

## Research Paper:

## Effects of Multimethod Teaching Approach on the Learning Outcomes of Nursing Students



Fatemeh Ghaffari<sup>1,2</sup>, Agha Fatemeh Hosseini<sup>3</sup>, Mohammad Reza Zarei<sup>4</sup>, Mansoureh Ashghali Farahani<sup>4\*</sup>, Fatemeh Marandi<sup>4</sup>

1. Nursing Care Research Center, Babol University of Medical Sciences, Babol, Iran.

2. Health Research Institute, Babol University of Medical Sciences, Babol, Iran.

3. Department of Biostatistics, School of Public Health, Iran University of Medical Sciences, Tehran, Iran.

4. Nursing Care Research Center, School of Nursing and Midwifery, Iran University of Medical Sciences, Tehran, Iran.



**Citation:** Ghaffari, F., et al., (2019). Effects of Multimethod Teaching Approach on the Learning Outcomes of Nursing Students. *Journal of Client-Centered Nursing Care*, 5(1), pp. 33-42. <http://dx.doi.org/10.32598/jccnc.5.1.33>

**doi** <http://dx.doi.org/10.32598/jccnc.5.1.33>

**Article info:**

Received: 29 Jun 2018

Accepted: 11 Nov 2018

Published: 01 Feb 2019

**Keywords:**

Teaching methods,  
Patient's education,  
Nursing student,  
Learning outcomes

**ABSTRACT**

**Background:** Despite the decisive role of nurses in patient's education, they have limited ability to carry out this responsibility. One of the reasons for this incompetence is insufficient nursing education programs. This study aimed to compare and contrast the effects of multiple teaching methods and conventional methods on knowledge, satisfaction, and performance of bachelorette nursing students.

**Methods:** We conducted a quasi-experimental study with pre-test, post-test design. A sample of 154 nursing students from Tehran University of Medical Sciences was selected and then randomized into experimental (77) and control groups (77). The control group received conventional teaching, and the experimental group received multiple teaching methods, including scenario writing, role playing, videotaping, and analyzing, in 12 weekly sessions. The obtained data were analyzed by the Chi-square and Mann-Whitney tests in SPSS V. 18.

**Results:** Multiple teaching methods did not affect nursing students' knowledge. However, it resulted in higher student satisfaction ( $P=0.001$ ) and improved performance with regard to patient's education ( $P=0.001$ ).

**Conclusion:** Multiple teaching methods may help students to educate, interact, communicate, and cooperate with patients more effectively.

**\* Corresponding Author:**

Mansoureh Ashghali Farahani, PhD.

Address: Nursing Care Research Center, School of Nursing and Midwifery, Iran University of Medical Sciences, Tehran, Iran.

Tel: +98 (901) 4196618

E-mail: farahani.ma@iums.ac.ir

## Highlights

- The use of active learning teaching techniques facilitates learning and promotes positive interactions among nursing students; it enhances group decision-making process and increases trust among students.
- The findings of this study support the importance of student engagement in the educational process through the use of active teaching methods.
- Multiple teaching methods do not affect nursing students' knowledge in the area of patient education. However, it improves student satisfaction as well as the performance with regards to patient education.

## Plain Language Summary

Patient education is an important role of nurses. Although nursing students are expected to be skillful in patient education, current programs do not seem able to provide them with appropriate knowledge and fail to meet their satisfaction and performance needs. This study compared the effects of multiple teaching methods and conventional methods on the knowledge, satisfaction, and performance of bachelorette nursing students. The method included writing scenarios about standard patients, playing roles, recording videos, and analyzing the condition in 5 groups of 6 bachelorette nursing students. Teaching with multiple methods facilitates students' satisfaction and performance through their engagement in the educational process.

### 1. Background

Professional nursing is growing, and nurses play a more critical role in healthcare provision than ever (Farahani, Oskouie & Ghaffari 2016). They have extensive roles, including biopsychosocial care, care coordination, discharge planning, and education (Dehghan-Nayeri, Ghaffari & Shali 2015). Among these responsibilities, patient education is particularly among the most critical aspects of care due to its influence on patient's hospitalization duration (Castro et al. 2013) and illness recovery (Ibrahim, Alazzawi, Nizam & Haddad, 2013, Bastable 2006, American Heart Association 2006). Patient education is a dynamic and ongoing process from admission to discharge (Aziznezhad et al. 2010).

An important issue in validating health service provider organizations are implementing patient education programs. Different approaches to patient education have been mentioned in different studies; all approaches consider patients' social and professional interests (Fagermoen & Hamilton 2006). Patient education programs increase patient satisfaction and the quality of life and decrease illness complications and healthcare costs (Adams 2010). Despite the positive outcomes associated with patient education programs, previous research has found that nurses' ability to conduct this nursing responsibility is significantly limited (Farahani et al. 2008). In

total, 32% of nurses reported their performance of patient education as sufficient (Zokaie Yazdi, Mosayyeb Moradi & Mehran, 2002).

Other studies found that nurses were unsuccessful instructors to patients; they were particularly underprepared for the aspects of patient education that required establishing relationships with patients and families and recognizing and applying ethical principles (Aziznezhad et al. 2010). Moreover, newly graduate nurses have reported that their education has insufficiently prepared them in terms of patient education in healthcare settings (Bastable 2006, Farahani et al. 2008). Thus, there exists a need to educate and prepare nursing students for the critical role of patient education (Gore, Hunt & Raines, 2008).

Although patient education is a complex process which requires the careful consideration of multiple factors, its related courses do not sufficiently prepare nurses for their role. These courses are typically offered in the first and second years of nursing programs when students have no clinical background and may not understand the importance and applicability of the information to clinical settings; furthermore, there is no credit associated with patient education courses. Consequently, students and faculties disregard the deserved value to these courses. These reasons could explain why professional nurses have a sense of unpreparedness concerning their role in patient education. Thus, nursing faculties are ex-

pected to use appropriate teaching methods to promote nursing students' active participation in the patient education process (Cato, Lasater & Peeples 2009).

Healthcare education has embraced a new meaning and identity in the 21<sup>st</sup> century. The slow but obvious evolution in healthcare education has made the main change in learners' critical thinking and learning through the use of different teaching methods. With this evolution, there is now a shift from conventional teaching methods to non-traditional ones, such as role plays, classroom response systems, interactive interfaces, simulation, and live interviews with patients to engage the learners in various manners (Kidd, Knisley & Morgan 2012, Parasuram et al. 2014).

Multimethod teaching approaches, such as role-playing, simulation, and the use of multi-media (e.g., films, and videos) are linked to positive outcomes in various fields. The use of role-playing in teaching nursing theory has been examined in an online Baccalaureate program; nursing students adopted the persona of a specific nursing theorist, interacting with other nursing theorists played by their peers. The results revealed that student engagement and their active learning have led to excitement and interest, and course evaluations were extremely positive for this content and method. Students also developed a sustained interest in nursing theory well beyond the end of the actual course (Levitt & Adelman 2010).

Previous research has linked the use of these teaching methods to improve students' awareness, critical thinking, performance, self-confidence, and satisfaction (Cato et al. 2009). These methods have predetermined the situations and roles; thus, create ideal solutions for the problem of teaching nursing students, mainly to handle risky situations under safe conditions. These teaching methods also help to improve the quality and safety of patient care. Through these teaching methods, students are allowed to make mistakes in a safe experiential environment where patients' well-being is not at stake (Oermann, Dillon & Templin, 2000). The use of these teaching methods transforms the passive classroom environment into an active one (Gore et al. 2008).

Multiple teaching methods may also enhance experiential co-learning. The combination of various teaching methods can facilitate student teamwork and cooperation with other students in small groups. Team interactions can enhance students' ability with respect to innovative strategies in healthcare provision; increase their motivation to work and communicate with colleagues, and participate in self-learning and critical thinking activities (Chan, 2012).

Professional nurses require skills to cooperate, communicate, and work with other healthcare professionals effectively. Applying active learning teaching techniques facilitates learning and positive interactions among students enhances the within-group decision-making process, and increases trust among students (Warland, Smith & Smith 2012).

The use of the teaching mentioned above methods improves self-confidence, theoretical knowledge, student satisfaction, and critical thinking (Baillie & Curzio 2009). Thus, this study compared the effect of multimethod teaching approaches with conventional teaching methods. In particular, the study research question includes what is the effect of multiple teaching methods on A. Knowledge; B. Satisfaction, and C. Performance of bachelorette nursing students of Tehran University of Medical Sciences in comparison to conventional teaching methods?

## 2. Materials and Methods

A quasi-experimental study with a pre-test-post-test design was used. The study Participants were all bachelorette nursing students in their second semester. After obtaining ethics approval from the Ethics Review Board of Tehran University of Medical Sciences, all the patient education classes were included in the study. Two classrooms were randomly assigned to receive the multiple teaching methods (n=77), and the remaining two classrooms received conventional teaching methods (n=77). Overall, there were 154 nursing students in these 4 classrooms. All the students consented to participate in the study.

Data were collected using student logs and a questionnaire, including demographic variables, knowledge, satisfaction, and educational performance questionnaires. Demographic variables: The demographic questionnaire consisted of 4 questions about the participants' age, gender, marital status, and Grade Point Average (GPA) in the previous semester.

Knowledge questionnaire: To evaluate knowledge, a researcher-made questionnaire, including 21 multiple-choice questions, was used. The questions were selected from a fundamental, medical-surgical, and psychiatric nursing question database. Each question had one score (Total score=21). To evaluate the reliability of the questionnaire, split-half test method, and Kuder-Richardson Formula 21 were used on the data obtained from 30 bachelorette nursing students. The reliability indices were 70% and 75%, respectively. The students were excluded from the study.

### Satisfaction Questionnaire

To measure student satisfaction, a researcher-made questionnaire with a 5-point Likert-type scale (1=completely agree to 5=completely disagree) was used. The control and experimental groups received 23-item and 32-item questionnaires, respectively; these questions were then piloted among a convenience sample of 30 bachelorette nursing students in the second semester. The reliability indices of satisfaction questionnaire were obtained using the pilot data (Cronbach's alpha=0.91). The knowledge and satisfaction questionnaires were content validated using the following procedure:

Ten patient education experts (university faculty members) reviewed the questions concerning their clarity and relevance. Questions were revised based on their feedback. In addition, the feedback of 15 second-semester bachelorette nursing students was also sought, and questions were accordingly further revised.

Patient education performance questionnaire: It consisted of 21 items answered on a 10-point Likert-type scale (1=strongly disagree to 10=strongly agree). This scale measures patients' feelings and knowledge about the information received from the student (10 items) and the interaction between the nursing student and the patient (11 items) (Fagermoen & Hamilton 2006). Two patients were surveyed in respect of each nursing student. Reliability of this instrument has been calculated on a sample of 30 patients (Cronbach's alpha coefficient: 0.85) (Bastani et al. 2016)

The nursing students in the control group received theoretical training in patient education through lectures and question-answer methods in the classroom, and their practical training occurred in laboratory settings. In laboratory settings, students were divided into 5 groups of 6-8 members. The students in each group were requested to identify the subject for which their standard patient required education. The instructor confirmed or modified the selected subject based on the abilities of the students. The subjects were selected according to the disorders that the students had been exposed to during their clinical rotations. Each group developed and implemented an educational program for the standard patient. Eventually, the groups delivered their patient education program during a predetermined time.

The experimental group received multiple teaching methods for patient education. The theoretical component of the program was identical to the control group. In the practical component, the students were divided into

5 groups, each with 6-8 members. Similar to the control group, the experimental group members were requested to identify the subject of their standard patient education. Then, the groups were encouraged to write scenarios, which were then reviewed by students in other groups, the course instructor, the researchers, and a scenario development expert. After revising student scenarios, the students performed role-playing exercises considering the perspectives of the patient, patient's family, the nurse, and other multidisciplinary team members. The role plays were video recorded, reviewed and analyzed by individual students as well as the instructor.

The educational performance of the experimental and control group was studied immediately after the intervention and in their subsequent semester in a clinical situation. Students in Iran usually pass their clinical training courses after passing theoretical courses in the faculties of nursing and midwifery. The knowledge and satisfaction of students were assessed before and after completion of the practice session in the laboratory. Their performance was examined during the clinical course in the subsequent educational semester. The knowledge and satisfaction of the groups were measured at the end of the last session in the laboratory setting. The study was conducted in 12 sessions of an hour and a half in 3 months.

To analyze the obtained data, the assumption of normality was initially examined, using the Kolmogorov-Smirnov test, and descriptive statistics were used. Chi-squared test was used to examine between-group differences with respect to the demographics of experimental and control groups. Mann-Whitney U Test was also used. The collected data were analyzed by SPSS.

### 3. Results

Given the gender imbalance in both groups, the results were analyzed in a gender-wise manner. The Mann-Whitney U Test results indicated that gender only interacts with satisfaction; the males in the experimental group had higher satisfaction rates than females. Gender was unassociated with any other dependent variable. The results also indicated that the majority of participants were  $\geq 25$  years old and married in both groups (Table 1).

Chi-squared Test results indicated no significant differences between the groups in terms of age, marital status, and last semester GPA. There was no difference between the mean score of knowledge before ( $df=152$ ,  $t=0.69$ ,  $P=0.48$ ) and after ( $df=152$ ,  $t=0.37$ ,  $P=0.7$ ) the intervention in the experimental and control groups (Table 2).

**Table 1.** The demographic characteristics of the experimental and control groups

Group	No. (%)		Statistics	
	Control	Experimental		
Age, y	< 25	11 (14.3)	9 (11.7)	$\chi^2 = 0.23$ df = 1 P = 0.63
	≥ 25	11 (85.7)	68 (88.3)	
Gender	Female	62 (80.5)	38 (46.8)	$\chi^2 = 19.56$ df = 1, P = 0.00
	Male	15 (19.5)	39 (50.6)	
Marital status	Single	9 (7.8)	7 (7.8)	$\chi^2 = 2.78$ df = 1 P = 0.24
	Married	68 (85.7)	70 (90.9)	
Previous Semester GPA	11 - 13.99	10 (15.2)	15 (23.1)	$\chi^2 = 4.23$ df = 1 P = 0.12
	14 - 16.99	42 (63.6)	44 (67.7)	
	17 - 18.99	14 (21.2)	6 (9.2)	

Client- Centered Nursing Care

**Table 2.** Comparing the results between groups before and after the intervention

Pre-test		Mann-Whitney U Test	Post-test		Mann-Whitney U Test
Comparison	Mean $\geq$ SD		Comparison	Mean $\geq$ SD	
10.76 $\geq$ 3.05	11.10 $\geq$ 2.95	Z = -0.443 P = 0.65	10.29 $\geq$ 3.44	10.50 $\geq$ 3.43	Z = -0.311 P = 0.756

Client- Centered Nursing Care

Satisfaction scores were not significantly different between the groups before the intervention. However, the students in the experimental group were significantly more satisfied than the controls at post-test (Table 3).

The obtained results revealed significant differences between the two groups in terms of student performance. Specifically, students in the experimental group achieved higher performance rates than the controls (Table 4).

#### 4. Discussion

Teaching with multiple methods had no effect on students' knowledge about patient education. One possible explanation for this finding might be that lecture methods are widely used in Iranian universities; thus, students are accustomed to such teaching method. Previous research reported that teaching through lectures reduces students' anxiety scores and increases their knowledge levels (De-Marco, Hayward & Lynch 2002; Nabors 2012).

**Table 3.** Comparing satisfaction scores before and after the intervention

Satisfaction	Pre-test		Mann-Whitney U Test	Post-test		Mann-Whitney U Test
	Control	Experimental		Comparison	Experimental	
Mean	67.19	73.37	Z = 1.88	61.33	115.67	Z = 10.37
SD	19.29	16.85	P < 0.06	16.69	19.62	P < 0.001

Client- Centered Nursing Care

**Table 4.** Comparing performance scores after the intervention

Groups	Comparison	Experimental	Mann-Whitney U Test
Mean	43.61	193.12	Z = 10.68
SD	26.50	19.17	P < 0.001

Client-Centered Nursing Care

Other empirical research also indicated that active teaching methods, such as group discussions and role-plays failed to enhance the knowledge scores of nursing students, compared with other teaching methods such as lectures (Salimi et al. 2007; Jeffries, Woolf & Linde 2003). However, other studies reported that the use of lecture teaching methods compared with the active teaching methods decreased satisfaction scores in different courses (Safari et al. 2006; DeMarco et al. 2002).

Lecture methods of teaching have been associated with certain drawbacks, such as student inactivity, boredom, one-way communication, and fast forgetting of the subjects (Nowroozi et al. 2011). Approximately 80% of the content covered in lectures is forgotten within 8 weeks (Safari et al. 2006). The findings of the present study supported the positive influence of teaching with multiple methods on student satisfaction, compared with conventional lecture methods.

Excessive reliance on lecturing in nursing programs leads to reduced self-confidence and satisfaction of students with learning. Most students prefer active participation in the learning process (Jeffries et al. 2003; Sadeghi, Sedaghat & Ahmadi, 2014; Ghodsbini & Shafakhah 2008). Teaching with multiple methods can enhance motivation to learn and student satisfaction due to involvement in the learning process. Some studies revealed that many nurses and nursing students avoid teaching patients due to a lack of self-confidence or feeling uncomfortable with patients. Results of some other studies are also consistent with our findings (Ghodsbini & Shafakhah 2008; Chanchalor & Chomphutong 2004). Some other studies have also recognized that role-playing increases students' self-confidence (Erfanian et al. 2009).

Role-playing could engage students in the learning process and make this process desirable and enjoyable. Role-playing can also lead to competition and excitement among all students, role players, and observers. In this method, students learn new subjects with increased satisfaction. In addition, audiences emotionally relate to role players. In lecturing methods, student satisfaction is much lower than participatory methods. Students' satisfaction is directly associated with their participation in the education process (Hassanzadeh, Vasili & Zare 2010).

Participants' satisfaction in the game, and role-play methods are high. In a study, conducted at Washington University, 40 interns were educated by various methods. In total, 80% recognized the course as thoroughly effective, and 75% of interns described learning from games and videos very favorable. Participants also reported that role-playing was interactive, experimental, convenient, and interesting. However, they suggested that real-life scenarios should be used in role-plays (Kim, Stevens & Pinsky 2003). A study indicated that the mean examination score of nursing students was 12.62 for a traditional lecture, 14.80 for the Socratic method, and 15.10 for students' lectures. The students learning satisfaction was higher at the end of the Socratic method and students' lectures method courses. Traditional lectures induced the least anxiety while the Socratic method induced the most (Adib-Hajbaghery & Aghajani 2011)

The present results revealed that the performance scores of the nursing students who had been taught with multiple methods were higher than that of those who had been taught with lecture method in this course credit. Results of some other studies are congruent with this finding (Daniels 2009). A study on the effects of lecture and simulation methods on nursing students' performance suggested that the nursing students' scores increased from 72% to 92% after introducing simulations and scenario (Alderman 2012).

Tahery et al. (2011) argued that 65.6% of the students believed their skill and awareness was a facilitating factor in patient education, while 48.4% believed learning during the study was essential; however, the remaining 29.1% believed in-depth learning with active methods is among the most important facilitators of translating knowledge to clinical practice (Tahery et al. 2011).

Nursing students have reported that a lot of patient education principles are expressed ambiguously, and they do have insufficient self-confidence to enact their theoretical understanding in clinical practice and establish constructive relationships with patients (Tahery et al. 2011). Teaching with multiple methods increases students' self-confidence and facilitates effective communication with

patients; thus, their attempts at patient education will be more effective (Comer 2005). Learning methods such as role-playing and simulated scenarios could increase nursing students' sympathy for patients and improve their self-efficiency and performance in clinical settings (Nikendei et al. 2007).

Teaching with multiple methods enable students to acquire information from different channels (Flanagan & McCausland 2007). For this reason, various students' learning needs are met. At the same time, these methods encourage students to use all their learning potential; thus, maximizing their learning experience (Johnson & Romanello 2005). Therefore, active teaching strategies that encourage student engagement and self-directed learning promote the understanding of complex concepts and retention of material for a longer period (Flanagan & McCausland 2007). The use of a variety of teaching strategies can enhance learning by capitalizing on differences in learning needs and styles (Gentry, Sallie & Sanders 2013).

In addition, role-playing can enhance students' skills in terms of patient education. The use of traditional teaching methods, like lectures, prevents the applicability of patient educational theories in a clinical setting and leads to ineffective communication between nursing students and patients; thus, active learning techniques is essential for the effective enactment of patient education in clinical settings (Hekmatpou, Anousheh & Elhani 2007).

Lecture methods are not as effective as some of the active teaching methods, like role-plays. This is mainly due to students' lack of participation in the learning process, which in turn decreases the effectiveness of the educational process. The more the engagement of students in the educational process, the better their learning experience (Hassanzadeh et al. 2010; DeNeve & Heppner 1997).

According to psychologists, learning is better, and its effects are more persistent when it is accompanied by learners' engagement and participation. Education experts thus emphasize the importance of new and active learning methods (Marques & Correia 2017). One of the proposed strategies for teaching clinical skills, like patient education, is the integration of traditional educational programs with multiple teaching methods. Lifelong learning and the effective application of knowledge in the clinical setting are the outcomes of using active teaching methods (Dudley, Cotton & Peralta 2015).

The current findings support the importance of student engagement in the educational process through the use of active teaching methods. In addition, multiple teaching methods can

be used to help students educate, interact, communicate, and cooperate with patients more effectively. The study findings contribute to a body of knowledge related to the use of multimethod teaching, especially in the field of nursing, where translating knowledge to the clinical setting is essential.

One of the limitations of this study is the quality of films that were created due to a shortage of audiovisual equipment for filming and sound recording. These factors affected the quality of sound in the videos that students recorded. Another limitation of the study stems from missing data on the baseline covariates adjusted for in the statistical analyses. However, sensitivity analyses between imputed data and the complete case analyses from the original data demonstrated similar results. Thus, the impact on our conclusions appears to be limited.

A multimethod teaching approach was more effective than conventional teaching methods concerning student satisfaction and student performance. Teaching with multiple methods had no influence on knowledge scores.

## Ethical Considerations

### Compliance with ethical guidelines

This study was a research project under No. 21561.28.01.92 at Tehran University of Medical Sciences. Prior to collecting the data, written informed consent was obtained from the study participants. The students and patients were informed that their participation in the study was voluntary.

### Funding

This research received no specific grant from any funding agency in public, commercial, or not-for-profit sectors.

### Authors' contributions

Writing the manuscript: Fatemeh Ghaffari, Mohammad Reza Zarei, Mansoureh Ashghali Farahani; Data research: Fatemeh Ghaffari, Agha Fatemeh Hosseini, Mansoureh Ashghali Farahani; Contributing to discussion: Agha Fatemeh Hosseini, Mohammad Reza Zarei, Mansoureh Ashghali Farahani; Reviewing and edited the manuscript: Mohammad Reza Zarei, Fatemeh Marandi, Mansoureh Ashghali Farahani.

### Conflict of interest

The authors declare no conflicts of interests.

## Acknowledgments

The authors thank the School of Nursing of Tehran University of Medical Sciences for its cooperation. The participation of the students is also appreciated.

## References

- Adams, R. J., 2010. Improving health outcomes with better patient understanding and education. *Risk Management and Healthcare Policy*, 2010(3), pp. 61-72. [DOI:10.2147/RMHP.S7500] [PMID] [PMCID]
- Adib-Hajbaghery, M. & Aghajani, M., 2011. Traditional lectures, Socratic method and student lectures: Which one do the students prefer?. *Webmedcentral*, 2(3), WMC001746. [DOI:10.9754/journal.wmc.2011.001746]
- Alderman, J. T., 2012. Using simulation to teach nursing students and licensed clinicians obstetric emergencies. *MCN: The American Journal of Maternal/Child Nursing*, 37(6), pp. 394-400. [DOI:10.1097/NMC.0b013e318264bbe7] [PMID]
- American Heart Association., 2006. 2005 American Heart Association (AHA) guidelines for Cardiopulmonary Resuscitation (CPR) and Emergency Cardiovascular Care (ECC) of pediatric and neonatal patients: Pediatric basic life support. *Pediatrics*, 117(5), pp. e989-e1004. [DOI:10.1542/peds.2006-0219] [PMID]
- Aziznezhad, P., et al., 2010. [Nurses and nurse managers opinions about the patient's training barriers (Persian)]. *Journal of Babol University of Medical Sciences*, 12(Suppl. 1), 60-4.
- Baillie, L. & Curzio, J., 2009. Students' and facilitators' perceptions of simulation in practice learning. *Nurse Education in Practice*, 9(5), pp. 297-306. [DOI:10.1016/j.nepr.2008.08.007] [PMID]
- Bastable, S. B., 2016. *Essentials of patient education*. Burlington: Jones & Bartlett Learning.
- Castro, M. G., et al., 2013. Education program on medical nutrition and length of stay of critically ill patients. *Clinical Nutrition*, 32(6), pp. 1061-6. [DOI:10.1016/j.clnu.2012.11.023] [PMID]
- Cato, M. L., Lasater, K. & Peeples, A. I., 2009. Nursing students' self-assessment of their simulation experiences. *Nursing Education Perspectives*, 30(2), pp. 105-8. [PMID]
- Chan, Z. C., 2012. Role-playing in the problem-based learning class. *Nurse Education in Practice*, 12(1), pp. 21-7. [DOI:10.1016/j.nepr.2011.04.008] [PMID]
- Chanchalor, S. & Chomphutong, P., 2004. Teaching model focus utilizing a student centered strategy for vocational students. *World Transactions on Engineering and Technology Education*, 3(1), pp. 75-8.
- Comer, S. K., 2005. Patient care simulations: Role playing to enhance clinical understanding. *Nursing Education Perspectives*, 26(6), pp. 357-61. [PMID]
- Daniels, W.L., 2009. Nurse as educator: Principles of teaching and learning for nursing practice. *ABNF Journal*, 20(1), p. 29.
- Dehghan-Nayeri, N., Ghaffari, F. & Shali, M., 2015. Exploring Iranian nurses' experiences of missed nursing care: A qualitative study: A threat to patient and nurses' health. *Medical Journal of the Islamic Republic of Iran*, 29, p. 276. [PMID] [PMCID]
- DeMarco, R., Hayward, L. & Lynch, M., 2002. Nursing students' experiences with and strategic approaches to case-based instruction: a replication and comparison study between two disciplines. *Journal of Nursing Education*, 41(4), pp. 165-74. [DOI:10.3928/0148-4834-20020401-06]
- DeNeve, K. M. & Heppner, M. J., 1997. Role play simulations: The assessment of an active learning technique and comparisons with traditional lectures. *Innovative Higher Education*, 21(3), pp. 231-46. [DOI:10.1007/BF01243718]
- Dudley, D. A., Cotton, W. G. & Peralta, L. R., 2015. Teaching approaches and strategies that promote healthy eating in primary school children: A systematic review and meta-analysis. *International Journal of Behavioral Nutrition and Physical Activity*, 12, p. 28. [DOI:10.1186/s12966-015-0182-8] [PMID] [PMCID]
- Erfanian, F., Khadivzadeh, T., Khadem, N., 2009. [The effect of teaching by role playing on students' counseling and screening skills toward IUD clients (Persian)]. *Iranian Journal of Medical Education*, 8(2), pp. 275-84.
- Fagermoen, M. S. & Hamilton, G., 2006. Patient information at discharge-a study of a combined approach. *Patient Education and Counseling*, 63(1-2), pp. 169-76. [DOI:10.1016/j.pec.2005.09.016] [PMID]
- Farahani, M.A., et al., 2008. Cultural barriers in the education of cardiovascular disease patients in Iran. *International Nursing Review*, 55(3), pp. 360-6. [DOI:10.1111/j.1466-7657.2008.00635.x] [PMID]
- Farahani, M. A., Oskouie, F. & Ghaffari, F., 2016. Factors affecting nurse turnover in Iran: A qualitative study. *Medical journal of the Islamic Republic of Iran*, 30, p. 356. [PMID] [PMCID]
- Flanagan, N. A. & McCausland, L., 2007. Teaching around the cycle: Strategies for teaching theory to undergraduate nursing students. *Nursing Education Perspectives*, 28(6), pp. 310-4. [PMID]
- Gentry, R., Sallie, A. P. & Sanders, C. A., 2013. *Differentiated instructional strategies to accommodate students with varying needs and learning styles* [BA. thesis]. Jackson: Jackson State University.
- Ghodsbin, F. & Shafakhah, M., 2008. [Facilitating and preventing factors in learning clinical skills from the viewpoints of the third year students of Fatemeh school of nursing and midwifery (Persian)]. *Iranian Journal of Medical Education*, 7(2), pp. 343-52.
- Gore, T., Hunt, C. W. & Raines, K. H., 2008. Mock hospital unit simulation: A teaching strategy to promote safe patient care. *Clinical Simulation in Nursing*, 4(3), pp. e57-e64. [DOI:10.1016/j.ecns.2008.08.006]
- Hassanzadeh, A., Vasili, A. & Zare, Z., 2010. Effects of two educational method of lecturing and role playing on knowledge and performance of high school students in first aid at emergency scene. *Iranian Journal of Nursing and Midwifery Research*, 15(1), p. 8-13. [PMID] [PMCID]



- Hekmatpou, D., Anousheh, M. & Elhani, F., 2007. [Pathology of patient education: A qualitative study (Persian)]. *Iran Journal of Nursing*, 20(49), pp. 51-60.
- Ibrahim, M. S., et al., 2013. An evidence-based review of enhanced recovery interventions in knee replacement surgery. *The Annals of The Royal College of Surgeons of England*, 95(6), pp. 386-9. [DOI:10.1308/003588413X13629960046435] [PMID] [PMCID]
- Jeffries, P. R., Woolf, S. & Linde, B., 2003. Technology-based vs. traditional instruction: A comparison of two methods for teaching the skill of performing a 12-lead ecg. *Nursing Education Perspectives*, 24(2), pp. 70-4. [PMID]
- Johnson, S. A. & Romanello, M. L., 2005. Generational diversity: Teaching and learning approaches. *Nurse Educator*, 30(5), pp. 212-6. [DOI:10.1097/00006223-200509000-00009] [PMID]
- Kidd, L. I., Knisley, S. J. & Morgan, K. I., 2012. Effectiveness of a second life® simulation as a teaching strategy for undergraduate mental health nursing students. *Journal of Psychosocial Nursing and Mental Health Services*, 50(7), pp. 28-37. [DOI:10.3928/02793695-20120605-04] [PMID]
- Kim, S., Stevens, N. G. & Pinsky, L., 2003. Casting anxiety in small group facilitation: Faculty development via role play. *Medical Education*, 37(5), p. 489. [DOI:10.1046/j.1365-2923.2003.01502\_20.x] [PMID]
- Levitt, C. & Adelman, D.S., 2010. Role-playing in nursing theory: Engaging online students. *Journal of Nursing Education*, 49(4), pp. 229-32. [DOI:10.3928/01484834-20091217-03] [PMID]
- Marques, P. A. O. & Correia, N. C. M., 2017. Nursing education based on "hybrid" problem-based learning: The impact of PBL-based clinical cases on a pathophysiology course. *Journal of Nursing Education*, 56(1), p. 60. [DOI:10.3928/01484834-20161219-12] [PMID]
- Nabors, K.L., 2012. *Active learning strategies in classroom teaching: Practices of associate degree nurse educators in a southern state* [PhD. Dissertation]. Tuscaloosa: University of Alabama.
- Nikendei, C., et al., 2007. Integration of role-playing into technical skills training: A randomized controlled trial. *Medical Teacher*, 29(9-10), pp. 956-60. [DOI:10.1080/01421590701601543] [PMID]
- Norozi, H. M., et al., 2011. [The effect of teaching using a blend of collaborative and mastery of learning models, on learning of vital signs: An experiment on nursing and operation room students of Mashhad University of Medical Sciences (Persian)]. *Iranian Journal of Medical Education*, 11(5), 541-53.
- Oermann, M. H., Dillon, S. L. & Templin, T., 2000. Indicators of quality of care in clinics: Patients' perspectives. *Journal for Healthcare Quality*, 22(6), pp. 9-11. [DOI:10.1111/j.1945-1474.2000.tb00159.x] [PMID]
- Parasuram, R., et al., 2014. Effectiveness of using non-traditional teaching methods to prepare student health care professionals for the delivery of the Mental State Examination: A systematic review protocol. *JBI Database of Systematic Reviews and Implementation Reports*, 12(8), pp. 3-19. [DOI:10.1112/jbis-rir-2014-1354]
- Sadeghi, R., Sedaghat, M. M. & Ahmadi, F. S., 2014. Comparison of the effect of lecture and blended teaching methods on students' learning and satisfaction. *Journal of Advances in Medical Education & Professionalism*, 2(4), pp. 146-50. [PMID] [PMCID]
- Safari, M., et al., 2006. [Comparing the effect of lecture and discussion methods on students learning and satisfaction (Persian)]. *Iranian Journal of Medical Education*, 6(1), pp. 59-64.
- Salimi, T., et al., 2007. [Comparing the effects of lecture and work in small groups on nursing students' skills in calculating medication dosage (Persian)]. *Iranian Journal of Medical Education*, 7(1), pp. 79-84.
- Tahery, N., et al., 2011. [Importance of patient education according to nursing students' opinions (Persian)]. *Modern Care Journal*, 8(2), pp. 100-6.
- Warland, J., Smith, C. & Smith, M., 2012. Much ado about the flu: Design and implementation of an e-role play for a large class of undergraduate students. *Nurse Education in Practice*, 12(2), pp. 65-71. [DOI:10.1016/j.nepr.2011.07.004] [PMID]
- Zokaie Yazdi, S., Mosayyeb Moradi, J. & Mehran, A., 2002. [Perspective of the nursing staff at hospitals affiliated to the Tehran University of Medical Sciences on the roles and activities of the nurses (Persian)]. *Hayat*, 8(3), pp. 22-32.

---

This Page Intentionally Left Blank

---