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Effects of Research-Based Instruction in Health System Subject of Nursing Students, The Royal Thai Navy College of Nursing

Vacharaporn Choeisuwan^{a*}

^a*Royal Thai Navy College of Nursing, Bangkok 10600, Thailand*

Abstract

This study was a quasi-experiment with One Group Pretest-Posttest design in which there were 80 subjects who were the first year naval nursing students studying the subject of health system at the Royal Thai Navy College of Nursing. The research instruments consisted of 1) the lesson plan, 2) a test on nutrition and health, 3) assignment details, 4) an assessment form on ability to conduct researches and 5) an assessment form relating to opinions on research-based instruction. The collected data were analyzed using the descriptive statistics, paired-t test and content analysis. The results were as follows. 1. Comparing to the norm (the norm was at 70 % which was equivalent to the score of 56), the total average score of the first year naval nursing students in the subject of health system was in “good” level and higher after going through the research-based instruction. 2. The average post-achievement score of the first year naval nursing students which was taken after conducting the research-based instruction was higher than the average pre-achievement score with statistical significance at .05. 3. The responses from the first year naval nursing students on conducting researches were rated high both on individual items and as a whole

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1. Introduction

Research-based instruction is the teaching and learning process that incorporates research elements into the program. The core principle of the instruction focuses on students' acquisition; in other words, the research-based instruction equips the students with the skills and ability to be able to acquire knowledge by them rather than spoon-feeds them the subject-matter. This is related to the fact that the body of knowledge is enormous and new knowledge and innovations emerge all the time; therefore, students need to be active and continuously search for knowledge

* Choeisuwan, V. Tel.: +6689-527-4131

E-mail address: kungvach@yahoo.com

(Pitiyanuwat & Boonteam, 2002). There are two types of teaching methodology applied in the instruction. The first type integrates the results from researches as part of instruction process or as the subject matter themselves while the other takes only the research process as a guideline for acquiring knowledge. The latter one encourages the students to conduct a research in order to stimulate the self-learning acquisition which is in accordance with the National Education Act B.E.2542 (1999) aiming at promoting student-centered instruction process (Teacher Council, 1998, as cited in Poonpun, 2005). Nursing Profession is the occupation that needs both science and art; then, the nursing practitioners are required to use both the knowledge and other relevant sciences. (Nucharoenkul, 2000, as cited in Jantangam, 2000). Teaching and learning process of nursing. Science puts emphasis on the nursing students in which they should be selective in selecting the useful information and have freedom to choose what they want to learn. This is similar to The notion of self-learning and research-based instruction. In the aspect of researching, thorough collecting of the information is the key (Polit & Hungler, 1999). Research-based instruction is based on inquiry approach which stimulates the students to notice, have a doubt, then inquire and search for the answers by themselves. These stages train the students to be active and eager to learn. They are also trained to think critically by giving them problems to solve. They are required to research for useful information to solve the problems. Besides, problem solving skill, self-learning or learning from group work are also one of the cores of the instruction (Metakunavut, 2002). The Royal Thai Navy College of Nursing has included the subject of health system into the revised curriculum (2008) of the Bachelor of Nursing Science Program, and the subject which is worth 2 credits is for the first year nursing students. The content of the subject will be related to public health and health condition. The researcher who is the instructor in the subject of health system and has realized the significance of having teaching and learning system that helps promote acquisition and autonomous learning has cooperated the research process into the learning system. The integration aims at equipping the students with the ability to think analytically and to self-teaching through research conducting which hopefully leads to self and career development and eventually to lifelong learning.

2. Research Objectives

1. To study the ability of the nursing students in conducting researches
2. To compare learning achievement before and after the research-based instruction in the topic of nutrition and health
3. To investigate the nursing students' opinions toward the instruction

3. Method

3.1 Sample

There were 80 subjects who were the first year naval nursing students attending the subject of health system at the Royal Thai Navy College of Nursing in the academic year of 2011.

3.2 Research Instruments

Research tool consisted of 1) the lesson plan of the research-based instruction 2) a 25-item multiple choice test on nutrition and health 3) worksheets on research process composed of 4 topics which are (1) identifying research topic (2) objectives and scope of the research (3) constructing research tools and (4) concluding the research results which were adapted from the study conducted by Poonpun (2005) 4) a 16-item of 4 point-scaled assessment form of the nursing students' ability in conducting research which was adapted from the study conducted by Witayanonta (2004) and 5) a questionnaire on the students' opinions related to research-based instruction which were divided into 2 parts (1) questionnaire on opinion toward research conducted in group and (2) opinion toward research-based instruction itself.

3.3 Data Analysis

The data were analyzed using the descriptive statistics, the comparative mean scores of pre- and post-test on

research knowledge using paired-t test and content analysis.

4. Conceptual Framework

The research-based instruction which incorporates research process in the training consists of 5 stages: problem identification, assumption establishment, data collection, data analysis and result conclusion. This was to encourage the students to conduct the research by themselves which would promote autonomous learning as shown in diagram 1.

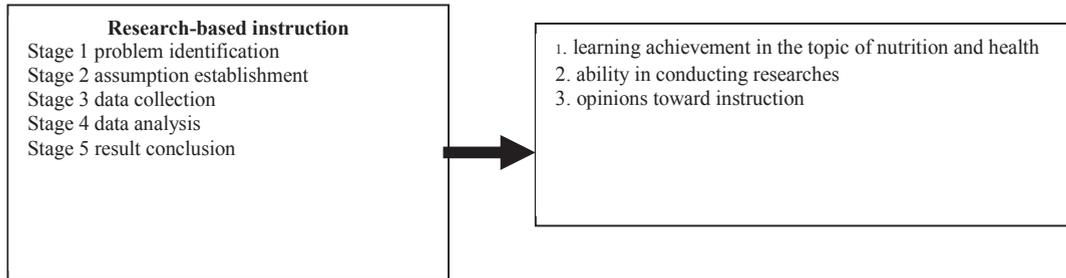


Diagram 1 Conceptual Framework

5. Research Results

5.1 Comparing the mean scores in ability to conduct research with the criteria

The mean score of the post-test was in good level and when comparing it to the criteria 70% equals 56 raw score), the results are shown in the following table 1.

Table 1 Comparison of the nursing students' mean scores in ability to conduct researches

Title	Test value=56				
	\bar{X}	SD	t	df	P-value
Ability to conduct researches	63.20	2.10	30.626*	79	.000

** P < .05

5.2 Comparing the mean scores of learning achievement

The mean score of learning achievement after studying in nutrition and health was higher with statistical significance at .05 as shown in table 2.

Table 2 Comparison of the mean scores of learning achievement in the topic of nutrition and health

Knowledge on conducting researches	\bar{X}	SD	t	df	P-value
Before instruction	12.99	1.99	-9.799*	79	.000
After instruction	15.64	2.29			

*P-value < .05

5.3 Opinions toward research-based instruction

In general and in specific aspects, the first year nursing students had high opinion on conducting researches as a group ($\bar{X} = 4.13$ SD=.52). Considering in each aspect, the item that received the highest mean score was item no. 3

listen to each other's ideas ($\bar{X} = 4.43$ $SD=.69$), and the second ranking item was no.7 have unity in working as a group ($\bar{X} = 4.41$ $SD=.71$), while the item received the lowest mean score was no. 8 having creativity in research conduct ($\bar{X} = 3.71$ $SD=.71$). The first year nursing students had additional comments and suggestions as following.

1. The students who preferred the kind of instruction mentioned that they had opportunities to work in group as a team, to be able to think analytically and synthetically, and to work more systematically and thoroughly. They also stated that they had learned how to have long-term plan and to exchange ideas with others which helps generate variety of ideas. However, some of the students do not like the instruction as they found that the instruction was quite complicated with numerous steps to be taken, and it was also time consuming which led to the problems related to time management.

2. The problems arisen from the study and mentioned by the students were limited time, difficulties in setting the meeting time and insufficient information provided which made them struggle with data collection.

6. Discussion

6.1 *The ability of nursing students in conducting researches*

Comparing to the criteria, the mean score of the post-test in terms of conducting researches on nutrition and health was in good level. This can be interpreted that the instructor had planned the instructional activities related to nutrition and health in accordance with the research process which were problem identification, assumption establishment, data collection, data analysis and result conclusion. Therefore, the students had opportunities to think and analyze according to the research process. They worked in group collecting data from document, textbooks, journals and subjects; they also had discussion in groups, presentation delivery and answering the inquiries from other groups. The results also reflected that the instructor had provided feedback to the students which help them to gain more knowledge, have better understanding and be able to conduct the researches on the topic of interest. These are the reasons supporting the better mean score of the student after learning in the instruction process, and the results were similar to those from the study of Karndacharuk (1996) which showed that after the research-based instruction, the students had gained more knowledge in nursing science and research process, had positive attitude toward cooperation and research conduct, were eager to learn and no differences in critical thinking.

6.2 *The learning achievement of the nursing students*

From the research, it was found that the mean score of learning achievement after the instruction was higher than that taken before the instruction. The reason might be the research-based instruction that the instructor implemented so that the students could acquire the knowledge of nutrition and health making them have higher score after learning. This results were similar to those from the study conducted by Karndacharuk (1996) which found that the research-based instruction gave the students' knowledge in terms of nursing science and research process. It also construct positive attitude toward research and hence gave them the skill to conduct it themselves. The students gone through the instruction were also eager to learn and study. Munepol (2004) found that research-based instruction allowed the student to suitably apply and integrate knowledge in other fields, and be able to practically understand the topic that they conducted in depth.

7. Recommendations

7.1 *Application of the results*

1. From the results, it was found that research-based instruction encouraged teamwork and cooperation. There were opportunities for participants to practice thinking analytically and synthesizing. They learned how to work systematically, think thoroughly, and share their ideas and experiences among themselves. Therefore, the research-based instruction should be applied to other subjects both theoretically and practically but with the consideration of

time factor and nature of the subject-matter.

2. Since the research-based instruction is quite complex with several stages that need to be learned, the instructors should explain the details of research process to establish the students' understanding in advance. The instructors should be facilitators for the students in research conducting, and set the time to give the students feedback.

7.2 Recommendations for Future Research

1. The research aims at investigating the efficiency in terms of research conduct and knowledge of the subject matter which is nutrition and health. However, the research-based instruction promotes students' self-learning; therefore, the future research should investigate the nursing students' self-learning ability, eagerness to learn and critical thinking ability.

2. There should be a synthesis of researches related to research-based instruction in order to build up the body of knowledge for future development of teaching and learning process.

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