

The Curriculum Evaluation on Doctor of Optometry Program, Ramkhamhaeng University: The First Optometry Program in Thailand

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Abstract

The purpose of this study was to evaluate the Doctor of Optometry Program of Ramkhamhaeng University, the first optometric curriculum in Thailand, based on CIPP Model. The population of this study was 10 teaching staff, 95 students, 31 graduates, 24 graduate employers and 5 stakeholders. The instruments were the demographic data sheet, and the researcher's five-level rating scale questionnaires examined by research experts. Descriptive statistics was used in data analysis. The results from context evaluation indicated that the curriculum objectives were consistent with social needs, unique, and practicable. The credit hours specified in the curriculum structure were appropriate. Most of the subject contents and learning outcomes were highly consistent with the curriculum objectives, social needs and up to date. The results from input factors evaluation showed that the suitability of the teaching staff qualification, admission requirement of the student and other factors conducive to the teaching learning process were highly appropriate except in the information resource services and library, which was rated average. The results from process evaluation revealed that the teaching-learning arrangement and course evaluation were highly appropriate. However, there was a suggestion that the examination-related regulations should be more rigorously enforced. The results from product evaluation in terms of the graduates' qualifications were highly consistent with the curriculum objectives and learning outcomes. The graduates can use information and communications technology appropriately and have good understanding in the principle of optometry concepts. However, the graduates' self-restraint, responsibility and English competency should be improved.

Keywords: Curriculum evaluation, Optometry, Thailand

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Introduction

“Optometry” means the art of medical examination related to human eyesight. It consists of visual acuity test, visual diagnostic and evaluation using various instruments, and the correction using glasses, contact lenses and eye muscles exercise. However, it does not include the correction due to nervous system, the eye diseases not related to the refraction of light, the use of medicine, surgery and the use of lasers (Ministry of Public Health, 2003).

Ramkhamhaeng University’s Optometry curriculum is the first Optometry program in Thailand. The course was first offered since 2002 (Institute of Health Science, 2001) with the academic cooperation with Indiana University from the United States of America for the draft and the management of the curriculum in order to develop bachelor’s degree (6 years) graduates that can perform in the art of optometry profession. Optometrist is a well-known profession in many countries for several years but it is a new trend in Thailand and a certification is recently required from the ministry of public health in order to become an optometrist in Thailand (Ministry of Public Health, 2003).

Later on, many Universities such as Naresuan University, Rangsit University and Chiang Mai University started offering Optometry curriculum. And in conjunction with the revision of professional laws resulting in the appointment of the profession commission, which has the duty to specify the professional standard and evaluate and approve the Optometry curriculum degrees from various Universities. Therefore, the graduates who graduated from the approved curriculum can apply for the certification examination in order to perform the art of Optometry profession in Thailand (Bureau of Sanatorium and Art of Healing, 2012).

Ramkhamhaeng University’s Optometry curriculum was first revised in 2012 (Faculty of Optometry, 2012) in order to make the curriculum conform the Thailand Qualification Framework for Bachelor’s Degree (Office of the Higher Education, 2009) and the profession standard.

However, Ramkhamhaeng University’s Optometry curriculum, which is the first optometry curriculum in Thailand and is the prototype curriculum for various Universities, has been used for more than 10 years but has never been fully evaluated. The researchers were then decided to evaluate the Optometry curriculum (revision 2012) of the faculty of Optometry, Ramkhamhaeng University by studying from the lecturers and the students in the 3rd to 6th years participating in majored courses, the graduates who graduated from the program during 2013 – 2015, and the curriculum’s stakeholders from related establishments in order to use the data acquired from the evaluation to develop and improve the curriculum while keeping the curriculum in conformance with Thailand Qualification Framework for Bachelor’s Degree (Office of the Higher Education, 2009), the related standards and context of the University and society.

Objective

To evaluate the Optometry curriculum (revision 2012) of the faculty of Optometry, Rakhamaeng University using CIPP model by evaluating input, process and output.

Conceptual Framework

The researchers used the conceptual framework related to curriculum's evaluation (Stufflebeam, 1971), Thailand Qualification Framework for Bachelor's Degree (Office of the Higher Education, 2009), Bachelor's Degree Curriculum Standard (Ministry of Education, 2015) and the Standard for the Academic Institutes Developing Bachelor's Degree level Students in Optometry (Bureau of Sanatorium and Art of Healing, 2012) which led to the following conceptual framework:

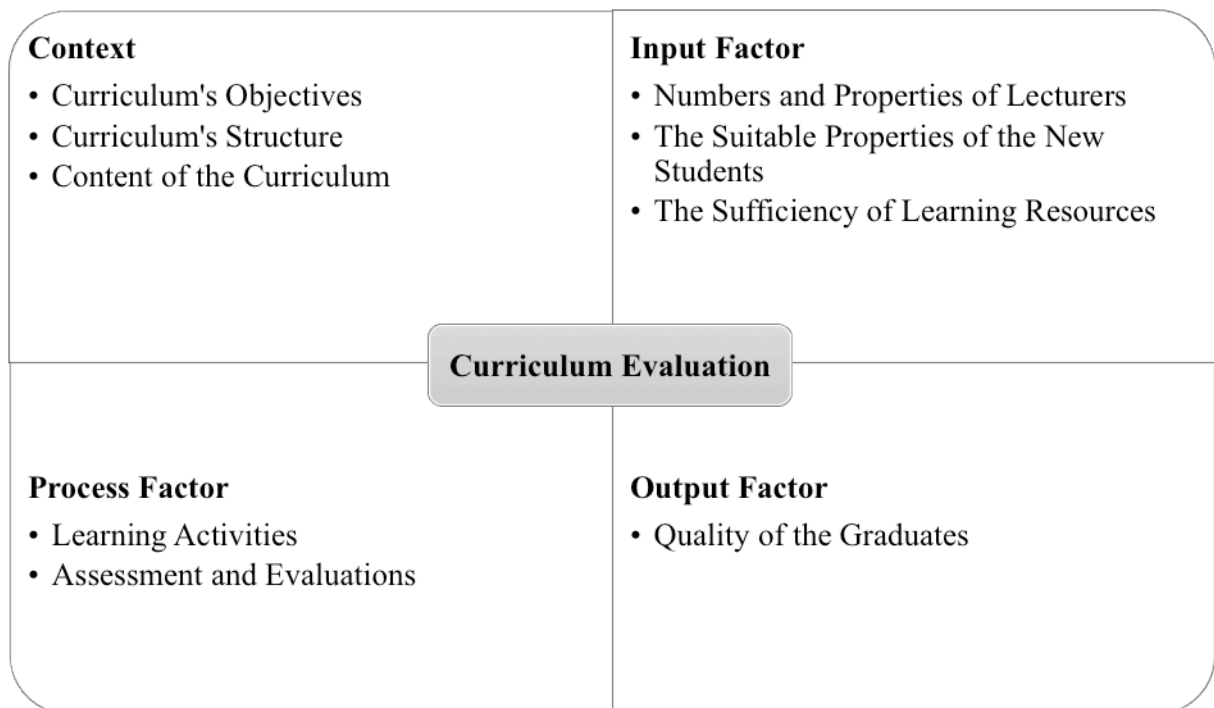


Figure 1: Conceptual Framework of the Research

Research Methodology

1. Population and Sample Group

Population

214 participants consisting of 10 lecturers in the curriculum, 123 students in the 3rd to 6th years, 38 graduates who graduated from the program during 2013 – 2015, 38 employers of the graduates and 5 curriculum's stakeholders from related establishments were included in the study.

Sample Group

This study used all of the population as the sample group. The number of the returned questionnaires was 165 or 77.10 percent.

2. Instrument Development

The instrument used in the research is a questionnaire. It is divided into two sections. The first section contains questions related to the basic and personal information of the participants. The second part contains multiple 1-to-5 scale rating and open-ended questions inquiry about the opinion on the curriculum. The content validity of the questionnaire was evaluated by three external matter experts and the result of index of item congruence calculation is 1. The reliability of the questionnaire was calculated using Cronbach's Alpha coefficient from 30 non-sample graduates with the reliability rating of 0.97.

3. Data Collection

After the research proposal was approved by the committees of the faculty of Optometry, the researchers collected the data from the lecturers, year 3 to 5 students and the curriculum's stakeholders using paper-based questionnaires and arranged the collection on premise. Online questionnaires were used for the 6th year students, which were training in various hospitals, and the graduates. For the graduates' employers, the questionnaires were sent and returned by post. All participants were informed regarding the purpose of the research that the participation was optional with no consequence to the result of their work or study, all data will be kept confidential and only the overview of the research will be disclosed.

4. Data Analysis

The collected data were analyzed using descriptive statistics. The data related to the basic information or participants and the structure of the curriculum use frequency distribution and then calculated for percentage, average and standard deviation. The open-ended questions were collected and presented using frequency distribution.

The average score can be categorized and described as follows:

4.50 – 5.00	Strongly Agreed/Highly Satisfied
3.50 – 4.49	Agreed/Satisfied
2.50 – 3.49	Neutral
1.50 – 2.49	Disagreed/Unsatisfied
1.00 – 1.49	Strong Disagree/Highly Unsatisfied

Research Result

1. Basic Information of the Respondents

The participants were divided into 5 groups as follows: (1) Ten academic staff in the Optometry curriculum with 50 percent of them had less than 5 years of experience. The highest level of education was bachelor degree (6 years) in Optometry (50 percent). Most of them (80 percent) were on lecturer rank. (2) Ninety five 3rd to 6th year students. Most of them are female (62.11 percent) and entered into the program during the year 2010 – 2015. (3) Thirty one graduates. Most of them are male (51.61 percent) and entered into the program during the year 2008 – 2010 and graduated during 2013 – 2014. All graduates were employed after the graduation (100 percent). (4) Twenty four graduates' employers. Most of them are female (45.83 percent) with bachelor degree (45.83 percent) and have on average 15 years of experience (S.D. = 14.11) in private sector (54.17 percent). (5) Five stakeholders from related establishments consist mostly of male (60 percent) with master degree (60 percent) and currently running their own business (60 percent) in private sector (80 percent). The average working experience of the stakeholders is 16.6 years (S.D. = 12.76)

2. Context Analysis of the Curriculum

2.1. The Objectives of the Curriculum

The Optometry curriculum has 9 objectives, which is to develop the graduates that can (1) diagnose and correct eyesight-related problems for general public, (2) give suggestion and consultant in term of Optometry, (3) study and perform research on Optometry-related knowledge, (4) participate with the public health sector to plan eyesight correction for general public in all aspects, (5) manage eyesight and vision related organizations and medical centers, (6) plan and give knowledge in term of Optometry, (7) correct personal eyesight-related problems, (8) develop professional expertise and (9) conduct research related to Optometry.

The result of the study indicated that the academic staff (lecturers), students and graduates considered all 9 objectives as relevant to the current needs of the society, the curriculum has unique identity and practical in the high to highest level (table 1). However, by evaluating each item individually, the 9th objective has the lowest score especially in term of practicality with the average score (S.D.) of 3.50 (0.71), 3.83 (0.93) and 3.68 (1.01) from lecturers, students and graduates respectively.

2.2. The Structure of the Curriculum

The optometry curriculum requires the students to take 44 units of general education courses, 188 units of major required courses (93 units of which are professional foundation courses and 95 units are professional courses) and 6 units of free elective courses, 238 units in total.

In term of number of units in the curriculum structure, the lecturers, students and graduates all agreed that the number of units were suitable both in each category and in total.

2.3. The Content of the Curriculum

In majored course category, there are 35 professional foundation courses and 27 professional courses. Overall, lecturers, students and graduates considered that the courses offered by the program were relevant to the curriculum's objectives, relevant to the current needs of the society, and was up to date at high and highest level (table 2). However, when consider the courses individually, the course OPT3901 (Public health policy and the optometric profession) had the lowest score with the score (S.D.) of 3.46 (0.98), 3.44 (0.99) and 3.48 (0.94) in term of relevance to the curriculum's objective, relevance to the current needs of the society, and currency respectively when evaluated by the students and 3.35 (0.75), 3.35 (0.75) and 3.52 (0.68) when evaluated by the graduates.

Table 1: The Analysis of Curriculum's Objectives

Evaluation Factors	Lecturers (N = 10)		Students (N = 95)		Graduates (N = 31)	
	Average	S.D.	Average	S.D.	Average	S.D.
1. Relevance to Current Needs of the Society	4.61	0.52	4.11	0.86	4.00	0.92
	Highest		High		High	
2. Has Unique Identity	4.44	0.60	4.14	0.84	4.05	0.96
	High		High		High	
3. Practicality	4.32	0.70	4.12	0.85	4.07	0.95
	High		High		High	

Table 2: The Analysis of Contents of the Curriculum

Evaluation Factors	Lecturers (N = 10)		Students (N = 95)		Graduates (N = 31)	
	Average	S.D.	Average	S.D.	Average	S.D.
1. Professional Foundation Courses (35 Courses)						
	4.66	0.52	4.05	0.81	3.90	0.75
1.1 Relevance to the Curriculum's Objectives	Highest		High		High	
1.2 Relevance to Current Needs of the Society	4.43	0.68	3.98	0.83	3.91	0.77
	High		High		High	
1.3 Currency	4.32	0.79	3.97	0.82	3.95	0.75
	High		High		High	
2. Professional Courses (27 Courses)						
	4.78	0.44	4.49	0.67	4.31	0.73
1.1 Relevance to the Curriculum's Objectives	Highest		High		High	
1.2 Relevance to Current	4.60	0.55	4.36	0.78	4.35	0.68

Needs of the Society	Highest		High		High	
1.3 Currency	4.46	0.68	4.38	0.76	4.31	0.71
	High		High		High	

3. The Result of Input Factor Analysis

3.1. Numbers and Qualifications of Lecturers

The analysis of the suitability in term of numbers and properties of lecturers indicated that both students and graduates had high opinion on all aspects (table 3). When evaluated individually, the highest scored item evaluated by the students was morality and professional ethics of the lecturers with the average score (S.D.) of 4.21 (0.77) and the lowest scored item was the sufficiency number of lecturers with the average score (S.D.) of 3.62 (0.94). On the other hand, the highest scored item evaluated by the graduates was teaching professionalism and generosity with the average score (S.D.) of 4.65 (0.49) and the lowest scored item was the supportiveness in term of students' opinion and analytical skills with the average score (S.D.) of 4.06 (0.81).

3.2. The Suitable Properties of the Students

The analysis of the suitable properties of the students suggested that the students and the graduates agreed with the properties of the new students described in the curriculum on all aspects (table 4). The students further commented that the program should conduct health diagnostic on new students in order to screen the candidates with eyesight problems such as nystagmus, which may complicate the use of some required instruments. The candidates should be more rigorously tested in order to identify talented students especially those with high scientific knowledge. Also, the entrance process should not allow the students with high GPA to skip the examination since the grading standards from various schools are not the same.

3.3. The Sufficiency of Learning Resources

The analysis of the sufficiency of learning resources indicated that both students and graduates had high opinion on all aspects regarding the sufficiency of learning resources except the academic resources, which was rated medium (table 5). The students wanted to have an accessible library opened to the students. In term of learning materials and resources, both students and graduates suggested that some items, such as microphones and projectors were damaged, the classrooms were too small and not well arranged, the light were too dimmed, the Wi-Fi network were sometimes inaccessible and learning materials were in black and white and not clearly visible.

Table 3: The Analysis of Numbers and Qualifications of Lecturers

Evaluation Factors	Students (N = 95)		Graduates (N = 31)	
	Average	S.D.	Average	S.D.
1. Teaching Preparation	3.93	0.86	4.40	0.67
	High		High	
2. Knowledge, Skills and Teaching Techniques	4.06	0.81	4.34	0.71
	High		High	
3. Morality and Professional Ethics	4.13	0.73	4.44	0.56
	High		High	

Table 4: The Analysis of the Suitable Properties of the Students

Evaluation Factors	Students (N = 95)		Graduates (N = 31)	
	Average	S.D.	Average	S.D.
1. Qualifications of the New Students	4.29	0.77	4.27	0.77
	High		High	
2. Properties of the New Students	4.34	0.74	4.32	0.74
	High		High	

Table 5: The Analysis of the sufficiency of Learning Resources

Evaluation Factors	Students (N = 95)		Graduates (N = 31)	
	Average	S.D.	Average	S.D.
1. Text Books and Learning Materials	3.81	0.97	4.23	0.82
	High		High	
2. Audio Visual Materials	3.74	1.03	4.19	0.82
	High		High	
3. Academic Resources	3.44	1.23	4.13	0.98
	Medium		High	
4. Information and Public Relations	3.75	0.94	3.93	0.76
	High		High	
5. Buildings and Classrooms	3.65	0.96	4.10	0.78
	High		High	

4. The Result of Process Analysis

The result of teaching process analysis indicated that the students and the graduates had high opinions on the teaching process on all factors (Table 6). By analyzing the detail of each factor evaluated by the students, the highest scored factor was the suitability of the teaching process with the average score (S.D.) of 3.94 (0.77) and the lowest scored factor was the learning promotion activities outside the classroom with the average score (S.D.) of 3.50 (0.81). On the other hand, the highest scored factor evaluated by graduates was the learning activities that stimulate the opinion and knowledge exchange with the average score (S.D.) of 4.23 (0.67) and the lowest scored factor was the ethics promotion activities with the score (S.D.) of 3.74 (0.82).

Additionally, some students and graduates voiced their opinions that the program should increase the regulations regarding the final examination process especially in term of electronic equipment screening prior to entering the examination room to prevent cheating.

5. The Result of Curriculum Output Analysis

Overall, the result of curriculum output analysis indicated that the graduates evaluated themselves as high in all factors with the highest score in the area of mathematical analytical thinking, communication and IT skills and the lowest score in knowledge development. In contrast, although the graduates' employers also evaluated the graduates as high as well, the employers considered that the highest score was in the area of intellectual development while the interpersonal relationship and responsibility had the lowest score. The stakeholders, such as the companies that have never recruited the graduates from this curriculum, stated that the expectation in all areas were at the highest level and suggested that the intellectual development was more important than knowledge development. (Table 7)

Table 6: The Result of Process Analysis

Evaluation Factors	Students (N = 95)		Graduates (N = 31)	
	Average	S.D.	Average	S.D.
1. Learning Activities	3.70	0.81	3.97	0.81
	High		High	
2. Assessment and Evaluation	3.71	0.84	3.89	0.84
	High		High	

Table 7: The Result of Curriculum Output Analysis

Evaluation Factors	Graduates (N = 31)		Graduates' Employers (N = 24)		Stakeholders (N = 5)	
	Average	S.D.	Average	S.D.	Average	S.D.
1. Morality and Ethics	3.94	0.73	4.28	0.58	4.75	0.39
	High		High		Highest	
2. Knowledge Development	3.90	0.80	4.29	0.53	4.56	0.47
	High		High		Highest	
3. Intellectual Development	3.94	0.81	4.29	0.62	4.95	0.11
	High		High		Highest	
4. Interpersonal Relationship and Responsibility	4.09	0.81	4.21	0.62	4.73	0.48
	High		High		Highest	
5. Mathematical Analytical Thinking, Communication Skills, and Information Technology Skills	4.11	0.85	4.25	0.70	4.67	0.51
	High		High		Highest	

When evaluated individually, the graduates evaluated themselves as highest in the area of mathematical analytical thinking, communication and IT skills with the average score (S.D.) of 4.11 (0.85) and the lowest score in term of the planning and selecting methods to resolve customers' issues where the average score (S.D.) of 3.84 (0.86). On the other hand, the graduates' employers evaluated that the graduates had highest skills in term of client handling with the average score (S.D.) of 4.21 (0.62) and has the lowest score in the area of Thai and English communication skills with the average score (S.D.) of 3.83 (0.64). Furthermore, the stakeholders indicated that the ideal graduates should has highest skill in term of planning and selecting methods to help resolve the customers' issues with the average score (S.D.) of 5.00 (0.00) while considered Thai, English communication and IT as the least required skills with the average score (S.D.) of 4.60 (0.55).

Discussion and Conclusion

The result from the research, The Curriculum Evaluation on Doctor of Optometry Program, Ramkhamhaeng University, can be discussed as follows:

1. The objectives of the curriculum are the expectations of the curriculum regarding the properties of its graduates (Sornwut, 2004). The result indicated that the lecturers, the students and the graduates considered that the curriculum objectives were relevant to the current society's needs, had unique identities, and can be applied in real life at high to highest level. The result was also corresponded with a research by the institute of health science, Ramkhamhaeng University (McQuaid & Barney, 2012) regarding the inadequate number of Optometrist in Thailand.
2. For the curriculum structure, the result indicated that the numbers of units, both in total and in each category, were advisable. The curriculum structure was suitable to be used as a guideline in education planning that will lead the students to reach the curriculum objectives as described in the curriculum standard, which suggested that the total number of units must be at least 180 where 30 units or more belong to general education courses and 144 units or more for majored course (Bureau of Sanatorium and Art of Healing, 2012).
3. In term of readiness and suitability of the lecturers, the result suggested that the lecturers were appropriate both in term of the number and qualification at high level. The students had high opinion on the morality and ethics of the lecturers and considered them as a role model. However, the lowest score in this category was the adequate number of lecturers comparing to the number of students which may cause by the inadequate number of Optometrist at the national level (McQuaid & Barney, 2012) and some lecturers were on study leaves.
4. For the readiness and suitability of the students, the result suggested that the primary factor to support their decision to select this curriculum was because the students wanted to work in this area and because it was suggested by their parents. Thus represented that the needs for this curriculum were still in high demand. The properties of the new students, which required the students to graduate from high

school with the branch of science-math, were highly appropriate because Optometry requires the use of scientific reasoning and principals. However, the screening process including entrance examination and health screening should be thoroughly enforced.

5. For the factors supporting learning activities, the result indicated that the satisfactory were at high level in all aspects except the learning resources which was rated at medium by the students. The students mentioned regarding the operation of the library, the services over the Internet, and damaged or inadequate clinical instruments. The program should correct these issues by increasing the number or improving the condition of learning articles, classrooms and buildings. The program should also develop the public consciousness of the students in order to keep the public resources clean and in good conditions.

6. The readiness and the appropriateness of the learning activities were rated as high. However, there were suggestions that the regulations should be more thoroughly enforced, especially the regulations regarding the examination and the examination scheduling. These suggestions were also corresponded to the research by the faculty of Engineering, Ramkhamhaeng University (Santisirisomboon, 2016).

7. For the properties of the graduates, the study suggested that the graduates' employers were satisfied with the knowledge and skills of the graduates at the highest level, which confirmed academic strength and the public stance of the curriculum. And the least satisfied aspect was the interpersonal relationship and responsibility of the graduates especially regarding Thai and English communication skills, which the curriculum should focus on during the next curriculum revision.

Suggestion

The management in various levels should specify the fund allocation policy in order to purchase and maintain learning articles in good working orders and have sufficient number for the students. Furthermore, the condition of the classrooms should be improved to cope with increasing number of the students due to market demand. The manpower and study-leave planning for the lecturers should be considered to cover the whole duration of program in order to have a sufficient number of qualified lecturers for the students. The students should be able to use the faculty's library and the learning resources such as books, journals, and the Internet should be maintained in good condition and in a timely and sufficient manner. The number of computers should be increased to cover the number of students and lecturers. Dedicated personals should be arranged to maintain and support the use of computer laboratories, learning and audio-visual articles and should be able to solve the problems with the instruments that may arise during class sessions.

Regarding the next curriculum revision, the responsible parties should modify the content of the courses in the curriculum based on each course's evaluation result. The changes to each course should focus on developing the identity of the graduates along with English language ability in accordance to the English proficiency policy in the higher education institutes of the Office of the Higher Education (2016). Prior to the

use of the revised curriculum, the revisers should arrange the meeting to clarify the objectives, structure, learning activities guidelines and the assessment and evaluation process to the lecturers.

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