



**THE EFFECT OF USING ELECTRONIC PORTFOLIO ON PHYSIOLOGY
LEARNING OF NURSING STUDENTS**

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ABSTRACT

The use of electronic technologies in teaching-learning process has become an inseparable part of today's education. The purpose of the present research is to study the impact of using electronic portfolio on physiology learning of nursing students.

Methods: The present research is a quasi-experimental study with pretest-posttest design and a control group. The statistical population is consisted of all nursing students of the city of Malayer in the school year 2014-15. The sampling has been carried out using convenient sampling method, through which 30 individuals have been selected and randomly assigned to either control or experimental group. The tools used in this study are pre-test and post-test of physiology learning with acceptable validity and reliability. The collected data is analyzed by independent T-test using SPSS software Ver.18.

Results: The results of the present research point out to improvement of physiology learning in the experimental group which has been studying using electronic portfolio, as opposed to the control group which has been studying using traditional methods of education.

Conclusion: Considering the findings of the present study and effectiveness of using electronic portfolio in physiology teaching-learning process, the use of this electronic technology in medical science education is strongly recommended.

Keywords: Electronic Portfolio, Learning, Physiology Lessons, Nursing

INTRODUCTION

The emergence of new theories of learning and education and a paradigm shift from being teacher-centered to student-centered alongside with 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 [Zerei Zavaraki & Rezaei, 2011]. Nowadays, the traditional methods are not enough for effective education of students. 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 electronic portfolio is one of the newest methods of teaching.

Electronic portfolio is an instrument for learning and evaluation of 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 in any desired time [Rezaei, 2011]. It can also be said that electronic portfolio is an instrument for learning and

evaluation of 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 student's growth, progress, and skills in a certain area [Badali et al.].

Electronic portfolio includes works collected, contemplated, selected, and displayed by a learner in order to display his/her growth and change over time [Barrette, 2005]. Many experts believe that the use of electronic portfolio can be an effective means of evaluation and education in online training courses [Gaytan & Mc. Ewen, 2007; Barbera, 2009; Chen & Chen, 2009; Wang 2009]. 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 [Bartlett & Sherry, 2006].

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 are 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 system would lead to improvement of health in the society [Emami et al, 2009]. For that reason, the necessity of using modern electronic methods such as the use of electronic portfolio in medical training becomes obvious. 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.

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 on self-regulated learning strategies.

Chi Cheng (2010) studies Self-evaluated 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.

Also the study by Badali et al. (2014) reveals that the use of electronic portfolio reduces test anxiety and increases self-esteem among university students. The purpose of the present research is to study the impact of using electronic portfolio on physiology learning of nursing students. The research hypothesis is: the use of electronic portfolio in teaching-learning process improves the learning of physiology lessons in nursing students.

METHODS

The present research is a quasi-experimental study with pretest-posttest design and a control group. The statistical population is consisted of all nursing students of the city of Malayer in the school year 2014-15. The sampling has been carried out using convenient sampling method through which 30 individuals have been selected and randomly assigned to either control or

experimental group. First, both groups are pre-tested on physiology learning; then the experimental group proceeds with one semester of physiology education with the help of electronic portfolio, while the control group sticks with the traditional method of learning the same material. After that both groups are post-tested on physiology. The obtained results are analyzed using independent t-test and with the help of SPSS software Ver.18. It should be noted that the criterion for participating in the research is the subject's willingness. The subjects in both groups have all been completely willing to participate in the research. The tools used in this study are pretest and posttest of physiology learning. Both pretest and posttest are consisted of 20 multiple choice questions, which have been reviewed afterwards by physiology teachers as the experts. After the validity of the pretest and posttest questions are confirmed by the experts, in order to assess their reliability, the test have been given to 10 nursing students outside the faculty of nursing. After carrying out Cronbach's alpha test, the reliability of

physiology learning pretest and posttest are measured to be 0.78 and 0.81 respectively.

FINDINGS

Table 1 demonstrates the descriptive statistics regarding the participants in the research.

As demonstrated in table 2, 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 3, 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.

Table 1: descriptive statistics of the participants

Group	Course (field of study)	Number
Control	Bachelor (nursing)	15
Experimental	Bachelor (nursing)	15

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

Table 2: descriptive statistics regarding the variable of learning in control and experimental groups

Group	Test	Mean	Std. deviation
Control	Pre-test	9	3.37
	Post-test	17	3.54

Experimental	Pre-test	8	3.78
	Post-test	10	3.67

Table 3: results of independent t-test for both groups in pretest and posttest phases

Group	Number	Mean difference	T	Df	P-value
Control	15	8	10.38	28	0.001
Experimental	15	2			

DISCUSSION AND CONCLUSION

The purpose of the present research is to study the impact of using electronic portfolio 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 to the results of the studies by Rezei (2011), Dana Mazra’e (2013), Chang Chang (2010), and Badali et al. (2014). 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 in 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. On this basis, the executives on medical training and education are advised to use this educational method in teaching-learning processes for the students.

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