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ORIGINAL RESEARCH

Barriers and Challenges Against the Utilization of Novel Teaching Methods for Nursing Students: Perspectives of Nursing Instructors

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Abstract

Background: The first step in effectively applying novel teaching methods is identifying barriers and challenges to implementing appropriate interventions. A literature review revealed no studies exploring nursing instructors' viewpoints on the reasons for not using novel teaching methods.
Purpose: The present study aimed to explore the challenges and executive barriers against using novel approaches in instructing nursing students from the perspective of nursing instructors.
Methods: In this descriptive-analytical study, 163 nursing instructors from three nursing schools in Fars Province, Southwest Iran, were selected using convenience sampling. A researcher-developed questionnaire comprising 17 items scored on a five-point Likert scale was utilized to collect data. These items were categorized into three domains: challenges related to students (n=4), instructors (n=8), and structural-managerial aspects (n=5). The questionnaire's reliability coefficient was found to be 0.89 using the test-retest method. The Kolmogorov–Smirnov test was used to test the normality of variables and the independent t-test was employed to examine the relationship between genders and educational degrees across all three domains.
Results: The mean scores for challenges and barriers related to the instructors, students, and structural-managerial aspects were 33.24(7.16), 16.31(3.93), and 22.14(3.64), respectively. A significant relationship between gender and educational degree was observed across all three domains (p<0.001).
Conclusion: The barriers and challenges against using novel teaching methods for nursing students from the perspective of nursing instructors included challenges related to instructors, students, and structural-managerial aspects. The support and encouragement of educational institution managers in executing these methods could help promote the utilization of these techniques and improve the quality of education.

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1. Introduction

Education is a complicated process, particularly in medical sciences, where graduates face clients requiring complex services (Buja et al., 2019). Education in medical sciences should aim at training skillful, ethical, research-oriented, entrepreneurial, and reflexive students ready to encounter challenging and complicated work environments. However, training such students is challenging and requires great infrastructure (Gutierrez et al., 2016). One strategy to enhance the quality of medical student education involves altering teaching techniques (Samarakoon et al., 2013). A successful instructor enhances learning effectiveness by adhering to teaching principles and aligning teaching methods with students' learning styles (Ahmed et al., 2018).

Iurea et al. (2011) showed that if a teacher adapts their teaching style to the student's learning style, the student's scientific performance and educational framework for student participation will increase. Thus, sustainable learning will gradually be achieved. They also discovered that dynamic teaching and learning styles support learner satisfaction and student awareness of their learning styles. The student's learning style adaptation method based on teaching strategies and their application significantly affects learning and satisfaction (Iurea et al., 2011).

The instructor-teaching method is the primary source of adjustment to interaction styles in the classroom and an important factor in motivating students and enhancing their cooperation (González et al., 2017). In this context, awareness of teaching methods, conformity to student learning styles, and variety in utilizing these techniques considerably affect learners' learning and satisfaction. Dynamic teaching and learning styles also support learners' satisfaction. Despite the variety of teaching methods in medical sciences nowadays, many instructors still use the lecture method (Wang & Liu, 2019; Yazici et al., 2016).

As with other majors, many nursing educational programs employ lecturing. In this method, learners' capacities are not properly addressed, the role of learners is not significant, and learning is superficial. To overcome these shortcomings, educators have begun to use participatory and active learning methods (McLaughlin et al., 2014). To that end, Benner and MacKinnon et al. proposed changes in the education system, such as moving away from teaching decontextualized knowledge and better integrating active learning in the classroom. New and innovative instructional strategies must be integrated within nursing education to achieve these goals (Benner et al., 2012; MacKinnon et al., 2017).

Considering the positive effects of novel teaching methods based on problem-solving, the role of self-orientation in learning, and the impact of lifelong learning on medical students, it is necessary to develop and implement student-centered methods based on learning theories in universities and provide opportunities for improvement of learning among nursing students as health care providers (Alghasham et al., 2012). The new teaching method, which we call the modern method, is more activity-based and centers the learner's mind, which involves them entirely in the learning process. In the modern teaching method, curriculum teaching and planning keep the learners as the primary target. The new method focuses more on teaching the students to improve their intellect by using various new and innovative ideas rather than making them recite the syllabus to clear the examination with the same old style (Anderson, 2022).

A previous study has systematically reviewed the effectiveness of new teaching methods in Iran (Karimi Monaghi et al., 2013). They selected and reviewed thirty-two articles in their study and concluded that the new methods of teaching, including problem-based learning (PBL), clinical simulation, self-directed learning, small group sessions, competency-based education, concept maps, and case-based learning (CBL), increase student learning, satisfaction, and participation, and promote deep learning, and creative thinking (Karimi Monaghi et al., 2013). Another study also showed that new student-centered teaching strategies, such as the discussion method, lead to deeper learning and student satisfaction than traditional teaching strategies, such as lecture-based learning (Meng et al., 2019). Sharma (2017) and Al-Hammouria et al. (2020) also showed new teaching strategies, including flipped classrooms, problem-based learning (PBL), workshops, computer-assisted instruction (CAI), and team-based learning (TBL), promoted deeper learning, more participation, and student satisfaction compared to the lecture-based learning method (Al-Hammouri et al., 2020; Sharma et al., 2017).

Traditional teaching methods can no longer respond to the needs of the educational system (Tularam et al., 2018). Today, instructors seek methods that lead to active learning among students and strengthen their critical thinking and decision-making skills (Horntvedt et al., 2018; McCurry & Martins, 2010). Although numerous studies have emphasized utilizing novel approaches in nursing student education (Fisher & King, 2010; Nouri et al., 2014), traditional methods such as lectures are still the top priority of many faculty members in Iran. This method can be used to explain academic terms well and teach a large number of learners at a low cost (Ross & Bruderle, 2018). Ghojazadeh et al. (2015) stated that novel teaching methods could not be accurately and standardly executed in Iran unless they are accompanied by time, place, and personnel arrangements.

A review of existing literature showed a lack of studies on nursing instructors' perspectives concerning the reasons for not adopting novel teaching methods. Consequently, the researchers decided to explore the challenges and strategies associated with implementing these methods among nursing faculty members through brainstorming sessions. By analyzing the results, steps could be taken toward planning for employing novel teaching techniques in nursing education. Thus, the present study aimed to assess the instructors' perspectives regarding the reasons for not using novel teaching methods and the challenges against selecting and utilizing these techniques.

2. Methods

2.1 Research design

This study employed a descriptive-analytical design to explore the challenges and executive barriers against the utilization of novel teaching approaches from the perspectives of nursing instructors.

2.2 Setting and samples

The study was conducted in 2020 among nursing instructors from three nursing schools in Fars Province, Southwest Iran, utilizing total population sampling. Inclusion criteria for the study involved nursing instructors with a minimum of one year of experience in applying novel teaching methods and a willingness to participate. Meanwhile, individuals with incomplete questionnaires or needing more physical or mental preparedness were excluded. Initially, the study targeted 174 nursing instructors. However, 11 were subsequently excluded due to reasons such as maternity leave (n=3), continuing education (n=5), and incomplete questionnaires (n=3). Consequently, 163 questionnaires were successfully completed, achieving a response rate of 93%.

2.3 Measurement and data collection

The data were collected using a questionnaire developed by the researchers and validated in two stages. The first stage involved designing a questionnaire to identify challenges and strategies for overcoming barriers to using novel teaching methods in nursing education from the perspective of nursing instructors. The questionnaire items were formulated through a literature review and a nominal group technique. Thirty nursing instructors, primary participants in the study, were invited to a six-hour nominal group technique session aimed at identifying challenges and barriers against the employment of novel teaching techniques. This session gathered ideas from instructors regarding reasons for not using novel teaching methods and associated executive barriers. These ideas were categorized into three groups based on similarities: challenges related to instructors, students, and structural-managerial aspects. Subsequently, the questionnaire was developed and distributed among participants to assess the importance and scores of the items. By employing group consensus and thorough examination of participant ideas, challenges in utilizing novel teaching techniques were comprehensively explored from the perspectives of experts and stakeholders. The goal was to devise strategies for the effective implementation of these techniques through collective wisdom. The finalized questionnaire included demographic questions (age, sex, work experience, and educational degree), along with 17 items categorized into three domains: challenges related to students (n=4), challenges related to instructors (n=8), and structural-managerial challenges (n=5). Items were scored on a five-point Likert scale ranging from 4 (very important) to 0 (unimportant).

In the second stage, face and content validity were employed to assess the questionnaire's validity. The quantitative face validity was evaluated using the impact score, where scores >1.5 indicated item appropriateness (Heale et al., 2015). According to 20 nursing instructors (part of this study's respondents), all questionnaire items' impact scores exceeded 1.5. Content Validity Ratio (CVR) and Content Validity Index (CVI) were used to investigate content validity. The experts determined the items' necessity as 'necessary,' 'useful but not necessary,' and 'not necessary' considering CVR (Goldin et al., 2015). In doing so, we collected 15 nursing instructors' opinions, and values greater than 0.49 were considered acceptable based on the Lawshe table (Ayre & Scally, 2014). Regarding CVI, the experts' group included nursing professors skilled in designing and validating tools and were requested to evaluate the items in relevance, clarity, and simplicity. In this respect, scores above 0.79 were considered acceptable (Kovacic, 2018). The total content validity of the questionnaire was computed using S-CVI/Ave, where the minimum score of 0.79 was considered acceptable (Connell et al., 2018). Based on the results, the S-CVI/Ave of the questionnaire was found to be 0.96. Finally, the reliability of the questionnaire was assessed using the test-retest method. In doing so, the questionnaire was given to 100 nursing instructors (part of the respondents of this study) in two stages with a two-week interval. The reliability coefficient of the questionnaire was found to be 0.89.

In this study, each question was assessed using a five-point Likert scale, ranging from 4 (very important) to 0 (not important). Hence, applying parametric tests for direct comparison would not be appropriate. The total score of each domain was calculated by summing the responses to questions (ranging from 0 to 16, 0 to 32, and 0 to 20, respectively, for challenges related to

students, instructors, and structural-managerial challenges). However, the summed total scores offer a wide range suitable for parametric tests. Subsequently, each domain's range was divided into two equal categories: low and most important (0 to 8, 9 to 16 for challenges related to students; 0 to 16, 17 to 32 for challenges related to instructors; 0 to 10, 11 to 21 for structural-managerial challenges). The normality of distribution was confirmed through the Kolmogorov–Smirnov test.

After obtaining permission from the university officials, the faculty members meeting the inclusion criteria were approached, briefed on the study objectives, and requested to complete the questionnaire. The questionnaires were administered between April and June 2020.

2.4 Data analysis

The study data were entered into the IBM SPSS software (version 22, IBM Corporation, Armonk, NY, USA) and were presented by frequency distribution, mean, and standard deviation (SD). Kolmogorov–Smirnov test was used to assess the normality distribution of variables. The results confirmed the normality assumption for all three instructors, students, and structural domains. The independent t-test was used to compare three instrument domains between genders and between educational levels. Three instrument domains were compared between work experience levels by ANOVA. A *p*-value less than 0.05 was considered to be a significant level.

2.5 Ethical considerations

All participants provided written informed consent to participate in the study. The present study was conducted following the principles of the revised Declaration of Helsinki, a statement of ethical principles that directs physicians and other participants in medical research involving human subjects. The participants were assured of the anonymity and confidentiality of their information. Moreover, the study was approved by the local Ethics Committee of Fasa University of Medical Sciences, Fasa, Iran (Ethical code: IR.FUMS.REC.1398.124).

3. Results

3.1 Profile of participants

Among the 163 nursing instructors under investigation, 96 (58%) were female, and 67 (42%) were male. Furthermore, 70 participants (43%) held Ph.D. degrees, while 93 (57%) held MSc degrees. Also, the participants' mean age was 39(1.65) years, and their mean work experience was 8(4.83) years.

3.2 Challenges related to instructors, students, and structural-managerial aspects

The mean scores of the challenges related to students, challenges related to instructors, and structural-managerial challenges were 12.31(3.93), 25.24(7.16), and 17.14(3.64), respectively, and all were the most important challenges. Regarding the challenges associated with students, the highest score was related to students' lack of familiarity with novel teaching methods. Considering the challenges associated with instructors, the highest scores were related to instructors' unfamiliarity with novel teaching methods and lack of mastery and skills. Finally, many students and the lack of support and encouragement from educational institutions obtained the highest scores in structural-managerial challenges (Table 1).

Table 1. The mean (SD) scores of the items in the three domains (n=163)

Domain	Effective factors and barriers	Mean (SD)	Interpretation
Challenges related to students	Lack of motivation	2.84(1.18)	
	Resistance against change	2.55(1.45)	
	Unfamiliarity with novel teaching methods	3.67(0.60)	
	Non-applicability of teaching content	3.25(0.98)	
	Total score of the challenges related to students	*12.31(3.93)*	*Most Important*
Challenges related to instructors	Resistance against change	2.51(1.32)	
	Unfamiliarity with novel teaching methods	3.73(0.58)	
	Lack of motivation	2.73(1.23)	

Table 1. Continued

Domain	Effective factors and barriers	Mean (SD)	Interpretation
	Satisfaction with and trust in the common teaching methods	3.03(0.97)	
	Lack of privilege	3.43(0.79)	
	Difficulty of evaluation in novel teaching methods	3.33(0.86)	
	Not having lessons plans based on the teaching method	2.92(1.15)	
	Lack of mastery and skills	3.57(0.72)	
	Total score of the challenges related to instructors	*25.24(7.16)*	*Most Important*
Structural-managerial challenges	Time restrictions	3.43(0.77)	
	Large number of students	3.57(0.62)	
	Difficulty in class management	3.30(0.78)	
	Lack of appropriate physical space	3.35(0.90)	
	Lack of support and encouragement from the university	3.49(0.72)	
	Total score of structural-managerial challenges	*17.14(3.64),*	*Most Important*

3.3 Correlation of gender, educational degree, work experience, and teaching challenges

The independent t-test results revealed a significantly higher score of females than males in all three domains: Students, Instructors, and Structural, with $p<0.001$ (Table 2).

Table 2. Mean (SD) scores of the three domains based on gender (n=163)

Teaching Challenges	Female (n=96)	Male (n=54)	t	*p*-value
	Mean (SD)	Mean (SD)		
Students (0 to 16)	14.92(1.31)	7.67(2.46)	20.130	<0.001
Instructors (0 to 32)	29.91(2.52)	16.94(4.81)	18.429	<0.001
Structural (0 to 20)	19.57(0.98)	12.81(2.4)	19.817	<0.001

As shown in Table 3, this study also indicated a significantly higher score of the Ph.D. group than the M.Sc. group in all three domains: Students, Instructors, and Structural ($p<0.001$). It can be concluded that nursing instructors with a higher academic degree have a broader perspective and greater competence in identifying and overcoming new teaching challenges.

Table 3. Mean (SD) scores of the three domains based on the educational degree (n=163)

Teaching Challenges	Ph.D. (n=60)	M.Sc. (n=90)	t	*p*-value
	Mean (SD)	Mean (SD)		
Students (0 to 16)	15.82(0.5)	9.97(3.44)	13.067	<0.001
Instructors (0 to 32)	31.67(0.66)	20.96(6.25)	13.206	<0.001
Structural (0 to 20)	20.00(0.0)	15.23(3.6)	10.233	<0.001

Moreover, this study also indicated a significant relationship between lower work experience and the high scores of the three domains: Students, Instructors, and Structural ($p<0.001$) (Table 4). This suggests that longer work experience notably impacts how instructors see and tackle challenges tied to implementing innovative teaching methods.

4. Discussion

This study investigated the challenges and barriers faced by nursing instructors in utilizing innovative approaches for nursing students across three domains: challenges related to students, instructors, and structural-managerial aspects. The findings indicated the highest scores in challenges related to instructors and structural-managerial aspects, while the scores were lower in challenges related to students. Utilizing novel teaching methods in nursing education can lead

to active and deep learning and long-term maintenance of the learned materials in students' minds (Shirani Bidabadi et al., 2016).

Table 4. Mean (SD) scores of the three domains based on work experience (n=163)

Teaching Challenges	<5 (n=96)	5-10 (n=57)	>10 (n=60)	F	*p*-value
	Mean (SD)	Mean (SD)	Mean (SD)		
Students (0 to 16)	15.82(0.58)	14.63(1.26)	8.17(2.78)	132.046	<0.001
Instructors (0 to 32)	32.00(0.0)	29.26(2.13)	17.70(5.11)	238.134	<0.001
Structural (0 to 20)	20.00(0.0)	19.61(0.77)	13.22(2.6)	64.853	<0.001

In the present study, the most pronounced challenges and obstacles in the student domain were unfamiliarity with novel teaching methods and non-applicability of teaching content. In this regard, the results of a previous study by Safapour et al. (2019) also showed that the lack of sufficient knowledge and awareness among learners had been one of the obstacles and challenges of using modern teaching methods. Implementing innovative teaching approaches often requires students to be adaptable and familiar with different learning methods. The difficulty in adjusting to these new methods could arise from educational systems that mainly focus on traditional teaching styles, as highlighted by Safapour et al. (2019). Adapting to this modern teaching style demands students to shift their learning approaches, needing increased awareness and knowledge to use these modern teaching methods effectively. Additionally, when teaching content aligns differently from these new methods, students may perceive a disconnect between what they are taught and how it is taught.

Based on the study results, the challenges and obstacles affecting the instructor domain with the highest scores included unfamiliarity with novel teaching methods, the difficulty of evaluation in novel teaching methods, and lack of mastery and skills. In this regard, a study by Torabizadeh et al. (2018) also explored the effective barriers to using novel approaches in the clinical evaluation of nursing students in clinical environments based on nursing instructors' viewpoints. The results revealed that the most important challenges included nursing instructors' unfamiliarity with novel clinical evaluation techniques and the difficulty of evaluation in novel teaching methods, which align with the findings of the present investigation. Moreover, in a study by Wentink et al. (2019), instructors' lack of skills and unfamiliarity with novel teaching methods were introduced as challenges and obstacles affecting the use of new teaching methods. It was recommended that the instructors gain the necessary training and skills in this field (Wentink et al., 2019). This emphasizes the critical need for instructors to acquire the necessary skills and training to employ modern teaching techniques effectively.

Implementing modern teaching techniques is highly significant. Scicluna (2012) stated that the professional capabilities of the learners must be emphasized in medical education. Such education must improve critical thinking skills, including clinical judgment, reasoning, and decision-making, which can be achieved by employing novel educational approaches. Thus, instructors should familiarize themselves with different novel educational approaches and gain the necessary awareness and preparedness (Scicluna et al., 2012). Rafiee et al. (2014) and Jamshidi et al. (2016) also reported that instructors' lack of sufficient knowledge and lack of support from educational institutions were effective challenges and barriers to the utilization of novel teaching approaches. So, educational system managers should use the necessary plans to empower the professors using modern teaching methods (Henning et al., 2019).

Another challenge and obstacle against the utilization of novel teaching methods for nursing students from the perspective of nursing instructors was a structural-managerial challenge and obstacle. In this domain, the highest scores included the challenges related to time restrictions, the large number of students, and the lack of appropriate physical space. These findings align with the results of the study by Buch et al. (2021), which reported that time restrictions, lack of suitable infrastructure and educational equipment, and lack of motivation and support from the educational manager are some of the challenges and obstacles affecting the use of new educational methods and techniques. These collective challenges underscore the imperative need for addressing structural and managerial deficiencies to foster the effective integration of innovative teaching techniques in nursing education.

Furthermore, this study also indicated a significant relationship between the level of education and competence in using new methods of education in all three domains: student, instructor, and structural-managerial challenges. It can be concluded that nursing instructors with a higher academic degree have a broader perspective and greater competence in identifying and overcoming new teaching challenges. Similarly, the results of a study by Torabizadeh et al. (2018) showed that nursing professors with a Ph.D. or master's degree paid more attention to identifying and coping with new challenges in the evaluation of nursing students, which is consistent with the results of the present study. Moreover, the results showed a significant relationship between work experience and the scores of the three domains of Student, Instructor, and Structural-managerial challenges. This correlation suggests that an extended duration of work experience significantly influences how instructors perceive and address the challenges associated with implementing innovative teaching methods.

5. Implications and limitations

The present study aimed to assess instructor perspectives regarding the reasons for not using novel teaching methods and the challenges against selecting and utilizing these techniques. Based on the results, necessary steps could be taken toward eliminating executive barriers and planning for employing novel teaching techniques in nursing education. The educational system's senior managers and policymakers should use the necessary planning and measures to solve the challenges and obstacles affecting the use of new educational approaches and develop new educational methods in educational programs.

This study has certain limitations. The individuals participating in the content and face validity tests were included among the study participants. While the questionnaire's face and content validity, as well as reliability, were confirmed, the construct validity of the questionnaire was not assessed. Therefore, it is advisable that future studies using this questionnaire also evaluate its construct validity.

6. Conclusion

This study showed that the most pronounced challenges in implementing novel teaching methods were observed in the domains of instructors and structural-managerial aspects, while comparatively lower challenges were identified within the student-related domain. Considering the challenges associated with the instructors and students, the highest score was related to their unfamiliarity with the novel teaching methods. Indeed, the large number of students and time restrictions obtained the highest scores in structural-managerial challenges. The study findings indicate that applying novel approaches in nursing education requires infrastructure and the elimination of executive barriers. Instructor and student familiarity with novel teaching methods, their executive processes, and the support and encouragement of the managers of educational institutions for executing these methods could help promote the utilization of these techniques and improve the quality of education. It is recommended to carry out similar studies, especially in the form of qualitative studies, in other countries to identify and eliminate the obstacles affecting the utilization of novel teaching methods in nursing and medical education.

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Author contribution

MB, ZM, SHK, ZHF, and MH assisted in the conceptualization and design of the study, oversaw data collection, conducted data analysis, and drafted the manuscript. MB, MMN, and ZM conceptualized and designed the study, assisted in data analysis, and reviewed the manuscript. LN assisted in study conceptualization and reviewed the manuscript. All authors read and approved the final manuscript.

Conflict of interest

Authors declare no conflict of interest.

References

Ahmed, M. H. (2018). Are good attributes of medical teachers more important than the learning style: A glimpse into the future of medical education and learning. *Journal of Public Health and Emergency*, *2*(18), 2-6. https://doi.org/10.21037/jphe.2018.05.01

Alghasham, A. A. (2012). Effect of students' learning styles on classroom performance in problem-based learning. *Medical Teacher, 34*(1), 14-19. https://doi.org/10.3109/0142159X.2012.656744

Al-Hammouri, M. M., Rababah, J. A., Rowland, M. L., Tetreault, A. S., & Aldalaykeh, M. (2020). Does a novel teaching approach work? A Students' perspective. *Nurse Education Today, 85*, 104229. https://doi.org/10.1016/j.nedt.2019.104229

Anderson, C. R. (2022). *Traditional versus modern teaching methods amongst special education students and enhancing students' self-concept: A comprehensive literature review* [Doctoral dissertation, The Chicago School of Professional Psychology]. https://test.cdn.editorypress.uz/docs/2d1497d3-630a-4164-b72e-f58b4efd77bc_5.pdf

Ayre, A., & Scally, A. J. (2014). Critical values for Lawshe's content validity ratio: Revisiting the original methods of calculation. *Measurement and Evaluation in Counseling and Development, 47*(1), 79 –86. https://doi.org/10.1177/0748175613513808

Benner, P. (2012). Educating nurses: A call for radical transformation—how far have we come? *Journal of Nursing Education, 51*(4), 183-184. https://doi.org/10.3928/01484834-20120402-01

Buch, A. C., Rathod, H., & Naik, M. D. (2021). Scope and challenges of self-directed learning in undergraduate medical education: A systematic review. *Journal of Medical Education, 20*(1), e114077. https://doi.org/10.5812/jme.114077

Buja, L. M. (2019). Medical education today: All that glitters is not gold. *BMC Medical Education, 19,* 110. https://doi.org/10.1186/s12909-019-1535-9

Connell, J., Carlton, J., Grundy, A., Taylor Buck, E., Keetharuth, A. D., & Ricketts, T. (2018). The importance of content and face validity in instrument development: Lessons learnt from service users when developing the Recovering Quality of Life measure (ReQoL). *Quality of Life Research, 27*, 1893–902. https://doi.org/10.1007/s11136-018-1847-y

Fisher, M. J., & King, J. (2010). The self-directed learning readiness scale for nursing education revisited: A confirmatory factor analysis. *Nurse Education Today, 30*(1), 44-48. https://doi.org/10.1016/j.nedt.2009.05.020

Ghojazadeh, M., Azami-Aghdash, S., Azar, F. P., Fardid, M., Mohseni, M., & Tahamtani, T. (2015). A systematic review on barriers, facilities, knowledge and attitude toward evidence-based medicine in Iran. *Journal of Analytical Research in Clinical Medicine, 3*(1), 1-11. https://doi.org/10.15171/jarcm.2015.001

González, A., Conde, Á., Díaz, P., García, M., & Ricoy, C. (2017). Instructors' teaching styles: Relation with competences, self-efficacy, and commitment in pre-service teachers. *Higher Education, 75* (4), 625–42. https://doi.org/10.1007/s10734-017-0160-y

Goldin, I. M., Pinkus, R. L., & Ashley, K. (2015). Validity and reliability of an instrument for assessing case analyses in bioengineering ethics education. *Science and Engineering Ethics, 21*(3), 789-807. https://doi.org/10.1007/s11948-015-9644-2

Gutierrez, C. M., Cox, S. M., & Dalrymple, J. L. (2016). The revolution in medical education. *Texas Medicine, 112*(2), 58-61. https://europepmc.org/article/med/26859376

Henning, M. A., Chen, Y., Ram, S., & Malpas, P. (2019). Describing the attributional nature of academic dishonesty. *Medical Science Educator, 29*, 577-581. https://doi.org/10.1007/s40670-019-00710-8

Horntvedt, M. E., Nordsteien, A., Fermann, T., & Severinsson, E. (2018). Strategies for teaching evidence-based practice in nursing education: A thematic literature review. *BMC Medical Education, 18*(172), 2-11. https://doi.org/10.1186/s12909-018-1278-z

Iurea, C., Neacsu, I., Safta, C. G., & Suditu, M. (2011). The study of the relation between the teaching methods and the learning styles–The impact upon the students' academic conduct. *Procedia-Social and Behavioral Sciences, 11*(2011), 256-260. https://doi.org/10.1016/j.sbspro.2011.01.072

Jamshidi, N., Molazem, Z., Sharif, F., Torabizadeh, C., & Kalyani, M.N. (2016). The challenges of nursing students in the clinical learning environment: A qualitative study. *The Scientific World Journal*, *2016,* 1846178. https://doi.org/10.1155/2016/1846178

Karimi Moonaghi, H., Rad M., & Bakhshi, M. (2013). Do the new methods of teaching in medical education have adequate efficacy? A systematic review. *Strides in Development of Medical Education, 10*(2), 271-280.

Kovacic, D. (2018). Using the content validity index to determine content validity of an instrument assessing health care providers' general knowledge of human trafficking. *Journal of Human Trafficking, 4*(4), 327-35. https://doi.org/10.1080/23322705.2017.1364905

MacKinnon, K., Marcellus, L., Rivers, J., Gordon, C., Ryan, M., & Butcher, D. (2017). Student and educator experiences of maternal-child simulation-based learning: A systematic review of qualitative evidence. *JBI Evidence Synthesis, 15*(11), 2666-2706. https://doi.org/10.11124/JBISRIR- 2016-003147

McCurry, M. K., & Martins, D. C. (2010). Teaching undergraduate nursing research: A comparison of traditional and innovative approaches for success with millennial learners. *Journal of Nursing Education, 49*(5), 276-9. https://doi.org/10.3928/01484834-20091217-02

McLaughlin, J. E., Roth, M. T., Glatt, D. M., Gharkholonarehe, N., Davidson, C. A., Griffin, L. M., & Mumper, R. J. (2014). The flipped classroom: A course redesign to foster learning and engagement in a health professions school. *Academic Medicine, 89*(2), 236-243. https://doi.org/10.1097/ACM.0000000000000086

Meng, X., Yang, L., Sun, H., Du, X., Yang, B., & Guo, H. (2019). Using a novel student-centered teaching method to improve pharmacy student learning. *American Journal of Pharmaceutical Education, 83*(2), 6505. https://doi.org/10.5688/ajpe6505

Nouri, J. M., Ebadi, A., Alhani, F., & Rejeh, N. (2014). Experiences of role model instructors and nursing students about facilitator factors of role-modeling process: A qualitative research. *Iranian Journal of Nursing and Midwifery Research, 19*(3), 248-54.

Rafiee, G., Moattari, M., Nikbakht, A. N., Kojuri, J., & Mousavinasab, M. (2014). Problems and challenges of nursing students' clinical evaluation: A qualitative study. *Iranian Journal of Nursing and Midwifery Research, 19*(1), 41-9.

Ross, J. G., & Bruderle, E. (2018). Effects of active, student-centered teaching strategies on nursing students' knowledge, skills, attitudes, and comfort related to patient safety. *Nurse Educator, 43*(1), 2–3. https://doi.org/10.1097/NNE.0000000000000400

Safapour, E., Kermanshachi, S., & Taneja, P. (2019). A review of nontraditional teaching methods: Flipped classroom, gamification, case study, self-learning, and social media. *Education Science, 9*(4), 273. https://doi.org/10.3390/educsci9040273

Samarakoon, L., Fernando, T., Rodrigo, C., & Rajapakse, S. (2013). Learning styles and approaches to learning among medical undergraduates and postgraduates. *BMC Medical Education, 13*(42), 2-6. https://doi.org/10.1186/1472-6920-13-42

Scicluna, H. A., Grimm, M. C., O'Sullivan, A. J., Harris, P., Pilotto, L. S., & Jones, P. D. (2012). Clinical capabilities of graduates of an outcomes-based integrated medical program. *BMC Medical Education, 12*(23), 2-8. https://doi.org/10.1186/1472-6920-12-23

Sharma, R. K. (2017). Emerging innovative teaching strategies in nursing. *JOJ Nurse and Health Care, 1*(2), 1-3.

Shirani Bidabadi, N., Nasr Isfahani, A. R., Rouhollahi, A., & Khalili, R. (2016). Effective teaching methods in higher education: Requirements and barriers. *Journal of Advance in Medical Education and Professionalism, 4*(4), 170 -178.

Torabizadeh, C., Ghodsbin, F., Javanmardifard, S., Shirazi, F., Amirkhani, M., & Bijani, M. (2018). The barriers and challenges of applying new strategies in the clinical evaluation of nursing students from the viewpoints of clinical teachers. *Iranian Journal of Nursing and Midwifery Research*, *23*(4), 305-310.

Tularam, G. A. (2018). Traditional vs non-traditional teaching and learning strategies-the case of e-learning. *International Journal for Mathematics Teaching and Learning, 19*(1), 129-158. https://doi.org/10.4256/ijmtl.v19i1.21

Wang, R., & Liu, C. (2019). The relation of dental students' learning styles to their satisfaction with traditional and inverted classroom models. *BMC Medical Education, 19,* 315. https://doi.org/10.1186/s12909-019-1749-x

Wentink, M. M., Siemonsma, P. C., & van Bodegom-Vos, L. 2019. Teachers' and students' perceptions on barriers and facilitators for eHealth education in the curriculum of functional exercise and physical therapy: A focus groups study. *BMC Medical Education*, *19,* 343. https://doi.org/10.1186/s12909-019-1778-5

Yazici, H. J. (2016). Role of learning style preferences and interactive response systems on student learning outcomes. *International Journal of Information and Operations Management Education, 6*(2), 109–34. https://doi.org/10.1504/IJIOME.2016.076046