

ORIGINAL RESEARCH

The “Five Minute Preceptor Model”: Development and evaluation of a training course for preceptors in nursing practical education in Austria: A pilot study

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ABSTRACT

Objective: The “Five Minute Preceptor Model” (5MP) is a teaching method which addresses the training needs of students within clinical placements. Investigation of its applicability for nursing education is equally missing as research on designing effective 5MP trainings for nurse preceptors. Aim of the pilot study was to develop and evaluate a 5 MP training and to assess its impact by measuring the utilization of the 5MP steps by the nurse preceptors.

Methods: A quantitative design was used to evaluate the training directly after attendance, using descriptive statistics for data analyzes. The application of the 5MP steps was investigated before and six months after training using Wilcoxon test for statistical analyzes. A significance level of $p < .05$ was set. Comparative factor analysis was used to examine the 5MP model itself.

Results: Participants ($N = 92$) overall rating of the trainings was high. The higher they rated the trainings the more they would apply the 5MP in future preceptorship. Newsworthiness of the training was designated high but no difference was found in the application of the 5MP steps prior and after attendance of the training. Comparative factor analysis indicated that the 5MP steps were seen as more important after the training.

Conclusions: The results suggest that the training is suitable for teaching nurse preceptors to use the 5MP. Although no significant differences were found in pre- and post-training usage, the comparative factor analysis shows increased knowledge through training attendance. Larger studies are needed to gain deeper insights into the 5MP model.

Key Words: Five-Minute Preceptor Model, Preceptor training, Nurse preceptorship, Preceptorship education

1. INTRODUCTION

Nursing education varies globally, with diploma and bachelor's degree programs of different durations. Even in practical education there are big differences in the number of hours that students must complete. Clinical learning environments play a significant role in nursing education, accounting for

30% to 60% of the total program duration, which means that students spend 1,000 to 2,700 hours in clinical learning environments.^[1] These environments include hospitals, nursing homes, skills labs and simulation laboratories.^[2] While theoretical education focuses on explicit knowledge, clinical learning environments are essential for acquiring tacit knowl-

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edge applicable to everyday nursing practice.^[3,4] Learning in these environments is complex, involving educational tasks, organizational issues, care mandates and patient safety. Clinical reasoning skills, alongside practical skills, must be developed to assess situations and make evidence-based decisions. To ensure that, knowledge has to be communicated by relating it to prior situations and students must be encouraged to think for themselves, question situations critically as well as justify their decisions. Furthermore, they have to have the opportunity to make references to previous internship situations and to weigh up different tasks against each other.^[5,6] In Austria, a minimum of 2,300 hours is dedicated to clinical learning environments. Supervision in clinical learning is provided by nurse educators of the nursing programs in skills labs and simulation laboratories, and nurse preceptors who are trained nurses working in different clinical areas in other clinical settings.

There are various terms used in the literature to describe the instruction of students in clinical practice, such as preceptorship, mentorship, clinical supervision, or clinical training. In the context of Austrian nursing education, the term “preceptorship” is commonly used for nurses responsible for the clinical training of nursing students. Preceptorship involves a limited duration of internship, with assigned preceptors and defined learning goals.^[7] The role of nurse preceptors is crucial in supporting students in acquiring practical and non-practical skills to become competent nursing professionals. Their didactic preparation and positive attitude towards learning situations and preceptees positively influence the learning outcomes, while poor pedagogical preparation or negative attitudes have a negative impact on the clinical learning environment and the learning outcomes.^[8,9] Therefore it is important for preceptors to have a positive attitude towards their role, support from their organizations and colleagues, and access to didactic tools to create an optimal learning environment. Preceptors need to be familiar with effective learning methods that contribute to the learning environment and help students acquire necessary nursing skills. Research on nursing preceptorship highlights the need for preceptors to fulfill multiple roles, including patient care, teaching and evaluation of students, and collaboration with training institutions.^[6,10] However, challenges such as role conflicts, limited resources, time constraints, and a lack of pedagogical skills can lead to inappropriate precepting techniques and negatively affect the learning environment and student outcomes.^[11,12,19] Considering different barriers mentioned, appropriate learning methods should be chosen to align with the clinical learning environment. Research has identified three methods with sufficient evidence for teaching in clinical practice: the One Minute Preceptor Model, SNAPPS

(a mnemonic for Summarize history and findings; Narrow the differential; Analyze the differential; Probe the preceptor about uncertainties; Plan Management; Select case related issues for self-study),^[13] and concept mapping. Among these, the One Minute Preceptor Model and SNAPPS are particularly suitable for the demanding daily routine of clinical practice due to their shorter enrollment requirements.^[14] However, since the original One Minute Preceptor Model was designed for medical education and therefore can't be transferred into nursing education, adaptations were made and the model was renamed the 5MP to better suit nursing education.^[15]

As depicted in Figure 1, the 5MP model comprises five sequential steps aimed at fostering clinical reasoning in students. Step one “get the student to take a stand” involves prompting the student to form an opinion on the patient's situation. To achieve this, the preceptor exercises restraint and poses a broad question to encourage students to process the information and formulate an assessment of the situation. Step two, titled “probe for supporting evidence”, entails the preceptor asking targeted questions to uncover the underlying evidence that led the student to their decision. This is especially important to better identify students' learning needs and knowledge gaps. In step three, known as “teach a general rule”, the nursing preceptor takes a more active role by imparting two to three core aspects that address identified knowledge gaps. Maximum three important aspects should be mentioned at this point. Concerning Bott et al.^[15] this is an important step within the teaching method. If this step is omitted, the method can only be regarded as an evaluation or assessment. Steps four and five, “reinforce the positives” and “correct errors and misinterpretations”, respectively, focus on providing feedback, which is vital for the student's development. In step four “reinforce the positives” preceptors provide positive feedback to the students. Positive feedback with reasons and explanations serves to reinforce strengths and skills and helps students to apply those reliably in future case situation. Also step five “correct errors and misinterpretations” is crucial for the learning development of the nursing students. Only with constructive feedback they can understand misinterpretations occurred and are able to make better decisions in future caring situations.^[15]

The utilization of the 5MP in nursing preceptorship has been associated with several positive outcomes as reported in the literature. Positive effects of using the teaching method could be demonstrated from the perspective of the preceptors, but also from student's perspective. One positive aspect for the preceptors is that the teaching method creates a learning environment that initiates the learning processes required to acquire the necessary nursing skills.^[16] Furthermore 5MP

enables nurse preceptors identify knowledge gaps and the level of knowledge of the students which helps creating learning situations which meet the individual learning needs of the students.^[16,17,20] Another benefit of using 5MP in preceptorship is the structure itself in the model. It helps nurse preceptors to work through nursing situations in a structured way and thus to conduct a clinical discourse on nursing care. This structured approach is particularly helpful for inexperienced preceptors.^[17] This structure also supports students because it helps them gain an organized approach to clinical reasoning skills.^[16] Another beneficial aspect for students is that the 5MP helps them with self-directed learning. Students describe the 5MP as an interesting teaching method that leads to increased confidence and improved patient case presentation skills.^[18,20] Whereas feedback is central in the method itself, the effects of the method on the preceptors' ability to provide feedback are described differently in the literature. Smith^[21] found no significant change in the ability of giving feedback mentioned by students who evaluated the feedback ability of nurse preceptors before and after a training in the 5MP method, whereas Bott et al.^[15] explicitly mention the possibility of giving timely feedback when using the 5MP.

Previous investigations on the One Minute Preceptor Model have yielded varying results regarding the application of its

five steps after training. Salerno et al.^[22] demonstrate the incorporation of all five steps, while others show increases in specific steps. Eckstrom et al.^[23] could demonstrate an increase in steps one to four, whereas Gatewood et al.^[24] only present a statistical significant incorporation in three of the five steps (step two: probe for evidence, step 4: reinforce what was done well and step 5: correct mistakes). Limited research has examined the empirical use and effectiveness of the 5MP in clinical practice, primarily focusing on the perspective of students.^[20,21] Therefore, further research is needed to examine the applicability of the 5MP in nursing preceptorship, with a particular emphasis on nurse preceptors. Training of nurse preceptors in the 5MP is crucial for gathering this information, yet no literature on such trainings or planning those was found. There were investigations of preceptor trainings in One Minute Preceptor Model with trainings lasting from one to two hours, using different methods to mediate the One Minute Preceptor Model to the participants (e.g. role plays, videos, PowerPoint presentations). Mentioned challenges in former trainings as not enough practicing time, unrealistic or inappropriate role plays for the participants and trainings which also contain other learning theories as input,^[24-27] make it necessary to further develop these trainings. Hence, the purpose of this study was to develop and evaluate a 5MP training based on the aforementioned considerations for its development.

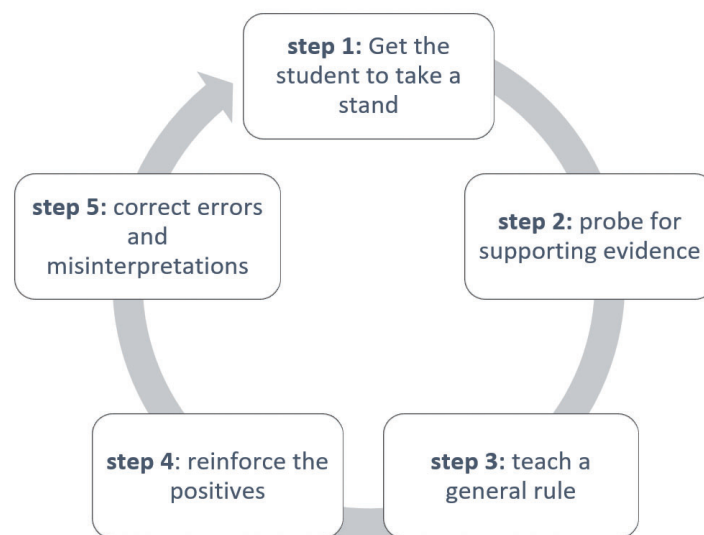


Figure 1. Five-minute preceptor model (own illustration based on Bott et al. (2011)^[15])

2. METHODS

The main objectives of the pilot study were to develop and evaluate the 5MP training and assess its impact by measuring the utilization of the 5MP steps by nurse preceptors before and six months after attending the workshop. To achieve

these objectives, the following research questions were formulated:

- How do nurse preceptors evaluate the 5MP trainings?
- Can differences in the use of the 5MP as a teaching method be identified before and after the training?

2.1 Development of the 5 MP training course

The target audience for the training program were nurse preceptors. The purpose of the training was to familiarize preceptors with the 5MP model and enable them to apply it in their daily practice. To achieve this, the training program has been conceptualized in multiple stages, including a theoretical phase and an interactive component, with spending most of the time in the interactive stage allowing sufficient time to practice and reflect on the usage of the 5MP.

2.1.1 Underlying learning theory

Adults learning needs differ from those of children and teenagers due to their self-directed learning style and the incorporation of prior learning experiences into learning situations. Therefore, learning environments need to cater to these special needs. Constructivism, a classical learning theory, is well-suited for this purpose as it emphasizes the importance of learning through experiences and the transformation and reflection of knowledge, which are crucial aspects.^[28] Constructivism serves as the foundation for various models of experiential learning, including Burnard's "model of experiential learning".^[29] By actively engaging with and reflecting on our experiences, we can understand our behavior and acquire knowledge. This learning model is particularly effective in improving interpersonal skills.^[30,31] Different reasons led to the selection of Burnard's model underlying the trainings. The model aligns with a learner-centered teaching approach, which is beneficial for adult education and suitable for the target group of the trainings. Additionally, this learning theory serves as the conceptual framework for the 5MP. Furthermore, previous publications that detailed workshop planning utilized Kolb's experiential theory, which is a predecessor to Burnard's theory.^[25,27] Finally, the inclusion of case studies, role changes during the training, feedback from colleagues, and the reflection of experiences align with the principles of experiential learning.^[31]

2.1.2 Teaching and learning content and training structure of the training course

The content of the trainings focused on two main components: the "model of experiential learning" by Burnard^[32] and the 5MP model.^[15] The educational objectives of the trainings were defined as follows:

- Participants should be able to describe the steps of the 5MP model and provide examples of how to apply it in precepting nursing students.
- Participants should understand when and in what situations they can effectively use the 5MP method in precepting nursing students.
- Participants should be able to apply the 5MP model in their own teaching practice and reflect on their application of the

method.

The training structure consisted of three stages: introduction, theory, and interactive stage. The introduction stage aimed to facilitate interaction between the trainer and participants, establish organizational details, and provide participants with time to reflect on their previous experiences as nurse preceptors. The theory stage included information on the model of experiential learning and the 5MP, along with a demonstration by the trainer using the 5MP in precepting a nursing student through a role play. The interactive stage focused on practicing and reflecting on the new teaching method, using role plays as an effective teaching strategy for communication skills training in nursing education.^[33] To address potential challenges with role plays (such as unsuitable scenarios, limited opportunities for practice, and lack of debriefing),^[27] 54 case studies were developed to ensure appropriate scenarios for all participants, allowing them to concentrate on the teaching method itself. The training duration was set at eight hours per session, considering the need for sufficient time for practice and reflection, mentioned in previous studies about optimizing training sessions.^[24,26,27,34] PowerPoint slides were created to present the content of Burnard's model of experiential learning and the 5MP during the trainings. The educational material provided the steps of the teaching method and included potential questions that preceptors could use at each step of the 5MP model.

2.1.3 Training procedure

Since there was no consistent information available in the literature regarding an appropriate group size, except for the suggestion that groups larger than 20 would require better planning of space, materials, and an experienced workshop instructor,^[27] a maximum of 16 preceptors per session was allowed for the trainings. Participation in the 5MP trainings for nursing preceptors was voluntary. To ensure a high level of participation, several measures were implemented. Firstly, the trainings were held in-house, eliminating the need for the nurse preceptors to travel elsewhere. Additionally, registration for the training was conducted through the internal education platform that the preceptors were already familiar with from registering for other in-house trainings. Moreover, the hospital assigned continuing education credits for attending the training, which could be counted towards the mandatory 60-hour further training requirement for nurses in Austria within a five-year period.^[35]

During the introduction stage, which lasted approximately 45 minutes, organizational details were addressed, introductions were made between trainers and attendees, and an initial discussion about precepting experiences formed a common foundation for the training day. This was followed by the

theory stage, where participants received information about the model of experiential learning and the 5MP. The trainer also demonstrated the application of the 5MP in precepting a nursing student through a role play. To enhance willingness to participate in the subsequent steps of the research process and reinforce implementation fidelity, the theory stage also included providing information about upcoming steps. The theory phase lasted approximately two hours, concluding with an opportunity for discussion and reflection on the teaching method and the observed role play. The interactive stage, which comprised the majority of the training, allowed sufficient time for practicing and reflecting on the new teaching method. Role plays were utilized, with two participants assuming the roles of the nursing student and the nurse preceptor based on provided case studies. After attempting to implement the 5MP, the roles were reversed to allow both participants to practice the teaching method. Feedback on the usage of the 5MP was provided by the trainer and other participants, guided by the five steps of the 5MP. Prior to commencing the role plays, participants were given 10 minutes to prepare their cases and ask any necessary questions. The training stage concluded with a reflection on the teaching method and an opportunity for participants to ask questions. Participants also received teaching materials to review the training contents after attending. The educational materials, including information on the model of experiential learning and the steps of the 5MP model, as well as possible questions for each step of the 5MP, were distributed at the beginning of the training. In total, 95 preceptors attended the 5MP trainings.

2.2 Evaluation of the 5MP trainings

Since evaluating newly implemented interventions is essential for program improvement and making informed adaptations, evaluating the 5MP trainings was an integral part of the training development process. Both formative and summative evaluations were conducted, with formative evaluation focusing on underlying processes and summative evaluation assessing program outcomes.^[36] The “New World Kirkpatrick Model” was employed as a theoretical framework for the formative evaluation of the training. This model provides a valuable approach for reviewing educational interventions. The model comprises four levels: “Reaction” measures the quality of teaching interventions and the participants’ perception of the training content’s relevance to their professional practice. “Learning” evaluates knowledge acquisition and the participants’ commitment to the newly learned methods. “Behavior” assesses the practical implementation of the new methods. “Results” is used to evaluate the impact of the new methods on practice.^[37]

The evaluation primarily focused on levels one and two. Level one was assessed by evaluating the 5MP training itself, gauging participants’ reactions and perceptions of its quality. Level two was measured by examining the use of the 5MP steps before and after attending the training, aiming to assess the participants’ knowledge acquisition and application of the method.

A pilot study was conducted to evaluate the 5MP trainings and measure differences in the usage of the 5MP before and after the training. Pilot studies are designed to test study designs or interventions before proceeding with further investigations.^[38] An analysis of published data highlighted the need to validate the effectiveness of the 5MP before implementing it widely in the precepting of nursing students.^[15] Therefore, conducting a pilot study was deemed appropriate. To evaluate the use of the teaching method itself a questionnaire study with repeated measurements was used considering the implications of methodological literature. Repeated measurement designs are useful to evaluate the learning outcome.^[39]

2.2.1 Study setting and sample

The study was conducted at a 2500-bed hospital in Southern Austria, where practical training is provided for various health professionals. 260 nurse preceptors are defined at this hospital. Convenience sampling was employed to recruit participants for the study due to the workshops being newly implemented and limited resources available for training preceptors in only one hospital.^[38] 130 out of the 260 nursing preceptors were randomly allocated via Microsoft Excel using the departments they work in to have intervention and control departments for a later stage of the research project, where students shall evaluate the clinical learning environment when being precepted with the 5MP compared to not being precepted with this model. Those couldn’t participate in the workshops were promised the opportunity to attend future workshops once the dissertation project is completed. 35 preceptors chose not to participate in the study. As a result, 95 nursing preceptors attended the workshop. The chief nursing officer of the hospital provided approval for the investigation to be conducted within the hospital. To encourage higher participation in the workshops, nursing directors of eligible departments also informed their employees about the trainings. These measures resulted in a training attendance rate of 73.08%.

2.2.2 Data collection

Data was collected in July and August 2021, as well as February 2022, using a modified version of a questionnaire that was previously used to evaluate the One Minute Preceptor microskills in a two-hour in-person workshop titled “Time ef-

ficient clinical teaching”.^[24] Permission was obtained from the authors of the original paper. The questionnaire was adapted and revised to align with the 5MP instead of the One Minute Preceptor Model. Sociodemographic questions were adjusted, the wording of the steps was changed to reflect the 5MP, and the response choices were modified from a seven-point Likert scale to a five-point Likert scale. Two open-ended questions were added to gather additional information about strengths and areas for improvement in future trainings. Two items that were not relevant to the 5MP steps were removed. Questions about the workshop quality (7 items) were rated on a scale from (1) very well to (5) non-sufficient. Questions about the applicability and usefulness of the 5MP for nursing preceptors (2 items) were rated from (1) strongly disagree to (5) strongly agree. Eight items assessed the use of the 5MP steps during preceptorship, with response options ranging from (1) never to (5) always. Perceived barriers to precepting activities (6 items) were rated on a scale from (1) strongly disagree to (5) strongly agree. A pretest was conducted with five nursing preceptors who were not part of the study population to ensure the consistency and understandability of the questionnaire. Pretesting can be informal, such as by showing the questionnaire to a colleague or supervisor.^[40] Items were assessed at different measurement times. Perceived barriers in precepting were assessed prior to the workshop, and the usage of the 5MP steps was measured before and 6 months after workshop attendance. The workshop quality and applicability of the 5MP method were assessed immediately after attending the workshop. The pre- and post-workshop measurements were conducted using a paper-pencil questionnaire, resulting in a high response rate of 96.84%, which is considered advantageous according to methodological literature.^[39] An online questionnaire, administered through the “Lime Survey” online survey tool, was used to collect data 6 months after the workshop. The survey link was sent to participants via workspace email, and reminders were sent by the coordinator of the nursing preceptors to improve response rates. 92 participants completed the questionnaire before (t0) and immediately after the trainings (t1), while 43 participants completed it six months after the trainings (t2). 49 participants were lost to follow-up between t0/t1 and t2.

2.2.3 Data analysis

The data were analyzed using IBM SPSS Statistics Version 28 (IBM Corp.). In the first step, the reliability of the measurement instrument was assessed using Cronbach’s alpha (α), and the corrected item total correlations were reported.^[39] The scale examining the challenges in precepting had a reliability of $\alpha = .769$, and the corrected item total correlations were above .3. The items measuring how the

5MP trainings were rated by the participants had a reliability of $\alpha = .907$, and the corrected item total correlations ranged from .5. Reliability for the scale measuring the application of the 5MP steps is good at both measurement time points. Internal consistency was $\alpha = .869$ and the corrected item total correlation as above .30 at t0. At t2, internal consistency was $\alpha = .906$, and corrected item total correlations were above .40.

Differences considering the use of the 5MP Model before (t0) and six months after (t2) the 5MP trainings were examined using the Wilcoxon test. This test was chosen because the items had an ordinal scale, which is precondition for using this test.^[38] Furthermore means of the items were calculated. The significance of differences between two means was tested using the dependent samples t-test. Results with a p -value of $< .05$ were considered statistically significant. Descriptive statistics were used to analyze sociodemographic variables and training evaluation. Bivariate correlations between items related to the assessment of the training, applicability of the 5MP, and usage of the 5MP steps were analyzed using Spearman’s rho. The two open-ended questions about positive aspects and improvement opportunities of the 5MP trainings were analyzed using content analysis. Inductive categories were built upon the provided data because of the exploratory nature of the questions,^[41] and the frequencies of the mentions were calculated. To assess the model fit of the 5MP Model, confirmatory factor analysis (AMOS) was performed. Only participants who answered the questionnaire before the training and six months after training attendance were included in the data analysis regarding the usage of the 5MP steps.

2.2.4 Ethical considerations

Participants in the study provided oral informed consent, and their participation was voluntary. Informed consent was obtained before data collection. To ensure anonymity, the questionnaires were coded using pseudonyms assigned by the participants themselves. Data were stored on a password-protected computer, and only the authors had access to the data. This study met the criteria for exemption from institutional review board approval, as confirmed in writing by the Ethics Committee of the Province of Carinthia after reviewing the ethics proposal.

3. RESULTS

3.1 Sample characteristics

All participants in the study were registered nurses. Table 1 presents the sociodemographic variables of the participants at t0/t1 (N = 92) and t2 (N = 43). The majority of participants were female [t0/t1: 82 (89.1%); t2: 38 (88.4%)], and only a small percentage had received formal preceptorship

education [t0/t1: 7 (7.6%); t2: 4 (9.3%)]. The participants had a high level of work experience, with over 45% having 20 or more years of experience at both t0/t1 and t2. Their experience as nurse preceptors was low, with more than half of the participants falling into the 0-2 years category.

Table 1. Sociodemographic variables of the participants

Sociodemographic Variables	t0/t1: N (%)	t2: N (%)
Gender (male)	10 (10.9)	5 (11.6)
Age (years in categories)*		
Up to 35 years	28 (31.1)	12 (27.9)
36-45 years	24 (26.7)	15 (34.9)
46+ years	38 (42.2)	16 (37.2)
Work experience (years in categories)		
Up to 10 years	26 (28.9)	11 (25.6)
11 to 20 years	22 (24.4)	11 (25.6)
20+ years	42 (46.7)	21 (48.8)
Formal preceptorship education		
No	85 (92.4)	39 (90.7)
Preceptees per year (categories)*		
Up to 5 preceptees	43 (48.9)	19 (20.7)
6-10 preceptees	26 (29.5)	15 (16.3)
11+ preceptees	19 (21.6)	8 (19.0)
Experience as nurse preceptor (categories)*		
0 to 2 years	48 (55.2)	27 (64.3)
3 to 8 years	20 (23.0)	6 (14.3)
9+ years	19 (21.8)	9 (21.4)

*preceptees per year: t0/t1: N = 88; t2: N = 42; experience as nurse preceptor: t0/t1: N = 87; t2: N = 42; age (years in categories): t0/t1: N = 90.

3.2 Assessment of the 5MP trainings by the nurse preceptors

After participating the majority of nurse preceptors rated the trainings highly. As shown in Table 2, only one participant rated it as non-sufficient across all 7 items. Specifically, the

Table 2. Items evaluating the 5MP training (t1)

Items measuring workshop quality	Very well N (%)	Well N (%)	Satisfying N (%)	Sufficient N (%)	Non-sufficient N (%)	Mean	SD
Case Study Design*	43 (47.3)	25 (27.5)	17 (19.7)	2 (2.2)	1 (1.1)	1.82	0.93
Quality of the trainer	71 (77.2)	14 (15.2)	3 (3.3)	3 (3.2)	1 (1.1)	1.36	0.79
Depth of the training contents	42 (45.6)	30 (32.6)	17 (18.5)	2 (2.2)	1 (1.1)	1.80	0.89
Design of the training materials	49 (53.3)	29 (31.5)	7 (7.6)	6 (6.5)	1 (1.1)	1.71	0.94
Quantity of new information	44 (47.8)	24 (26.1)	19 (20.7)	4 (4.3)	1 (1.1)	1.85	0.97
Preparation for application of	48 (52.2)	32 (34.8)	7 (7.6)	4 (4.3)	1 (1.1)	1.67	0.88
Relevance of workshop content for preceptorship	48 (52.2)	29 (31.5)	11 (11.9)	3 (3.3)	1 (1.1)	1.70	0.88

*case study design: t1: N = 91.

3.2.2 Improvement possibilities for future 5MP trainings

Only 12 participants provided answers to the open-ended question regarding improvement possibilities for future 5MP

quality of the trainer, the design of the training materials, the applicability of the 5MP in nursing preceptorship, and the relevance of the training content for the participants' preceptorship received high ratings, with over 50% of attendees assessing these items as "very well". In comparison to the other items, the use of case studies for training the 5MP, the depth of the training contents, and the quantity of new information were rated as "satisfactory" by a larger number of participants.

The higher the ratings of the trainings, the more likely the teaching method would be used in the future. This correlation falls within the low range. Additionally, a significant and strong correlation was found between the assessment of the training and the suitability of the 5MP method for nursing preceptorship (see Table 3).

3.2.1 Positive aspects about the 5MP trainings

A total of 65 mentions were made about positive aspects of the workshop categorized into aspects related to the training, social aspects and aspects related to the structure of the training. The majority of mentions focused on aspects related to the training content. Specifically, 19 mentions highlighted the role plays as positive aspects of the trainings. Additionally, 13 participants expressed positive views about the relevance of the content in the 5MP trainings. The practical and understandable communication of the content was also mentioned by 13 participants. Furthermore, 6 attendees specifically mentioned the applicability of the teaching method in clinical practice. Social aspects were also mentioned as positive aspects of the 5MP trainings. The trainer was mentioned positively by 17 participants, while 16 participants appreciated the opportunity for exchange and discussion. The positive atmosphere of the trainings was mentioned by 11 participants.

trainings. The mentioned aspects can be categorized into content-related and structural aspects. Regarding content-related aspects, the following suggestions were made: con-

sidering different levels of students' education, shortening the theoretical stage to allocate more time for 5MP training, incorporating more role plays for practice, including more practical content, explaining abbreviations like the 5MP earlier in the training, and preparing an educational video as additional learning material. In terms of structural aspects, the workshop duration was mentioned as being too long.

Table 3. Spearman correlation between training evaluation, future application and suitability of the 5MP

Spearman's rho	Future application of 5MP	Suitability of 5MP for preceptorship
Workshop evaluation (mean values)		
Correlation coefficient	-.392**	-.603**
Sig. (2tailed)	< .001	< .001
N	92	91

*Correlation is significant at the 0.01 level (2-tailed); **Correlation is significant at the 0.05 level (2-tailed).

3.3 Assessment of the 5MP method for nursing preceptorship

The higher the teaching method is perceived as suitable for preceptorship, the higher the future application is rated by

the preceptors ($r = .515, p < .001, N = 91$). Another correlation was found between the assessment of one's own didactical skills and the perceived challenges in preceptorship ($r = -.280, p < .007, N = 91$), indicating that a higher assessment of one's own didactical skills is associated with lower perceived challenges.

3.4 Usage of the 5MP before and after 5MP training attendance

Table 4 shows that there were no significant differences in the comparison of the items between t0 and t2 ($p > .05$). Furthermore, a t-test comparing the mean values between t0 ($M = 3.86, SD = 0.57$) and t2 ($M = 4.01, SD = 0.75$) also revealed no significant difference ($t [42] = -1.30, p = .100$). Even before the training, the nursing preceptors rated themselves highly in the application of the individual steps of the 5MP, indicating that a learning effect from the trainings could not be demonstrated.

Table 4. Application of the 5MP Model steps prior to and 6 months after training attendance (N = 43) and significance of differences

Steps	Time	Never (%)	Seldom (%)	Some-times (%)	Often (%)	Always (%)	p-value (Wilcoxon-test)
Step 1: Get a student's input prior to your explanation	t0	9.3	11.6	34.9	23.3	20.9	.089
	t2	2.3	4.7	32.6	39.5	20.9	
Step 1: Involve the student in the decision-making process	t0	4.7	7.0	32.6	44.2	11.6	.195
	t2	2.3	2.3	34.9	37.2	23.3	
Step 2: Assess the student's reasoning behind his/her decision	t0	2.3	0	25.6	41.9	30.2	.143
	t2	2.3	2.3	16.3	30.2	48.9	
Step 2: Evaluate the students' knowledge	t0	0	2.3	20.9	46.6	30.2	.509
	t2	4.7	2.3	14.0	34.9	44.2	
Step 3: teach a general rule for future use	t0	11.6	14.0	25.6	18.6	30.2	.204
	t2	7.0	4.7	25.6	27.9	34.9	
Step 4: give positive feedback on correct options	t0	2.3	2.3	14.0	23.3	58.1	.233
	t2	4.7	0	7.0	11.6	76.7	
Step 4: explain to the student why s/he was correct	t0	0	4.7	16.3	34.8	44.2	.853
	t2	0	7.0	14.0	27.8	51.2	
Step 5: offer suggestions for improvement	t0	2.3	0	9.3	37.2	51.2	.547
	t2	2.3	4.7	4.7	20.9	67.4	

The challenges described in preceptorship were ranked higher by those who used the 5MP steps less frequently prior the trainings. Those who ranked their own didactical skills high, more often used the 5MP method even before the workshops (see Table 5).

In the confirmatory factor analysis for the 5MP, only cases with complete measured values at both t0 and t2 were included (N = 43). At t0, a significant model with insufficient model fit was observed, with CFI, TLI, and NFI values well

below the required threshold of .9 (see Figure 2). The communalities should be in the range above .4;^[42] however, the first 5 steps showed values that were too low, resulting in very low regression weights. This indicates that the first five steps were not perceived to belong to the overall factor to the same extent.

The second measurement exhibited a better model fit, with characteristic values falling within the desired range (CFI) or near the desired range (NFI, TLI, RMSEA).^[42] This suggests

that after the workshop, all components of the model demonstrated similar importance, and no individual step stood out as having a poor fit. Although the model is significant, the model fit can be deemed acceptable considering the limited sample size within the pilot study context.

Table 5. Spearman correlation between usage of 5MP steps (t0), challenges in preceptorship and assessment of own didactical skills

Spearman's rho	Challenges in preceptorship	Assessment of own didactical skills
5 MP Model steps t0		
Correlation coefficient	-.248*	.315**
Sig. (2tailed)	.017	.002
N	92	91

*Correlation is significant at the .01 level (2-tailed); **Correlation is significant at the .05 level (2-tailed).

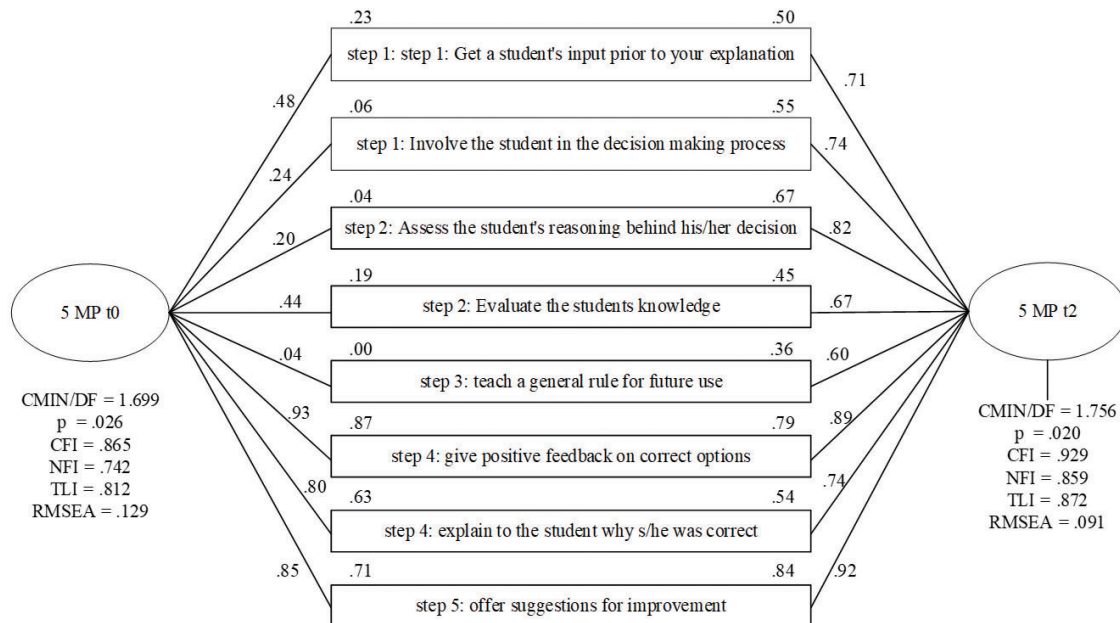


Figure 2. Confirmatory factor analysis for the 5MP at t0 and t2

4. DISCUSSION

The aim of the pilot study was to assess the newly developed 5MP training design and determine if there were differences in the utilization of the 5MP steps before and six months after attending the training. As there were no previous studies examining the use of this teaching method before and after training, no comparisons with other studies could be made. However, in contrast to previous studies that measured the incorporation of the five steps of the OMP Model after training,^[22-24] our pilot study did not find any significant differences, as the nurse preceptors already had a high prior assessment of the use of the teaching method steps. These results contrast with the evaluation of the training, specifically the item assessing the amount of new information. In this regard, 73.9% (N = 68) of the participants rated the content taught as very well to well in terms of novelty. Only 1.1% (N = 1) rated this item as non-sufficient. Additionally, in the free-text responses, 13 participants mentioned the novelty value of the content. One possible limitation that may

explain the discrepancies in the results is the reliance on self-report measures for assessing the application of the 5MP steps, which could introduce response bias due to social desirability. External observation of the application of the steps prior to and after training attendance may have generated different results. Additionally, the confirmatory factor analysis indicates a better integration of the 5MP steps after training attendance. The inadequate model fit at t0 suggests that, based on their existing knowledge, nursing preceptors perceived the steps as unrelated to each other in preceptorship before the training. However, after attending the training, the 5MP steps were perceived as more interconnected. This finding suggests that nursing preceptors have gained more knowledge after the trainings and highlights the high quality of the 5MP steps when used together.

The participants who had already implemented steps of the 5MP Model prior to the trainings rated perceived barriers in preceptorship lower. These results differ from the study

conducted by Gatewood et al.^[24] which did not show a significant change in reported barriers. It should be noted that in our investigation, only t0 (prior to the workshop) was examined regarding perceived barriers, as it was not the focus of this study. The trainings received high ratings from the participants. Specifically, the measures implemented to improve the acceptance of role plays as a training method, such as customizing the case studies for the role plays, were successful. 74.8% (N = 68) of the participants ranked them as very well to well. These findings align with the results obtained by Servey and Wyrick,^[27] who identified barriers to the use of role plays and proposed potential solutions during training sessions. In the open-ended question about what was good about the trainings, 17 nursing preceptors mentioned role plays, while only 2 attendees mentioned them as an improvement suggestion. Another improvement option mentioned was shortening the workshop although the theory stage accounted for only about 30% of the total duration.

Additional limitations, apart from the potential response bias regarding the usage of the 5MP, include a significant difference in the number of participants who completed the questionnaire before and after the workshop. Only 43 participants completed the questionnaire at both t0 and t2 (45.3%). While this rate is relatively high, especially for online surveys, it may have influenced the presented findings. Although online surveys are described as more efficient and cost-effective, there are negative aspects such as limited access for individuals without internet or technical issues that may arise. Furthermore, the response rate is mentioned as problematic, with higher dropout or refusal rates.^[39] Reasons for the low response rate at t2 could also be attributed to time constraints related to the COVID-19 pandemic, the use of an online survey instead of a paper-pencil format and the lack of contact with the nurse preceptors after workshop attendance. The question of why only 95 out of the 130 possible nurse preceptors participated in the workshops remains unanswered.

Convenience sampling was used to recruit study participants due to the fact that the workshops being implemented were unique and resources were limited to training preceptors in only one hospital. This method is appropriate when it is not possible to access the entire target population or when conducting a pilot study for further examination. However, convenience sampling can result in decreased external validity and selection bias.^[38] Therefore the sample size is not representative of the population. In this case, a pilot study was conducted to assess workshop quality and the learning experiences of the participants. To ensure that a pilot study can be utilized, researchers must be clear about the objectives and keep the overall research question in mind, which will guide future research. A small sample size alone is not

sufficient to justify the use of a pilot design.^[43,44]

Another limitation is that not all levels of the “New World Kirkpatrick Model”^[37] have been evaluated. Only level one and level two have been evaluated, whereas level three (changing in the behavior of the nurse preceptors) and level four (outcome in practice) haven’t been part of this investigation. So further investigation should be made evaluating if the 5MP also influences these parts.

5. CONCLUSION

Results of the training evaluation suggest that the structure and content of the trainings can be used with minor modifications to train nurse preceptors using the 5MP model for precepting nursing students, also in order to obtain a larger sample size for further studies. Although there was no statistically significant change in the use of the 5MP steps prior to and after workshop attendance, this only has been self-reported by the nursing preceptors. Future studies therefore should focus on the response bias and collect data via observation to get more reliable results here. Additionally, conducting confirmatory factor analysis on a larger sample size would provide more accurate information about the model fit. Another crucial aspect for future studies to consider is the implementation fidelity. Since only 43 participants completed the questionnaire before and after the workshop, it is unclear how many of the remaining 52 workshop attendees actually used the 5MP in their precepting, highlighting the importance of assessing implementation fidelity.

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AUTHORS CONTRIBUTIONS

MB and DD were responsible for the conception and design of the study. DD and KS were responsible for revising the manuscript and provided critical revision to the draft. BS and MB played a significant role in data analysis. MB was responsible for drafting the manuscript. All authors read and approved the final manuscript.

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The authors declare that there are no conflicts of interest.

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No additional data are available.

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