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Website: www.jehp.net
DOI: 10.4103/jehp.jehp_257_19

Comparing the effect of “learning based on classic education” and “learning based on participatory education” on nursing students critical thinking: A case–control study

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Abstract:

INTRODUCTION: Medical education is facing a challenge in meeting society’s demands about their health improvement. Due to this, it seems necessary to educate creative and thoughtful staff for health-care system. By this introduction, this study aimed to compare the effect of “learning based on classic education” and “learning based on participatory education” on nursing students critical thinking.

MATERIALS AND METHODS: Thirty-eight nursing students participated in this study. Students were chosen by census method and were divided into two groups randomly. The California critical thinking questionnaire was used for data collection. Data were analyzed using SPSS v. 19 by descriptive statistics and *t*-test.

RESULTS: The results showed a significant difference between the mean score of critical thinking before and after conducting the “learning based on participatory education” method. Difference between mean score was significant between the two groups. This mean score was more increased in group which “learning based on participatory education” method was conducted.

CONCLUSION: The increased score of critical thinking among students with “learning based on participatory education” method showed the welcome of students toward new and dynamic methods of teaching the critical thinking and proved this that critical thinking can be useful in nursing education.

Keywords:

Nursing, participatory, speech, students

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Received: 17-05-2019
Accepted: 03-9-2019
Published: 28-02-2020

Introduction

Critical thinking is an organized process which leads to problem-solving and proper decision making.^[1] Koray and Koksall believe that thinking is a complicated process and needs characteristics such as experience, thoughtfulness, accepting other’s opinions, and confidence.^[2] There are many attitudes about thinking. In first attitude, thinking is defined as a concept which has many dimensions, and it is not unique. Experts of this attitude categorize

thinking to different dimensions such as creative thinking, practical thinking, logical thinking, and critical thinking.^[3] Another attitude considers different powers for human beings which are gathered in a unique body. Due to this, they say that thinking is a unique concept.^[4] In third attitude, thinking is considered as a process with different functions. This attitude believes that thinking is dynamic. It means that things are in contact with each other in the thinking process. As process in this attitude, different functions of thinking are related to each other.^[4] Critical thinking is

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How to cite this article: Salar AR, Fouladi B, Sarabandi A. Comparing the effect of “learning based on classic education” and “learning based on participatory education” on nursing students critical thinking: A case–control study. *J Edu Health Promot* 2020;9:47.

important in educational systems because it is considered as an aim. It is used usually as a concept for accrediting the educational systems.^[5,6] Mayors believe that until the learners are not motivated for using critical thinking, education would not be helpful.^[7] Medical education is facing a challenge in meeting society's demands about their health improvement. Due to this, it seems necessary to educate creative and thoughtful staff for health-care system.^[8] Critical thinking is highly considered these days. Many national committees believe that educational systems were not successful in teaching critical thinking to their students. They say that educational systems must put critical thinking in their programs as a main aim (after reading, writing, and mathematics).^[9] Many professors and mentors believe that critical thinking is the most important aim that a university must plan to teach to their students.^[10] Particularly, nurses must have the ability of critical thinking for making a better decision about patients and their critical situation.^[11]

Learning is a single process and needs a wide thoughtfulness. Teachers just have a guiding role in learning, and learners must do the learning process on their own.^[12] In a society, which educational systems refuse discussions and teach things without thinking to students, people would lose their ability of thinking and analyzing matters. "Speech method" and "learning based on participatory education" method are two common methods in education. Researches had shown that 80% of information which are provided by "Speech method" in most universities are forgotten within 8 weeks.^[13] The common methods of education make persons with many basic information who are not capable to solve single tiny problems. In fact, classic education provides a wide range of information which are not classified and categorized. These information cannot be useful for critical thinking and problem-solving.^[12] Although learning by speech is needed in a period, it does not give the opportunity of thinking to students.^[14] "Learning based on participatory education" is a recent method opposite the classic method which is one of the ways that can correct the previous methods. Studies proved that students prefer the dynamic and active methods such as "learning based on participatory education" method instead of classic methods of teaching.^[15,16] Participatory learning strategies include: involving students in knowledge and teaching recent sciences to students together while talking with each other in groups.^[17] This method is an effective educational method that causes better leaning in comparison with speech method. It also leads to student's enjoyment and longer keeping of information by them. Other results of this method include: increase in students satisfaction, faster learning process, problem-solving skills improvement, learning consistency, and critical thinking abilities.^[13] Poor critical thinking in country caused nurses to do things and make decisions without

thinking. The Iranian nurses' experiences in crisis had shown that they are not good in critical situations. This fact was seen in Bam earthquake in Kerman-Iran. Due to the complication of critical thinking concept, unfortunately, the Iranian nursing students had shown a poor critical thinking.^[18] Critical thinking is necessary particularly in medical fields and medical education.^[19] Nurses and whole the health-care provider team are facing critical situations all the time, and complicated matters happen to them every moment. They have to be sharp and ready for making hard decisions in critical situations. For this reason, critical thinking is really important to them.^[20] According to the above-mentioned challenges, this study aimed to compare the effect of "learning based on classic education" and "learning based on participatory education" on nursing students critical thinking to show the medical society the best method of education for nursing staff.

Materials and Methods

This was a case-control study. Thirty-eight nursing students studying at Islamic Azad University in 6th semester participated in this study. Participants were chosen by census method and were divided into two groups randomly. California critical thinking questionnaire was used for collecting information about student's critical thinking. This questionnaire included 34 questions in 5 dimensions. Each question had one correct answer. This questionnaire was designed particularly for assessing the critical thinking abilities after high school. Each correct answer had 1 score for respondents. The total score was the total number of correct answers (max = 34). Respondents had 45 min for filling the questionnaire. These 34 questions were extracted from 200 questions. Validity, reliability, and the difficulty of the questionnaire were assessed. Due to these assessments, it seems that this questionnaire is more complete than other critical thinking assessment tools. The questions assess from the basic concepts of critical thinking to the complicated ones. Answering the questions in this questionnaire need thinking and problem-solving skills.

Some of the questions must be answered by objection to the statements provided in the question. This questionnaire must be filled under the guideline of conducting critical thinking test. While designing this questionnaire, a basic background which everyone earns in primary school was considered. No specialty is required for answering the questions in this questionnaire.^[21] Reliability and validity of this questionnaire were assessed in previous studies. The trustworthy of the questionnaire was assessed by Kuder-Richardson 20 test, and it was 0.62. The analysis of further information had shown that the five factors of this questionnaire had a positive and high correlation

with the total score. This questionnaire was able to differentiate the critical thinking abilities and philosophy among nursing students.^[21]

In the control group, the classic speech method was used, and in the case group, "learning based on participatory education" method was conducted for students.

A semi-pilot research method of pre- and post-test with balanced groups was used in this study. At first students were divided into two groups of 19 students for case and control groups. Then, a pretest of critical thinking was taken by both groups for assessing their primary critical thinking score. The students were asked to answer the questions carefully. The source of information was the same in both groups. In the control group, professors used usual speech method for teaching. In case group, at first students were divided into different groups. Each group had six members. The source of information was given to them to study a week before the class session. In the class session, students set with their professor in a circle, and the role of professors was reduced to minimum to increase the opportunity of participating for students. Professor was in the class as an active listener. When the discussion was out the line, the professor controlled the class and got it back to usual. Seventy sessions were held for each group, and each session was about 90 min. After this, both groups took the posttest of critical thinking. After that data were analyzed using SPSS v. 19 (produced by IBM United States) by descriptive statistics and *t*-test.

Results

The results of this study had shown a significant difference between mean score of critical thinking before and after conducting the "learning based on participatory education" method ($P = 0.04$). This difference was significant and inverted in speech group too ($P = 0.01$) [Table 1]. Difference between mean score was significant between the two groups. This mean score was more increased in group which "learning based on participatory education" method was conducted, but it was negative in speech group [Table 2]. The mean score of group which "learning based on participatory education" method was conducted in dimensions of critical thinking was increased [Table 3].

Discussion

The results of this study had shown a significant increase in the mean score of critical thinking among case group. This result was consistent with Sand-Jecklin *et al.* study which was conducted among nursing students and the students were more satisfied with the participatory method.^[22] The results of Momeni Danaei *et al.*'s study

Table 1: Mean score in both participatory and speech group before and after intervention

	Mean score	SD
Speech group		
Before intervention	9.57	2.75
After intervention	8.10	2.57
Participatory group		
Before intervention	8.26	3.36
After intervention	15.47	7.55

SD=Standard deviation

Table 2: Difference between mean score of critical thinking before and after intervention in both speech and participatory groups

Mean score difference	Mean	SD
Participatory group	7.21	6.69
Speech group	-1.47	4.75

SD=Standard deviation

Table 3: Mean score of critical thinking in each dimension of critical thinking before and after intervention in both case and control groups

	Before intervention		After intervention	
	Mean	SD	Mean	SD
Analytical dimension				
Participatory group	2.78	1.75	3.68	2.45
Speech group	2.52	1.77	2.63	1.21
Evaluation dimension				
Participatory group	2.94	1.77	6.57	2.85
Speech group	3.94	1.39	3.15	1.38
Interferential dimension				
Participatory group	2.52	1.07	5.21	3.08
Speech group	3.10	1.48	2.31	1.56
Inductive reasoning dimension				
Participatory group	3.94	2.19	7.31	4.35
Speech group	5.10	2.13	4.15	1.57
Settlement reasoning dimension				
Participatory group	3.42	1.07	6.47	2.65
Speech group	3.73	1.24	3.31	1.66

SD=Standard deviation

were consistent with this study too. In his study, the knowledge about orthodontics was increased, and students were more satisfied with the participatory method.^[13] However, in some studies, such as Herzig *et al.*'s study students were more satisfied with classic classes.^[23] Johnston reported in his paper that students who were in participatory group did not have better results than those who were in classic classes in exams.^[24] In a study conducted by Heinz and Burg, there were no differences between students in getting to educational aims in both groups, but students who were in participatory group had a higher internal motivation.^[25] Although critical thinking is an essential tool for learning, many students are poor in critical thinking skills.^[12,26,27] The results of this study and some other studies prove this that critical thinking skills are not going to improve

with classic methods of education which are based on the listening to professors in a class and study books and memorize them and take examination all the time without any thinking process. In other words, handing the information from a generation to another is not enough for making thinking abilities in someone. The conditions of thinking and settlement must be prepared for students.^[8] In many educational systems, particularly medical educational systems, including nursing and midwifery a huge gap are seen between theoretical and practical fields. Students are not able to use their theoretical knowledge in clinical environments. Here, critical thinking works. It can bring the theoretical knowledge to clinical environment to use. In fact, critical thinking would fill the blank between theoretical and practical knowledge. Critical thinking is necessary for better performance of nurses and midwives and whole the health-care team.^[19] This study suggests the authorities to consider the attraction to critical thinking in educational programs in every field of study in universities. They should use particular strategies to increase the bent to critical thinking. Student's motivation for learning and discussing the topic in the classic classes is low for many reasons including high load of lessons, difficulty of lessons and ease of forgetting them. Even if the professor uses, the best techniques of teaching in speech there are problems. Students usually put the review of topics for the night before the examination, and they forget them easily. The results of examinations are not satisfying in this method. The topics learned with this method are not used as base of future lessons because they are easily forgotten.^[28] Factors such as: using less problem-solving methods, class discussions, questions and answering and other thinking fortifiers would kill the power of thinking in students. Using evaluation systems which are based on memorizing a high load of topics would lead the students to memorize information without any thinking process. The main aims of education must change because the speech method which is used commonly in educational centers is making students unthoughtful and they would never learn critical thinking skills like this.^[12] It seems that the common educations which are conducted in Iran could not teach critical thinking to nursing students. Due to the importance of critical thinking for health-care team, if educational systems especially medical educational systems fail to teach the team members skills of critical thinking, health-care providers especially nurses would fail to meet the demands of patients.^[18]

Due to the results of this study, participatory method of education would improve the power of thinking among students and make their judgments better. This method would make opportunities for sharing knowledge and opinions. It seems that these methods are ready to be used in wide ranges in educational systems. For starting, they can be completed of the classic education. This can

increase the internal motivation among students and can increase the quality of education.

Conclusion

The increased score of critical thinking among students with "learning based on participatory education" method showed the welcome of students toward new and dynamic methods of teaching the critical thinking and proved this that critical thinking can be useful in nursing education. Therefore, it seems necessary for health-care higher education systems to provide up-to-date educational methods in their systems. Due to limitation of time and number of participants in this study, we suggest to further colleagues to conduct studies with larger sample size and different methodologies to prove the results of the present study.

Acknowledgment

The authors would like to thank and appreciate the sincere cooperation of the nursing students and the authorities of Nursing and Midwifery School of Zahedan University of Medical Sciences.

Financial support and sponsorship

This study was financially supported by the Vice-Chancellor of Research and Technology of the Zahedan University of Medical Sciences.

Conflicts of interest

There are no conflicts of interest.

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