تأثیر استفاده از کتابخانه الکترونیکی بر فناوری پورتfolیو در آموزش یادگیری اطلاعاتی-

مقدمه: دانشجویان الکترونیکی و روش های آموزشی دیگر در تدریس درس فیزیولوژی می‌توانند به عنوان یکی از روش‌های برتر در تدریس روش های الکترونیکی در بیمارستان و دروس پزشکی به‌شمار بیاید.

روش: این پژوهش با استفاده از طرح ملتقی و دو گروه آزمایشی و نظارت دو گروه آزمایشی و نظارت انجام شد و سایر متغیرهای در این مطالعه شامل گروه آموزشی و گروه نظارتی بود. در این طرح الکترونیکی، گروه آموزشی به به صورت آزمایشگاهی روش پزشکی و گروه نظارتی به روش تدریس درس فیزیولوژی استفاده کردند.

در نتیجه، آزمایشگاهی درس فیزیولوژی، در گروه آموزشی با کمک الکترونیکی، به سرعت بیشتری، بهتر و مفیدتری از سایر روش‌های تدریسی استفاده شده است و در نتیجه، بهبود سطح بهبود در کنار بهبود معنی‌دار میزان یادگیری اطلاعاتی و فناوری پورتfolیو در گروه آموزشی مشاهده شد.

کلیدواژه‌ها: کتابخانه الکترونیکی، پورتfolیو، آموزش، فناوری پورتfolیو

ORIGINAL ARTICLE

The Impact of Using E-Portfolio on Nursing Student's Learning in Physiology Course

Background: The Modern Electronic Technologies have had a deep impact on traditional methods of education and brought forth new methods for effective education. Electronic portfolio is one of the newest methods of teaching. Therefore, the purpose of the present research was to study the impact of using e-portfolio on Nursing Students' Learning in Physiology Course.

Methods: The design of the study was a pre-test/post-test one with an experimental group and a control group. The population of the study included all students of Nursing Faculty of Malayer University in the academic year 2014-15. The sample of the study was selected using available sampling and included 30 students who were placed in an experimental group (n=15) and a control group (n=15). The instrument used in this study was a learning test of basic Physiology Course developed by the researcher himself; the face validity of the test was judged by experts of subject and the pre-test was judged by experts of subject and the pre-test and post-test method showed that the reliability of the test is 0.78 & 0.81, respectively.

Results: The results of the study demonstrated that Using an e-Portfolio method to increase in the amount of learning in a group of experimental students (p: 10.38, P: 0.001).

Conclusions: According to the results and effectiveness in the use of an electronic portfolio of the teaching/learning process in the physiology course, the use of this electronic technology in nursing education and consequently medical education is recommended.

Key Words: E-Portfolio, Learning, Medical Education
INTRODUCTION

The emergence of new theories of learning and education and a paradigm shift from being teacher-centered to student-centered alongside with the advancement of novel communication technologies have set the grounds for modern human to use new methods of teaching-learning and free himself of the chains of time and place and keep on learning everywhere and according to his needs [1]. Nowadays, the traditional methods are not enough for effective education of students. The internet and other electronic technologies have had a deep impact on traditional methods of education and brought forth new methods for effective education. The use of an electronic portfolio is one of the newest methods of teaching. Electronic portfolio is an instrument for learning and evaluation of the learning process - product with the ability to store, organize, provide feedback, and reform students’ performance in a digital web-based network or computer. Unlike the traditional paper portfolios, electronic portfolios allow the users to store the information without any time and space limitations, and access it as well as update it at any desired time [2]. It can also be said that electronic portfolio is an instrument for learning and evaluation of the learning process - product with the ability to store, organize, provide feedback, and reform students’ performance in a digital web-based network or computer and can be considered as an indicator of the student’s growth, progress, and skills in a certain area [3].

Electronic portfolio includes works collected, contemplated, selected, and displayed by a learner in order to display his/her growth and change over time [4]. Many experts believe that the use of electronic portfolio can be an effective means of evaluation and education in online training courses [5, 6, 7, 8]. Some other researchers also believe that portfolios provide an opportunity for self-evaluation, learning, and self-adjustment as well as contemplation and development of personal skills; hence they can be suitable learning instruments [9].

Aside from providing medical services, universities of medical sciences are also tasked with training expert and skillful human workforce needed in different sections of the society. This requires the medical education to be constantly reevaluated and upgraded. The process of medical training is affected by numerous factors and variables. Student, teacher, education medium, teaching methods, educational resources, and growing popularity of educational technologies and e-learning is among such factors. On one hand, timely response to rapid changes in modern technologies as well as proper management of educational programs in the age of communication and information can help learners to become up-to-date on the other hand, having skillful doctors as the outcome of medical education systems would lead to improvement of health in the society [10]. For that reason, the necessity of using modern electronic methods such as the use of electronic portfolios in medical training becomes obvious.

On the other hand, nursing teachers had some challenges regarding teaching students to be a professional to have deep knowledge and decision making skills. E-learning methods cannot be a good substitute for teachers, but by e-learning methods combined with common methods, learning-teaching process facilitates nursing training and responds to rapid changes of science, knowledge and the requirements of students [11]. For innovation in nursing training, lecturers attempt to find the methods making teaching effective and easier] 12 [. Based on e-learning topics and new methods in the learning - teaching, electronic portfolio is one of the effective methods for this process. In advanced countries with higher education technology, the significance of different portfolios and their educational effects are investigated, but in our higher education and medical system, this solution is less considered [13]. In nursing training, more supports are made to apply portfolio assessment in the relevant studies [14]. Regarding its effect on learning of nursing students, a few studies have been conducted [15]. The present study aims to evaluate the impact of electronic portfolio on learning in nursing training. Various studies have been carried out regarding the use of electronic portfolio in education. Some of these studies are mentioned below.

Rezaei (2011) studies The Impact of Using E-portfolio on Attitude, Motivation and Academic Achievement of Students in K. N. Toosi University's E-Learning Center. The results of that study point out the positive impact of electronic portfolio on attitude, motivation, and academic achievement [2]. Dana Mazra’e (2013) studies the impact of using E-portfolio on university students’ self-regulated learning strategies. The results of this study point out the positive impact of electronic portfolio of self-regulated learning strategies [16]. Chi Cheng (2010) studies Self-evaluated the effects of web-based portfolio Assessment for various student motivation levels. The result reveals that the web-based portfolio assessment system is more effective or useful in most of self-evaluated learning effects for low motivation students [17].

Also the study by Badali et al. (2014) reveals that the use of an electronic portfolio reduces test anxiety and increases self-esteem among university students. Some studies have suggested the influence of electronic technologies in Medical Sciences (18, 19 and 20). The purpose of the present research is to study the impact of using electronic portfolios on the learning of nursing students. The research hypothesis is: the use of electronic portfolios in the teaching - learning process improves the learning of physiology lessons in nursing students [3].

METHODS

This study is a quasi-experimental with pre-test, post-test and control group. The study population is all nursing students of Malayer nursing college in academic year 2014-2015. To select the sample, convenience sampling method is applied. At first a 25-student class regarding physiology (freshmen of nursing school) is selected and 15 students are dedicated to experiment group. Sophomore students were used in control group taking physiology course already and 15 students were selected in the control group. Based on the methodology, the participants to experimental and control groups are at least 30. The participants are selected based
The Impact of Using E-Portfolio on Nursing Student's

on their score in pre-test of physiology. It was attempted to select among 48 freshmen and sophomores of nursing as 30 students with similar scores in learning pre-test. The pre-test was performed with two purposes: a) The selection of required participants of the study, b) Considering the score difference of pre-test and post-test in learning. The participants were selected as genders in two groups were similar. The women in experiment group are 9 and in control group 9 and men in experiment group are 6 and in control group 6. The experiment group was trained physiology via electronic portfolio and control group trained the same content traditionally (lecture and textbook methods) in an academic semester. Finally, both groups performed post-test of physiology. The data were analyzed using independent t-test and SPSS software, version 19. The inclusion criteria were the tendency of participants to be included in the study. The subjects of both groups were participating in the study with consent. The measure is pre-test and post-test of physiology. Pre-test includes 20 items (4 choices) and post-test includes 20 items (4 choices) and were evaluated in terms of face validity by experts of physiology textbook. After verification of validity of pre-test and post-test questions by experts, to achieve reliability, the tests were performed on 10 students in nursing of nursing school not included in the study. After evaluation of data reliability 0.78 was achieved in pre-test and 0.81 for post-test of learning via Cronbach’s alpha.

**RESULTS**

Research hypothesis: the use of electronic portfolio in teaching-learning process improves the learning of physiology lessons in nursing students.

As demonstrated in table 1, the pretest scores of the two groups are not different. However there is a difference between the posttest scores obtained by the control group and the experimental group. While the mean posttest score shows an increase in both groups, the experimental groups demonstrates a higher increase in mean posttest score. Next, the results of the t-test are presented.

Based on the results presented in table 2, the calculated t for mean difference between the two groups equals 10.38, which is significant at the 0.001. Therefore, with 0.95 confidence level, the research hypothesis, i.e. the impact of using e-portfolio on physiology learning of nursing students is confirmed. In other words, the use of this teaching method in education of nursing students significantly improves their learning of physiology lessons.

**DISCUSSION**

As shown, the effects of e-portfolio on learning of nursing students is less considered and the purpose of the present research is to study the impact of using electronic portfolios on physiology learning of nursing students. The results suggest that the use of electronic portfolio in the process of physiology teaching-learning in the field of nursing improves the students’ learning. The result obtained in this research is in alignment with the results of the studies by Rezei [2], Dana Mazra’e [16], Chang Chang [17], and Badali et al. [3]. The reason for the impact of electronic portfolio on physiology learning of nursing students can be stated in that by providing the required trainings and education via electronic portfolios, the students are free to learn the educational material at any time they desire, i.e. when the learner is active which is the time when the learning capability is at its peak. This is based on the very constructivism approach to teaching-learning process. Other reasons to explain these findings show that traditional methods (paper and pencil method) oblige the students to just memorize the books and they are not encouraged to learning and deep understanding. Thus, the educational goal as learning of learners is not achieved. In the new assessment method by e-portfolio, learners are encouraged to deep understanding, high level thought, independent learning and self-assessment and they achieve success in learning and academic achievement. E-portfolios help the students to develop their organizing skills and recognize their skills, abilities and shortcomings. Also, they can know their own talents and can show their abilities, assess their achievements.

<table>
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<th>SD</th>
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<td>Experimental (Intervention group)</td>
<td>9</td>
<td>3.54</td>
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<tr>
<td>Post-test</td>
<td>Control (Non-intervention)</td>
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<td>3.23</td>
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<table>
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<td>Control (Non-intervention)</td>
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<td>1.50</td>
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<td>Experimental (Intervention group)</td>
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<td>7.30</td>
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and show how their skill is developed over time. They can decide professionally and improve themselves professionally and make progress in learning. Therefore, the executives on medical training and education are advised to use this educational method in teaching-learning processes of the students. The most convenient method of sampling and a limited number of sample members is among the limitations of this study.

**Conflict of interest:** None

**REFERENCES**