e-learning was lower than traditional lecture instruction. The size and direction of the effect of e-learning on learning outcomes are situational when compared to traditional learning in nursing education. However different and well planned e-learning programmes can support the development of nursing students' skills, knowledge and attitudes.

As technology advances and training pressures rise, e-learning is an economical, innovative and reputable platform for program directors to incorporate into their curricula. It is suggested to increase the study related to e-learning for enhanced nursing learning, improved clinical skills and heightened learner satisfaction.

References

- Abdelaziz M., Kamel S. S., Karam O. & Abdelrahman A. (2011). Evaluation of E-learning program versus traditional lecture instruction for undergraduate nursing students in a Faculty of nursing. *Teaching and Learning in Nursing*, 6, 50-58.
- Alexander S. (2001). E-learning developments and experiences. *Education and Training*, 43(4), 240–248.
- Anaraki, F. (2004). Developing an effective and efficient e-learning platform. *International Journal of Computerized*, 12(2), 57–63.
- Back, D. A., Haberstroh, N., Sostmann, K., Schmidmaier, G., Putzier, M., Perka, C. & Hoff, E. (2014). High efficacy and students' satisfaction after voluntary vs mandatory use of an e-learning program in traumatology and orthopedics—a follow-up study. *Journal of Surgical Education*, 71(3), 353-359.
- Barker K., Omoni G., Wakasiaka S., Watiti J., Mathai M. & Lavender T. (2013). „Moving with the times“ taking a glocal approach: A qualitative study of African student nurse views of e learning. *Nurse Education Today*, 33, 407-412.
- Centre for Reviews and Dissemination. (2009). *Systematic Reviews. CRD Guidance for Undertaking Reviews in Health Care Published by CRD, University of York*. Retrieved from https://www.york.ac.uk/media/crd/Systematic_Reviews.pdf on 21 June 2015.
- Cheng, Y. M. (2011). Antecedents and consequences of e-learning acceptance. *Information Systems Journal*, 21(3), 269-299.
- Emami, H., Aghdasi, M. & Asousheh, A. (2009). Electronic learning in medical education. *Research in Medicine*, 33(2), 102-111.
- HEFCE. (2005). *Strategy for E-learning. Higher Education Funding Council for England*. Retrieved from http://webarchive.nationalarchives.gov.uk/20100202100434/http://www.hefce.ac.uk/pubs/hefce/2005/05_12/05_12.pdf on 21 June 2015.
- Jayakumar, N., Brunckhorst, O., Dasgupta, P., Khan, M. S. & Ahmed, K. (2015). E-Learning in surgical education: A systematic review. *Journal of Surgical Education*, 72(6), 1145-1157.
- Keefe, G. & Wharrad, H. J. (2012). Using e-learning to enhance nursing students' pain management education. *Nurse Education Today*, 32(8), 66-72.

- Yangoz, T. S., Okten, C. & Ozer, Z. (2017). The use of e-learning program in nursing education. *New Trends and Issues Proceedings on Humanities and Social Sciences*. [Online]. 4(2), pp 230-236. Available from: www.prosoc.eu
- Lee, T. Y. & Lin, F. Y. (2013). The effectiveness of an e-learning program on pediatric medication safety for undergraduate students: A pretest–post-test intervention study. *Nurse Education Today*, 33(4), 378-383.
- Manochehr, N. N. (2006). The influence of learning styles on learners in e-learning environments: An empirical study. *Computers in Higher Education Economics Review*, 18(1), 10-14.
- Mehrdad, N., Zolfaghari, M., Bahrani, N. & Eybpoosh, S. (2011). Learning outcomes in two different teaching approach in nursing education in Iran: E-learning versus lecture. *Acta Medica Iranica*, 49(5), 296-301.
- Moher, D., Shamseer, L., Clarke, M., Ghersi, D., Liberati, A., Petticrew, M. & Stewart, L. A. (2015). Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015 statement. *Systematic Reviews*, 4(1), 1-9.
- Muirhead, R. (2007). E-learning: Is this teaching at students or teaching with students? *Nursing Forum*, 42(4), 178–184.
- Pourghaznein, T., Sabeghi, H. & Shariatinejad, K. (2015). Effects of e-learning, lectures, and role playing on nursing. *Medical Journal of the Islamic Republic of Iran (MJIRI)*, 29(1), 25-31.
- Reime, M. H., Harris, A., Aksnes, J. & Mikkelsen, J. (2008). The most successful method in teaching nursing students infection control–E-learning or lecture?. *Nurse Education Today*, 28(7), 798-806.
- Sinclair, P., Kable, A. & Levett-Jones, T. (2015). The effectiveness of internet-based e-learning on clinician behavior and patient outcomes: A systematic review protocol. *JBIR database of systematic reviews and implementation reports*, 13(1), 52-64.
- Wunschel, M., Leichtle, U., Wulker, N. & Kluba, T. (2010). Using a web-based orthopaedic clinic in the curricular teaching of a German university hospital: analysis of learning effect, student usage and reception. *International Journal of Medical Informatics*, 79(10), 716-721.