

*Short Communication***Virtual education effect on cognitive learning and attitude of nursing students towards it**

*Fariba Borhani**, *Mahboubeh Vatanparast***, *Abbas Abbas Zadeh****,
*Hadi Ranjbar*****, *Reza Shojaei Pour******

Abstract

BACKGROUND: Along with emersion of the Internet, virtual education increasingly has been growing. Many studies discussed this method and its impact on learning. Present study investigated students' attitude towards virtual education as well as its effect on learning.

METHODS: This was a pretest-posttest quasi-experimental study. The nursing students, who had selected fluids and electrolyte disorders course, were randomly divided into two virtual and conventional education groups. The knowledge of students was assessed through a written exam and students' attitude towards virtual education assessed by a researcher-made questionnaire.

RESULTS: Mean scores of students in pretest were 0.8 (0.3) and 1.1 (0.59) in virtual and conventional group respectively [mean (SD)]. At the end of the semester their scores were 15.9 (0.58) and 16.51 (0.89) respectively. Mean attitude scores at baseline were 3.19 (0.48) and 3.21 (0.33) followed by 3.55 (0.45) and 3.21 (0.46) at the end of the semester in virtual and conventional groups respectively.

CONCLUSIONS: Although the scores of conventional group at the end of the course were higher than virtual group, both methods acted similarly in terms of increasing the knowledge. Passing a virtual education course may improve the attitude of the nurses towards it.

KEY WORDS: Virtual education, learning, attitude.

IJNMR 2011; 16(4): 321-324

Educational institutions in nursing have been seeking the methods to increase educational efficiency and improving teaching and learning methods in nursing students for many years. Advances in hardware and software science and computer use have changed the patterns of knowledge transfer and distance education.¹ Nowadays, with development of virtual educational environments, virtual learning or distance education has become one of the most important educa-

tional environments,² and information technology (IT) has created many opportunities for education.³ It is believed that Internet has a complementary role for performance of traditional and conventional classes and is an important and useful mean in distance education.⁴

Information technology facilities are increasingly used in nursing education.¹ Acquiring modern knowledge and skills in nursing care requires changing the conventional teaching approach toward virtual education. Due to the

* PhD, Assistant Professor, Department of Nursing, Razi School of Nursing and Midwifery, Bam International Center, Kerman University of Medical Sciences, Kerman, Iran.

** MSc Student in Nursing, Razi School of Nursing and Midwifery, Kerman University of Medical Sciences, Kerman, Iran

*** PhD, Associate Professor, Department of Nursing, Razi School of Nursing and Midwifery, Bam International Center, Kerman University of Medical Sciences, Kerman, Iran.

**** PhD Student of Tehran university of Medical Sciences, Faculty Member of Razi School of Nursing and Midwifery, Kerman University of Medical Sciences, Kerman, Iran.

***** MSc, Department of Information Technology, Kerman University of Medical Sciences, Kerman, Iran.

Correspondence to: Mahboubeh Vatanparast, MSc.

Email: mahboob_vatan@yahoo.com

This article was derived from MSc thesis in the Kerman University of Medical Sciences, No: 62/89.

increases in virtual learning application, students' performance would be improved and kept updated.⁵ Currently, more than 3.5 million students use virtual classrooms and despite its high growth, there are still many questions about the effect of these approaches in fields of students' attitude towards this teaching method, and their sufficiency of knowledge.⁶

Methods

Permission for providing fluid and electrolyte disorders course as virtual education was obtained from president of Faculty of Nursing. Students' approval to participate in the study was also obtained. Present study aimed to evaluate the effect of virtual learning on knowledge and attitude of the nursing students towards this method. All the nursing students (second term) entered the study (33 students).

In this study, two tools were used in order to collect pretest and posttest data. First, a test with four-choice questions related to the course knowledge was used after determining difficulty coefficient and discrimination coefficient for each question as well as validity (0.88) and reliability (0.75). A researcher-made questionnaire was the other tool to collect information about students' attitude. This questionnaire was designed based on relevant literature. Internal consistency rate (homogeneity) was calculated as 0.85 using Cronbach's alpha coefficient and content validity index as 0.93.

The students were randomly divided into virtual and conventional learning groups. At the end, 16 students were placed in the virtual

group and 17 students in the conventional group. After performing the pre-test, the students of the virtual group received the educational content through the Website of Kerman University of Medical Sciences as <http://www.vu.kmu.ac.ir> and the students of conventional group received it through traditional way by attending in the classroom. At the end of the course, the questionnaires were re-distributed to determine knowledge and attitude of the students.

SPSS software (ver.17) was used to analyze the data. Descriptive statistics (mean and standard deviation) and inferential statistics (independent t-student test and paired t-tests) were applied. The average values were presented as mean (standard deviation).

Results

Mean age of the students was 19.45 (0.86), and 66.7% were females. Three students (out of 33 subjects) were employed. Internet was accessed out of school of Nursing in 63.6% of students. None of the students had the experience of virtual classroom and their average computer skills were 1.9 from 5. Mean and standard deviation of the students' scores are illustrated in table 1 in two phases, before and after the intervention. Independent t-student test showed that although mean score of virtual group was lower ($p = 0.03$) at the end of course, but there was no significant difference between two provided methods in increasing knowledge regarding content of fluid and electrolyte disorders course ($p = 0.57$).

Table 1. Mean and SD of students' scores before and after the intervention

	Before the intervention		After the intervention		Paired t
	Mean	SD	Mean	SD	p
Virtual	0.8	0.3	15.9	0.58	<0.001
Conventional	1.1	0.59	16.51	0.89	<0.001
Independent t	0.57		0.03		0.57

Table 2. Comparing mean and SD of attitude scores toward virtual learning before and after the intervention in the two groups

	Before the intervention		After the intervention		Paired t
	Mean	SD	Mean	SD	p
Virtual	3.19	0.48	3.55	0.45	0.03
Conventional	3.21	0.33	3.21	0.46	0.97
Independent t	0.91			0.03	

Table 2 shows that at the beginning of the semester and before holding the course, there was no significant difference in mean score of attitude toward virtual education in two groups; however, after experiencing the virtual education, attitude scores had a significant difference at the end of the semester ($p = 0.03$). Paired-t test showed the mean scores of attitude was significant increased after the course in the virtual group ($p = 0.03$).

Discussion

The results of the present study showed that although mean knowledge scores of the conventional group was higher than virtual group at the end of the course, with regard to the similarity of the increase in knowledge of both groups, it can be concluded that the two educational methods (virtual and conventional) acted similarly in the process of increasing knowledge, and virtual education can be effective in learning, the same as what conventional method does. In a study which aimed to review the students' performance toward using Information Technology in the virtual setting, although scores of conventional method were higher than virtual group at the end of the course, mean of increase in the knowledge score was equal in both groups.⁴

Lower mean scores of the students in the virtual group in the present study might be that implementation of the method was completely virtually and face-to-face education was not performed for them and this simply emphasizes on the fact that virtual learning would be useful, not as an alternative for the traditional classes, but as a complementary method for the conventional class's performance.^{1,4,3}

Higher mean attitude scores at the end of the semester in the students of virtual group indicates that selecting virtual method as a new phenomenon in education for the students who had not had this experience, was associated with some uncertainties and unknowns which were solved for them by passing this course. Bringing a student who has ever been with professor's speech to the computer would not be as simple as talking. He/she has ever learned to acquire what is taught to him/her and not anything further. This issue, that how much they trust to learn in this environment, and/or how much they would take their own responsibility of learning, and whether learning is possible without attending in the classroom, would influence their attitude towards application of technology in education.

The authors declare no conflict of interest in this study.

References

1. Yu S, Yang KF. Attitudes toward web-based distance learning among public health nurses in Taiwan: A questionnaire survey. *International Journal Of Nursing Studies* 2006; 43(6): 767-74.
2. Shaikhi Fini AA. Survey on Professors and Students' Attitude about Virtual Learning in Iran Universities. *international journal of education and information technologies* 2008; 2(1): 31-5.
3. Moasil I. A Model of the Student Behaviour in a Virtual Educational Environment. *Int J of Computers, Communications & Control*, 2008; 3(Proceedings of ICCCC 2008, pp): 108-15.
4. Ali A, Elfessi A. Examining Students Performance and Attitude s towards the Use of Information Technology in a Virtual and Conventional Setting. *Journal Of Interactive Online learning* 2004; 2(3): 1-9.

5. Chang WY, Hsiao Sheen ST, Chang PC, Lee PH. Developing an e-learning education programme for staff nurses: Processes and outcomes. *Nurse Education Today* 2008; 28(7): 822-8.
6. Gaziano J, Liesen L. Student Attitudes toward Online Learning. 2011. Ref Type: Data File
7. Zolfaghari M, Mehrdad N, Parsa Yekta Z, Salmani Barugh N, Bahrani N. The Effect of Lecture and E-learning Methods on Learning Mother and Child Health Course in Nursing Students. *Iranian Journal of Medical Education* 2011; 7(1): 31-8.
8. Sung YH, Kwon IG, Ryu E. Blended learning on medication administration for new nurses: Integration of e-learning and face-to-face instruction in the classroom. *Nurse Education Today* 2008; 28(8): 943-52.
9. Wilkinson A, Forbes A, Bloomfield J, Fincham Gee C. An exploration of four web-based open and flexible learning modules in post-registration nurse education. *INTERNATIONAL JOURNAL OF NURSING STUDIES* 2004; 41(4): 411-24.
10. Yu S, Fang Yang K, Fang Wang T, Lan Yen L. A feasibility study on the adoption of e-learning for public health nurse continuing education in Taiwan. *Nurse Education Today* 2007; 27(7): 755-61.