รูปแบบของการฝึกฝนอย่างตั้งใจเพื่อพัฒนา
ทักษะการปฏิบัติการพยาบาล
THE MODEL OF DELIBERATE PRACTICE FOR
DEVELOPMENT OF NURSING PRACTICE SKILLS

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บทคัดย่อ

การวิจัยนี้เป็นรูปแบบการทบทวนเอกสารอย่างเป็นระบบ โดยมีวัตถุประสงค์เพื่อศึกษารูปแบบของการฝึกฝนอย่างตั้งใจเพื่อพัฒนาทักษะการปฏิบัติการพยาบาล โดยมีการดำเนินงานตามขั้นตอนดังนี้คือ 1) การค้นหางานวิจัยจากหลักฐานเชิงประจักษ์ ผู้วิจัยใช้กรอบแนวคิด PICO ในการสืบค้นข้อมูลงานวิจัยที่เกี่ยวข้องกับการฝึกฝนอย่างตั้งใจในนักศึกษาพยาบาลระดับปริญญาตรี ระหว่างปี 2551 ถึงปี 2561 จากฐานข้อมูลอิเล็กทรอนิกส์ ตัวอย่างเช่น Academic Search Complete, PubMed, ProQuest Nursing & Allied Health Source, CINAHL 2) ประเมินระดับความน่าเชื่อถือของหลักฐานเชิงประจักษ์ 3) วิเคราะห์ประเมินคุณภาพของหลักฐานเชิงประจักษ์

ผลการวิจัย พบว่า ได้งานวิจัยที่มีคุณภาพ 9 เรื่อง นำมาวิเคราะห์และสังเคราะห์สรุปเป็นข้อแนะนำ โดยมีประเด็นสำคัญดังนี้ คือ 1) ใช้รูปแบบการฝึกฝนอย่างตั้งใจสำหรับนักศึกษาผู้ช่วยพยาบาล และนักศึกษาพยาบาล เพื่อช่วยส่งเสริมการพัฒนาสมรรถนะและศักยภาพของนักศึกษา 2) ทักษะการปฏิบัติการพยาบาลที่ต้องใช้การฝึกฝนอย่างตั้งใจนั้นควรเป็นสถานการณ์ที่มีความซับซ้อนที่เกี่ยวข้องกับความปลอดภัยของผู้ป่วย เช่น การช่วยฟื้นคืนชีพ (CPR) และการให้อาหารทางสายยาง ฯลฯ 3) การให้ข้อมูลย้อนกลับควรทำอย่าง

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ทันทีหลังการฝึกปฏิบัติ   4) ควรมีการฝึกฝนอย่างตั้งใจเพื่อพัฒนาทักษะการปฏิบัติการพยาบาลด้านวิธีการ
สอน วิธีการประเมินผลและทรัพยากรการเรียนรู้ 5) การสร้างแรงจูงใจให้ผู้เรียนมีส่วนร่วมในงานที่กำหนด
และเรียนรู้ด้วยตนเองอย่างต่อเนื่อง

ข้อเสนอแนะจากการวิจัย ในเชิงนโยบาย สามารถนำไปประยุกต์ใช้ในหลักสูตรที่มีการจัดการเรียนการ
สอนด้านการปฏิบัติการพยาบาล ส่วนในการนำไปใช้นั้น ควรมีการเตรียมผู้สอนให้มีทักษะของการใช้รูปแบบ
การฝึกฝนอย่างตั้งใจ มีการปฐมนิเทศผู้เรียนก่อนเรียน รวมถึงการเตรียมทรัพยากรทางการศึกษาให้พร้อมใช้
เวลาฝึกปฏิบัติ นอกจากนี้ ข้อเสนอแนะเชิงวิจัยครั้งต่อไป คือ ควรทดลองปฏิบัติในรูปแบบของการวิจัยศึกษา
นำร่องเพื่อประเมินผลลัพธ์ก่อน และนำมาประยุกต์ใช้ในการปฏิบัติของหน่วยงานต่อไป

คำสำคัญ: การฝึกฝนอย่างตั้งใจ / ทักษะการปฏิบัติการพยาบาล / รูปแบบ / หลักฐานเชิงประจักษ์

Abstract

Research Design of this study was systematic review. The purpose was to study the model of deliberate practice for development of nursing practice skills. The study procedure was shown as followed: 1) Search for evidence-based research, the researcher used the PICO framework to search for research data related to deliberate practice in undergraduate nursing students between 2008 and 2018 from the electronic databases, for example, Academic Search Complete, PubMed, ProQuest Nursing & Allied Health Source, CINAHL, 2) Assessing the level of reliability of empirical evidence, 3) Analyzing the evaluation of the quality of empirical evidence.

Research results found nine qualified research studies, which were analyzed and synthesized for recommendations with the following main issues: 1) Using of deliberate practice for nurse assistants and nurse students to facilitate competency and performance improvement; 2) Nursing practice skills by using deliberate practice should be applied in a complex situation that involve patient safety such as cardiopulmonary resuscitation (CPR) and feeding, etc.; 3) Providing feedback immediately after finish practice.; 4) Teaching method, assessment method, learning resource of deliberate practice on nursing practice skills; 5) Motivating learners for engagement in well-defined tasks and self-learning continuously.

Suggestions from the research, in policy, could be applied in the curriculum that was taught in nursing practice. In the implementation, the instructor should be prepared to have the skills of using the deliberate practice, an orientation for the students before studying, including preparation of educational resources to be ready to use in practice time. In addition, the suggestion of the future research should be experiment in the form of pilot study to evaluate results and applied in the practice of the institute.

Keywords: Deliberate Practice / Nursing Practice Skills / Model / Empirical evidence

Introduction

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School of Nurse Assistant was an educational institution. The mission was to pro-duce nurse assistants under the responsibility of the nursing department of the Faculty of Medicine, Siriraj Hospital. Nurse assistants were trained for one year and received the Diploma of Nurse Assistant. (School of Nurse Assistant, Faculty of Medicine Siriraj Hospital, Mahidol University, 2015, pp.1-2) Nurse assistants were described as staffs in nursing team who working closely with patients within the scope of responsibility according to the Ministry of Public Health's regulations under the supervision of nurse practitioners, midwifery or nurse and midwifery. Nurse assistants had responsibilities to take care of a patient, welfare, cleanliness, feeding and excretion. In additions, they do the activities for prevention and control of spread diseases, provide personal hygiene knowledge as well as clean and organize the patient's environment. The results of the satisfaction evaluation of nurse assistants in the academic year 2013-2015 from graduate users had an average score of 4.06, 3.70 and 3.93 respectively. The satisfac-tions of working in basic skills had relatively moderate average scores of 3.55, 3.63 and 3.96 respectively. It was recommended that the instructors should provide more academic knowledge and practice skills to ensure the increased use of knowledge in the workplace. (School of Nurse Assistant, Faculty of Medicine Siriraj Hospital, Mahidol University, 2017, pp1-3)

Nowadays, the teaching and learning to increase expertise of practice skills has been done through various methods such as lecture, practice in learning resources center (LRC) and clinical wards (patient settings). Lecture might not be the main em-phasis in terms of practice skills. In learning resources center, the practice skills were performed through demonstration, simulations and problem-based learning (PBL). In patient settings, were also trained using case studies and bed side teaching and ward round. (Larue et al., 2015, pp.132-40) Although, there were various methods to develop the nursing practice skills as mentioned above, but there were no clear conclusions. From the study of the problems and employers' satisfaction toward new graduates had low average score. It also found that there was no development of instructional model that focuses on developing nursing practice skills which were vital and neces-sary for the nursing profession.

Deliberate practice was the learning theory proposed by Ericsson et al. (1993,

pp.363-406). They described the process by which learners practice their skills in a way that was designed to improve their abilities to continually progress through continuous feedback from teachers and repeated training by the learners. This training process tried to keep the learners consciously competent in the training sessions which would make the students examined their skills (advantages and disadvantages) including how to improve. Deliberate practice was designed to increase the capacity of the psychomotor skills not only repetitive practice but also improved quality of practice. From the study by Oermann et al. (2011, pp.311-15), was to explore the effects of deliberate practice on the retention of cardiopulmonary resuscitation (CPR) psychomotor skills among nurse students. The results found that there were the differences in performance between students who had deliberate practice and a control group, with no practice beyond the initial training, were compared every three months for one year. The intervention group performed better than the control group over the 12 months. It was necessary in nursing education for deliberate practice of relevant and high-use skills for students to improve their performance and gradually develop their expertise. In addition, the study by Whyte and Cormier (2014, pp.617-625) was to establish the efficacy of a deliberate practice intervention designed to enhance levels of clinical performance in senior baccalaureate nurse students. The results found that the deliberate practice-based intervention resulted in statistically significant improvements to key aspects of participants' efforts in each of the four scenarios.

It was concluded that nursing education was required to prepare new graduates for high quality health care services. Nurse students and nurse assistant students must be able to develop and maintain core nursing skills to advance into effective nursing professional practice. From a literature review, there were no research study using systematic review method in deliberate practice for development of nursing practice skills. Therefore, the researcher interested in studying the model of deliberate practice for development of nursing practice skills. The results from this study could be used for developing competency and performance improvement of nursing practice skills both in the nurse students and nurse assistant students in fundamentals of nursing course.

Objective

The objective was to study the model of deliberate practice for development of nursing practice skills for nurse students and nurse assistant students in fundamentals of nursing course.

Materials and Methods

This study was systematic review protocol. The researcher performed the steps of systematic review as followed;

1. Search for evidence-based research

1.1 Framework of the search

The PICO framework was applied on the formulating an answerable question "How did deliberate practice method develop competency and performance improvement of nursing practice skills in nurse students?" Therefore, PICO was specified as followed: (Melnyk and Fineout-Overholt, 2011, pp.41)

Population:	Nurse students
Intervention:	Deliberate practice
Comparison:	N/A
Outcome:	Nursing practice skills

1.2 Identified keywords: The researcher identified keywords by using PICO as followed:

Population:	Undergraduate nurse students, graduate nurse students
Intervention:	Deliberate practice
Comparison:	N/A
Outcome:	Nursing practice skills, Psychomotor skills

1.3 Inclusion criteria:

1.3.1 The research evidence was concerned about deliberate practice in nursing practice skills of undergraduate and nurses who completed in Bachelor of Nursing Science and identified searching framework from every level of research published since 2008 to 2018.

1.3.2 Electronic databases were selected as followed: Academic Search Complete, PubMed, ProQuest Nursing & Allied Health Source, CINAHL, OVID, Science Direct, SCOPUS.

1.4 Exclusion criteria: The research evidence was conducted without using

deliberate practice skills. Deliberate practice in other nursing practice skills' areas such as academic and research skill, technology and information skills are excluded. Master's degree and doctorate degree of nursing science, non-expert, specialty nurse and advanced practice nurse were also excluded.

2. Assessing the level of reliability of empirical evidence

The level of reliability of evidence according to the criteria of Melnyk and Fineout-Overholt (2011, pp.41) as followed;

Level I   Evidence from systematic review or meta-analysis of all studies that are relevant randomized control trials (RCT) or evidence from guidelines developed from a systematic review of research evidence from randomized control trials.

Level II   Evidence obtained from at least one RCT.

Level III   Evidence obtained from at least one well-designed controlled trials without randomized assignment.

Level IV   Evidence from well-designed case-control and cohort studies.

Level V   Evidence from systematic review of descriptive and qualitative study.

Level VI   Evidence from a single descriptive or qualitative study.

Level VII Evidence from the opinions, attitudes of experts on the issues or and/or a report written by expert committee.

In this study, the researcher used Level I to Level VI, while level VII was excluded due to evidence came from the opinions, attitudes of experts.

3. Analyzing the evaluation of the quality of empirical evidence

The assessment was based on the following questions: (Tilokskulchai, 2008, pp.41; Grace, 2012, pp.10-15)

1) Were the results valid? There was the evaluation of research design that had been studied? Was it reliable? Could the conclusion be able to answer in-depth knowledge questions?

2) What was the result of the study? Did the study result be accurate, reliable and accurate?

3) Could the application of the study be applied? Did the research results in deliberate practice possible to apply for teaching and learning to nurse students?

Results

1. Search for evidence-based research

Based on empirical findings from various databases related to the deliberate practice for development of nursing practice skills using the PICO framework, there were 286 empirical evidences that met the criteria. The results were showed in Table 1 and Figure 1.

Table 1 Number of empirical evidences finding from various databases

Source of information	Number of found items
Academic Search Complete	14
OVID	26
CINAHL	24
PubMed	21
Scopus	24
Science Direct	119
ProQuest Nursing & Allied Health Source	106
Total	286

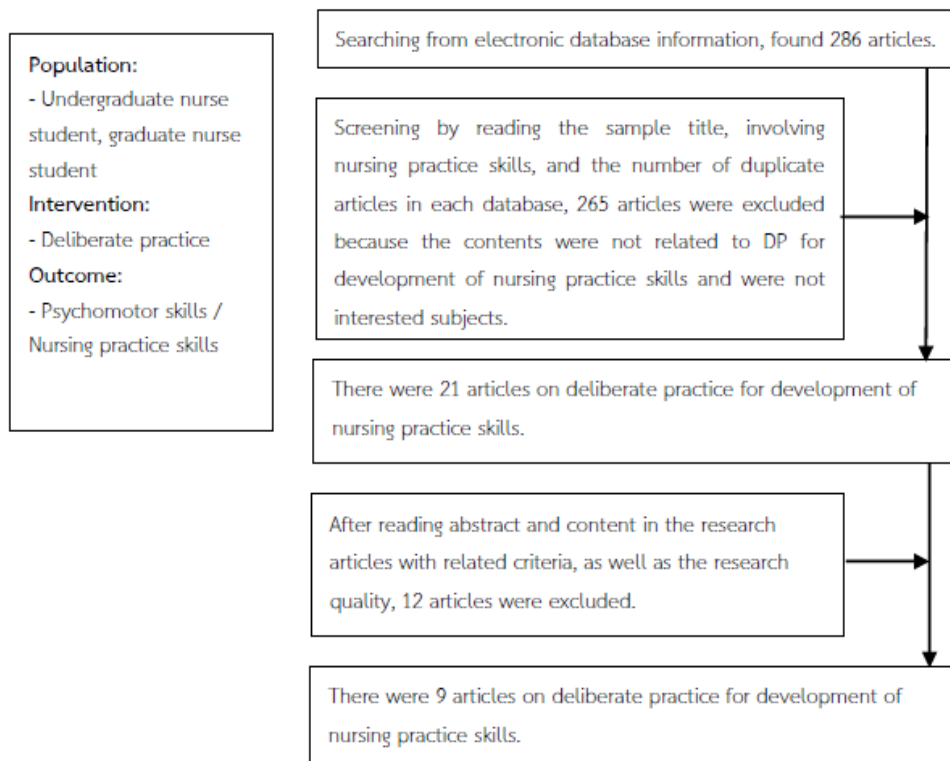|	
Population: - Undergraduate nurse student, graduate nurse student **Intervention:** - Deliberate practice **Outcome:** - Psychomotor skills / Nursing practice skills	Searching from electronic database information, found 286 articles.
	Screening by reading the sample title, involving nursing practice skills, and the number of duplicate articles in each database, 265 articles were excluded because the contents were not related to DP for development of nursing practice skills and were not interested subjects.
	There were 21 articles on deliberate practice for development of nursing practice skills.
	After reading abstract and content in the research articles with related criteria, as well as the research quality, 12 articles were excluded.
	There were 9 articles on deliberate practice for development of nursing practice skills.

Figure 1: Flow diagram of search results

Exclusion of empirical evidences

The articles were not related to deliberate practice for development of nursing practice skills and the number of duplicate articles in each database, so that 265 articles were excluded. The sample in the articles was not undergraduate, graduate student nurses or nurse (non-expert, specialty nurse and advanced practice nurse) so that 12 articles were excluded. Thus, 9 articles on deliberate practice for development of nursing practice skills were analyzed.

2. Assessing the level of reliability of empirical evidences

The level of reliability of 9 articles by using the criteria of Melnyk and Fineout-Overholt (2011, pp.41) were shown in table 2.

Table 2 Assessing the level of reliability of empirical evidences

No	Title	Type / level of empirical evidence
1	Deliberate practice of motor skills in nursing education: CPR as exemplar. (Oermann et.al., 2011)	Randomized Controlled Trial / Level II
2	A deliberate practice-based training protocol for student nurses: Care of the critically ill patient: a randomized controlled trial of a deliberate practice-based training protocol. (Whyte et.al., 2014)	Randomized Controlled Trial / Level II
3	A Randomized control trial assessing the impact of an innovative approach to education new to practice. (Lengetti, 2016)	Randomized Controlled Trial / Level II
4	Deliberate practice of IV medication procedures by student nurses: feasibility, acceptability, and preliminary outcomes. (Leveille, 2015)	Randomized Controlled Trial / Level II
5	Impact of a simulated clinical day with peer coaching and deliberate practice: promoting a culture of safety. (Badowski et.al., 2017)	Quasi-experimental research / Level III
6	Implementation of deliberate practice as a simulation strategy in nursing education. (Owen et.al., 2017)	Cohort study research / Level IV
7	The effects of a deliberate practice program on nursing students' perception of clinical competence. (Liou et.al., 2013)	A single descriptive study / Level VI
8	Deliberate practice for the purpose of psychomotor skill acquisition: nursing students and the motivational constraint. (Chee, 2015)	A single descriptive study / Level VI
9	Deliberate practice with standardized patient actors and the development of formative feedback for advance care planning facilitators. (Bond et.al., 2017)	A single descriptive study / Level VI

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3. Analyzing the evaluation of the quality of empirical evidence

The results of the evaluation of the quality of empirical evidence were shown as followed:

1. The validity of the results: Evaluating the validity of empirical evidence obtained from randomized and controlled trial (Level 2 from 4 evidences), it found that all evidence was clearly identified as accomplishing training to improve nursing skills by using deliberate practice. The samples were randomly assigned to the experimental group and the control group. There were more than 200 samples for one evidence, and there were fewer than 100 samples for two evidences. Considering the characteristics of the sample, it found that most of the evidence were no significantly different between control and experimental groups. Overall, there were no concealment of samples and researchers (blindness). Therefore, "the quality of the evidence was trustworthy and could be used to review.

There were four evidences which were non-experimental researches and one evidence for quasi-experimental research. These evidences were studied about the use of deliberate practice to intently develop nursing practice skills. There were clear research questions, considering that the population was defined as risk factors with outcome. These researches used appropriate research of each model to answer the research question. There were two evidences for samples which were more than or equal to 99 samples. There was one evidence of samples more than 60 samples. Two evidences were found for samples which were less than 50 samples.

There was considering how to choose the samples that represented the population. There were explanations of the criteria for inclusion and exclusion the sample group. There were explanations of reliability and validity of the measurement equipment. There was appropriate outcome measurement in sample group.

2. The result of the study: The total of empirical evidence focused on the use of deliberate practice to improve nursing skills. Four evidences for experimental and one for quasi-experimental studies concluded that the intervention group had significant improved nursing skills better than the control group. There was appropriate statistic to compare differences between groups such as Independent t-test, Pair t-test, and ANOVA. There was summary that intervention group achieved passive skill test higher than control group, including soft skill, satisfaction, confidence, feelings, and self-esteem.

3. The application of the study could be applied: There was the possibility of implementing by the institute. It was suitable for the context of the institute. There was an implementation in conducting empirical evidence practice in teaching and learning. The samples used in the study were similar to the target group. It was a group of nurse students, nurse assistant students, and nurses. The empirical evidence of deliberate practice helped to develop the teaching and learning model to improve nursing skills. The characteristic of the institute was the same as institute in empirical evidence that it was a source of education. When deliberate practice was used in the unit, it must be developed to be appropriate for the institute. Relevant instructors must be trained and able to handle deliberate practice teaching. This study would have the benefit from the implementation of research results.

Conclusion

The results of the study were summarized as a model of deliberate practice and showed in Figures 2 which were applied for nurse assistant students and nurse students. The model consisted of 8 main issues, as followed:

1. Setting objectives: The objectives of teaching and learning in nursing practice skills that were well defined, specific, and measurable. The objectives should be sequenced, starting with basic skills and progressing to more sophisticated ones.

2. Practice activities: Practice activities should be focused on improving a particular aspect of competency and performance of nursing practice skills in the nurse students which could be applied to core nursing skills.

3. Selection of nursing practice skills: The selection of nursing practice skills in situational complexity that involved the patient safety to be practiced. The duration of training was done intentionally and repetitively, were shown in table 3:

Table 3 Nursing practice skills and duration of training in each skill

Nursing practice Skills	Duration of training
1. Skills of Cardiopulmonary Resuscitation (CPR).	The duration of training was 6 minutes (2 minutes of compressions, 2 minutes of ventilations with bag-valve-mask and 2 minutes of single-rescuer) one time a month for one year. For evaluation, the test would be conducted at 3rd, 6th, 9th, and 12th months.
2. Skills of core nursing.	The duration of training was 30 minutes per 2 months for one year. It was a practice session in the learning resource center until the practice was carried on in the ward. The training was continued for up to one year. **Remark:** Skills of core nursing such as Feeding, Nasal tube care, Central venous line care, Intravenous (IV) bag medication, Chest tube wound care, change of chest bottle, Subcutaneous or intracutaneous medication, Intramuscular medication, Enema administration, Starting IVs, Venipuncture wound dressing care, Blood transfusion, Chest care and oxygen therapy, Advance care planning, Tracheostomy care.
3. Skills of inserting an indwelling urinary catheter and urinary catheter care.	The duration of training was 30 minutes of practice per 1 month for one year. It was a practice session in the learning resource center until the practice was trained on the ward. The training was continued for up to one year.
4. Skill of suction.	The duration of training was 15 minutes per month for one year. It was a practice session in the learning resource center until the practice was trained on the ward. The training was continued for up to one year.

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4. Method of teaching: The combination of various training methods could be done to meet the needs of all students. Interactive lectures would be available for 10-15 minutes. Vice versa, instructors could use the instruments of media, computer assisted instruction (CAI) / video, for the students to see beforehand. In addition, the teaching of demonstrations and simulation used the manikin (a simulated patient model for teaching people), and standardized patients (SP was a person who was trained and plays a role as a patient so that students could practice their skills). In classroom, the students were trained by role play and group discussion, including reflection, and critical feedback from teachers. After the end of each session, the teachers would use the technique of reflections and effective feedback for students to analyze whether they were doing what was right or wrong, or what to do to improve their skills and practice.
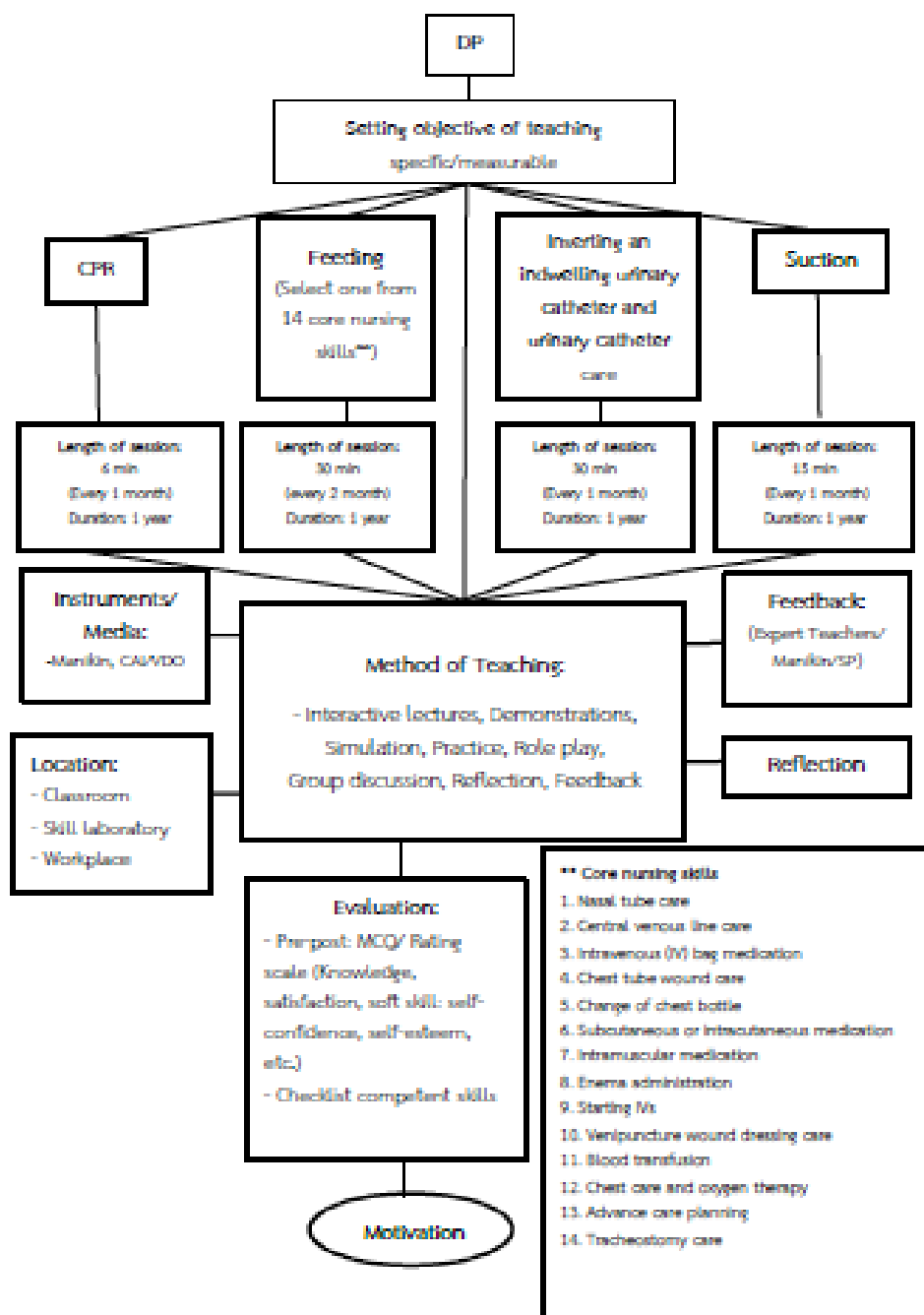
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Figure 2: Model of deliberate practice

5. Automated feedback: Automated feedback by Manikin and standardized patients for the students when done correctly or incorrectly could suggest the correct methods to the students. Furthermore, standardized patients helped for evaluations of attitudes which leaded to test of clinical skill performance and competence in skills such as communication, clinical examination, medical procedures, prescription, and exercise prescription.

6. Learning resources support: There were supports for learning resources, such as classrooms, computer instructional equipment, simulate patient models. However, it might be necessary to coordinate for cooperation with staff to use the room and training equipment. Also, institutes might add more teachers to students for training or assessment sessions.

7. Assessment methods: Assessment methods related with the teaching objectives and teaching methods

7.1 Knowledge measurement: using pre-posttest, multiple choice question (MCQ) which required analysis of the test.

7.2 Attitude measurement: using rating scale (satisfaction, soft skills: self-confidence, self-esteem, etc.)

7.3 Nursing Practice skills Measurement: using the checklist competent skills created by expert teachers (nurse).

8. Motivation: Motivation should be start from beginning to continuous learning until ending of the course with students, to describe them with details. Motivation was an important factor for successful practice. Teachers should lay the foundation for the practice to achieve continuity. Teachers needed to use motivation to increase appropriate attitudes of students, to participate in the activities, and to create a climate of attention.

Recommendations

The recommendations from this study were:

1. Policy Suggestions: Deliberate practice could be used to improve the teaching and learning process for development of nursing practice skills by implementing this model into the curriculum.

2. Implementation Suggestions: The instructor should be prepared to have the skills of using the deliberate practice. An orientation for the students should be provided before studying which helped the students be able to realize the importance of practicing and cooperate in practice. Additionally, educational resources should be prepared and ready to use in practice time such as Learning resource room and various equipment.

3. Further Research Suggestions: Future research should be experiment in the form of pilot study to evaluate results and applied in the practice of the institute. Pilot studies that provide good results can be implemented as a guideline which leading to change in teaching and learning in institute.

4. Limitations of using this research results: Model of deliberate practice obtained from systematic review should be adapted in each context of each school or educational institutes in various situations (depending on each subject related).

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