Effectiveness of a train-the-trainer workshop series on teaching methods among nurse educators: an exemplar from Vietnam

Van Lan Hoang[1]*, Hien Thi Bui[2], Thuy Thi Le[3],
Duong Thuy Tran[1], Hue Thi Hoang[4], Hong Thuy Phuong Huynh[5]
and Thi Hoa Huyen Nguyen[1]

[1]College of Health Sciences, VinUniversity, Hanoi, Vietnam, [2]School of Nursing, Taipei Medical University, Taipei, Taiwan, [3]School of Nursing, Queensland University of Technology, Brisbane, QLD, Australia, [4]Nursing Department, Hai Duong Medical Technical University, Hai Duong, Vietnam, [5]University of Medicine and Pharmacy, Ho Chi Minh City, Vietnam

Nurse educators play a critical role in preparing the next generation of nurses to provide high-quality patient care. The ongoing preparation of knowledge and skills for nurse educators is crucial for maintaining the quality of nursing education, particularly during the unexpected challenges such as the COVID-19 pandemic. This study aimed to examine the effectiveness of a workshop series on five concurrent teaching methods for nurse educators in Vietnam. A mixed-methods study was conducted. An online workshop series was conducted for 25 nurse educator representatives from five nursing schools across Vietnam. The workshop program covered of five teaching methods, including (i) teaching from face-to-face class to e-learning, (ii) team-based learning (TBL), (iii) case-based teaching (CBT), (iv) debriefing techniques used in simulation training, and (v) developing peer program to assist students' learning. Pre- and post−surveys were used to test knowledge of teaching methods, followed by semi-structured individual interviews. Quantitative data were analyzed using descriptive and comparison statistics, while qualitative data underwent content analysis. Results showed a significant improvement in participants' overall knowledge following the workshops, with the mean total score of correct answers increasing from 12.48 (SD = 2.77) in the pre-test to 16.8 (SD = 3.81) in the post-test. Substantial gains were observed in three specific areas: the classic progress of activities in team-based learning, Kolb's experiential learning cycle in simulation debriefing techniques, and the core value of the peer mentoring model had significantly improved. Most nurse educators expressed satisfaction with the training workshops, with the "debriefing technique" being the most interesting topic. Two major themes emerged from the qualitative analysis: fostering interest in updated teaching methods and motivating the change. This study suggests that replicating the workshop series on teaching methods would be a beneficial in facilitating ongoing improvements in teaching practice in Vietnam's nursing education system.

KEYWORDS

nursing education, workshops, continuing education, teaching methods, Vietnam

1 Introduction

Research has shown that an engaging learning environment could improve students' higher achievement, satisfaction, and academic success in higher education (Ferrer et al., 2022). Competent educators, who constantly adopt effective teaching strategies to create a dynamic educational environment, are the key factors contributing to the students' expected outcomes (Leach, 2016). In nursing education, nurse educators play an important role, particularly in preparing graduates to be practice-ready, especially in any catastrophic situations in which complex demands for competent and safe nursing care would be increased (Yazici and Ökten, 2022). For example, the COVID-19 pandemic has caused interruptions in the implementation of nursing training programs. Delays in programs and lack of access to direct teaching methods have impacted the capacity to educate students in a manner that ensures they are competent and safe to practice. With the unexpected changes due to the pandemic, the need to reduce face-to-face learning opportunities, and develop graduates who can offer evidence-based practice and be lifelong learners, it is necessary to ensure competency-based learning and minimize problems in the learning environment by adopting more appropriate teaching methods/ models (Salta et al., 2022). They sought alternative, flexible learning and teaching methods beyond the traditional face-to-face approach (Leidl et al., 2020). Globally, nursing institutions shifted to distance learning during the crisis, employing online demonstration videos, blended learning, and high-fidelity simulations as alternative solutions (Dewart et al., 2020; Rashwan et al., 2023). Implementing these flexible teaching and learning strategies requires adequate preparation for nurse educators.

The development of nursing education in Vietnam has taken slow steps within the context of a lower middle-income country in Southeast Asia. The formal baccalaureate program for Vietnamese nurses was established firstly in 1995 (Nguyen et al., 2022). Prior to this time, the nursing programs were hospital-based and short-term training (i.e., vocational training programs; Jones et al., 2000). These short-term nursing programs have continued until now due to the limited numbers of nurses trained in the baccalaureate programs nationwide (Fujita et al., 2019). Following the reform of nursing education since 2006, nurse educators started to have opportunities to pursue Masters' degrees overseas offered by the Vietnamese governmental support and international partnerships (Chapman et al., 2013; Pron et al., 2008). The proclamation of the first competency standards for Vietnamese nurses by the Vietnamese Nurses Association 2012, resulted in the transformation of undergraduate nursing programs to shift toward competency-based education (Nguyen et al., 2022). This profound change led to the requirement of the adaptation and preparation of nurse educators in their teaching strategies. However, not all nurse educators were well-prepared for their teaching roles or not all prepared teaching strategies were used effectively mostly due to the limited resources of nursing education in a developing country (Nguyen et al., 2022).

With the existing limitations, nursing education in Vietnam faced many challenges, particularly during the peak of the COVID-19 pandemic. The adoption of distance learning approaches, and blended learning models including in-class and online sessions through learning management platforms and virtual simulations to maintain the implementation of nursing programs during the pandemic had become an emerging issue for the nurse educators and their institutions (Ngo and Phan, 2023). The significant challenges for the education system emphasize the need for improvement in infrastructure, more adaptable education programs, and the abilities of nurse lecturers in using updated and flexible teaching strategies (Ngo and Phan, 2023). The suggested solution is long-term training workshops (Ngo and Phan, 2023). Additionally, in comparison, the students of Generation Z are much more advanced in digital literacy than their lecturers, and many lecturers have lacked the necessary training and resources to effectively deliver online teaching (Agu et al., 2021; Ngo and Phan, 2023). Apart from that, the previous workshops in teaching preparation primarily focus on nursing skills, overlooking the crucial aspect of teaching strategies (Nguyen et al., 2018b; Tram and Lam, 2022).

Recognizing the emerging need to enhance teaching competencies, the significance of providing Training-of-Trainer (TOT) workshops for the Vietnamese nurse educators became evident. These preparation workshops aimed not only to introduce new teaching methods but also to strengthen the teaching capacity among nurse educators and prepare them for any unforeseen circumstances. Teaching methods that can be adaptable to the changes of the educational settings and the social context are likely to have an immense influence on minimizing interruptions in students' learning, the students' on-time graduation and their professional practice competency (Leaver et al., 2022). Therefore, this study aimed to evaluate the effectiveness of a series of online TOT workshops providing numbers of updated teaching methods for nurse lecturers in Vietnam.

2 Materials and methods

2.1 Study design

A mixed-methods design was used. Quantitative data were collected using a knowledge questionnaire developed for the study proposed, while qualitative data were collected via semi-structured in-depth interviews. The quantitative findings aimed to examine nurse lecturers' knowledge related to their teaching methods, while the qualitative results were to understand the nurse lecturers' experiences and perspectives after participating in the workshop series.

2.2 The train-of-trainer workshop series

The workshop series was conducted on delivering updated teaching methods, including five training topics: (i) teaching from face-to-face classes to e-learning, (ii) team-based learning (TBL), (iii) case-based teaching (CBT), (iv) debriefing techniques used in simulation training, and (v) developing peer program to assist students' learning. These five topics were selected from a literature review and the previous survey assessing Vietnamese nursing students' perceptions of their learning environment, where lecturers overemphasized factual learning, strictness, and control (Ramsbotham et al., 2019). Additionally, the project experts' opinions were also consulted.

The first workshop focused on characteristics of active teaching and learning with some specific strategies including flipped classroom and project-based learning (DeLozier and Rhodes, 2017; Wurdinger, 2016), and its application in e-learning and provided some

practical online tools to engage students in an e-learning environment, including Poll

Everywhere, Gboard, Slido, and Kahoot. These teaching tools have been widely used in e-learning and significantly reported positive effects on classroom dynamics, students' attitudes, and learning performance (Ismail, 2019; Zulfa and Laras, 2020). The second workshop was to introduce Team-Based Learning (TBL), which is a teaching strategy based on the readiness assurance process—RAP of students (Roberson and Franchini, 2014). A TBL session is conducted following 4 steps: (1) establish learning teams (5–7 students each team); (2) preparation which includes pre-readings, individual readiness assurance test—iRAT and team readiness assurance test—tRAT and following with lecturers' feedback and mini-lecture; (3) multiple application activities in class to solve a problem based on 4S problem-solving framework, which comprises significant problem, same problem, specific choice, and simultaneously report (Roberson and Franchini, 2014). The workshop of Case-Based Learning (CBT) provided different applications of teaching and learning using clinical case scenarios that engage students to learn problem-solving and critical thinking skills that are important for the nursing profession (Kantar and Sailian, 2018). In this workshop, knowledge was provided for nurse lecturers to design and conduct case scenarios for different teaching purposes, such as clinical reasoning, clinical decision-making, and assessment. The significant relationship between CBT, TBL, and improved critical thinking skills or higher academic performance in health students has been demonstrated in previous literature (Koles et al., 2010). The fourth workshop focused on training nurse lecturers in debriefing techniques essential in simulation health education. The debriefing models and techniques have been used in health and nursing education worldwide (Aebersold, 2018). In this workshop, the nurse lecturers were updated in the 3D model (Defusing, Discovery, and Deepening), GAS model (Gather, Analyze, and Summarize), and RAS model (Reaction, Analysis, and Summary; Abulebda et al., 2019; Zigmont et al., 2011). The application of these debriefing models guided the nurse lecturers to provide feedback effectively to improve their students' learning in simulation learning. The fifth workshop introduced peer support model applications, specifically in nursing education, aiming to instruct nurse lectures on valuable models to guide their students in the academic process (Hawkins et al., 2022; Kim et al., 2021). Some models included peer mentoring, peer tutoring, and peer-assisted learning (Balilah et al., 2020).

Each workshop was conducted online via the Zoom platform in one working day, with one theory and one practice session in which the participants had a chance to experience the updated teaching methods in August 2022. A published guidebook consisting of the implementation guidelines for each teaching method was given to each participant as the workshop's teaching materials (Hoang et al., 2022).

2.3 Participants and sampling

Nurse lecturers from two private and three public schools across Vietnam (two from the North, one from the Center, and two from the South of Vietnam) participated in the program. Based on the time and resource limitations given for our project, 25 nurse lecturers were invited to this workshop. The purposive sampling method was implemented. Specifically, the invitation letter for participation was sent with the support of local university nurse lectures. Participants' selection

criteria were nurse lecturers who had acquired a master's degree or higher and had the earliest registration. The nurse lecturers were asked to complete the consent form prior to the workshop participants.

2.4 Data collection procedure

Before participating in the workshop, 25 nurse lecturers were informed that the research purposes and the decision to complete the pre- and post-test surveys were voluntary and not for any financial benefit. Additionally, participants were given handouts before each workshop session, and the post-test questionnaire was required to be completed after the workshops.

Following the conclusion of the workshops, all participants who had completed both pre-and post-test questionnaires were subsequently invited to take part in individual semi-structured interviews during October 2022. Additionally, the saturation of data was considered in deciding the number of participants in the interview phase. Upon receiving their consent forms via email, the participants were individually interviewed by one of the authors, each lasting approximately 30–60 min. Participants were instructed to select a private location with a stable Wi-Fi connection for their interviews. These interviews were conducted online through the Microsoft Teams application by the project team. To capture detailed and comprehensive responses, all interviews were conducted in the participant's native language, Vietnamese.

2.5 Measurement

The use of the questionnaires was to assess the nurse lecturers' knowledge regarding five training topics prior to and post-workshops. The questionnaires were developed based on the literature on five topics and overall course aims, and they comprised a pool of multiple-choice questions. Specifically, the questionnaire contained 25 questions with five questions about each topic, with one point awarded for each correct response. The maximum score for each questionnaire was 25, with higher scores indicating a better understanding of teaching methods. Before attending the workshops, it was deemed that achieving 80% accuracy on the pre-test questions demonstrated sufficient knowledge (Van Hoang et al., 2023). Five nurse lecturers reviewed this questionnaire for content validity. Then, they were discussed to gain consensus about the relevancy of each question. A pilot study was conducted on 10 nurse lecturers who did not participate in the TOT program to determine inter-rater agreement. All items were clear and easy to understand (inter-rater agreement ranged from 80 to 100%). The content validity index (CVI) for each question was calculated based on the 10 nurse lecturers' rating of content-related validity using a scale from 1 (not relevant) to 4 (very relevant). The CVI of 25 questions were at 0.78 or above, which indicated the minimum acceptable indices (Sousa and Rojjanasrirat, 2011).

2.6 Semi-structured interview

A set of open-ended questions were used to guide the interview with nurse lecturers. The questions were developed based on the study's aims, previous literature and revised by the research team. In

addition, follow-up questions were used to get the participants to provide more information or clarify their given information (Bryman et al., 2008). All interviews were conducted in Vietnamese.

2.7 Data analysis

For survey data, data analysis was performed using STATA version 14.0. Frequency distributions were used to present categorical data, whereas continuous data were presented using the Mean (M) and Standard deviation (SD). To evaluate the differences in knowledge levels between pre-test and post-test scores, the Chi-square test, Fisher exact, and Wilcoxon Signed Rank tests were used where appropriate. Statistical significance was set at $p < 0.05$.

For interview data, content analysis using the framework method matrix was used (Gale et al., 2013), which involved a few stages. Each interview meticulously recorded in digital format, was transcribed verbatim, and subsequently translated from Vietnamese to English by a qualified transcriber. Following this, the transcripts were carefully examined and reviewed in detail to ensure transcription accuracy by two independent researcher team members who conducted the analysis. The data was thematically coded by individual researchers, which required repeatedly reading the transcripts, assigning open codes and axial codes, and ultimately developing preliminary categories. The researchers compared these summaries within each category, iteratively refining the categories to ensure a comprehensive coverage of all perspectives. Lastly, a framework matrix was generated and the categories, codes and illustrative quotations are put into the matrix for the interpretation and writing up of findings.

3 Ethic approval

Ethical approval was issued by the Ethical Review Committee for Biomedical Research. Vinmec International General Hospital JSC-VinUniversity.

4 Results

4.1 Demographic characteristics

Twenty-five nurse lecturers from two private and three public universities participated in the TOT workshops and completed pre-and post-tests. Almost all of them were female (96%), while only one nurse lecturer was male (4%; Table 1). As for the level of education, 23 respondents held a master's degree (92%), and 2 obtained a doctoral degree (8%). The teaching and clinical experience averages were 13.4 and 10.8 years, respectively.

4.2 Pre- and post-test results

Table 2 shows that there was a significant difference in the total score of correct answers between the pre- (M = 12.48, SD = 2.77) and post- (M = 16.8, SD = 3.81) tests, $p < 0.01$. Particularly, the participants' knowledge of three sub-scales, which are team-based learning, debriefing technique in simulation training and peer support

TABLE 1 Demographic characteristics of participants ($N = 25$).

Variables		Frequency (N)	Percentage (%)
Gender	Male	1	4
	Female	24	96
Level of Education	Master's degree	23	92
	PhD degree	2	8
Age		37.52 ± 8.29	
Teaching Experience		13.4 ± 7.31	
Clinical Experience		10.8 ± 5.36	

program, had significantly improved by the increased number of correct answers ($p < 0.05$).

4.3 Train-of-trainer workshop evaluation

In terms of the workshop evaluation (see Table 3), above 95% of participants agreed and very agreed with the statement of appropriate and highly applicable course content, clear and fully distributed learning materials, good organization, and coordination. The "debriefing technique" is the most interesting topic among nurse lecturers. In the overall course evaluation, 100% of them were satisfied with the TOT training workshop.

4.4 Qualitative findings

Twenty nurse lecturers were involved in the interview session. Two themes emerged from the interview data: "Fostering interest in updated teaching methods" and "Motivating the change."

4.4.1 Fostering interest in updated teaching methods

The theme refers to the effectiveness of the TOT workshops in encouraging nurse educators to innovate teaching methods through several subthemes, including the interesting workshop topic contents, experienced experts, and effective materials and operation.

4.4.1.1 Essential topics

The interviewed nurse lecturers expressed their interest in the different topics of teaching methods, whether they are new or retrained knowledge, as they are all very applicable methods. A nurse lecturer indicated that she participated in the workshops to increase her knowledge because:

> "It is very necessary. I really like topics related to simulation and case study. The peer support program is also a very accessible method that can be applied" (GV13).

Another nurse lecturer thought the topics were up-to-date, although she had attended many training workshops:

> "There are topics updated with trends, such as the workshop 'Teaching methods from class to E-learning', which I found very suitable with the current trend of distance training" (GV17).

TABLE 2 Pre- and post-test results (*N* = 25).

Questions	Pre-test		Post-test		Chi-square test	
	Frequency of correct answers, N (%)	Frequency of wrong answers, N (%)	Frequency of correct answers, N (%)	Frequency of wrong answers, N (%)	OR	*p*-value
Teaching from class to e-learning[b]	Mean = 3.56 (± 1.33)		Mean = 4.08 (± 1.08)		z = −1.28, p = 0.20	
The distinct role of lecturers in positive teaching methods[a]	23 (92%)	2 (8%)	25 (100%)	0 (0%)	–	0.49
The role of students in Flipped Classroom model	16 (64%)	9 (36%)	19 (76%)	6 (24%)	1.78	0.36
Key point in implementing Project-Based Learning	20 (80%)	5 (20%)	20 (80%)	5 (20%)	1.00	1.00
Characteristics of Problem-Based Learning	14 (56%)	11 (44%)	20 (80%)	5 (20%)	3.14	0.05
Flipgrid application	16 (64%)	9 (36%)	18 (72%)	7 (28%)	1.44	0.54
Team based learning[b]	Mean = 2.80 (± 1.04)		Mean = 4.36 (± 0.76)		z = −3.85, p < 0.01	
Best method for developing critical thinking skills?[a]	22 (88%)	3 (12%)	25 (100%)	0 (0%)	–	0.24
The most important question that lecturers ask themselves when planning activities and exercises for a new lecture	12 (48%)	13 (52%)	18 (72%)	7 (28%)	2.79	0.08
Most significant benefit in developing 21st century skills for learners in team-based learning[a]	18 (72%)	7 (28%)	24 (96%)	1 (4%)	9.33	0.05
The Readiness Assurance Test in team-based learning	17 (68%)	8 (32%)	23 (92%)	2 (8%)	5.41	0.07
Classic progress of activities in team-based learning (TBL)[a]	1 (4%)	24 (96%)	19 (76%)	6 (24%)	76.00	0.00
Case based learning[b]	Mean = 2.72 (± 0.94)		Mean = 3.08 (± 1.32)		z = −1.00, p = 0.33	
Bloom's Taxonomy	7 (28%)	18 (72%)	14 (56%)	11 (44%)	3.27	0.09
Is the following teaching process and evaluation true or false for case-based learning	15 (60%)	10 (40%)	16 (64%)	9 (36%)	1.19	0.77
Important factors in developing clinical cases[a]	4 (16%)	21 (84%)	7 (28%)	18 (72%)	2.04	0.45
Evaluation methods that can use cases[a]	22 (88%)	3 (12%)	20 (80%)	5 (20%)	0.55	0.70

(Continued)

TABLE 2 (Continued)

Questions	Pre-test		Post-test		Chi-square test	
	Frequency of correct answers, N (%)	Frequency of wrong answers, N (%)	Frequency of correct answers, N (%)	Frequency of wrong answers, N (%)	OR	p-value
Essay content evaluation using cases	20 (80%)	5 (20%)	20 (80%)	5 (20%)	1.0	1.0
Debriefing technique in simulation training[b]	Mean = 2.04 (± 1.21)		Mean = 2.92 (± 1.53)		z = −2.04, p = 0.04	
Adults' learning characteristics	10 (40%)	15 (60%)	13 (52%)	12 (48%)	1.63	0.40
Kolb's experiential learning cycle	6 (24%)	19 (76%)	14 (56%)	11 (44%)	4.03	0.02
Purpose of debriefing in simulation training	12 (48%)	13 (52%)	14 (56%)	11 (44%)	1.38	0.57
Criteria for executing a debrief	12 (48%)	13 (52%)	16 (64%)	9 (36%)	1.93	0.25
Application of specific debriefing technique	11 (44%)	14 (56%)	16 (64%)	9 (36%)	2.26	0.16
Peer support program[b]	Mean = 1.36 (± 0.95)		Mean = 2.36 (± 1.47)		z = −2.48, p = 0.01	
Definition of peer assisted learning model	14 (56%)	11 (44%)	19 (76%)	6 (24%)	2.49	0.14
Student activities in peer assisted learning model	6 (24%)	19 (76%)	11 (44%)	14 (56%)	2.49	0.14
Definition of peer mentoring model	5 (20%)	20 (80%)	6 (24%)	19 (76%)	1.26	0.73
Definition of peer tutoring model	9 (36%)	16 (64%)	15 (60%)	10 (40%)	2.67	0.09
Core value of peer mentoring model		26 (100%)	8 (32%)	17 (68%)	–	0.004
Total score of correct answers[b]	Mean = 12.48 (±2.77)		Mean = 16.8 (±3.81)		z = −3.61, p < 0.01	

[a]Fisher Exact test.
[b]Wilcoxon Signed Rank Test.

4.4.1.2 Inspired experts

One of the important factors attracting nurse lecturers' attention when participating in workshops is the project's experts. Besides their high professional qualifications, the experts instilled inspiration among nurse educators through their profound comprehension of nursing education within the context of Vietnam, so that participants were encouraged to discuss and analyze contemporary challenges in the modification of pedagogical methodologies. A nurse lecturer indicated:

"In the workshops, I often mentioned my school as an example for my questions, and the expert answered straight to the point and gave me practicable advice…The expert understood the Vietnamese context very well, so they could clearly express their recommendation." (GV03).

4.4.1.3 Effective operation and materials

Nurse lecturers highly appreciated the workshop's coordination, schedules, and materials, which helped them fully access the

content and, therefore, made them easily understand the workshop's topics.

Firstly, the workshops were organized during the summer semester without many teaching schedules, which was claimed to be an efficient time for nurse lecturers.

"The timing was appropriate, and I was able to arrange the work. I was happy that I attended all workshops as planned" (GV02).

The sequence of five workshops was compartmentalized into five distinct sessions interspersed with 1 to 2 weeks intervals. This strategic structuring afforded nurse educators the flexibility to efficiently manage their participation commitments while also allowing them to reflect on their acquired knowledge.

"The seminar time was very reasonable, allowing us to actively arrange our work and participate in all the project sessions

TABLE 3 Train-of-trainer workshop evaluation (*N* = 25).

Variables		Frequency (N)	Percentage (%)
The course content was appropriate and highly applicable	Neutral	1	4
	Agree	11	44
	Very agree	13	52
Learning materials was clear and fully distributed in each session	Neutral	1	4
	Agree	12	48
	Very agree	12	48
Good organizational and coordination	Agree	17	68
	Very agree	8	32
Appropriate online teaching method	Neutral	5	20
	Agree	18	72
	Very agree	2	8
Which is the most interesting topic?	Teaching methods from class to E-learning	3	12
	Team-based learning	3	12
	Case-based learning	7	28
	Develop peer support program for nursing students	2	8
	Debriefing Technique	10	40
Overall, I satisfied with the TOT training workshop	Agree	15	60
	Very agree	10	40

without being affected by schoolwork or personal work. Also, after each workshop, I had time to review what I learned and think about what should be changed in the future." (GV17).

However, online training limited their ability to interact with others, greatly affecting their concentration when participating in workshops. Based on one lecturer:

"In my opinion, face-to-face learning is better than online learning because participants will spend 100% of their time at the workshop if it is an offline training. In online training, participants may open the computer, leave it, and do something else" (GV10).

Another nurse lecturer shared:

"There were lecturers who participated fully in the discussion; however, there were lecturers who were busy with other things and did not raise their voices. It was quite disappointing" (GV14).

Furthermore, another participant suggested that more activities should be held between seminars to increase the interaction between participants and experts, which would probably help them more deeply understand new teaching methods (GV05).

Secondly, the nurse lecturers were impressed with the guidebook containing all the workshop's learning materials. Nurse lecturers noted that the book made it easy for them to look up materials when needed, even when the project was over:

"When developing a lecture plan, sometimes I need to review the method, and I can easily find it in this book" (GV20).

One nurse lecturer reported that she shared the book with her colleagues. She, however, recommended that the content of the book be described in more detail, particularly the steps of the teaching method's implementation:

"The book introduced new teaching methods, and I think it would be better if it were more detailed; the process of teaching methods should be introduced step-by-step…it may be quite complicated for young lecturers because they are inexperienced" (GV05).

4.4.2 Motivating the changes

This theme reflects the occurrence of changes in nurse lecturers' teaching knowledge and practice that were initiated throughout the workshop participation. It was noticeable that the workshop made the lecturers reflect on their own teaching methods and then adjust them.

4.4.2.1 Acknowledging the gaps requiring resolution in knowledge and practice

Nurse lecturers reflected on their own knowledge and practice and then recognized the gaps that needed to be overcome. Some nurse lecturers said that these methods were not new, but their understanding of them was still limited. After completing the workshops, they gained more knowledge, especially a better understanding of how to use teaching methods to maximize their effectiveness.

"I initially thought a case study was simply creating a situation for students to solve, but when I participated in the workshop, I learned the steps to write a case study and how to use it effectively. I also learned that a case study can be used for different levels of students. It is very practical." (GV18).

Other nurse lecturers said that they applied some teaching methods provided in these workshops such as TBL, case study, and debriefing; however, after attending the workshop, nurse lecturers realized that they did not accurately follow the process of these teaching methods. One nurse lecturer described this issue as:

> "…like when I cook a meal, I already have prepared the ingredients and spices, but I am unable to follow the steps to cook that meal" (GV03).

Commenting on the Peer support program, a nurse lecturer said:

> "I think it's very good. We had a similar idea about the Peer support program that is year 3 and year 4 students will meet year 1 and year 2 students to share their experiences related to learning in Clinical practice. However, that sharing is not formal, just some tips" (GV24).

From this reflection, nurse lecturers realized that they needed to make a change. Specifically, they re-evaluated all previous teaching materials and made necessary changes accordingly. For example:

> "When I applied the TBL I designed pre-tests and post-tests, but when I looked back, I realized that the questions used in these pre-tests and post-tests seemingly irrelevant to the TBL method, I felt that I had to rewrite all the pre-tests and post-tests" (GV03).

4.4.2.2 Increasing self-assurance to enact change

Nurse lecturers, moreover, said that the workshops positively motivated them to make changes. After participating in the workshops, they became more confident in applying these new teaching methods. Teaching methods that were not formally organized are now officially implemented:

> "Actually, we are very enthusiastic, and we often support students as a form of mentor-mentee relationship. The Faculty of Nursing has planned to implement the Peer support program before but has not yet implemented it because of limited experience in operation. Thanks to the project, we are now confident to launch the program officially." (GV24).

5 Discussion

To our knowledge, this TOT workshop series was the first online training program in Vietnam to provide a combination of concurrent teaching methods in nursing education for nurse lecturers across the country. Our study revealed that the participating nurse lecturers had limited knowledge of debriefing techniques in simulation training and peer support teaching and learning methods while also being novices in applying TBL and CBT. These findings align with previous research (Mariani et al., 2013) and (Cockerham, 2015), which highlighted how a lack of formal training in debriefing techniques could hinder effective simulation-based teaching among nurse lecturers. A previous study in Vietnam reported that educators having extensive training significantly outperformed novices in "establishing an engaging learning environment," "structuring the debriefing in an organized

way," "maintaining an engaging learning environment," "identifying and exploring performance gaps," and "helping trainees to achieve or sustain good future performance" (Le and Nguyen, 2021). Indeed, as Fegran et al. (2023) noted, the effective use of simulation in nursing education can produce more skilled and competent health professionals. While peer support methods have been widely used in nursing education globally, particularly in developed countries with advanced education systems (Hawkins et al., 2022), our participants were unfamiliar with these methods, particularly in terms of using peer support to teach. This gap may be attributed to the Confucian influence on Vietnamese higher education, where lecturers traditionally hold a dominant role in teaching and students are expected to be obedient (Nguyen et al., 2018b). Such cultural perspective might hinder student's ability to engage in peer teaching effectively.

This study revealed that while nurse lecturers had some knowledge of TBL and CBL, these methods were not widely applied in their daily teaching practices. Although TBL and CBL were first used in medical education (Kim, 2006; Levine et al., 2020), they have been adopted across various health training programs, including nursing education (Alberti et al., 2021; Sapeni and Said, 2020). These methods have demonstrated significant benefits in developing clinical decision-making, critical thinking, and teamwork skills, which are core competencies in the nursing profession and providing a safe and encouraging learning environment for students (Sapeni and Said, 2020). However, the implementation of these methods presents challenges. TBL sessions involve a highly regulated teaching process and require substantial time and effort from lecturers and facilitators in preparing topics and questions (Alberti et al., 2021). Consequently, these demands often make nurse lecturers hesitant to use TBL or lead to incorrect and ineffective implementation (Andersen et al., 2011). Similarly, CBL requires nurse lecturers to be proficient in developing clinical case scenarios and guiding questions to foster students' critical thinking and clinical reasoning (Gholami et al., 2021). While TBL and CBL have been recently introduced to nursing education in Vietnam (Van Hoang et al., 2023), mastering these teaching skills requires time and practices. The study findings underscore the importance of continuing education workshops like this training program is highly recommended for nurse lecturers. Furthermore, we recommended that nursing school leaders prioritize training their faculty, particularly junior lecturer in debriefing techniques, peer support, TBL, and CBT methods.

The post-test outcomes showed the effectiveness of the training workshops in improving nurse lecturers' knowledge and understanding of the five teaching methods. This result indicated that workshops in continuing nursing education provided valuable opportunities for the ongoing professional development of nurse lecturers. Many studies have examined the positive impact of such continuing education program. A study by Tricio et al. (2017) found that workshops on student-centered learning and teaching improved faculty members' teaching strategies and methodologies, that resulted in higher levels of student engagement and satisfaction. Similarly, Mehdipour-Rabori et al. (2021) indicated that a workshop on simulation-based education significantly improved nurse lecturers' knowledge and skills in implementing simulation in their teaching practices. Beyond improving teaching abilities, nursing education workshops have also been demonstrated to broader professional

benefits. Arian et al. (2018) demonstrated that such workshops significantly increase nurse lecturers' confidence, job satisfaction, and overall professional growth. This study's results reinforce these findings, highlighting the multifaceted value of targeted educational interventions for nurse lecturers.

The participants reported high level of satisfaction with the workshop experience across all aspect, including the training content, materials, organization, and coordination. The qualitative theme "fostering interest in updated teaching methods" not only confirmed the survey results but also provided contextual meaning to the participants' perception of the TOT workshops. The selection of five concurrent and highly applicable teaching methods with implementation guidance, seemed to be particularly appealing to the study participants. In the context of Vietnam, the COVID-19 pandemic has driven higher education toward more advanced developmental stages, which are characterized by openness and a focus on lifelong learning (Pham, 2021). This shift made this workshop topic "teaching methods from class to e-learning," especially relevant, addressing the sudden need to transition from face-to-face to online teaching and learning activities. Similar challenges have been observed in nursing education across other developing countries (Agu et al., 2021; Tolyat et al., 2022). The official recognition and broad application of online teaching methods in Vietnam was unprecedented, leaving nurse lecturers grappling with technological challenges and difficulties in maintaining active student interactions (Ngo and Phan, 2023). Thus, this TOT program's focus on providing effective and free e-learning tools directly addressed the critical demand among nurse lecturers, likely contributing to their high appreciation of this training topic.

The collaboration between academic nurse experts with deep understanding of the nursing profession, nursing education, and the Vietnamese context significantly contributed to this TOT workshop's effectiveness. This expertise is particularly valuable given the historical context of nursing education in Vietnam. Trading back to the start of "Doi moi" (i.e., the national renovation policy) in 1986, nursing education has evolved from the short-term and hospital-based training program to the establishment of the first baccalaureate program implemented in tertiary institutions in 1995 (Nguyen et al., 2022). Despite significant reforms in nursing curriculum and an increased in the number of highly qualified nurse lecturers, many educators still received inadequate preparation for their teaching roles (Nguyen et al., 2022). Therefore, the opportunities to learn from and engage with the nurse experts through the workshop series provided substantial benefits for the nurse lecturers in improving their teaching practice.

The study results highlighted how changes in teaching knowledge and practice were initiated among the nurse lecturers throughout the TOT program. The participants gained a better understanding of the trained teaching methods, which enable them to identify areas for improvement and initiate changes. This increased knowledge is a key element in supporting the empowerment of professional development, which in turn could assist nurse lecturers to improve self-efficacy, self-confidence, and preparedness in teaching (Nguyen et al., 2018a; Shariff, 2015). While previous studies evaluating the implementation of continuing education programs for health professionals have found various factors supporting the program outcomes, the impact of changing practice has often been minimal (Akhter et al., 2021; Clark et al., 2015). This study's findings on translating knowledge into changed teaching practices suggest that academic nurse leaders should

consider current lecturers' needs when designing continuing education programs. These include training topics and contents; expert qualification, as well as design elements of the training program, such as time, schedules, and delivery methods.

While this study demonstrates the effectiveness of the TOT program for nurse lecturers in Vietnam, several limitations should be considered in further implementations. The online format presented typical of distance learning, such as issues related to internet connectivity and limitations in, the trainer-trainee interactions. Additionally, this study's focus on a group of 25 nurse lecturers may not reflect the comprehensive challenges of organizing the TOT program in a larger scale.

6 Conclusion

It is crucial for nurse lecturers to continually update their knowledge and skills to guarantee they are equipped with the most up-to-date knowledge and are able to deliver effective teaching methods. Building teaching capacity for nurse lecturers through the train-the-trainer workshops in this study has shown potential for enhancing the high quality and stability of nursing education, which could eventually result in the sustainability of the future nursing workforce and patient care. Replicate TOT workshops involving more participants and further research examining which workshop elements lead to improved knowledge and skill retention would be beneficial in ensuring the ongoing change in teaching practice in Vietnam.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

The studies involving humans were approved by the institutional Ethical Review Board for Biomedical Research. Vinmec International General Hospital JSC-VinUniversity. The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study.

Author contributions

VH: Conceptualization, Supervision, Writing – original draft, Writing – review & editing. HB: Formal analysis, Methodology, Software, Writing – original draft, Writing – review & editing. TL: Data curation, Visualization, Writing – original draft, Writing – review & editing. DT: Formal analysis, Methodology, Writing – original draft, Writing – review & editing. HHo: Data curation, Writing – original draft, Writing – review & editing. HHu: Formal analysis, Writing – original draft, Writing – review & editing. TN:

Conceptualization, Supervision, Writing – original draft, Writing – review & editing.

Funding

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the editors and the reviewers. Any product that may be evaluated in this article, or claim that may be made by its manufacturer, is not guaranteed or endorsed by the publisher.

References

Abulebda, K., Auerbach, M., and Limaiem, F. (2019). Debriefing techniques utilized in medical simulation. StatPearls Publishing.

Aebersold, M. (2018). Simulation-based learning: no longer a novelty in undergraduate education. *Online J. Issues Nurs.* 23:1. doi: 10.3912/OJIN.Vol23No02PPT39

Agu, C. F., Stewart, J., McFarlane-Stewart, N., and Rae, T. (2021). COVID-19 pandemic effects on nursing education: looking through the lens of a developing country. *Int. Nurs. Rev.* 68, 153–158. doi: 10.1111/inr.12663

Akhter, Z., Malik, G., and Plummer, V. (2021). Nurse educator knowledge, attitude and skills towards using high-fidelity simulation: a study in the vocational education sector. *Nurse Educ. Pract.* 53:103048. doi: 10.1016/j.nepr.2021.103048

Alberti, S., Motta, P., Ferri, P., and Bonetti, L. (2021). The effectiveness of team-based learning in nursing education: a systematic review. *Nurse Educ. Today* 97:104721. doi: 10.1016/j.nedt.2020.104721

Andersen, E. A., Strumpel, C., Fensom, I., and Andrews, W. (2011). Implementing team based learning in large classes: nurse educators' experiences. *Int. J. Nurs. Educ. Scholarsh.* 8. doi: 10.2202/1548-923x.2197

Arian, M., Soleimani, M., and Oghazian, M. B. (2018). Job satisfaction and the factors affecting satisfaction in nurse educators: a systematic review. *J. Prof. Nurs.* 34, 389–399. doi: 10.1016/j.profnurs.2018.07.004

Balilah, M., Babgi, M., Alnemari, W., Binjabi, A., Zaini, R., Abdulkhaliq, A., et al. (2020). A proposed framework to develop, describe and evaluate peer-assisted learning programs. *Adv. Med. Educ. Pract.* 11, 1005–1013. doi: 10.2147/AMEP.S282582

Bryman, A., Becker, S., and Sempik, J. (2008). Quality criteria for quantitative, qualitative and mixed methods research: a view from social policy. *Int. J. Soc. Res. Methodol.* 11, 261–276. doi: 10.1080/13645570701401644

Chapman, H., Lewis, P., Osborne, Y., and Gray, G. (2013). An action research approach for the professional development of Vietnamese nurse educators. *Nurse Educ. Today* 33, 129–132. doi: 10.1016/j.nedt.2011.11.010

Clark, E., Draper, J., and Rogers, J. (2015). Illuminating the process: enhancing the impact of continuing professional education on practice. *Nurse Educ. Today* 35, 388–394. doi: 10.1016/j.nedt.2014.10.014

Cockerham, M. E. (2015). Effect of faculty training on improving the consistency of student assessment and debriefing in clinical simulation. *Clin. Simul. Nurs.* 11, 64–71. doi: 10.1016/j.ecns.2014.10.011

DeLozier, S. J., and Rhodes, M. G. (2017). Flipped classrooms: a review of key ideas and recommendations for practice. *Educ. Psychol. Rev.* 29, 141–151. doi: 10.1007/s10648-015-9356-9

Dewart, G., Corcoran, L., Thirsk, L., and Petrovic, K. (2020). Nursing education in a pandemic: academic challenges in response to COVID-19. *Nurse Educ. Today* 92:104471. doi: 10.1016/j.nedt.2020.104471

Fegran, L., ten Ham-Baloyi, W., Fossum, M., Hovland, O. J., Naidoo, J. R., van Rooyen, D., et al. (2023). Simulation debriefing as part of simulation for clinical teaching and learning in nursing education: a scoping review. *Nurs. Open* 10, 1217–1233. doi: 10.1002/nop2.1426

Ferrer, J., Ringer, A., Saville, K., and Parris, A. (2022). Students' motivation and engagement in higher education: the importance of attitude to online learning. *High. Educ.* 83, 317–338. doi: 10.1007/s10734-020-00657-5

Fujita, N., Matsuoka, S., Koto-Shimada, K., Ikarashi, M., Hazarika, I., and Zwi, A. B. (2019). Regulation of nursing professionals in Cambodia and Vietnam: a review of the

evolution and key influences. *Hum. Resour. Health* 17:48. doi: 10.1186/s12960-019-0388-y

Gale, N. K., Heath, G., Cameron, E., Rashid, S., and Redwood, S. (2013). Using the framework method for the analysis of qualitative data in multi-disciplinary health research. *BMC Med. Res. Methodol.* 13, 1–8. doi: 10.1186/1471-2288-13-117

Gholami, M., Changaee, F., Karami, K., Shahsavaripour, Z., Veiskaramian, A., and Birjandi, M. (2021). Effects of multiepisode case-based learning (CBL) on problem-solving ability and learning motivation of nursing students in an emergency care course. *J. Prof. Nurs.* 37, 612–619. doi: 10.1016/j.profnurs.2021.02.010

Hawkins, S., Fogg, N., Wilson, C., and Browne, J. (2022). Establishing a tutoring and academic support center: collaborating with nurse educator students. *J. Prof. Nurs.* 39, 19–25. doi: 10.1016/j.profnurs.2021.12.014

Hoang, V. L., Duong, T. T., Huyen, N. T. H., Anh, P. H., Hien, B. T., and Hue, H. T. (2022). Comprehensive teaching & learning methods in nursing education: A training of trainer handbook. Vietnam: Medical Pulishing House.

Ismail, I. (2019). Students' perceptions of the benefits of mobile polling technology in teaching and learning in college: implications of students' participation and academic performance. *Advan. Medical Educ. Prac.* 8, 229–241. doi: 10.23960/jpp.v9.i1.201912

Jones, P. S., O'Toole, M. T., Nguyen, H., Tran, T. C., and Pham, D. M. (2000). Empowerment of nursing as a socially significant profession in Vietnam. *J. Nurs. Scholarsh.* 32, 317–321. doi: 10.1111/j.1547-5069.2000.00317.x

Kantar, L. D., and Sailian, S. (2018). The effect of instruction on learning: case based versus lecture based. *Teach. Learn. Nurs.* 13, 207–211. doi: 10.1016/j.teln.2018.05.002

Kim, S. (2006). The future of e-learning in medical education: current trend and future opportunity. *J. Educ. Evaluation for Health Professions* 3:3. doi: 10.3352/jeehp.2006.3.3

Kim, S. C., Jillapali, R., and Boyd, S. (2021). Impacts of peer tutoring on academic performance of first-year baccalaureate nursing students: a quasi-experimental study. *Nurse Educ. Today* 96:104658. doi: 10.1016/j.nedt.2020.104658

Koles, P. G., Stolfi, A., Borges, N. J., Nelson, S., and Parmelee, D. X. (2010). The impact of team-based learning on medical students' academic performance. *Acad. Med.* 85, 1739–1745. doi: 10.1097/ACM.0b013e3181f52bed

Le, Q., and Nguyen, T. (2021). "Applying debriefing assessment for simulation in healthcare (DASH) for evaluating debriefing competence of facilitators at center for advanced training in clinical simulation, Vietnam." *INTED 2021 Proceedings*.

Leach, L. (2016). Enhancing student engagement in one institution. *J. Furth. High. Educ.* 40, 23–47. doi: 10.1080/0309877X.2013.869565

Leaver, C. A., Stanley, J. M., and Goodwin Veenema, T. (2022). Impact of the COVID-19 pandemic on the future of nursing education. *Acad. Med.* 97, S82–S89. doi: 10.1097/acm.0000000000004528

Leidl, D. M., Ritchie, L., and Moslemi, N. (2020). Blended learning in undergraduate nursing education–a scoping review. *Nurse Educ. Today* 86:104318. doi: 10.1016/j.nedt.2019.104318

Levine, R. E., Hsieh, P., Kelly, P. A., Carchedi, L., Gibson, J., Haidet, P., et al. (2020). The facilitator instrument for team-based learning (FIT). *Teach. Learn. Med.* 32, 82–90. doi: 10.1080/10401334.2019.1646653

Mariani, B., Cantrell, M. A., Meakim, C., Prieto, P., and Dreifuerst, K. T. (2013). Structured debriefing and students' clinical judgment abilities in simulation. *Clin. Simul. Nurs.* 9, e147–e155. doi: 10.1016/j.ecns.2011.11.009

Mehdipour-Rabori, R., Bagherian, B., and Nematollahi, M. (2021). Simulation-based mastery improves nursing skills in BSc nursing students: a quasi-experimental study. *BMC Nurs.* 20, 10. doi: 10.1186/s12912-020-00532-9

Ngo, H. N., and Phan, A. N. (2023). COVID-19 and higher education in Vietnam: systematically rethinking the quality assurance system and practices towards the 'new normal'in post-crisis era. *Policy Futures Educ.* 21, 355–371. doi: 10.1177/14782103221095924

Nguyen, V. N., Forbes, H., Mohebbi, M., and Duke, M. (2018a). The effect of preparation strategies, qualification and professional background on clinical nurse educator confidence. *J. Adv. Nurs.* 74, 2351–2362. doi: 10.1111/jan.13737

Nguyen, V. N. B., Hoang, A. P., Nguyen, T. T. H., and Nguyen, H. T. H. (2022). The development and professionalization of nursing in Vietnam. *Nurs. Forum* 57, 681–685. doi: 10.1111/nuf.12712

Nguyen, V. N., Nguyen, H. T., and Phan, T. (2018b). The education system and cooperative and work-integrated education system in Vietnam: an overview. *Cooperative Work-integrated Educ. Asia*, 83–104. doi: 10.4324/9781315402024-6

Pham, D. (2021). Bảo đảm và kiểm định chất lượng giáo dục đại học trong bối cảnh đại dịch Covid 19: Tác động và vấn đề [Assuring and accrediting educational quality of higher education in the COVID-19 context: issues and Impacts]. *Tạp Chí Khoa Học Và Giáo Dục Việt Nam [J. Educ. Sci.]* 37.

Pron, A. L., Zygmont, D., Bender, P., and Black, K. (2008). Educating the educators at Hue medical college, Hue, Viet Nam. *Int. Nurs. Rev.* 55, 212–218. doi: 10.1111/j.1466-7657.2007.00579.x

Ramsbotham, J., Dinh, H., Truong, H., Huong, N., Dang, T., Nguyen, C., et al. (2019). Evaluating the learning environment of nursing students: a multisite cross-sectional study. *Nurse Educ. Today* 79, 80–85. doi: 10.1016/j.nedt.2019.05.016

Rashwan, Z. I., Busebaia, T. J., Khonji, L. M., Eweida, R. S., Matooq, A. A., and Bayoumi, M. M. (2023). Between challenges and support: preceptors run clinical nursing training amidst unprecedented crisis. *Int J Educ Res Open* 4:100260. doi: 10.1016/j.ijedro.2023.100260

Roberson, B., and Franchini, B. (2014). Effective task design for the TBL classroom. *J. Excell. Coll. Teach.* 25:275–3025.

Salta, K., Paschalidou, K., Tsetseri, M., and Koulougliotis, D. (2022). Shift from a traditional to a distance learning environment during the COVID-19 pandemic. *Sci. & Educ.* 31, 93–122. doi: 10.1007/s11191-021-00234-x

Sapeni, M. A.-A. R., and Said, S. (2020). The effectiveness of case-based learning in increasing critical thinking of nursing students: a literature review. *Enferm. Clin.* 30, 182–185. doi: 10.1016/j.enfcli.2019.07.073

Shariff, N. J. (2015). Empowerment model for nurse leaders' participation in health policy development: an east African perspective. *BMC Nurs.* 14, 1–11. doi: 10.1186/s12912-015-0078-6

Sousa, V. D., and Rojjanasrirat, W. (2011). Translation, adaptation and validation of instruments or scales for use in cross-cultural health care research: a clear and user-friendly guideline. *J. Eval. Clin. Pract.* 17, 268–274. doi: 10.1111/j.1365-2753.2010.01434.x

Tolyat, M., Vagharseyyedin, S. A., and Nakhaei, M. (2022). Education of nursing profession amid COVID-19 pandemic: a qualitative study. *J. Adv. Med. Educ. Prof.* 10, 39–47. doi: 10.30476/JAMP.2021.90779.1422

Tram, N., and Lam, D. (2022). Existing challenges of simulation-based training in medical education. *DTU J. Sci. Technol.* 5, 76–86.

Tricio, J. A., Montt, J. E., Ormeño, A. P., Del Real, A. J., and Naranjo, C. A. (2017). Impact of faculty development workshops in student-centered teaching methodologies on faculty Members' teaching and their Students' perceptions. *J. Dent. Educ.* 81, 675–684. doi: 10.21815/JDE.017.014

Van Hoang, L., Tran, T. D., Phan, H. A., Nguyen, T. H. H., Bui, T. H., Hoang, T. H., et al. (2023). Strengthening teaching capacities for nurse lecturers: an initial report. *Tạp chí Khoa học Điều dưỡng* 6, 138–145. doi: 10.54436/jns.2023.01.520

Wurdinger, S. D. (2016). The power of project-based learning: Helping students develop important life skills. Lanham Maryland, US: Rowman & Littlefield.

Yazici, H. G., and Ökten, Ç. (2022). Nursing students' clinical practices during the COVID-19 pandemic: Fear of COVID-19 and anxiety levels. *Nurs. Forum* 57, 298–304. doi: 10.1111/nuf.12680

Zigmont, J. J., Kappus, L. J., and Sudikoff, S. N. (2011). The 3D model of debriefing: defusing, discovering, and deepening. *Semin. Perinatol.* 35, 52–58. doi: 10.1053/j.semperi.2011.01.003

Zulfa, V., and Laras, P. (2020). "Schoology and slido: the perfect platform combination for distance learning during the covid-19 pandemic." *International joint conference on science and engineering (IJCSE 2020)*.