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Evaluation of the Bachelor of Nursing Science Program, Faculty of Nursing, Suan Dusit University, in Academic Year 2015 (Revised edition B.E. 2555)

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Abstract

This study aimed to evaluate the Bachelor of Nursing Science Program (Revised edition B.E. 2555) of Faculty of Nursing, Suan Dusit University, in Academic Year 2015 by CIPP Model. The sample was 431 participants who were 10 administrators of health centers, 45 instructors and 376 nursing students from Year 1 to Year 4. A research instrument was a questionnaire which asked for five sets of questions: 1) a set of questions for a seminar of graduate employers regarding graduates' qualifications, 2) a context assessment of the curriculum, 3) an input assessment, 4) a process assessment of curriculum implementation and 5) an output assessment. Data was analyzed by frequency, percentage, mean and standard deviation. Findings were as follows. First, a context assessment of the Bachelor of Nursing Science Program (Revised edition B.E. 2555) of Faculty of Nursing, Suan Dusit University, found that graduates' qualifications according to all six learning outcomes specified by Thailand Qualification Framework (TQF) reached a good level. The appropriateness of curriculum philosophy and objectives earned the highest average score ($\bar{x} = 4.59-4.65$). Second, an input assessment found that a curriculum structure had a high mean score ($\bar{x} = 4.41-4.72$). An average score of teaching facilities was at a moderate to high level ($\bar{x} = 3.19-3.62$). An assessment of building and learning facilities had a high mean score ($\bar{x} = 3.87-4.08$) while other services provided by relevant units had a moderate to high average score ($\bar{x} = 3.08-3.61$). Additionally, an input assessment regarding instructors found that 75% of lecturers earned a master's degree qualification and had teaching experience for 10 years and above. Students chose to study nursing science program because of employment after graduation while 75% of students had financial support from a government's Student Loan Fund. Third, a process assessment revealed that teaching and curriculum management had a high average score ($\bar{x} = 4.43$). Fourth, regarding learning achievement as an output assessment, 91.09% of nursing students had accumulated grade point average (GPAs) between 2.50-3.00. They also represented nursing student and graduate competencies specified by Thailand's TQF at a high level ($\bar{x} = 4.40$).

Introduction

The provision of education generally aims at a quality of learners following directions specified by each curriculum. A curriculum is a heart of educational provision as it is a master plan of teaching to equip learners with desirable attributes. A good curriculum should be modern and correspond to various situations such as academic advancement, social needs or morality of learners in order to build qualified human resource for an individual and social development.

The Office of Higher Education Commission (hereafter OHEC) is a supervisory unit that monitors and promotes operation of higher education institutions. OHEC developed Thai Qualifications Framework for Higher Education (hereafter TQF : HEd) that aimed at education management for learning outcomes of students. OHEC wish that graduates are assured with qualified education, enthusiastic for continuous learning, full of morality and ethics and become social leaders with academic knowledge (Office of Higher Education Commission, 2009). With regard to nursing science education, Thailand Nursing and Midwifery Council (hereafter TNMC) is a professional authority that monitors and controls standards of higher education institutions in producing nursing graduates. A nursing curriculum must conform to TQF : HEd and a qualification framework of the Bachelor of Nursing Science Program. Both curriculum and relevant institutions must also be approved by TNMC. In this regard, an approved nursing science curriculum must be revised every five years. A revised version must also be submitted for a fresh approval by TNMC. The faculty of Nursing, Suan Dusit University began teaching with the Bachelor of Nursing Science Program (New Curriculum B.E. 2550) in Academic Year 2007 with an aim to meet social needs in healthcare and promote all users to be capable of personal healthcare and well-being. Since then, the faculty of Nursing has produced six batches of graduates to work in a healthcare sector. This edition of curriculum was assessed in 2009 and being revised to become a Bachelor of Nursing Science Program (Revised edition B.E. 2555). The revision was conformed to Section 16 of the Ministry of Education Announcement on Standards of Undergraduate Programs of Study B.E. 2548 (2005) which indicated that a curriculum shall be up-to-date, present standardized index, be evaluated for every five years and be assessed for a constant development (Office of Higher Education Commission, 2009).

A curriculum evaluation is a systemic process to study a curriculum and be part of a curriculum development. Such an evaluation aims to have credible information that is useful for a decision-making of administrators or stakeholders (Ritchamrung, 2015). An important objective of a curriculum evaluation is developing learning and revising or amending such curriculum (Tyler, 1969). Regarding necessity, an evaluation provides stakeholders with important information for revision, amendment or development of a curriculum (Wongyai, 2011) that corresponds to changing economic, social and technological contexts. For example, people witness changes in advanced communication technology, aging society, 21st Century skills for learning, ASEAN collaboration, a national vision of Thailand to become an innovative-based society or domestic and international network building. Therefore, a curriculum evaluation and development is essential to effectively respond to a changing context. Results from an evaluation can be judgments of a revised version of curriculum in terms of quality and objectives specified in a curriculum. Additionally, results can be used to design curriculum structure, administration, teaching or assess quality of learners as an output.

The researchers are interested in assessing the Bachelor of Nursing Science Program (Revised edition B.E. 2555) of faculty of Nursing, Suan Dusit University in Academic Year 2015 due to a full 4-year operation. A study was conducted with Year 1 to Year 4 nursing students, graduates from the fifth batch who graduated in 2013. All collected data was used to assess a curriculum by a CIPP Model that encompasses context (e.g. curriculum philosophy and objectives), inputs (i.e. curriculum structure and content, instructors, students, facilities), processes (such as teaching, evaluation) and outputs (e.g. learning achievement, gradates). Evaluation results will provide whole and useful information for future improvements and development of the Bachelor of Nursing Science Program.

Objective

The study aimed to evaluate the Bachelor of Nursing Science Program (Revised edition B.E. 2555), Faculty of Nursing, Suan Dusit University in Academic Year 2015 by CIPP Model with following aspects.

1. A context evaluation from expectations of graduate employers, society and labor market including a curriculum assessment in terms of philosophy, objec-

tives, learning outcomes, social and labor market needs, and academic and professional demands.

2. An input evaluation regarding instructors, nursing students and teaching facilities.

3. A process evaluation in aspect of theoretical and practical teaching processes followed by student and instructor opinions.

4. A curriculum output evaluation through learning achievement, student competencies and graduate competencies by a follow-up research.

A Conceptual Framework

Researchers defined a conceptual framework from a curriculum context regarding policies and external factors and a curriculum evaluation by a CIPP Model (Stufflebeam & Shinkfield, 1990) as shown in Figure 1.

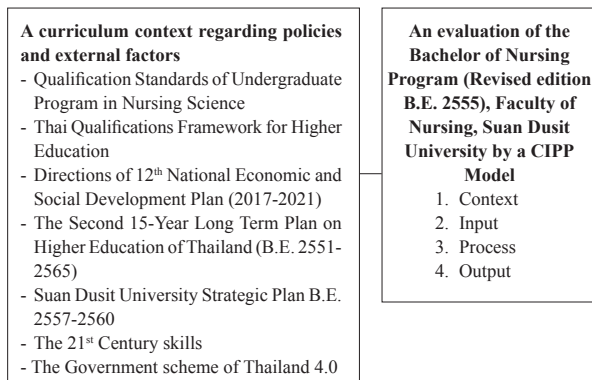


Figure 1 Conceptual Framework

Research Methodology

1. Population and samples

The sample of this study covered all population. There were 431 participants who were 45 instructors in nursing science, 10 graduate employers or colleagues from health centers and 376 nursing students of Year 1 (114 people), Year 2 (86 students), Year 3 (85 people) and Year 4 (91 students).

2. The building of research tools and quality development

Researchers developed research tools as follows.

2.1 There were two research tools to evaluate a curriculum context. First, a set of questions for a seminar of graduate employers regarding graduates' qualifications was developed in accordance to six learning outcomes specified in the TQF which were

(1) morality and ethic, (2) knowledge, (3) cognitive skills, (4) interpersonal skills and responsibility, (5) analytical skills in terms of mathematics, communication and technological application and (6) professional skills. Second, researchers created a five point rating scale to evaluate appropriateness of a curriculum by instructors. A scale started from 1-5 (totally disagree to totally agree). It evaluated whether curriculum objectives were consistent with philosophy, learning outcomes, social and labor market needs, academic and professional demands and specified graduate qualifications.

2.2 Researchers used three tools to evaluate inputs. First, a record was used to collect data from nursing instructors of faculty of Nursing, Suan Dusit University in terms of age, academic qualifications, teaching experience and academic positions. Second, a questionnaire about the motivation of nursing science study was designed to collect data from first year students of Academic Year 2015. Third, a five-point rating scale rating form was used to evaluate student opinions towards adequacy and modernity of teaching support facilities in regard to audio visual equipment, learning materials, buildings and places for apprenticeship.

2.3 An implementation process was evaluated by three tools. First, a course design checklist that was developed by a learning efficiency committee was used to evaluate instructional designs of all courses responsible by nursing faculty instructors. Second, a five-point scale rating form with 15 questions was designed to collect student opinions towards teaching of each course. Third, two evaluation forms of theoretical and practical teaching with a five-point scale rating was developed. A theoretical evaluation form composed of 16 questions covering course objectives, teachings that enhanced cognitive thinking, learning, morality, ethics, technological application skills, resources for learning and assessment. On the other hand, an evaluation form for practical teaching consisted of 14 questions covering aspects of nursing manual, orientation, job appointment, essential experience for apprenticeship, prior and after consultation, cooperation, appropriate roles of staff, readiness of equipment, places of apprenticeship and a travel to the apprenticeship workplace.

2.4 Researchers developed two tools to evaluate outputs. First, a form was used to evaluate Batch 5 graduates who graduated in Academic Year 2013. Second, a five-point scale rating form was designed to evaluate student competencies regarding six learning outcomes. A form was used to collect data from Year 1

to Year 4 students.

All research tools were examined by three qualified nursing experts in regard to content validity. Then, researchers revised tools in accordance with comments and suggestions from the three experts prior to data collection.

3. Data Collection

Researchers collected data in respect to curriculum evaluation using the following steps.

3.1 Researchers informed research objectives and asked for cooperation from graduate employers, instructors and nursing students in evaluating curriculum appropriateness.

3.2 A seminar was held to collect data from graduate employers through a set of questions regarding six learning outcomes.

3.3 A survey was conducted to gather student opinions (from Year 1 to Year 4) in following aspects: general background, the motivation of nursing science study, opinions, competencies of each year of study, a curriculum administration and support facilities.

3.4 Data was collected in terms of instructors' age, qualifications, academic position and experience. Also, data was gathered from graduate employers, a seminar on teaching problems and a seminar with nurses at places of apprenticeship.

3.5 Data from a course design checklist of all nursing courses was collected.

3.6 A teaching efficiency evaluation of instructors composed online by nursing students was gathered.

3.7 Course evaluation data by nursing students was collected.

4. Data Analysis

4.1 Quantitative data was analyzed by frequency, percentage, mean and standard deviation. Average scores were recorded according to the specified criteria as follows. Average scores between 4.50 and 5.00 indicated the highest level, 3.50-4.49 scores referred to a high level, 2.50-3.49 scores indicated a moderate level, 1.50-2.49 scores signified a low level and 1.00-1.49 scores referred to the least level.

4.2 Qualitative data derived from seminars on learning management with managers of health centers, graduate employers, colleagues and nurses from the apprenticeship workplaces was analyzed by the content analysis.

Results

Results from an evaluation of the Bachelor of Nursing Science Program (Revised edition B.E. 2555) by a CIPP Model were as follows.

1. Context

Findings from the seminars with graduate employers from both public and private sectors who were hospital administrators or bosses in regard to TQF aspects of graduate qualifications were presented as follows. First, regarding morality, ethics and professional code, graduates showed good feelings when servicing patients, good personality, disciplined, devoted and gave clear information to both the patients and relatives. Second, in terms of knowledge, graduates were interested in seeking knowledge, self-developing constantly, thinking innovatively, being a model and being able to apply knowledge from a research. Third, a cognitive skill evaluation demonstrated that graduates held a case conference with good results, were able to solve situational problems, had analytical abilities and were able to answer questions with cautiousness. Fourth, graduates were able to build interpersonal relationship with senior colleagues and teammates according to an evaluation of interpersonal skills and responsibility. In addition, their English was good when compared to graduates from other institutions. Fifth, graduates embraced creativity and were able to use computer programs and presentation regarding ICT, communication and mathematical skills. Last, in terms of professional skills, graduates were able to work with team mates from other professions and able to apply nursing techniques.

Additionally, an evaluation of objective alignment to a curriculum context found that, overall, objectives were aligned with a curriculum philosophy, learning outcomes, problems, social and labor market needs and academic and professional demands with average scores at the highest level ($\bar{x} = 4.59, 4.57, 4.66, 4.65$) as shown in Table 1.

Table 1 An analysis of Objective Alignment to a Curriculum Context

Details of Objectives Evaluation	Program Philosophy		Learning Outcomes		Problems, Social and Labor Market Needs		Academic and Professional Demands	
	\bar{X}	S.D.	\bar{X}	S.D.	\bar{X}	S.D.	\bar{X}	S.D.
1. Nursing patients from all ages as an individual, a family, a group and a community that included wellbeing and health risks.	4.68	0.47	4.69	0.47	4.75	0.44	4.78	0.42
2. Performing a duty that conformed to professional code of conduct and a nursing process.	4.69	0.54	4.63	0.55	4.72	0.46	4.78	0.42
3. Giving overall nursing services effectively	4.66	0.55	4.56	0.67	4.75	0.44	4.78	0.42
4. Having leadership ability and showing appropriately behaviors through analytical thinking and reasonable decisions.	4.56	0.67	4.47	0.57	4.66	0.48	4.75	0.44
5. Being capable of Thai and English languages communication and ICT skills.	4.34	0.70	4.22	0.79	4.53	0.67	4.66	0.60
6. Being able to adjust to an international context, eager to learn and enthusiastic for lifelong self-development.	4.47	0.67	4.47	0.67	4.66	0.48	4.75	0.44
7. Having good personality and responsibility	4.72	0.46	4.66	0.48	4.81	0.40	4.81	0.40
8. Being firm with morality, ethic and professional code of ethics	4.63	0.55	4.66	0.55	4.78	0.42	4.84	0.37
Total	4.59	0.09	4.57	0.11	4.66	0.09	4.65	0.09

Table 1 illustrated objectives aligned with a curriculum context at the highest level, overall. The most corresponding aspect was social and labor market needs which scored at 4.66. The second most corresponding aspect was academic and professional demands with an average score of 4.65 while a program philosophy scored third with a mean score of 4.59.

2. Inputs

2.1 Instructors

A number of instructors at the Faculty of Nursing in Academic Year 2015 were 48 people. Thirty-six people held a master's degree qualification (75%) and 12 people obtained a doctoral degree (25%). Regarding qualifications of nursing science, 39 people earned a master's degree in nursing science while 9 people obtained degrees from relevant fields. The average year of teaching experience was 9.88 years. The majority of instructors had teaching experience for 0-5 years (47.92%). The average age of instructors was 48.54 years but a majority of them were in an age group between 51-60 years (35.45%). For academic titles, 43 people occupied a 'lecturer' title (89.58%) while other five colleagues held an 'assistant professor' title (10.42%).

2.2 Students

An evaluation of student hometown regions found that the majority of students from Year 1 to Year 4 came from the northeast of Thailand (38.40%, 38.40%, 40% and 42.90% respectively). The second most hometown region was the north of Thailand where students in Year 1, 2 and 4 represented 16.70%, 18.60% and 16.50%. Third year students came from the central region (22.40%) whereas students in Year 2 and 3 came from Bangkok (17.40% and 9.60% respectively). Students from the southern Thailand represented a proportion of 5.80% and 4.70% of Year 2 and 3 students. The least proportion of first year students came from the east of Thailand (2.60%).

3. Processes

3.1 Educational and learning support facilities

An analysis of student opinions towards educational and learning support facilities revealed that the highest score ($\bar{X} = 3.85$, S.D. = 0.91) came from a system for student support and development which covered lecturers, advisors and a student activity division, and learning facilities regarding classrooms, a science lab, anatomy lab, computer lab, nursing lab and library. However, educational support facilities in terms of additional services provided by relevant units such as audio visual equipment, technology, accommodation and canteen scored at a moderate level ($\bar{X} = 3.23$, S.D. = 1.23) as shown in Table 2.

Table 2 Mean and Standard Deviation Scores from Student Satisfaction Survey about Educational and Learning Support Facilities

Description	Year 1		Year 2		Year 3		Year 4		Total	
	\bar{X}	S.D.	\bar{X}	S.D.	\bar{X}	S.D.	\bar{X}	S.D.	\bar{X}	S.D.
1. Educational support facilities	4.08	0.75	4.06	1.00	3.94	0.77	4.08	0.72	4.04	0.99
1.1 Student support and development system (classroom instructors, advisors and a student activity division)										
1.2 Services and supports provided by relevant units (audio visual equipment, technology, accommodation and canteen)	3.50	1.19	3.21	1.34	3.00	1.11	3.22	1.29	3.23	1.23
2. Learning support facilities	3.89	0.96	3.88	1.03	3.76	0.78	3.87	0.87	3.85	0.91
(classrooms, science lab, anatomy lab, computer lab, nursing lab and library)										
Total	3.70	0.97	3.72	1.12	3.57	0.87	3.72	0.96	3.71	1.04

As shown in Table 2, an overall score of student opinions towards educational and learning support facilities was at a high level ($\bar{X} = 3.71$). The top average score ($\bar{X} = 4.04$) came from a student support and development system regarding classroom instructors, advisors and a student activity division. The second one was learning support facilities ($\bar{X} = 3.85$) in terms of classrooms, a science lab, anatomy lab, computer lab, nursing lab and library. The third one was additional services from relevant units ($\bar{X} = 3.23$) that included audio visual equipment, technology, accommodation and canteen.

3.2 Curriculum and Teaching Management

An analysis of student opinions toward the curriculum and teaching management was presented in four aspects. First, nursing students from Year 1 to Year 4 viewed that a curriculum management was at a high average score ($\bar{X} = 4.32, 4.36, 4.33$ and 4.27 respectively).

Then, teaching of theoretical courses was perceived at a high level ($\bar{X} = 4.33, 4.26, 4.36$ and 4.26). Also, teaching of practical courses presented a high average score ($\bar{X} = 4.39, 4.47, 4.47$ and 4.39). Fourth, students gave assessments with a high average score ($\bar{X} = 4.37, 4.46, 4.27$ and 4.36). Data was shown in Table 3.

Table 3 Mean and Standard Deviation Scores from Student Satisfaction Survey about Curriculum and Teaching Management

Description	Year 1		Year 2		Year 3		Year 4		Total	
	\bar{X}	S.D.	\bar{X}	S.D.	\bar{X}	S.D.	\bar{X}	S.D.	\bar{X}	S.D.
1. Curriculum management	4.32	0.16	4.36	0.11	4.33	0.09	4.27	0.07	4.32	0.18
2. Teaching of theoretical courses	4.33	0.81	4.26	0.74	4.36	0.64	4.26	0.69	4.30	0.72
3. Teaching of practical courses	4.39	0.62	4.47	0.68	4.47	0.62	4.39	0.60	4.43	0.63
4. Assessment	4.37	0.63	4.46	0.74	4.27	0.67	4.36	0.63	4.37	0.67
Total	4.35	0.10	4.39	0.57	4.36	0.51	4.32	0.49	4.36	0.55

Data shown in Table 3 demonstrated that an overall average score of student opinions towards curriculum and teaching management was at a high level ($\bar{X} = 4.36$). The topmost average score was teaching of practical course ($\bar{X} = 4.43$). The second highest average score was assessment of a curriculum ($\bar{X} = 4.37$) while teaching of theoretical courses scored third ($\bar{X} = 4.37$).

4. Outputs

4.1 Grade Point Average (GPAs) of Students

When looking at students' GPAs in Academic Year 2015, researchers found that the majority of students in Year 1 to Year 4 earned GPAs from 2.51-3.00 (60.18%, 70.93%, 49.41% and 52.75% respectively). The second GPAs range was from 2.01-2.50 in which students in Year 1 to 4 shared the proportion of 1.77%, 3.49%, 4.07% and 3.30% accordingly. Only two students received GPAs from 3.51 and above. One student came from Year 3 (1.18%) and another came from Year 4 (1.09%).

4.2 Nursing Student Competencies

A student competency evaluation assessed seven aspects as follows. First, the morality and ethic competency had an average score at the highest level ($\bar{X} = 4.51, 4.52$ and 4.50 for students in Year 1 to Year 3 respectively). In this respect, the competency in accordance with Suan Dusit University identity was

found at the highest level from Year 1 students ($\bar{X} = 4.72$). Then, students from Year 1 to Year 4 were highly competent in knowledge ($\bar{X} = 4.34, 4.39, 4.25$ and 4.42 accordingly), cognitive skills ($\bar{X} = 4.35, 4.28, 4.16$ and 4.42), interpersonal skills and responsibility ($\bar{X} = 4.41, 4.38, 4.35$ and 4.41), ICT, communication and mathematical skills ($\bar{X} = 4.25, 4.12, 4.02$ and 4.40), professional skills of students in Year 2 to 4 ($\bar{X} = 4.47, 4.46$ and 4.40) and attributes of Suan Dusit identity ($\bar{X} = 4.72, 4.46, 4.40$ and 4.40). Data was shown in Table 4.

Table 4 Mean and Standard Deviation Scores of Nursing Student Competencies

Description	Year 1		Year 2		Year 3		Year 4	
	\bar{X}	S.D.	\bar{X}	S.D.	\bar{X}	S.D.	\bar{X}	S.D.
Competency 1: Morality and ethics	4.51	0.04	4.52	0.06	4.50	0.08	4.43	0.04
Competency 2: Knowledge	4.34	0.64	4.39	0.86	4.25	0.33	4.42	0.03
Competency 3: Cognitive skills	4.35	0.04	4.28	0.05	4.16	0.05	4.42	0.05
Competency 4: Interpersonal skills and responsibility	4.41	0.04	4.38	0.06	4.35	0.07	4.41	0.03
Competency 5: ICT, communication and mathematical skills	4.25	0.10	4.12	0.16	4.02	0.09	4.40	0.01
Competency 6: Professional skills	-	-	4.47	0.05	4.46	0.05	4.40	0.07
Competency 7: Attributes of Suan Dusit University identity	4.72	1.51	4.46	0.71	4.40	0.63	4.40	0.95
Total	4.32	0.39	4.38	0.65	4.31	0.87	4.41	0.17

Data shown in Table 4 demonstrated that first year students had the highest average score in attributes of Suan Dusit University identity competency ($\bar{X} = 4.72$). Then, overall average scores of seven student competencies were at a high level ($\bar{X} = 4.32, 4.38, 4.31$ and 4.41). Students from Year 1 to 3 exhibited morality and ethic competency scores at the highest level ($\bar{X} = 4.51, 4.52$ and 4.50) while a score of Year 4 students was at a high level ($\bar{X} = 4.43$). Also, fourth year students presented other six competencies with high average scores ($\bar{X} = 4.02-4.47$).

4.3 Follow-up Study of Nursing Graduates' Competencies

The follow-up research revealed that employers, colleagues and graduates perceived all seven

Table 5 Mean and Standard Deviation Scores of Graduates' Competencies by a Follow-up Study with Employers, Colleagues and Graduates

Graduates' Competencies regarding Competency Perception	Employers		Colleagues		Graduates	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
1. Morality and ethics	4.05	0.14	4.38	0.12	4.34	0.06
2. Knowledge	3.64	0.11	4.02	0.07	4.12	0.19
3. Cognitive skills	3.62	0.06	4.00	0.06	4.11	0.11
4. Interpersonal skills and responsibility	3.62	0.06	4.24	0.12	4.22	0.13
5. ICT, communication and mathematical skills	3.68	0.11	4.11	0.10	4.02	0.08
6. Professional skills	3.65	0.11	4.11	0.10	4.21	0.05
7. Attributes of Suan Dusit University identity	4.10	0.12	4.43	0.11	4.43	0.13
Total	3.77	0.03	4.18	0.02	4.21	0.05

competencies at a high level ($\bar{X} = 3.77, 4.18$ and 4.21) as shown in Table 5.

Data shown in Table 5 presented that employers, colleagues and graduates perceived all seven competencies at a high level ($\bar{X} = 3.77, 4.18$ and 4.21). However, all groups of participants gave the attributes of Suan Dusit University identity competency with the highest average scores ($\bar{X} = 4.10, 4.43$ and 4.43).

Discussion

The results from an evaluation of the Bachelor of Nursing Science Program (Revised edition B.E. 2555) were as follows.

1. Context

An analysis of curriculum philosophy, objectives and conceptual framework of the Bachelor of Nursing Science Program (Revised edition B.E. 2555) indicated that both instructors and students perceived an appropriate alignment of objectives with a curriculum context, philosophy, learning outcomes, social and labor market needs and academic and professional demands. All average scores were high to the highest level in which they could imply program appropriateness in producing graduates to respond to specified issues.

2. Input

Researchers evaluated a curriculum structure from student opinions towards courses. The evaluation looked at the importance of nursing professional

preparation, up-to-date content, suitability and the sequence of courses, teaching methods and responses to learning outcomes. The average scores of each aspect were at a high to the highest level. These results implied that a structure of the Bachelor of Nursing Science Program had conformed to Thai Qualifications Framework of Undergraduate Study Year 2009 (Office of the Higher Education Commission, 2009).

2.1 Instructor

Since a majority of instructors obtained a master's degree in nursing science (accounted for 75%) while only 25% of staff earned doctoral qualifications, the Faculty of Nursing should increase qualifications of instructors by encouraging them to study at the doctoral degree. Moreover, a majority of instructors had a 'lecturer' title (accounted for 89.58%) while the rest was promoted to an 'assistant professor' title (accounted for 10.42%). In this respect, the Faculty of Nursing should design a policy to promote instructors to be appointed with higher academic titles. Also, a policy could increase academic quality of instructors and more efficient educational provision of the nursing science. With regard to criteria of the OHEC and TNMC, the percentages of instructors with doctoral and masters' degree qualifications should be 35%: 75% (Thailand Nursing and Midwifery Council, 2010).

2.2 Support facilities

Students were highly satisfied with buildings and learning facilities and a system of student support and development. The satisfaction showed that some facilities could promote student learning. However, the satisfaction score of audio visual equipment and technology was at a moderate to high level while students gave a low to moderate score to the accommodation service. Both support facilities should be improved to facilitate student learning in especially technological services. Factors to develop accommodation as a learning facility may be searched. These findings were corresponded to research results of Suwit et al. (2014) that emphasized on a development of support facilities to embrace good environment and promote student learning.

3. Process

With regard to a course design, all course objectives were consistent with a curriculum mapping (accounted for 100%). This indicated that all courses were designed in accordance with the objectives of the Bachelor of Nursing Science Program (Revised edition B.E. 2555). Evaluation details showed that the teaching

was redesigned due to assessment results which accounted for 95.56%. The active learning teaching was being implemented more than lecture-based teaching which accounted for 51.11%. Moreover, results from research were being integrated to teaching (accounted for 68.89%). Also, ICT had been integrated with teaching which accounted for 97.78%. These results demonstrated that instructors paid attention on learners. They designed up-to-date teaching that was consistent to 21st century skills regarding collaboration and computing and ICT literacy. They also used ICT as a crucial tool to design teaching that was consistent with digital advancement at a present time (Ruongrungr et al., 2014).

4. Output

An output evaluation of the Bachelor of Nursing Science Program (Revised edition B.E. 2555) was made in three aspects which were learning achievement, student competencies in each year of study and graduate competencies. Discussions were as follows.

4.1 Learning achievement of nursing students

The learning achievement of nursing students from Year 1 to Year 4 in Academic Year 2015 from GPAs showed that most students had their GPAs from 2.51 to 3.00 which accounted for 60.18%, 70.93%, 49.41% and 52.75% respectively. Only two students had GPAs for more than 3.51. One came from the third year (1.18%) and another one studied in the fourth year (1.09%). In this regard, the Faculty of Nursing should find pathways to develop students with low GPAs from 2.01 to 2.50 or increase numbers of students who had GPAs for more than 3.51. The advisory and classroom teacher systems could search for student problems while being able to encourage them to plan or solve problems by themselves. Additionally, a report and information transfer system should be developed to tackle students' personal problems, learning problems, health problems, relationship problems with friends or other problems. This system would allow executive and other staff to acknowledge such problems systematically. Moreover, two systems of peer support and student code batch should be promoted to facilitate student learning wholly.

4.2 Nursing student competencies

Results from the student competency evaluation revealed that students from all years of study had all six competencies at a high level, overall. However, two items of a cognitive skill had the lowest average scores. First, students in Year 1, 3 and 4 had the lowest competency scores (\bar{x} = 4.29, 4.07 and 4.24)

of an ability to use information or documents for references correctly (Item 4). Second, Year 2 students had the lowest average score ($\bar{x} = 4.22$) of an ability to solve problems by using various sources critically (Item 5). Researchers had suggested directions to develop the Bachelor of Nursing Science Program (Revised edition 2017) by enhancing students' cognitive competency by assigning students to inquire and use credible and up-to-date sources for reference. In addition, extra activities should be held to develop student attributes of Suan Dusit University identity. Also, questions for the competency evaluation of students in each year of study should be revised for clearer understanding and be consistent with learning outcomes for future evaluations.

4.3 Graduate competencies

Results from a follow-up study illustrated that employers, colleagues and graduates perceived all seven graduate competencies, specified in Thai Qualifications Framework of Undergraduate study and Suan Dusit University identity, in a high level. The topmost average score from all three groups was attributes of Suan Dusit University identity. The score could imply that teaching of the Bachelor of Nursing Science Program was able to form Suan Dusit University attributes regarding good personality, living and working with mindfulness and cautiousness and living one's life healthy. Both theoretical and practical teaching had been designed to train professional nurses. Graduates were able to work with colleagues and team mates from other fields. These views were consistent with a result from teaching evaluation of specific, professional courses in which students gave the highest score. Furthermore, students gave all elective courses with high average scores. In this respect, all operations had promoted outstanding graduate attributes inevitably.

4.4 Assessment of graduates by employers

Nursing graduates was assessed by their employers in regards to interpersonal skills and responsibility in especially an assessment of situational leadership. An average score was at a moderate level ($\bar{x} = 3.62$). The Faculty of Nursing would bring this evaluation to develop interpersonal skills and responsibility of all students, including situational leadership, through teaching and extra activities. Such extra-curriculum activities must enhance leadership of students.

Suggestion

1. The Faculty of Nursing should develop a plan to increase qualifications and academic titles of lecturers in order to conform to criteria of TNMC in promoting quality of education and professional career advancement.

2. The Faculty of Nursing should have clear policies and mechanisms in conducting classroom action research in parallel to teaching. Also, the integration of teaching with academic services and art and cultural preservation should be done.

3. The Faculty of Nursing should formulate a comprehensive student development pathway that includes knowledge, personality, leadership, self-confidence in expressing appropriate opinions and behaviors. The advisory and peer support systems together with extra-curriculum activities could be useful for students in planning individual learning and for personal living.

4. There should be a factor analysis in learning support facilities regarding accommodation and application of ICT in order to utilize learning support facilities for educational purposes.

5. An assessment of the Bachelor of Nursing Science Program, Faculty of Nursing, Suan Dusit University should be made annually to promote up-to-date teaching and applicability to changing contexts.

6. A follow-up study of graduates should be made annually in regards to an ability to apply learning outcomes derived from the Bachelor of Nursing Science Program to the nursing profession. Results from a follow-up study could be useful and effective for a constant evaluation.

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