Curriculum Development of Successful Intelligence Promoting for Nursing Students

Saranya Chularee, and Tawa Chularee

Abstract—Successful intelligence (SI) is the integrated set of the ability needed to attain success in life, within individual's socio-cultural context. People are successfully intelligent by recognizing their strengths and weaknesses. They will find ways to strengthen their weakness and maintain their strength or even improve it. SI people can shape, select, and adapt to the environments by using balance of higher-ordered thinking abilities including; critical, creative, and applicative. *Aims:* The purposes of this study were to; 1) develop curriculum that promotes SI for nursing students, and 2) study the effectiveness of the curriculum development. *Method:* Research and Development was a method used for this study. The design was divided into two phases; 1) the curriculum development which composed of three steps (needs assessment, curriculum development and curriculum field trail), and 2) the curriculum implementation. In this phase, a pre-experimental research design (one group pretest-posttest design) was conducted. The sample composed of 49 sophomore nursing students of Boromarajonani College of Nursing, Surin, Thailand who enrolled in Nursing care of Health problem course I in 2011 academic year. Data were carefully collected using 4 instruments; 1) Modified essay questions test (MEQ) 2) Nursing Care Plan evaluation form 3) Group processing observation form ($\alpha = 0.74$) and 4) Satisfied evaluation form of learning ($\alpha = 0.82$). Data were analyzed using descriptive statistics and content analysis. *Results:* The results revealed that the sample had post-test average score of SI higher than pre-test average score (mean difference was 5.03, S.D. = 2.84). Fifty seven percentages of the sample passed the MEQ posttest at the criteria of 60 percentages. Students demonstrated the strategies of how to develop nursing care plan. Overall, students' satisfaction on teaching performance was at high level (mean = 4.35, S.D. = 0.46). *Conclusion:* This curriculum can promote the attribute of characteristic of SI person and was highly required to be continued.

Keywords—Curriculum Development, Nursing Education, Successful Intelligence, Thinking ability.

I. INTRODUCTION

NURSING as a profession, nurses provide services for mankind. Therefore, nurses as practitioners must have professional expertise, intelligence for making decision and are able to apply theoretical knowledge to practice for health promotion, prevention of illness, care for illness people or disabilities or dying people and rehabilitation based on the science and art of nursing [1]. While caring persons, nurses must concern about specific needs in terms of physical, psychological, social and spiritual health of individuals or groups who have different level of demand. Therefore, nursing care relies on a good planning in holistic view for individual needs.

Literature review around nursing education studied in the past 15 years found that the planning of nursing care of the nursing students were poor. Nursing students were incapable in formulating nursing diagnosis and nursing care well enough. They could not link patients' disease and their pathology. Most of students did not recognize about the risk condition or tendency that cause the problems, so, they could not prioritize the problems [2] [3] Corresponding to Tadpinit (2003) [4] who studied the handle the focus group with nursing instructors. Tadpinit [4] found that their students could not use nursing process correctly in all steps. Because, they lacked of theoretical understanding and critical thinking that help solve problems of individual clients. Students could not make decisions about the problems of their clients and the method to solve the problem. So, nursing diagnosis and interventions were inappropriate.

Chularee[5] studied the needs and the solutions of nursing care plan problem. Using qualitative method data were collection from stakeholders: program committee, instructors, supervisors and nursing students. The results found that data collection and gathering information were major problems. These were no association found between prior knowledge and student's performance. The key informants suggested that practice more and more can solve these problems.

The main point of education is to develop not only knowledge and skills, but also the ability to use one's knowledge and skills effectively known as *"Successful intelligence (SI)"*. Sternberg [6] has explained that in order to teach students effectively, it involves a teaching method of SI, which comprises of teaching for analytical thinking, creative thinking and practical thinking, and the content s in lesson, simultaneously. This teaching method will help students remembering what they have learned in the long-term; retain consistency in learning. As a result, students could link prior knowledge with new knowledge and creativity (Sternberg, 1985[6]). Sternberg [7] has explained that teaching for SI improves learning performance for at least 4 reasons; 1) it encourages deeper and more elaborated encoding of material than does traditional teaching, 2) it encourages more diverse forms of encoding material, so there are more retrieval paths to the material and greater likelihood of recall at the test time, 3) it enables students to capitalize on strengths and to correct or compensate for weaknesses, and 4) it provides a better motivate to both teachers and students. Teachers were likely to teach more effectively and students are likely to learn more.

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Therefore, researcher had considered to develop curriculum of SI expecting that it can enhance nursing students performance by integrating in Nursing Care of Health Problem I (NCHP I) subject. SI could help the nursing students, especially sophomore nursing students who have less experience in nursing care, to prepare them for nursing practice. The SI curriculum focuses on balancing among analytical thinking, creative thinking and practical thinking to constructs their knowledge in each situation. Moreover, it is the important way to develop the nursing competency according to professional competency determined by Nursing Council (NC). The competency will help nursing students to find the effective solutions in nursing care problems when they practice in the real situation.

II. PURPOSES

This study aims to; 1) develop curriculum to promote successful intelligence for nursing students and 2) study the effectiveness of the curriculum development.

III. MATERIAL, METHODS AND RESULT

Research & Development design (R&D) was employed in this study. It comprised of 2 phases. They are:

Phase 1: Curriculum Development & field trail

Step 1: needs assessment

Design: This step was a survey research, conducted by using in-depth interviews and documentary analysis, focused on fundamental information and needs for SI development of the planning of nursing care.

Sample & Setting: The purposive sampling was used in order to get 13 participants. Inclusion criteria were participants who had; 1) experienced in curriculum and instruction in nursing care; 2) curriculum committee; 3) nursing instructors; 3) supervisors and; 4) nursing students. Documentary analysis included; 1) Nursing Program Revised 2010; 2) National Education Act 1999 and 2002; 3) Nursing professional competency, education philosophy, learning theory, intelligence and SI theory and related research reviewing.

Data collection: Data were collected on July 2011 using semi-structure questionnaires and recording form.

Data analysis: Data were analyzed by using descriptive content analysis.

Results: The findings of this study illustrated that thinking process was very important skill especially in 21st century. Each institution of nursing education has the ability to think is a feature of graduate nurses [8] [9]. Consequently, nursing education focused on encourage higher order thinking for successful of nursing student. However, thinking ability for using nursing process is the major problem of nurses and nursing students [2] [3] [5]. So, curriculum development was needed to solve this problem.

2) Step 2: Curriculum development

The purpose of this study was to synthesis the curriculum outline by using information from the first step. The outline consists of six items; 1) Principles of the curriculum based on – psychology theory, humanism, constructivism, theory of intelligence & SI theory, 2) Intended course were to – integrated basic knowledge for gathering data for planning to care, using nursing process for individuality and awareness the difference needs of clients, 3) Content of curriculum included – concept of nursing process and scenario in NCHP I course, 4) Learning experience included – active learning, cooperative learning and presenting with sharing , 5) Material included – lesson plan, instructional document, student handouts, worksheets and answer key, and 6) The measurement and evaluation included – Modified Essay Questions(MEQ), Nursing care plan evaluation form, Group processing observation form and Satisfied evaluation form of learning.

This course took 15 hours or one credit. The documents of the curriculum included; 1) Curriculum guideline, which included – lesson plan and materials, for teacher consist of 4 lesson plan and instructional document which using case study and answer key 2) Student guideline, which consisted of student handouts and worksheets.

Data collection: The outline and materials were examined by 5 experts. Using evaluation form; 1) Index of Objective Congruence (IOC) (-1 = incongruence, 1 = congruence), and Suitability evaluation, 5-point rating scale (1= less suitable, 5 = most suitable)

Data analysis: IOC and suitability of curriculum were analyzed by using descriptive statistics.

Results: The findings of this study found that IOC ranged from 0.80 – 1.00. The suitability of curriculum in the whole view was at high level (mean = 4.46, SD = 0.28). Thereafter, researcher revised the curriculum and the documents before the study will be conducted in the next step (field trail).

3) Step 3: Field trail

Design: Classroom Action Research (CAR), based on the concept of Kemmis & Metaggart [10], was implemented in field trail phase. This phase consisted of five steps;1) planning, 2) acting, 3) observing, 4) reflecting and 5) development.

Sample & Setting: The samples were 14 nursing students and 1 faculty. This phase was conducted on August 2011.

Data collection: Data were collected using the 3 observation records; 1) group processing observation form, 2) teaching behavior recording form and 3) students behavior recording form. Instruction was followed step-by-step. Meanwhile, researcher and assistant observed the behaviors among students and teacher. After that After-Action Review (AAR) method was used to evaluation and improvement the curriculum.

Data analysis: Content analysis was used for data analysis

Results: The results found that this program could help students to practice skills for thinking and planning for care because the program had a good preparing in some steps, selection of content, learning experience and evaluation. However, in some steps, students took an appropriate time. Although, students were eager to learn but the atmosphere was quite stressful. The researcher brought these reflections to improve curriculum and add more recreational activities (to share and learn with their classmates). Finally, the curriculum was completed.

Phase II: Curriculum Implementation

The purpose of this phase was to study the effects of curriculum to promote SI of nursing students.

Design: Pre-experimental, one group pretest-posttest, non-equivalent design was used in this study.

Sample & Setting: The subjects composed of 49 sophomore nursing students who enrolled in NCPHP I subject in 2011 academic year.

Data collection: Students were divided into small groups, six groups of 8-9 people, mixed ability (separated by GPAX) and gender based on cooperative learning. Methods of teaching consisted of three stages: 1) Introduction 2) Teaching; (a) the analytical thinking for assessment, (b) the creative thinking for nursing diagnosis, (c) the creative–practical thinking for planning. 3) The summaries and evaluation and reflection.

Results: The findings of this study showed that students could learn together in formulating nursing care plan. Six groups passed the criterion (60%) of planning of nursing care by using the nursing process. The overall score of SI after receiving the program were higher than before (mean$_{post}$ = 11.78, SD = 2.5 and mean$_{pre}$ = 6.75, SD = 2.42, respectively). For pretest, the number of students who passed (60 %) of the test was only 2 persons (from 49 students = 4.08 %). After receiving the program, the 28 students passed the test with the increase of 53.06%. (See Table I) and the average of satisfaction of the instruction was at a high level (mean = 4.33, SD = 0.04) (See Table II).

TABLE I
THE FREQUENCY AND PERCENTAGE OF STUDENT WHO PASS THE MEQS TEST, 60 PERCENTAGE (N = 49)

Test	pass		fail	
	frequency	Percentage	frequency	Percentage
Pretest	2	4.08	47	95.92
Posttest	28	57.14	21	42.86

TABLE II
AVERAGE OF SATISFACTION WITH THE INSTRUCTION (N = 49)

order	Domain	mean	SD	Interpretation
1	Project domain	4.14	0.10	Very Satisfaction
2	Content domain	4.50	0.03	Very Satisfaction
3	Achievements domain	4.35	0.09	Very Satisfaction
	Total	**4.33**	**0.04**	**Very Satisfaction**

In addition, the summarizations of students' reflection were; 1) the program constructed was very interesting. They were satisfied with the learning activities provided. 2) The program did not only stimulate their learning but provided a systematic thinking. 3) The students better understood the nursing process and also had a positive attitude towards it. 4) The relationships among students in class were better and students accepted their weaknesses and strengths and tried to find appropriate ways to develop themselves. These are the attributes of characteristic of SI person [6]. Additionally, the program was highly required to be continued.

V. DISCUSSION

Phase 1: Curriculum Development & Field Trail

This curriculum development promoting SI has taken a systematic approach based on the concept of Taba [11], which starts from needs assessment from documentary analysis; Curriculum of Nursing at Praboromarajchanok institute [12], the National Education Act [13] and Nursing professional competency [14]. Data from stakeholders' interviewing and research reviewing were collected in this step. Data were synthesized focused on the purpose of curriculum to achieve the graduate desired attributes. Then, the content and learning experiences were selected and organized. After that, researcher outlined the evaluation guideline. The curriculum guideline was determined by 5 experts for the suitability and compliance with various elements of the course. This was an evaluation prior to curriculum implementation [15]. This step made for consider the merit and worth for improving or revising or changing the curriculum [16]. In addition, this will guarantee the quality assurance of program as well.

The results of this study showed that curriculum based on problem-based learning (PBL) concept in order to success in nursing can be used. The purposes of PBL were to; 1) helps specific skill; thinking for successful life skill. 2) develop problem-solving skills 3) increase specific knowledge and 4) develop self-discipline [17] [18]. The students were constructing knowledge and building on their background knowledge. They learned more information by themselves, such as, designing their own inquiries, planning for learning, organizing and implementing a multitude of learning strategies. These skills are very important because it foster life-long learning. However, atmosphere of the program was quite stressful, so researcher adjusted activities such as add more recreation, exchange with classmates. This developed

curriculum is consistent with learning theory of humanism in the part of management environment. As the result, students had been motivating to learn by themselves with full potential.

Phase II: Curriculum Implementation

The results of this research showed that encouragement was the key to successful intelligence. It promoted many abilities such as critical thinking, creative thinking, and applicative thinking. As a result, students were able to plan a nursing care plan associate with the needs of patients. All six groups passed criteria of nursing care plan score (criteria = 60%). For SI score, average score of posttest was higher than pretest. Sternberg & Grigorenko [6] described Triarchic Instruction and Assessment (TIA) that promotes students to learn and develop their thinking on three parts. It focuses on develop thinking skills and knowledge simultaneously. This study is consistent with Po-yen [19] who studied the development of systems thinking for students in Bachelor's degree enhance writing skills in Thai language. Po-yen's study based on Triarchic's theory of Strenberg and scaffolding method. Po-yen[19] reported that the average score of systems thinking in a treatment group post-test was significantly higher than pre-test at .05. Supported by Saengchai[20] who studied on problem solving in mathematics subject based on Triarchic theory of Sternberg. This researcher found that students in a treatment group have higher academic achievement than regular group significantly at .05

The main point of this curriculum is the cooperative learning, which enhances students to learn. This curriculum focused on interaction that is effect on learning [21]. Students attempt to achieve their goals. They articulated how they collaborate and problem-solved with their group. This approach kept students passive and improved long- term retention, intrinsic motivation. Ge & Land [22] indicate that stimulating by questioning has a correlation with complexity problem solving ability significantly at .05. There are positive relationship between thinking skill and cognitive skill. Moreover, Chensuwan[23] suggests that cooperative learning provided opportunities for students to do tasks by themselves. It encourages students to interact and collaborate with other. Learners can illustrate ideas, present their competencies, and meet mutual goals. Furthermore, it encourages critical thinking as well [4]

VI. CONCLUSION

In conclusion, SI instruction can encourage problem-solving ability and improve thinking skill because SI instruction allows students to experience problem-solving in giving diverse scenario and provide learning opportunities to analyze, create and apply the necessary data from case study, which constructed by researcher. Several suggestions for teachers based on the results of this study as followed:

1) Teachers must pay attention on the differences of each individual. Therefore, teachers must focus on the development of the individuality.

2) It is known that learning atmospheres affects learning ability. It's very important that creating a good learning atmosphere to promote learning achievement.

3) Teachers should adjust the teaching method from lecture based to facilitate student's learning skill. Teachers who foster an environment should have skills to question and to stimulate students' interest.

4) In order to motivate students to learn how to learn, teachers should sincerely appreciate student's works when they accomplish tasks.

VII. IMPLICATIONS

Future research can be implemented in other subjects to enhance the successful intelligence and focus on students who have learning problems.

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