

การสะท้อนคิดและแผนผังความคิดกับทักษะ การแก้ปัญหาของนิสิตพยาบาล

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สาขาวิชาการพยาบาลมารดาทารกและการผดุงครรภ์ คณะพยาบาลศาสตร์ มหาวิทยาลัยศรีนครินทรวิโรฒ

บทคัดย่อ

การปฏิบัติการพยาบาลบนหอผู้ป่วยของนิสิตพยาบาลต้องใช้ทักษะการแก้ปัญหาตามสถานการณ์ต่างๆ อย่างไรก็ตาม มีนิสิตพยาบาลจำนวนมากที่ไม่สามารถตัดสินใจปฏิบัติการพยาบาลโดยใช้ความรู้ทางทฤษฎีได้ การวิจัยครั้งนี้จึงมีวัตถุประสงค์เพื่อศึกษาผลการเรียนโดยใช้การบันทึกสะท้อนคิดประจำวันต่อทักษะการแก้ปัญหาทางการพยาบาลของนิสิตพยาบาลชั้นปี 4 ที่เรียนในรายวิชาปฏิบัติการพยาบาลครอบครัวและการผดุงครรภ์ 2 ปีการศึกษา 2555 โดยกลุ่มตัวอย่างมีจำนวน 102 คน แบ่งเป็น 2 กลุ่มๆ ละ 51 คน ในแต่ละวันทั้งสองกลุ่มได้รับมอบหมายให้มีการวางแผนการพยาบาลในหญิงตั้งครรภ์ที่มีความเสี่ยงสูง มีประชุมปรึกษาก่อนและหลังการปฏิบัติงาน และมีการเขียนรายงานกรณีศึกษา แต่ในกลุ่มทดลองมีกิจกรรมเพิ่มคือการเขียนบันทึกสะท้อนคิดและแผนผังความคิดในสมุดจดประจำวันตามแบบวงจรการสะท้อนคิดของกิบส์ ซึ่งผลการศึกษาพบว่า ภายในกลุ่มทดลองหลังการทดสอบมีคะแนนเฉลี่ยความสามารถด้านการวิเคราะห์ความคิดและความรู้สึก ด้านการอธิบายสถานการณ์และด้านการพัฒนาเชิงวิชาชีพสูงขึ้นอย่างมีนัยสำคัญทางสถิติ ในขณะที่กลุ่มควบคุมมีคะแนนเฉลี่ยเฉพาะด้านการอธิบายสถานการณ์เท่านั้นที่สูงขึ้น ($p < 0.05$) จากการเปรียบเทียบทักษะการแก้ปัญหาระหว่างกลุ่มควบคุมกับกลุ่มทดลองพบว่ามีความแตกต่างกันอย่างมีนัยสำคัญทางสถิติ ($p < 0.05$) โดยในกลุ่มทดลองมีคะแนนเฉลี่ยด้านการวิเคราะห์ความคิดและความรู้สึก และด้านการพัฒนาเชิงวิชาชีพสูงกว่ากลุ่มควบคุม ความคิดเห็นของกลุ่มทดลองต่อกิจกรรมการสะท้อนคิดที่มีคะแนนสูงสุดคือ การเรียน ซึ่งช่วยให้เข้าใจเนื้อหาและเชื่อมโยงเนื้อหาได้ดีขึ้น จากผลการศึกษาแสดงให้เห็นว่าการเรียนโดยวิธีการสะท้อนคิดมีส่วนช่วยเชื่อมโยงความรู้ที่ได้จากการเรียนทฤษฎีไปสู่การปฏิบัติเพื่อแก้ปัญหาทางการพยาบาลได้

คำสำคัญ: วงจรการสะท้อนคิด การสะท้อนคิดประจำวัน การศึกษาพยาบาล

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Reflective thinking and mind mapping on problem-solving skills of nursing students

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Abstract

Nursing practice in clinical situation of nursing students must be used problem-solving skills. However, many students could not use basic knowledge to make decision on nursing care. This research aims to study the effects of learning by reflective thinking diaries on problem-solving nursing skills. The samples included 102 of fourth year nursing students, with fifty-one members in each group. Both groups were assigned the task of planning for daily nursing care for high risk pregnant women and writing case study reports. The experimental group was established by writing Gibbs' reflective thinking cycle and mind maps diaries. The results showed that the abilities of analysis of thoughts and feelings, situation description, and develop professional practice skills within experimental group increased significantly, while the control group increased only their ability to describe situations ($p < 0.05$). The problem-solving skills among control and experimental groups was significantly difference ($p < 0.05$). There were significant differences in analyzing thoughts and feelings, and ability in develop professional practice. The opinion of reflective activities highest scores is learning helped to gain more understanding and association between theory and practice. The findings indicate that students had improved nursing competency by learning reflective thinking and helped them in decision making on nursing care.

Keywords: reflective thinking cycle, diaries reflection nursing, nurse education

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Introduction

Nursing education aims to prepare learners to have professional competencies which are skills in effectively assessing and solving nursing problems. The nursing profession is a practice-oriented learning composed of two important elements, theory and practice, requiring concurrence with each other. Theoretical education is primarily focused on providing academic knowledge while practical education helps students to implement knowledge in real situations in order to gain clinical skills, develop critical thinking, build problem-solving skills, and enable nursing students to make clinical decisions¹. However, studies have revealed that many students successful in classrooms are unable to reflect this in their clinical skills², having difficulties in applying theoretical knowledge in real situations on wards. Studies have shown that fourth year nursing students in Thailand have moderate skills of critical thinking³.

Nursing care of pregnant women with medical complications require considerable skills in classifying data, summarizing the issues, and making decisions to solve problems in real situations with reason, accuracy and speed. Medical complications during pregnancy, especially pregnancy-induced diabetes, hypertension and infections, are significant and frequently encountered, posing hazards to both pregnant women and fetuses. Therefore, nurses require knowledge and the ability to make plans with healthcare teams in order to properly care for women to promote

safe pregnancies for mothers and fetuses. The ability of nurses to cope with complex problems, their skills in determining patient needs, and the ability to provide systematic care, are all dependent upon their problem-solving and critical thinking skills⁴.

Learning technique helping students to link knowledge obtained from theories with nursing practice by various strategies has been conducted. One of these strategies involves reflective and analytical thinking, drawing in nursing principles and practical experiences to explain phenomena, creating new ideas as guidelines in problem-solving, decision making, and self-improvement^{5,6}. Reflective thinking can be either reflection-in-action or reflection-on-action, using adult learning theories and reflective thinking practices. Ideas of educator John Dewey in 1933 had defined reflection as the perceived work problems, cause observation, recollecting summaries and testing when they practiced in the future⁷. A large number of model of reflective practice are available for nurse education to choose form. Gibbs' (1988) model is useful because many practitioners have used it and found it to be successful⁸.

Practical nursing education facilitates the implementation of reflective thinking techniques such as pre-post conferences, case-study conferences, and individual reflective thinking by recording concept mapping in daily diaries to promote appropriate practical applications of knowledge by students⁹. This research work, we studied the effects of reflective thinking on problem-solving

nursing skills in pregnancies with medical complications. The objectives of the study are to (1) compare between pre- and post-test problem-solving nursing skills by using reflective thinking and mind mapping in a group recording reflective thinking cycle in daily diaries, and group learning as occurs traditionally in nursing education, (2) compare the post-test problem-solving nursing skills between the groups that learned by recording daily reflective thinking and mind mapping in diaries and group learning as occurs traditionally in nursing education, (3) examine the perceptions of student nurses towards reflective thinking in their clinical practice.

Materials and Methods

Conceptual framework

In this study, we were employed Gibbs' reflective thinking cycle as the conceptual framework. Gibbs' model illustrates a framework for experiential learning and guides the user through a series of questions which provides a structure for a reflective experience^{10,11}. Concept with the following recording framework for six steps: (1) Description what happened? (2) Feelings what were you thinking and feeling? (3) Evaluation what was good and bad about the experience? (4) Analysis what sense can you make of the situation? (5) Conclusion what else you have done? (6) Action plans if it arose again what would you do?

Ethical approval was provided by the Research Committee. Students were explained details of the project, and provided verbal

consent prior to participating, ensuring that students were informed that the data from the evaluation were not identifiable.

Experimental Design

The quasi-experimental research comprised two-group pretest-posttest design. The sample group consisted of fourth year nursing students who were studying Family Nursing and Midwifery 2, Faculty of Nursing, Srinakharinwirot University, in the 2012 academic year. The samples were divided into a control group also with fifty-one members who practiced in patient wards from 11 June 2012 to 1 August 2012 and an experimental group with fifty-one members who practiced from 6 August 2012 to 26 September 2012. Each group practiced for three day a week over a period of seven weeks; the antenatal care unit for two weeks, the delivery room for three weeks, and the postpartum ward for two weeks.

The researchers outlined the research plans with seven instructors in the department of maternal-child nursing and midwifery. The students were divided into groups of 7-8 students per advisory instructor. In a control education, the student received instruction while working in patient wards. Each student was assigned to care for one pregnant woman with complications per day. The pre-post conference nursing plan reports by student teams and training instructor were prepared daily with reports on a case study at the eighth week. The researcher stipulated that the experimental group make daily records of

learning in line with Gibbs' concept with the following recording framework for six steps: (1) Write descriptions of incidents and all relevant data on the pregnant women under the students' care. (2) Describe all positive and negative feelings. (3) Identify positive experiences and mistakes in providing care for service recipients. (4) Analyze the reasons supporting the lessons learned through the experience. (5) Provide conclusions and linkage of theoretical knowledge in mind mapping. (6) Writing nursing plan reports for presentation to the advisory instructors in order to provide recommendations and connect experiences on Friday at the end of lessons for each training unit in three sessions. Details of intervention program activity showed figure 1.

Procedure

- Development of problem-solving nursing skills form

The problem-solving nursing skills form was adapted from the Oxford University assessment pattern¹¹. The characteristics of the skills composed of three sub-scales competencies: (1) analysis thoughts and feelings, (2) ability to describe situations, and (3) ability to develop professional practice. The nursing care plans was prepared prior to investigation on pregnant woman with medical complications in the three situations. In the process of analysis thoughts and feelings, skill was assessed based on data collection. According to the process in describing situations, skill was evaluated

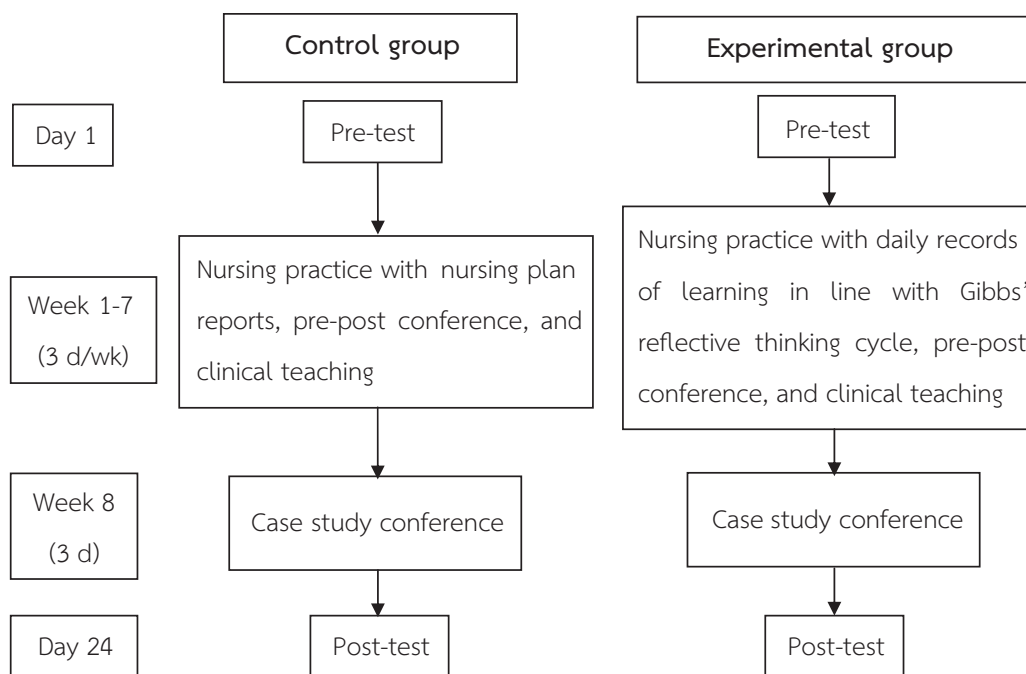


Figure 1 Details of intervention program activity.

based on the design of nursing diagnosis, setting goals and outcome assessment criteria. The last processes in assessed ability of develop professional practice concerned the assignment of nursing activities with reasons. The content validity was examined by a panel agreement of three qualified experts and revisions were accomplished according to the recommendations of these experts.

- *Evaluation process*

Twenty of third year nursing students were selected for participating in the assessment problem-solving nursing skills program. After investigation and record, the evaluation was achieved by using scoring criteria containing zero to ten points, zero for no practice, one to four points for failed practice, five to seven points for acceptable practice, eight to nine points for good practice, and ten points for very good practice. The scale was tested for overall reliability using Cronbach's method in which a score of 0.85 was obtained.

The questionnaire on opinions about learning by recording daily reflective thinking was developed by the researcher from Chong's measurement scale containing nine questions¹⁰. Reliability was determined by Cronbach's alpha and a value of 0.88 was observed.

Statistical analysis

Data analysis was performed using SPSS for Windows with statistics, means and standard deviation. The differences between the mean values before and after the experiment were

tested with paired *t*-test statistics and the differences between the groups were tested with independent *t*-test statistics.

Results

All student participated in this study were female and were tested for learning capacity by assessment based on cumulative grade point averages. The control group had a cumulative grade point average of 2.97 ± 0.44 whereas the experimental group had a cumulative grade point average of 3.11 ± 0.34 . The differences between cumulative grade point averages of both groups are not significant difference ($t = -1.79, p > 0.05$).

In the experimental group, the post-test scores of total problem solving nursing skills were found to be higher than the pre-test scores with statistical significance ($t = 4.90, p < 0.05$) and the post-test mean scores were found to be higher in all three sub-scales than the pre-test scores with statistical significance ($p < 0.05$). In contrast, there was no significant difference between pre-test and post-test of total problem solving skill scores in the control group. Only the scores for ability to describe a situation in control group was significant higher than pre-test ($t = 0.95, p < 0.05$). But the aspects of analyzing thoughts and feelings, and develop professional practices were not significant difference ($p > 0.05$) (Table 1).

The students of both groups of were comparable on problem-solving nursing skills at the first week before the experiment; the mean scores between the groups were found to have no significant difference ($t = 0.43,$

$p > 0.05$). At the eighth week after the end of the study, the total scores of problem solving nursing skills for the experimental group were found to be higher than the control group with a statistically significant difference ($t = -2.74, p < 0.05$). When the student scored on the sub-scales of the problem-solving skill, statistically significant differences were found in the analyze thoughts and feelings and development professional practice ($p < 0.05$). There were no significant differences between both groups on the situation description of the problem-solving skills ($p > 0.05$) (Table 2).

Concerning satisfaction in the experimental group about learning by recording reflective thinking in daily diaries, the students in this group have good satisfaction with the highest score in learning, causing these

students to be better in understanding and connect contents ($\bar{x} = 4.45$ SD = 0.54) (Table 3).

Discussion

Our findings provide additional support that reflective thinking is an effective model to develop the problem-solving skills of nursing students. The learners who recorded in a reflective thinking diary had higher post-test scores in the areas of ability to analyze thoughts and feelings, situation description, and develop professional practice than the learners' pre-test scores. This indicates that reflective record by mind mapping which involves reviewing knowledge from the classroom and using it in situational analysis by relying upon principles and reason to foster

Table 1 Mean nursing problem-solving skill pre- and post-test scores in the experimental and control groups

Problem-solving nursing skills	Pre-Test	Post-Test	<i>t</i>	<i>p</i> -value
	$\bar{X} \pm S.D.$	$\bar{X} \pm S.D.$		
Experimental Group				
analysis of thoughts and feelings	6.56 ± 1.43	7.40 ± 0.60	4.10	0.01*
situation description	6.50 ± 1.22	7.61 ± 0.52	6.12	0.01*
develop professional practice	6.94 ± 1.33	7.59 ± 0.40	3.46	0.01*
Total	6.67 ± 1.24	7.53 ± 0.42	4.90	0.01*
Control Group				
analysis of thoughts and feelings	6.60 ± 1.40	6.90 ± 1.11	1.25	0.22
situation description	6.80 ± 1.07	7.41 ± 0.95	3.35	0.01*
develop professional practice	6.82 ± 1.42	6.97 ± 1.49	0.57	0.57
Total	6.74 ± 1.09	7.09 ± 1.06	1.75	0.09

* Significant at $p < 0.05$

Table 2 Mean nursing problem-solving skill pre- and post-test scores between the experimental and control groups

Problem-solving nursing skills	Control group	Experimental group	t	p-value
	$\bar{x} \pm S.D.$	$\bar{x} \pm S.D.$		
Pre-test				
analysis of thoughts and feelings	6.60 ± 1.40	6.56 ± 1.43	0.11	0.92
situation description	6.80 ± 1.07	6.50 ± 1.22	1.34	0.18
develop professional practice	6.82 ± 1.42	6.94 ± 1.33	-0.43	0.67
Total	6.74 ± 1.09	6.67 ± 1.24	0.43	0.76
Post-Test				
analysis of thoughts and feelings	6.90 ± 1.11	7.40 ± 0.60	-2.83	0.01*
situation description	7.41 ± 0.95	7.61 ± 0.52	-1.29	0.20
develop professional practice	6.97 ± 1.49	7.59 ± 0.40	-2.89	0.01*
Total	7.09 ± 1.06	7.53 ± 0.42	-2.74	0.01*

* Significant at $p < 0.05$

Table 3 Opinions about learning by recording in reflective thinking diaries (n = 51)

Items Assessed	min-max	$\bar{X} \pm S.D.$	Level
1. Prompts creative analytical thinking for problem-solving nursing skills.	3-5	4.29 ± 0.54	Good
2. Promotes a learning atmosphere; motivates and triggers greater interest in learning.	2-5	4.16 ± 0.64	Good
3. Prompts enthusiasm in seeking knowledge.	2-5	4.12 ± 0.82	Good
4. Offers opportunities for presenting creative knowledge.	3-5	4.20 ± 0.69	Good
5. Helps remember and recall complex information.	2-5	4.02 ± 0.74	Good
6. Builds comprehension of content and links content well.	3-5	4.45 ± 0.54	Good
7. Prompts creative problem-solving in nursing skills.	3-5	4.08 ± 0.66	Good
8. Able to apply knowledge gain in learning to solve nursing problems.	3-5	4.24 ± 0.65	Good
9. Able to draw upon experience and knowledge obtained for application in subsequent nursing practice.	3-5	4.27 ± 0.57	Good
Total satisfaction	3.11-5.00	4.20 ± 0.47	Good

systematic, responsible and independent thinking in learners with self-designed learning¹². The key factors in this development are students, environmental conditions, peer groups and instructors. Learning by reflective thinking is able to enhance the development of self-learning ability among learners¹³. Environmental conditions include clinical placement in providing an opportunity for hands-on experience was articulated by students. Team members reflected together to exchange ideas and develop care. The concept of feedback requires further investigation. In this study, student evaluations indicated that individual instructions and feedback from the instructors were the most valuable aspects of the learning and assessment process¹⁴. The control group was found to have higher skill only in their ability to describe situations, which referred to classifying subjective and objective data in combination with systematic presentation. However, they were unable to implement this ability to prescribe nursing diagnoses and nursing activities by regular instruction.

The experimental group had better problem-solving nursing skills than the control group. According to the study, the group learning by recording in a reflective thinking diary had higher scores in analyzing thoughts and feelings, and develops professional practice than the control group. However, the scores for ability to describe situations showed no differences because learning in this subject involves assigning tasks for each learner in nursing planning for pregnancies with

complications, with meetings with instructors for consultation before and after daily practice as well as examinations and assessments of nursing plans. Hence, both groups of students were only able to learn from practice when the instructors arranged for learning experiences and students were involved in learning exchange activities together. Thus, learning occurs through practice, which can foster the promotion of problem-solving nursing skills¹⁵. Consequently, the post-test scores for ability to describe situations were higher in both groups. The group learning by recording in reflective thinking diaries had higher scores in the ability to analyze thoughts and feelings and in develop professional practice than the control group because, apart from learning from practice, they were also involved in reflective thinking by recording in diaries and mind mapping. The learning by reflective thinking enhanced the development of learning processes, analytical thinking, and planning for the future¹⁶. However, facilitation is required from instructors who are experts in theory^{17,18}. In nursing, problem-solving relies upon nursing processes in the care of patients. Hence, nursing education is learning for the purpose of professional application and requires transforming cumulative knowledge from classroom learning into practice. Reflective thinking can then be an efficient mechanism for reflecting thoughts about experiences leading to changes through knowledge^{19,20}. In addition, the use of recording in reflective thinking diaries by the mind mapping technique also enhances

the development of critical thinking. Mind mapping is a reflective thinking method of writing in combination with communication between the student and the instructor, which will help in finding reasons in line with academic subjects and subjects learned from theory applied to planning for problem-solving in nursing care for pregnancies with medical complications in women who are service recipients with complex problems and needs.

Students have a good degree of satisfaction in learning by recording in reflective thinking diaries. The method enabled the students to better understand and make connections in the content, thereby indicating that recording in reflective thinking diaries is a method for linking theoretical to practice by self-learning, which is adult learning and generates student satisfaction. The reflective thinking enhanced the occurrence of review processes about both positive and negative experiences through situations that have already been played out^{10,21}. Next, academic reasons are sought, which might be knowledge hidden within or knowledge from the classroom synthesized into new knowledge to be applied to improve practice in the future. In addition, reflective thinking is also a reflection of beliefs, values and feelings about the situation that will enable students to reflect on their own emotions and thoughts with the ability to disclose these to other people, leading to feelings and emotions whenever there is good or bad practice, leading to learning enjoyment²².

Moreover, group reflective thinking at pre-post conferences and case study conferences with an instructor and students participating in the explanation of the events occurring and helping express opinions about planning for future nursing care will build self-awareness, while also building confidence and enhancing self-improvement^{23,24}. The nursing profession needs to be composed of thinkers who always employ reflective thinking before, during, and after practice.

Conclusion

According to the findings, the group learning by recording in reflective diaries had higher post-test scores for problem-solving nursing skills and higher average skill scores than the group learning as occurs traditionally in nursing education. Future research might include studies in sample groups covering learning, teaching, and education about the advantages and disadvantages of learning by reflective thinking. Adopting the use of reflective diaries could enhance instruction in the field of nursing practice, particularly in subjects involving the care of service recipients with complex problems.

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