

**Teacher Education Curriculum:
A Comparative Study across Asia and ASEAN**



Asia & ASEAN Center for Educational Research
Faculty of Education, Chiba University

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Edited by

Asia & ASEAN Center for Educational Research,
Faculty of Education, Chiba University
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Preface

In 2012, we started our science education collaboration with the Twin College Envoys (TWINCLE) program. This student exchange program has continuously developed over seven years through collaborations between Chiba University and universities from five ASEAN countries including Indonesia, Cambodia, Singapore, Thailand, and Vietnam. During these seven years, around 450 Japanese and 350 ASEAN exchange students have participated in this program. With support from the Japan Student Services Organization (JASSO), the program will continuously develop and expand within Asia.

According to this collaboration, 10 countries and 19 universities compose the TWINCLE science education consortium. The consortium held an annual meeting for the exchange program with all the member universities. Moreover, research collaboration has occurred among the members and in articles published in some international journals. The TWINCLE team will present new results at the 2018 East-Asia Association for Science Education Conference.

Based on these fruitful results, the Asia & ASEAN Center for Educational Research was established at Chiba University by the consortium members. Then, using the center, we expanded our research collaboration to all over the educational research community to strengthen our relationship.

After taking this opportunity, we published a book describing the present educational system in each country among consortium members. Based on the consolidated knowledge in this publication, new directions for collaborative research on contemporary education will emerge. Moreover, the center aims to lead science education innovations in the future.

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Teacher Education System in Thailand and Chiang Mai University

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Abstract: In the era of radical change and high competition, Thailand tried to develop the quality of teacher professional by launched the new teacher education curriculum in 2004 from 4 - year to be 5 -year program and teachers have to hold the teacher license from Teachers' Council of Thailand. Each faculty of education in universities attempt to provide the appropriate programs, subjects, practice for his students. In case of Chiang Mai University, the outstanding feature is the preparation for the students to become professional teacher on continuous basis from freshman to senior years on taking the teaching profession core course totaling 52 credit units. The design for the course is important for the students to come out to maintain their teaching profession in the future. These courses are introduction to educational statistics, educational measurement and evaluation, educational research, educational innovation, educational information technology and communication. The courses include microteaching, a teacher training technique to provide the teacher an opportunity to top up on their teaching skills by improving various tasks to become part of their teaching skills. Microteaching helps promote teaching experiences for the students.

Key Words: Teacher Education, Teacher professional licenses, Teacher student training, Teacher curriculum

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1. Introduction:

Teacher professional standards for teacher are important tool for those who holding teaching profession. Viewing teaching as a profession means accepting the complex nature of the classrooms and recognizing that there are no such things as one size fits for all where teaching strategies are concerned. This means that the teachers have to be experts and well trained (Mohamed, 2011)¹.

When we discuss about professionals, we target people who have received some forms of studying or training and licensing that accredits their ability and qualifications. They have achieved a set of standards of those professionals.

For teacher professional in every countries, including Thailand nowadays trend to receive the set of standards and license. The researchers will present the details below.

2. National Government Level in Thailand:

At policy level and practitioners in Thailand believes that teachers is more important so the quality of teachers and their instruction leads to increased quality of education across the board. Pongwat (2011)² reported that teachers' reform was established the Teacher and Educational Personnel Council Act B.E.2546 (2003) was promulgated on June 1, 2003 followed on Dec.23, 2004. By that time, faculties of education at universities all over the nation had already launched the new teacher education curriculum,

the 5-year program in place of the 4- year program. In the past time, to be a teacher without license, but after Thailand change the teacher curriculum then the teacher license is a must. Education professional standards are an important tool for those holding the teaching profession. So Thailand has established the Council and Education Personnel Act of 2003 prescribes teaching as a licensed profession which includes teacher, school administrators, educational administrators, and other educational personnel both Thai citizen and international teachers (Khuanwang et al., 2016)³.

Those who are going to enter teacher profession must receive a professional license to practice from Teachers' Council of Thailand or called 'Khurusapha' before beginning practicing the profession. They also must perform and conduct themselves according to the professional standards of ethics of the profession. The Teachers' Council of Thailand⁴ was incorporate with the principal objective to determine professional standards, issue and revoke license, supervise and monitor compliance with the profession standards and code of ethics, including with professional development so that those shall have knowledge and understanding in the practice of the education profession which is the licensed profession under the National Education Act, 1999.

There are 3 main standards required for teachers.

(1) Standards of teachers' knowledge

Teachers must have minimum qualification with a Bachelor's degree in education or the equivalent or other degree as accredited by the Teachers' Council of Thailand. The knowledge compose of language and technology for teachers, curriculum development, learning management, psychology for teachers, educational measurement and evaluation, classroom management, educational research, educational innovation and information technology, and teachership.

(2) Standards of teachers' experience

Teachers are required to have completed teaching functions in educational institutions under an educational degree curriculum for a minimum of one year and passed the criteria for evaluation of the teaching functions in accordance with the rules, procedures, and conditions as set by the Teachers' Council of Thailand Board as follows:

- (i) Training on professional practice during the study.
- (ii) Teaching functions in educational institutions on specific subjects.
- (iii) Standards of teachers' performance.

Teachers have to maintain the standards of their performance for examples, regularly practice academic activities relating to development of the teaching profession, create opportunities for learners to learn under all circumstances, conduct themselves as good role models for learners, systematically report on the results of learners' quality development.

(3) Standards of conduct

Teachers are required to adhere to the personal ethics, professional ethics, client-centered ethics, collegial ethics and societal ethics.

(i) Requirement to get teacher license provided by law

To be teachers in Thailand after the announcement the National Education Act 1999, applicants have to study teacher education and hold the teacher license. The teacher license in Thailand does not separate to be license for elementary, junior or high school teacher but the teacher license could use for all levels at the school.

Teachers' Council of Thailand is the organization which provide the teacher license, recently this

organization revise the regulation of the Teachers' Council of Thailand on Professional Licenses, BE. 2016⁵ (the first regulation was established in 2004). The requirement to get teacher license are as follows:

Applicant qualifications and prohibited characteristics:

Qualifications:

- (1) Be at least 20 years of age;
- (2) Hold a degree in Education or an equivalent of in any other field accredited by the Teachers' Council of Thailand;
- (3) Have not less than one-year of teaching experience, as part of the requirement of an academic degree program, in an educational institution and passed the teaching practicum evaluation in accordance with the criteria, methods and requirements prescribed by the Board.

Prohibited characteristics:

- (1) Being a person with improper behavior or immorality;
- (2) Being an incompetent or quasi-incompetent person;
- (3) Having been sentenced to imprisonment in a case that, in the opinion of the Teachers' Council of Thailand, may bring dishonor upon the profession.

License period and license renewal, a professional license shall be valid for a period of 5 years from its issue date. Applicants for a license renewal must have the qualifications prescribed by the Board and conduct themselves in accordance with the professional code of conduct.

For teachers who teaching at the school without the teacher education background have to be trained.

(ii) Teaching practice provided by law

Criteria for equivalence determination of courses undertaken as part of a degree program are: For person who wish to practice in the profession of teacher, the courses submitted for equivalence determination shall be: 1. courses in a degree program not lower than a bachelor's degree or an equivalence which is acknowledge or recognized or accepted for equivalence determination by the Office of the Higher Education Commission (OHEC) or whose educational qualifications are certified by the Office of the Civil Service Commission. 2. Courses whose essence of knowledge are equivalence to not less than three out of four of the essence of knowledge required for the professional knowledge standard specified in the equivalence determination application. 3. Courses that the applicant earned not less than 2.00 grade point or equivalent. (Notification of the Teachers' Council of Thailand Board, Re: Equivalence Determination, Testing and Training for Professional Knowledge Certification, 12 September, 2007)

(iii) Indicators for developing teachers provided by law

Training program for developing teacher provide by law in Thailand, the training program must be a competency-based training with the theoretical, practical knowledge ratio of 60:40, and must have the training period for the entire program not less than 60 hours per knowledge standard. The training format must be in the problem-based learning format with practical training in an educational institution. The training method must consist of various methods as deemed appropriate, such as lecture, discussion, workshop, brainstorming, actual practice and study visit. The training measurement and evaluation must be carried out by various methods as deemed appropriate, such as measured and evaluated from observation of participant's conduct, report, work presentation and examination. Participants must attend not less than 80 percent of the entire training period. Participants must meet not less than 60 percent of the evaluation

criteria, including the practical training evaluation results. For trainers, the training program must be organized by a training unit whose training program is certified by the Teachers' Council of Thailand.

3. University level

(i) Requirement and curriculum to get teacher license in Chiang Mai University

Curriculum of Teacher Education in the Faculty Education, Chiang Mai University under the National Professional Standard at Higher Education Level, 2000 and the Council of Teachers, focusing on 6 issues: 1. Ethics and moral 2. Knowledge 3. Cognitive skills 4. Personal interaction skills and responsibility 5. Mathematic, communication and information technology skills 6. Learning management skills. Since 2014, the faculty has renewed the structure of the curriculum and provided 12 programs, there are 1) Thai teaching 2) English teaching 3) Social Studies 4) Elementary Education 5) Mathematics 6) Biology 7) Chemistry 8) Physics 9) Physical Education 10) Business Education 11) Art Education 12) Early Childhood Education and Special Education.

The structure of teacher education in the faculty of Education, Chiang Mai University composes of 3 sets. 1) **General education** for 30 credits classified into 12 credits on Language and Communication, 9 credits on Humanities and Social Sciences, 6 Credits on Science and Mathematics and 3 credits on Activities Base Courses. 2) Field of Specialization composes of 2 groups of courses. 3) Core Courses on Teacher Professional, students have to study for at least 52 credits. There are Pedagogical Knowledge and practices at school. The courses are 1) Principles of Education Philosophy 2) Developmental Psychology and Educational Psychology 3) Curriculum Design and Development 4) Learning, Learning Resources, and Learning Environment Management 5) Teaching Profession and Teacherness 6) English in Education Context 7) Introduction to Education to Educational Statistics 8) Education Measurement and Evaluation 9) Contemporary Special Education 10) Innovation, Educational Information 11) Technology and Technology and Communication 12) Administration and Education 13) Multicultural Education 14) Micro Teaching Practice 15) Preparation for Teaching Profession Practicum 16) Educational Research 17) Practicum in Teaching Profession 1 and 18) Practicum in Teaching Profession 2.

2) **Major** at least for 80 credits, composes of: 1) Academic Content, students have to study at other faculties, for examples, major chemistry, students have to study at the faculty of Sciences, English teaching, study the content courses at the faculty of Humanity. But for the Elementary Education and Early Childhood Education and Special Education, students have to study in the faculty of education. 2) Educational Courses, these groups of courses based on Pedagogical and Content Knowledge composes of psychology for teacher, curriculum development on each major, classroom management, innovation, information technology on education, measurement and evaluation on education. 3) **Free Electives** for 6 credits. Total credits for 168-170 credits.

Curriculum structure and Credits of Bachelor of Education: Faculty of Education Chiang Mai University Thailand shown in Table 1.

Table 1. Curriculum structure and Credits of Bachelor of Education: Faculty of Education Chiang Mai University.

Part	Program*											
	1	2	3	4	5	6	7	8	9	10	11	12
(1) General Education : a minimum of	30	30	30	30	30	30	30	30	30	30	30	30
1.1 Language and Communication	12	12	12	12	12	12	12	12	12	12	12	12
1.2 Humanities and Social Sciences	6	6	6	6	9	9	9	9	6	6	6	6
1.3 Science and Mathematics	9	9	9	9	6	6	6	6	9	9	9	9
1.4 Activities Base Courses	3	3	3	3	3	3	3	3	3	3	3	3
(2) Field of Specialization : a minimum of	133	133	131	130	133	134	132	132	132	132	132	130
1.1 Core Courses (Teacher Professional) : a minimum of	52	52	52	52	52	52	52	52	52	52	52	52
2.2 Major : a minimum of	81	81	79	78	81	82	80	80	80	80	80	78
2.2.1 Academic Content Courses	69	69	69	68	69	70	68	68	68	69	68	68
Required Courses	36	39	-	-	51	38	48	44	51	33	58	68
Elective Courses : a minimum of	33	30	-	-	18	32	20	24	17	36	10	-
2.2.2 Educational Courses	12	12	10	10	12	12	12	12	12	11	12	10
Required Courses	6	6	6	6	6	6	6	6	-	6	8	6
Elective Courses : a minimum of	6	6	4	4	6	6	6	6	-	5	4	4
(3) Free Electives : a minimum of	6	6	6	6	6	6	6	6	6	6	6	6
Total : a minimum of	169	169	167	166	169	170	168	168	168	168	168	166

Program* 1: Thai, 2: English, 3: Social Studies, 4: Elementary Education, 5: Mathematics, 6: Biology, 7: Chemistry, 8: Physics, 9: Physical Education, 10: Business Education, 11= Art Education, 12 = Early Childhood Education and Special Education

(ii) Teaching practice in Chiang Mai University

Each of the 12 undergraduate study programs offered at the Faculty of Education is prescribed with at least 168 credits requiring 5 year-study-period. The 5th year is for carrying out the teaching profession in school via 2 courses, namely, Practicum in Teaching Profession 1 which is the course in which the students have to practice teaching profession in school for 1semester. When they get through the Practicum in Teaching Profession 1, they could register for taking the Practicum in Teaching Profession 2 course.

Practicum in Teaching Profession 1 has the objectives to enable the students to 1) put into all of their learning experiences in an appropriate way, 2) develop and enhance their experience, roles, and duties of a teacher as the results of working as a teacher, and, 3) show evidence indicating their professional teaching professionalism in which they have to have at least 270 practicing hours, counting for 6 credit units. The students have to practice in the school for the whole semester along the schedule set by Chiang Mai University for 15weeks or more. There are 3 parts of the contents. Part 1 – putting experience into practice including the roles and duties of teacher besides teaching as follows. The first one is to carry out the instruction, covering 1.1) preparing learning organizing plans, 1.2 - implementing the activities along the learning plans, and, 1.3) learning measurement and evaluation. The students have to carrying out the instruction for not less than 9-12 hrs./week. The second one is to carry out other tasks beyond instruction, namely, 2.1) academic tasks, 2.2) student developing and supporting tasks, 2.3) school tasks and activities,

and, 2.4) others. When pooling together the hours the students have practiced other tasks beyond teaching, the students have to have number of hours in practicing teaching profession for at least 18 hours per week. The third one is the student behaving oneself as a teacher during practicing the profession in the school. The desirable characteristics cover 3 things, namely, 3.1 - dressing, behavior, and self-maintenance, 3.2 - enthusiasm and self-devotion in carrying out the teacher's responsibilities, and, 3.3 - having human relationship to assure their being able to work with others. The second part of the contents is on the evidence to proof the student's teaching professionalism including 1) instructional plan, 2.2) portfolio, and, 2.3) the reflection. The third part is to analyze the instruction-concerned problems to find the way to solve the problems.

Practicum in Teaching Profession 2 has the objectives to enable the students to 1) put all the learning experiences into practice on teacher's roles and duties more relevantly, 2) conduct the classroom research for solving the instruction-concerned problems along the guideline having been set in an appropriate way, and, 3) to derive the evidence to indicate their acquiring more teaching professionalism. The practicum takes at least 270 hours for the training with the course of 6 credit units. Their desirable competencies include 1) ability to organization learning program in their major field, 2) ability to evaluate, improve, and develop the learning organization suiting the capacity of the students, 3) ability to conduct classroom research for developing the students, and, 4) ability to create the report on learning organization and student development. The students have to carry out the course activities along the semester of Chiang Mai University for 15 weeks each of which requiring 18 hours. They have to practice the instruction for 9-12 hours per week, other tasks beyond instruction for at least 6 hours per week, and spend time for conducting the research for at least 3 hours per week.

(iii) Indicators for developing teachers in Chiang Mai University

Practicum in Teaching Profession 1 has indicators for teacher development, namely, 1) organizing a seminar during the teaching professional practice to mutually solve the problem emerged from the teaching profession practicum, 2) meeting with the supervising lecturer once a month totaling 4 times per semester to present the problems and ways to solve them or adding up on knowledge and skills on such course, and 3) students having been advised by the supervising lecturer and mentoring lecturer or the school administrator for at least 6 times.

Practicum in Teaching Profession 2 indicators for teacher development, namely, 1) comprehensive instruction for at least 9-12 hours per week to practice every teacher duty as if they are a regular teacher of the school, 2) three seminars per semester during practicing the teaching profession to mutually solve the problems emerging from practicing the teaching profession, 3) meeting with the supervising lecturer for about once a month totaling 4 time per semester to present the problems and ways to solve them or to add up knowledge and skill in their major courses, and, 4) conducting classroom research along with the teaching practicum for at least 9 hours per week via supervision by the supervising lecturer for at least 6 times.

(iv) Characteristic points on teacher education system in Chiang Mai University

The outstanding feature is the preparation for the students to become professional teacher on continuous basis from freshman to senior years on taking the teaching profession core course totaling 52 credit units. The design for the course is important for the students to come out to maintain their teaching profession in the future. These courses are introduction to educational statistics, educational measurement and evaluation,

educational research, educational innovation, educational information technology and communication, for example.

At senior year, the students would take the course on micro teaching practice to assure their practice on instructional skills with systematic standard procedural steps, with tape recording on the instruction followed by the reflection on it afterward to recommend and improve the instruction of each individual student. The courses include microteaching, a teacher training technique to provide the teacher an opportunity to top up on their teaching skills by improving various tasks to become part of their teaching skills. Microteaching helps promote teaching experiences for the students. The core skills of microteaching such as presentation and reinforcement skills help the novice teacher to learn the art of teaching at ease to the maximum extent finally.

The preparation for teaching profession practicum is to set up readiness and good attitude toward teaching profession for students. They have to observe the classroom instruction of various schools to realize their context and the roles and duties of teacher. They should then be enabled to carry out their duties appointed by the school. All these are to set up the student's readiness. When they are at senior year, they could then be expected to carry out the teaching profession in the school in a concrete way.

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Teacher education system in Thailand and in Chulalongkorn University

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Abstract: Education in Thailand follows the system of six years primary, 3 years lower secondary, and 3 years upper secondary education. The quality of teacher education is controlled by the Teacher Council of Thailand which is responsible for identifying standards of teacher profession and the Office of higher education commission that is responsible for identifying the educational framework for administrating the curriculum and program of higher educational institutions. This article emphasizes describing teacher licensing and training in Thailand. Chulalongkorn University is one of the universities that provide teacher training programs. Besides the standards and regulations, a process of scaffolding and close supervising is used to training student teachers.

Key Words: Education in Thailand, Thailand teacher education, Standards for teacher license, Teacher license in Thailand, Teacher training in Chulalongkorn University

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1. Introduction

Education in Thailand is comprised of three educational types, formal, non-formal, and informal education. Formal education is based on six years of primary education; three years of lower secondary; three years of upper secondary education, so called 6-3-3 model. Nine years of school attendance from primary to lower secondary is compulsory. The teaching and learning activities of primary to upper secondary level follow the 2008 Basic education core curriculum (Grade 1-12). The knowledge and skills in the 2008 Basic education core curriculum are grouped into eight subject areas: Thai language, mathematics, science, social studies, career and technology, art, foreign languages, and health and physical education (Office of the Education Council, 2017). The agencies responsible for administering education is described as follow:

2. Thailand education at the government level

Education in Thailand is administered and managed by the Ministry of Education through central agencies, regional and provincial education offices and educational institutions (Office of the Educational Council, 2017). Education administration and management at the central level are the responsibility of five main bodies: Office of the Permanent Secretary, Office of the Education Council, Office of the Basic Education Commission, Office of the Vocational Education Commission, and Office of the Higher Education Commission. Furthermore, there are seven independent agencies under the supervision of the Ministry of Education with other specific responsibilities. The Teachers' Council of Thailand (TCT) is the independent agency specifically responsible for monitoring and developing teachers and educational personnel.

2-1. Requirements to get teacher license

Teacher licenses became the requirement after an announcement of Teachers and Educational Personnel Council Act B.E 2546 (2003). According to the act, the Teacher Council of Thailand (TCT) is an organization with power and duty to determine teacher professional standards as well as monitoring and issuing teacher licenses (Office of the Council of State, 2003).

According to TCT (2013a), qualifications for teacher license applicants are 1) graduates from a five-year Bachelor's in Education (B.Ed.) programs or higher degrees from the institutions that are accredited by TCT or 2) graduates from Non-B.Ed. degree with an educational diploma from the institutions that are accredited by TCT. Student teachers graduated from a program accredited by TCT will automatically receive a teacher license. There is no different types of teacher license in Thailand. However, the specializations of teachers are controlled by majors of the teacher training program.

To qualify for teacher education, TCT defines standards in knowledge, experience and ethics for teachers whereas OHEC defines the Qualifications Framework for Higher Education (TQF). Universities and educational institutes need to follow the standards and qualifications when developing a curriculum (Ministry of Education, 2011). According to TQF for Bachelor's degrees in education, a program may provide either single or double major for their students. A single major means student takes seventy eight major credits that will go to only one subject area. Meanwhile, double major means student takes thirty nine major credits that will go to one subject area and the other thirty nine credits that will go to the other subject areas. Some of the majors are limited for single major only. They are majors in early childhood education and primary education. These majors provide integrated knowledge in pedagogical content knowledge specific to younger students. Meanwhile, some can be chosen to be either single or double majors. They are Thai language, mathematics, general science, physics, chemistry, biology, social sciences, health education, physical education, arts education, music education, drama education, computer education, foreign language and business education. On the contrary, some majors are limited for only double major and required to pair with other content majors that are non-formal education or adult Education, counseling and guidance or school psychology, educational technology, evaluation and assessment in education.

According to the Ministry of Education (2011), the graduates in the majors of early childhood education can teach only in kindergarten. The graduates in the major of primary education can teach only in primary education. Other single majors can teach in upper secondary school (Grade 7-Grade 12). While double majors can teach in primary and lower secondary school (Grade 1-9).

By laws, educational curricula must be accredited by OHEC and TCT so that graduates from the curricula will be granted the teacher license. The most common program to educate teachers is a five years bachelor's degree in education (B.Ed.). Nowadays, students with other educational degrees including master's and doctoral degrees are allowed teaching licenses by OHEC and TCT with expectation to increase numbers of specialized teachers (Teachers' Council of Thailand, 2013a). The minimum credits required for educational degree are presented in Table 1.

Table 1. Minimum credits required for Educational Degrees in Education.
(summarized from Teachers' Council of Thailand, 2013a)

Minimum requirement	Bachelor/ Combined Master	Graduate Diploma	Master/ Combined Doctoral	Doctoral
Years of Study	5/6	1	2/4	3
Total Credits (Minimum)	160/180	33	45/76	69
1) General Education Cores	30	27	27/32	27
2) Specific Subjects	124/132			
2.1)Majors	78/86			
2.2)Teachers	46			
2.2.1) Subjects	34			
2.2.2)Teaching Practice	12	6	6/8	6
3) Free Elective Courses	6	-	-	-
4) Thesis/Dissertation	-/12	-	12/36	36

*Or 3-6 credits of independent study

The recent TCT's standards require a period of five years for teacher education. However, the most appropriate period is being revised. It is believed that a good quality program can produce qualified graduates with shorter period of four years. Also, the teacher licensing is considering not to be automatically granted to the graduates even though their programs are accredited by TCT. An examination is being suggested to verify knowledge and skill of individuals who wish to be teachers no matter what degree of graduation (Green lights on teacher licensure exam, 2013). Therefore, teacher education may need only four years like for other professions to gain a bachelor's degree. This change was accepted by the Ministry of education and TCT committee (Teachers' Council of Thailand agrees on four-year teacher training program, 2017). However, there is no official TQF for four-year teacher education program announced at the moment.

2-2. Teaching Practice

According to TCT, standards of professional experience state that a program for a bachelor's degree in education must consisted of 1) professional practice during the course of study and 2) teaching practice in specific subjects in a school (Teachers' Council of Thailand, 2013c). In addition, TQF for a bachelor's degree in education states that the teaching practice last for two semesters with at least twelve credits of study (Ministry of Education, 2011).

Professional practice during the course of study focuses on initiating student teachers to learn about teachers' task and duties in their school while the teaching practice in specific subjects in a school focuses on integrating knowledge and skill that student teachers learned from courses of study to practice. Student teachers are required to teach for one academic year (2 semesters). The time for teaching must be at least eight hours per week and last for 15 weeks per semester. The minimum teaching time is 120 hours a semester. Besides teaching, student teachers are required to work other teachers' duties for 120 hours a semester. During the teaching practice, there must be educational seminars and meeting with their teaching supervisors either face to face or through other communication tools at least 15 hours a semester (Teachers' Council of Thailand, 2013a).

2-3. Indicators for developing teachers

In Thailand, the TCT specified “Standards of professional knowledge and experience”. The standards are essential qualifications required for those wishing to join the education profession. The standards are used in accreditation of teacher education programs in educational institutions. The standards of professional knowledge consisted eleven standards that are 1) Teachership, 2) Philosophy of Education, 3) Language and Culture, 4) Psychology for Teachers, 5) Curriculum, 6) Learning Management and Classroom Management, 7) Research for Learning Development, 8) Educational innovation and communication technology, 9) Measurement and Evaluation of Learning, 10) Educational Quality Assurance, 11) Virtue, Morality and Ethics (Teachers’ Council of Thailand, 2013b). Content of knowledge and proficiency are described in details in Table 2.

Table 2. Content of knowledge and proficiency of teachers in accordance to standards of professional Knowledge. (from Teachers’ Council of Thailand, 2013b, pp. 43-46)

Standards of Professional Knowledge	Content of Knowledge	Proficiency
1. Teachership	<ol style="list-style-type: none"> 1. Teachers’ conditions of service, characteristics and standards of the teaching profession 2. Inculcation of spiritual values of teachers 3. Laws governing teachers and the teaching profession 4. Knowledge management of the teaching profession 5. Continuous support for advancement and development of the teaching profession 	<ol style="list-style-type: none"> 1. Well versed in knowledge content and teaching strategy, enabling learners to acquire analytical, synthetic and creative thinking skills 2. Search for and judiciously choose to use relevant data and information in keeping with change 3. Interaction between teachers and learners conducive to development of learners’ potentiality 4. Endowed with teachers’ spiritual values
2. Philosophy of education	<ol style="list-style-type: none"> 1. Educational philosophy, concepts and theories, religion, economy, society, culture 2. Concepts and strategies of education provision for strengthening sustainable development 	<ol style="list-style-type: none"> 1. Application for development of educational institutions 2. Analysis of salient issues of education for sustainable development
3. Language and culture	<ol style="list-style-type: none"> 1. Thai language and culture for teachers’ services 2. Foreign languages for development of the teaching profession 	<ol style="list-style-type: none"> 1. Proficient in listening, speaking, reading and writing Thai and foreign languages for effective communication 2. Application of language and culture for peaceful and harmonious co-existence
4. Psychology for teachers	<ol style="list-style-type: none"> 1. Basic psychology and psychology of human development 2. Psychology of learning and psychology of education 3. Psychology of counseling and consultancy 	<ol style="list-style-type: none"> 1. Able to advise and assist learners to enjoy better quality of life 2. Apply psychology for understanding and support, enabling learners to learn to their highest potentiality

Standards of Professional Knowledge	Content of Knowledge	Proficiency
5. Curriculum	<ol style="list-style-type: none"> 1. Principles and concepts for designing curriculum 2. Curriculum implementation 3. Curriculum development 	<ol style="list-style-type: none"> 1. Able to analyze and design curriculum 2. Evaluate curriculum and apply evaluation outcome for curriculum development
6. Learning management and classroom management	<ol style="list-style-type: none"> 1. Principles, concepts and operational guidelines for preparation of learning plans, management and environment 2. Theories and models of learning management, enabling learners to acquire skills for analytical and creative thinking as well as problem-solving 3. Holistic integration of learning 4. Classroom management 5. Development of learning centres in educational institutions 	<ol style="list-style-type: none"> 1. Able to prepare effective learning plans which can be implemented 2. Able to create classroom ambience conducive to learning
7. Research for learning development	<ol style="list-style-type: none"> 1. Principles, concepts and operational guidelines for conducting research 2. Application and production of research works for learning development 	<ol style="list-style-type: none"> 1. Able to apply research outcome for teaching and learning 2. Able to conduct research for development of teaching and learning as well as development of learners
8. Educational innovation and communication technology (ICT)	<ol style="list-style-type: none"> 1. Principles, concepts, designing, application and evaluation of media, innovation and ICT for learning 2. ICT for communication purpose 	<ol style="list-style-type: none"> 1. Apply and evaluate media, innovation and ICT for learning 2. Able to apply ICT for communication purpose
9. Measurement and evaluation of learning,	<ol style="list-style-type: none"> 1. Principles, concepts and operational guidelines for measurement and evaluation of learning 2. Implementation of measurement and evaluation activities 	<ol style="list-style-type: none"> 1. Able to measure and evaluate 2. Able to apply evaluation outcome for development of learners
10. Educational quality assurance	<ol style="list-style-type: none"> 1. Principles, concepts and operational guidelines for improving quality of education 2. Educational quality assurance 	<ol style="list-style-type: none"> 1. Able to continuously enhance quality of teaching-learning activities and quality of learning 2. Able to take necessary action for evaluation of quality of learning activities
11. Virtue, morality and Ethics	<ol style="list-style-type: none"> 1. Principles of good governance and integrity 2. Virtue and ethics of the teaching profession 3. Professional ethics prescribed by the Teachers Council of Thailand 	<ol style="list-style-type: none"> 1. Serve as role models, showing public-mindedness and social responsibility 2. Strictly observe professional ethics

Also, the standards of professional experience including professional practice during study and teaching practice in specific subjects in an educational institution are stated in Table 3.

Table 3. Content of skill training and proficiency in professional experience.
(from Teachers' Council of Thailand, 2013b, pp. 46-47)

Standards of Professional Experience	Content of Skill Training	Proficiency
1. Professional practice during the course of study	1. Observation of learning management 2. Preparation of learning management plans , allowing learners to construct knowledge themselves 3. Teaching experiment in simulated and real situations 4. Designing of tests , test papers or test instruments 5. Examination of test papers , marking and appraisal of learning achievement 6. Examination of practicum and marking 7. Research on solving learner problems 8. Development of attributes of professional teachers	1. Able to prepare learning management plans with the aim of providing a variety of teaching activities 2. Able to practice teaching , design tests , measure and evaluate learners' achievement
2. Teaching practice in specific subjects in an educational institutions	1. Teaching practice for major subjects 2. Measurement and evaluation and application of outcome for development of learners 3. Research for development of learners 4. Exchange of learnings or sharing of knowledge in educational seminars	1. Able to organize learning activities for major subjects 2. Able to evaluate , improve and carry out study and research for development of learners 3. Able to carry out other assignments

3. Teacher training at Chulalongkorn University

3-1. Requirements and curriculum to get teacher license in Chulalongkorn University

The Faculty of Education is the organization responsible for teacher education and training at Chulalongkorn University. The faculty was established on July, 10th 1957. The fundamental program for teacher education at Chulalongkorn University is a Bachelor's Degree in Education in which was revised from four-year program to be a five-year program in 2004 due to the Teachers and Personnel Educational Act B.E. 2546 (2003). The current curriculum is the Bachelor of Education Program (Five-Year program) Revision B.E 2557 (2014). It consisted of 173 credits of course works and 12 non-credit activities. This curriculum have been used from 2014 to 2018 (Faculty of Education Chulalongkorn University, 2014). A concern is that the curriculum composed of too many credits. Therefore, the 2019 curriculum will focus on revision of courses to eliminate repletion as well as modernize courses by focusing on 21st century skills and preparing student teachers for the changes of new National basic curriculum. The credits of present curriculum (2014) and new curriculum (2019) are compared with TCT minimum requirement shown in Table 4.

Table 4. Comparison of TCT minimum requirement, 2014 and 2019 Chulalongkorn University curriculum.

Curriculum characteristics	TCT minimum requirement	Chulalongkorn	
		2014	2019
Total credits	160	173	168
1. General Education Core	30	30	30
2. Specific Subjects	124	133	132
2.1 Major	78	78	78
2.2 Teacher	46	55	54
3. Free elective courses	6	10	6

3-2. Majors of Bachelor Degree in Education at Chulalongkorn University

The Bachelor of Education Program at Chulalongkorn University provides 25 majors (Figure 1). The early childhood major and primary education major provide education for teachers specific to the level of education. There are eleven majors educating secondary education student teachers. These majors are Thai Language, English, Chinese, French, German, Social Studies, General science, Physics, Chemistry, Biology, and Mathematics. Another twelve majors are not specific to level of education they can teach that are Health education, Physical education, Educational technology, Computer education, Arts education, Musical education, Thai music teaching, Western music teaching, Informal education, Business education, Educational psychology in counseling and guidance, Special education. All majors are the same in curriculum structure but different in subjects taught in their majors. The choice of single or double majors are also provided in consistent to TQF as mention earlier.

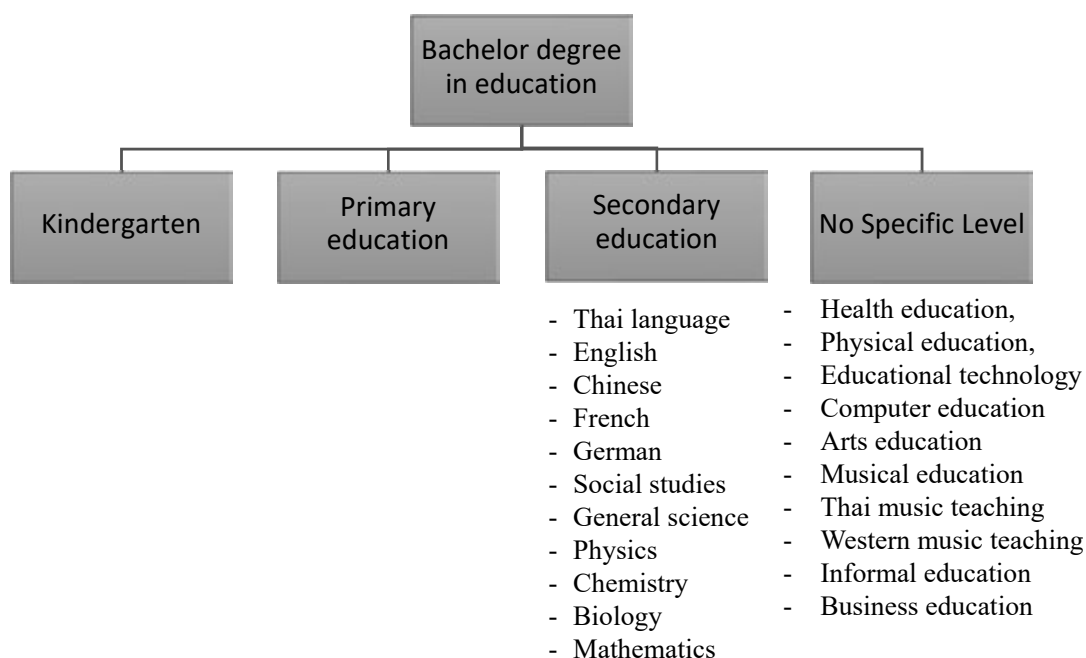


Figure 1. Majors of Bachelor Degree in Education at Chulalongkorn University

Every major is the same in core structure of the curriculum. The difference is in the 78 credits of major courses. The description of program for educating teachers at primary and secondary level are described as follow:

3-3. Major in Primary Education

It is essential for student teachers in primary education to take courses in relevant to the eight subject areas of Thai basic education curriculum (Table 5). The reason is that primary school teachers are expected to teach multiple subjects and to create multidisciplinary instruction. Therefore, the core courses for primary education consists of subjects that specific to primary education as well as content knowledge that relevant to the eight basic educational subject areas. However, a student will choose nine elective courses according to his/her educational focus. For example, if a student focus on science teaching in primary school, she would learn subjects in science for nine credits more than other peers who have different educational foci. The structural of major courses in Primary Education is presented in Table 5.

Table 5. Structural of major courses in Primary Education.

Subjects Matter	Credits (78 Cr.)	
	Core courses	Elective courses
1) Primary Education	18	3
2) Content Knowledge	48	9
2.1) Thai language	6	Choose one subject area for 9 credits
2.2) mathematics	6	
2.3) science	6	
2.4) social studies,	6	
2.5) career and technology	6	
2.6) art	6	
2.7) foreign languages	6	
2.8)health and physical education	6	

3-4. Majors in Secondary Education

For Secondary education, students are distributed into several majors. In the program, secondary education consists of eleven majors. Additionally, some majors are distributed into single and double major. Graduates of single major are expected to be able to teach lower and upper secondary schools. While graduates of double majors are expected to be able to teach in the lower secondary schools. Numbers of credits required for each major are shown in Table 6.

Table 6. Numbers of credits required for each majors of secondary education, Chulalongkorn University.

Major	Single Major (78 cr.)		Double Majors (39 cr. Each)	
	Core courses	Elective courses	Core courses	Elective Courses
Thai language	49	29	27	12
English	47	31	28	11
Chinese	45	33	-	-
French	-	-	27	12
German	-	-	27	12
Social studies	50	28	24	15
General science	50	28	24	15
Physics	52	26	24	15
Chemistry	57	21	29	10
Biology	57	21	28	11
Mathematics	51	27	27	12

3-5. Teaching practice in Chulalongkorn University

To meet TCT standards for professional knowledge and experience as well as introducing student teachers to teachers' duties, Chulalongkorn University provides four courses of teaching practice. Professional Teaching Practice I and II are teaching practice during coursework in which students take to gradually make understanding on teachers work and school cultures. While Professional Teaching Practice III and IV are actual teaching practice in real school classrooms under supervision for the whole school year. The program intends to scaffold so that students gradually learn about school work by witness teachers' work before doing the work by themselves. The steps to help students gradually learn and do school work are presented in Figure 2.

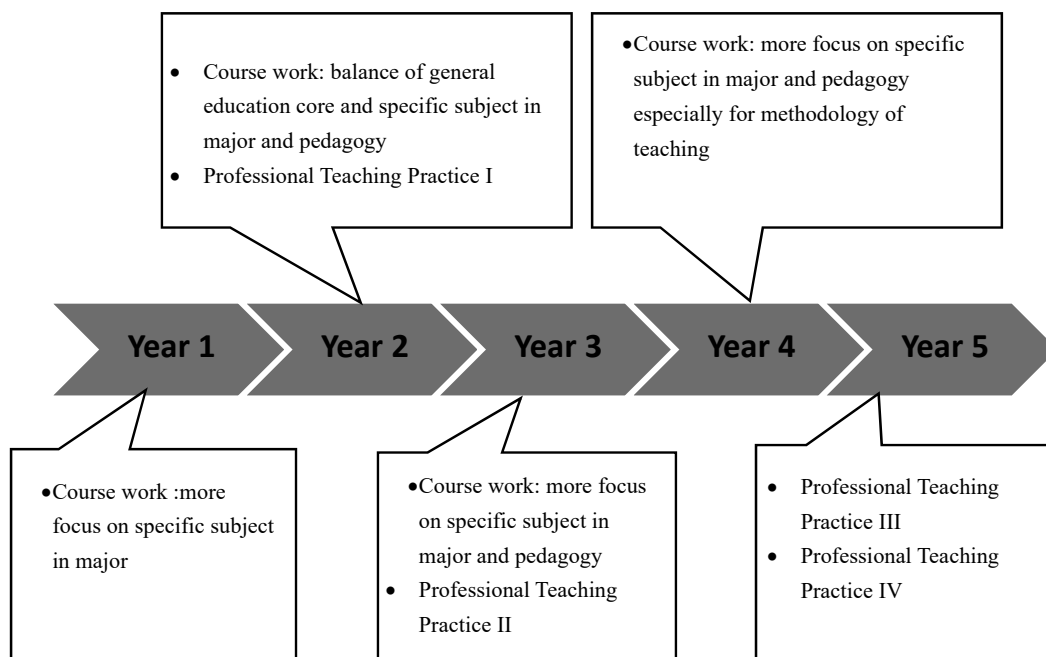


Figure 2. Timeline for teaching practice at Chulalongkorn University

Year 1, the program focuses on a specific subject in major to prepare the fundamental knowledge in the content.

Year 2, Professional Teaching Practice I is required. This one credit course focuses on observing teacher's role, duties and general tasks in school such as being a head master of the class and organizing school activities (e.g. school sport day, student projects exhibition). The course is organized by teams of professional teachers at Chulalongkorn University Demonstration Elementary School and Chulalongkorn University Secondary School under the supervision of the academic department office of Faculty of Education.

Year 3, student teachers take Professional Teaching Practice II to focus more on teachers' roles in learning management. The learning activities in this courses focus on observation of teachers in the classroom specific to the student teachers' major. For example, student teachers whose major is biology observe biology classes to learn how teachers plan their lesson plans, teach in class, and assess students' learning. They also experience first time teaching by working in a small group to write a short lesson plan and teach students at Chulalongkorn University demonstration school for fifteen minutes under the supervision of school teachers.

Year 4, student teachers take a course of Teaching Methodology according to their major. The course provides them knowledge, skill, and experience in teaching that is specific to their major. For example, students in general science majors will learn about scientific inquiry, science process skills, and laboratory teaching. It is also the requirement that all teaching methodology courses must provide peer teaching activity and actual classroom teaching experience.

Year 5 is the time student teachers practice actual teaching in schools for the whole year. The requirement of teaching hours and other school work hours is in line with TCT regulations.

For the first semester, Professional Teaching Practice III is taken to provide experience in teaching practice under close supervision. Each student teacher works in a school with a school teacher as her mentor and a Chulalongkorn university faculty member as her supervisor. Chulalongkorn University stated the amounts of time that a supervisor continually visits a student teacher to observe her class, help her reflect her teaching and discuss possible solutions to problems she confronts. For a single major student, a supervisor must visit her class at least four times plus one time performance test in teaching. For a double major student, the same process is also required for two times plus one time performance test for each major. Also, each student teacher is required to conduct one classroom action research project and join a teaching practice seminar once every two weeks at Chulalongkorn University to share teaching problems and solutions with their peer student teachers and supervisors.

On the second semester of Year 5, Professional Teaching Practice IV is taken to provide experience in teaching practice with less supervision. Numbers of faculty supervisor's visit is reduced to two times visit plus one performance assessment for a single major student teacher and a one-time visit plus one performance assessment for each major of a double major student.

3-6. Indicators for developing teachers in Chulalongkorn University

Presently, Chulalongkorn University follows the standards of professional knowledge and experience specified by TCT. The outcomes of mentioned standards are assessed through course works, activities and teaching practice. Examples of core courses and required activities congruent with the standards of professional knowledge are presented in Table 7.

Table 7 Examples of courses and activities according to standards of professional knowledge and experience

Standards of Professional Knowledge and experience	Examples of courses and activities in the curriculum
1) Teachership	<ul style="list-style-type: none"> • Principles of education and teacherness • Education and sustainable development paradigm
2) Philosophy of education	
3) Language and culture	<ul style="list-style-type: none"> • Thai language • English
4) Psychology for teachers,	<ul style="list-style-type: none"> • Psychological foundations of education
5) Curriculum	<ul style="list-style-type: none"> • Introduction to curriculum development • Analysis of curriculum and science subject area
6) Learning management and classroom management,	<ul style="list-style-type: none"> • Design and management of instruction • Methodology of teaching science
7) Research for learning development	<ul style="list-style-type: none"> • Research and Statistics for learning improvement
8) Educational innovation and communication technology	<ul style="list-style-type: none"> • Innovation and educational technology and information
9) Measurement and evaluation of learning	<ul style="list-style-type: none"> • Learning measurement and evaluation
10) Educational quality assurance	<ul style="list-style-type: none"> • Leadership in educational management and quality assurance
11) Virtue, morality and Ethics	<ul style="list-style-type: none"> • Leadership in educational management and quality assurance • Religious activity
12) Professional practice during the course of study	<ul style="list-style-type: none"> • Professional Teaching Practice I • Professional Teaching Practice II
13) Teaching practice in specific subjects in an educational institutions	<ul style="list-style-type: none"> • Professional Teaching Practice III • Professional Teaching Practice IV

3-7. Characteristic points on teacher education system in Chulalongkorn university

The teacher training program at Chulalongkorn University has two important characteristics. The first one is the use of a scaffolding process throughout the program. The program gradually provides knowledge and experience in teachers' duties from year 2 to year 5. The second important characteristic is close supervision. Student teachers reflected that they need high degrees of support from supervisor. Also, supervisor's visits help them to be more confident in their teaching methods and classroom management. School members also report that they sometimes feel uncomfortable having inexperienced student teachers teaching in their class and that they feel more comfortable to having supervisors visit student teachers often.

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Teacher education system in Thailand and Kasetsart University

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Abstract: This article is a review of the Teacher Education System in Thailand and in the Faculty of Education, Kasetsart University. It summarizes requirements for obtaining a teaching license in Thailand including Teachers Council of Thailand regulations, curriculum, and teaching practice. The article also discusses indicators for developing teachers and the important characteristics of the teacher education system in the Kasetsart Faculty of Education. The Bachelor of Education degree in the Faculty of Education at Kasetsart University satisfies the requirements specified by the government Teachers Council of Thailand in terms of standards of knowledge and standards of professional experience. However, the Kasetsart degree also aims to train teachers to satisfy the identity of Kasetsart University embodied in the abbreviation IDKU which stands for Integrity, Determination, Knowledge creation, and Unity.

Key Words: Teacher education, Teacher education system, Education system, Teacher education system in Thailand, Kasetsart University

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1. Introduction

The Faculty of Education, Kasetsart University, aims to “produce graduates with intelligence and virtue” who have a deep understanding of the subjects they are about to teach. They should be creative, eager to learn, responsible, reasonable, and have pride in the teaching profession. Moreover, they should have a good personality in accordance with Thai culture and follow the code of ethics for teachers. At the present time, the Bachelor of Education at Kasetsart University is a five year degree approved by the Teachers Council of Thailand. On completing this degree, students will have earned a professional license to teach in Thailand public schools (Faculty of Education, KU, 2007). The Faculty of Education provides 6 programs in the bachelor degree: 1) Mathematics teaching, 2) Science teaching, 3) Physical Education, 4) Health Education, 5) Business and Computer Education, 6) Home Economics.

2. Requirements and curriculum to get teacher license

The Teachers Council of Thailand is a council within the Ministry of Education of the Royal Thai government. It is responsible for establishing regulations for accreditation of teachers in primary and secondary levels of Thai public schools and for approving the curriculum of Bachelors of Education degrees of the faculties of education at Thai universities. The Teachers Council of Thailand has determined the standards of knowledge and professional experience required for accreditation of teachers as follows (Teachers Council of Thailand, 2005; Teachers Council of Thailand, 2015):

1. Standards of Knowledge: Have minimum qualifications of Bachelor of Education degree or equivalent qualifications as accredited by the Teachers Council of Thailand with knowledge in the following areas: 1) Qualities of a professional teacher, 2) Educational philosophy, 3) Languages and culture for teachers,

4) Psychology for teachers, 5) Curriculum development, 6) Instruction and classroom management, 7) Research for learning development, 8) Educational innovation and information technology, 9) Educational measurement and evaluation, 10) Educational quality assurance, 11) Morality and ethics.

2. Standards of Professional Experience: Have completed practical training in schools and passed the criteria for evaluation of practical training in accordance with the following rules, procedures and conditions as set out by the Teachers Council of Thailand Board: 1) Observation of and learning from experienced teachers in schools during the first four years of degree, 2) Practical training in schools on specific subjects for a minimum of one year during fifth year of degree.

The Bachelor of Education programs of the Faculty of Education, Kasetsart University are in accordance with the above regulations of the Teachers Council of Thailand for knowledge and professional experience. The requirements for the 6 bachelor degree programs are to complete a total of 160 credits as follows: 1) Complete not less than 30 credits of general education courses, 2) Complete not less than 46 credits of teaching professional courses, 3) Complete not less than 78 credits of courses in a selected major, and 4) Complete not less than 6 credits of elective courses.

As shown in Table 1, the Faculty of Education teaches the following 17 teaching profession courses.

Table 1. Teaching professional courses provided at the Faculty of Education.

Courses	Credits	Year of study				
		1	2	3	4	5
1. Being a professional teacher	2	✓	✓			
2. Languages and culture for teachers	2	✓	✓			
3. Educational philosophy and theory	2	✓	✓			
4. Curriculum development	3		✓			
5. Educational psychology	3		✓			
6. Educational innovation and information technology	3		✓	✓		
7. Measurement and evaluation of learning	3			✓		
8. Practicum in professional education I	1			✓		
9. Instruction and classroom management	3			✓	✓	
10. Ethics and codes for teaching profession	2			✓	✓	
11. Principle of guidance	2			✓	✓	
12. Research for learning development	3				✓	
13. Education for individuals with special needs	2				✓	
14. Educational innovation and information technology	2				✓	
15. Practicum in professional education II	2				✓	
16. Practice in teaching profession I	6					✓
17. Practice in teaching profession II	6					✓

3. Teaching Practice in the Faculty of Education, Kasetsart University

The aim of the teaching practice year is for the student to gain knowledge and experience of being a teacher in a primary or secondary school. In addition to the student being given lectures in the theory of teaching practice and the rules and regulations of the school, the student will teach in a classroom, learn how to be an advisory teacher, take care of students' daily routine, and attend a variety of activities which are designed to affect appropriate personality development, attitudes toward the teaching profession, and awareness of possibilities for professional development in the future.

Under the Teachers Council of Thailand regulations, all fifth year students have to practice teaching in classrooms of government schools either at primary or secondary level. The students are required to apply the theoretical knowledge and skills that they have learned from their lecturers in their first four years to actual teaching to students in a classroom. This practice teaching year is also designed to give students the opportunity for them to get to know school students, to cooperate with school teachers and other school personnel, and to attend a variety of school activities that involve various aspects of self-development.

The Faculty of Education, Kasetsart University, established the Teaching Professional Experience Training Center in 1997 in order to provide wider professional experience for student teachers and to develop their ability to engage at a professional level with local communities. In the programs of this training center, the student teachers are required to conduct action research in their own classrooms and are encouraged to experiment with some new educational technologies. In accordance with the policies of the Faculty of Education and the Teachers Council of Thailand, there has been continuing development in the operations of the Teaching Professional Experience Training Center during the 20 years of its existence.

The details of the teaching practice program are as follows:

(1) Orientation before teaching practice is held to help students understand the aims of the teaching practice process, understand the role and responsibility of the student teacher during practice, and to prepare them for teaching in an actual school. During this orientation, there is revision of the knowledge and skills needed for teaching in primary and secondary schools and for conducting action research.

(2) The students are placed in an internship at schools either in the central sector (near Kasetsart University) or in local communities (more than 20 Kilometers away from Kasetsart University). Supervisors and the committee of the Teaching Professional Experience Training Center are responsible for placing students in an internship at schools before the start of the first school semester. A supervisor or a member of the committee of the Training Center will then meet with school administrators, heads of learning areas, and mentors in order to develop mutual understanding about teaching practice and conducting action research. Students then go to their assigned school to meet their mentor, observe the mentor's teaching and to become familiar with the content of the job and with other school personnel. After 2 weeks at the school, the student starts their teaching practice in an assigned classroom. The total duration of teaching practice at a school is 16 weeks with 8-12 periods/week for the first semester and 8-12 periods/week for the second semester.

(3) The committee of the Teaching Training Center is required to visit each student at least once per semester. The committee will meet up with the school administrators, heads of learning areas, mentors, and student teachers to exchange opinions and collect suggestions in order to improve the operation of the teaching practice program of the center.

(4) Teaching practice supervision

(4-1) Supervisors for each of the 6 degree programs are appointed by the Faculty of Education. The responsibility of supervisors is to assess the performance of the student teachers in their teaching, action

research and other school responsibilities. Supervisors are required to visit a student at least 4 times per semester. After the teaching practice year, supervisors, mentors, and student teachers are required to reflect on the successes and failures of the year.

(4-2) Mentors for student teachers are assigned by each school. Their responsibility is to observe and coach a student teacher and to assess their teaching competency and their performance at their other teaching responsibilities. Mentors are also expected to support student teachers to develop their attitudes towards the teaching profession and to encourage their good behavior according to school regulations and professional codes of ethics for teachers.

(5) During the teaching practice, the committee of the Teaching Professional Experience Training Center organizes two conferences each semester to provide an opportunity for student teachers to share opinions, problems and solutions related to their teaching practice. The students are divided into discussion groups with supervisors acting as advisors and assessors for each group.

(6) Seminars are held after the end of each semester in order that students can analyze and discuss their experiences and views on their teaching practice. The opinions and suggestions from this seminar are used to improve the quality and efficiency of the teaching practice. During the first semester, a student is expected to develop a proposal for action research and to present their proposal to their supervisor, mentor and a committee of the Faculty Teaching Training Center at the seminar at the end of the first semester. The student is then required to carry out this action research during the second semester and to present a report on this research to their supervisor, mentor and a committee of the Faculty Teaching Training Center in the seminar at the end of the second semester.

(7) Measurement and assessment in students' teaching practice is conducted by supervisors, mentors and the committee of the Teaching Professional Experience Training Center. The following elements are assessed for each student: personality, teaching performance, classroom jobs, lesson plan preparation, conference and seminar, portfolio, and action research.

4. Indicators for developing teachers in the Faculty of Education, Kasetsart University

As the Office of Educational Reform (2001) stated, teachers have a crucial responsibility related to cultivation of students' knowledge, attitude, and morality. It has been said that students are one of the most important contributors to the future of a nation. Therefore, the Faculty of Education at Kasetsart University has focused on the development of future teachers who have the personal characteristics required for the development of the children of Thailand. In addition to the requirements specified by the Teachers Council of Thailand, the Kasetsart Faculty of Education requires student teachers to achieve the following competencies and learning outcomes for each year:

Year 1-2: Have life skills required to live happily in the society, develop good attitudes to the teaching profession, understand the concepts of basic education, and have intercultural communicative competence.

Year 3: Understand the knowledge content for teaching their major subject, and have the ability to use technologies for enhancing learning, searching, investigation, and task analysis

Year 4: Develop pedagogical content knowledge (PCK), and be able to observe, analyze, and design learning activities in the classroom

Year 5: Have hands-on teaching practice, observe experienced teachers, apply learning in the classroom, and conduct action research

5. Characteristic points of the teacher education system in the Faculty of Education, Kasetsart University

A committee of academic affairs of the Faculty of Education has been appointed to help lecturers develop techniques and skills for giving advice to students. A committee of student affairs has also been appointed to plan and organize activities to promote the five domains of learning described in the National Qualifications Framework for Higher Education in Thailand (2006). The domains are as follows:

Ethical and Moral Development: Development of: 1) habits of acting ethically and responsibly in personal and public life in ways that are consistent with high moral standards, 2) ability to resolve value conflicts through application of a consistent system of values.

Knowledge: The ability to understand, recall and present information including: 1) knowledge of specific facts, 2) knowledge of concepts, principles and theories and 3) knowledge of procedures.

Cognitive skills: The ability to 1) apply knowledge and understanding of concepts, principles, theories and procedures when asked to do so, and 2) analyze situations and apply conceptual understanding of principles and theories in critical thinking and creative problem solving when faced with unanticipated new situations.

Interpersonal skills and responsibility: The ability to 1) work effectively in groups, and exercise leadership, 2) accept personal and social responsibility, and 3) plan and take responsibility for their own learning.

Analytical and communication skills: The ability to 1) use basic mathematical and statistical techniques, 2) communicate effectively in oral and written form, and 3) use information and communications technology.

The above domains of learning lead to desirable characteristics for graduates who are going to be teachers in all parts of Thailand. To promote these desirable characteristics, it is necessary that students must be leaders in each of the projects organized each year. Table 2 shows examples of these projects and activities.

Table 2. Examples of projects and activities to promote domains of learning that lead to desirable characteristics for teachers.

Domains of learning	Focal Points	Examples of projects and activities
1) Ethical and Moral Development	Focusing on developing basic values and codes of ethics for teachers; moral behavior such as being punctual, showing responsibility, sacrifice, and respect for elders	<ul style="list-style-type: none"> - Raising awareness camp - Buddhist psychology camp - Teachers' appreciation project - Thai elegant personality project
2) Knowledge	Focusing on constructing knowledge in each specific area	<ul style="list-style-type: none"> - Teaching contest (Faculty of Education) - Excellence in teaching award competition (Higher Education) - Referee training project (for students of Physical Education Program) - Potential development project (for students of Teaching Science Program)
3) Cognitive skills	Focusing on encouraging students to apply their teaching knowledge in an authentic context, to develop problem solving skills, and the ability to make reasonable decisions	<ul style="list-style-type: none"> - Social development camp - Leadership skills for leaders project - Science community service camp - Maths builds a genius camp

4) Interpersonal skills and responsibility	Focusing on working as a team, and developing communication skills, creativity, and taking responsibility for yourself and others	- Teacher education games - Singing contest
5) Analytical and communication skills	Focusing on analytical and communication skills	All projects

The teacher education system in the Kasetsart Faculty of Education is in accordance with the requirements of the Teachers Council of Thailand. However, the Faculty of Education also has its own characteristic points. It is designed to be a place where students can obtain an integrated knowledge of professional education. The essential ambition is to fortify the identity of Kasetsart University also known as IDKU which stands for Integrity, Determination, Knowledge Creation, and Unity. Students can achieve this harmonized concept through their learning activities as follows:

I: Integrity

Focusing on cultivating good morals, honesty and ethics among students, the Faculty has organized in past years, a “Raising awareness camp”, a “Social Development camp” and a “Buddhist Psychology camp”.

D: Determination

“Teaching activities both inside and outside the classroom”. “Active Learning activity” and “MOU International Collaborative activities” were launched to support the “Determination” viewpoint.

K: Knowledge Creation

The ideas of embodying innovation and sustainability in their teaching were fostered through related events such as:

- (1) An “Ed Talk” session, allowing exchange of interactions and ideas between students and specialized instructors about their remarkable work and best practice.
- (2) Organizing games and recreation in the “Center for Learning Resources and Edutainment”.
- (3) Ensuring the maximum utilization of Technology such as Smart class room and E-Learning in learning and teaching.
- (4) The “Teaching contest” was definitely one of the activities that we are really proud of, because we were the pioneers and remain the top-ranked university that develops highly accredited teachers.

U: Unity

Learning teamwork skills is an important developmental process for students. Faculty of Education promotes compromise and ability to synergize and integrate knowledge into substantial work.

6. Future developments

The Ministry of Education of the Royal Thai government is proposing a review of the present Bachelor of Education degree programs in 2019. Possible changes include changing the Bachelor of Education from a 5 year degree to the standard 4 year degree of most other Bachelor degrees in Thailand (Matichon, July 4,

2017). If this change is implemented, then a Bachelor of Education degree would no longer be a sufficient qualification for teaching in a public school and a graduate would then be required to undertake a separate teacher certificate examination.

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Science teacher education curriculum in Thailand: A science based curriculum design at KMUTT

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Abstract: Science teacher education in Thailand has been implemented based on several educational policies. There are two main challenges on science education in Thailand. First, science teachers lack of in-depth knowledge and ability to relate scientific knowledge to real world context. Second, science teachers lack of pedagogical techniques and skill to deliver knowledge. In this article, we introduce a new science teacher education curriculum based on both in-depth knowledge and skill, and pedagogical content knowledge practice at King Mongkut's University of Technology (KMUTT). The new curriculum also emphasizes on the integration of multi-disciplinary using STEM approach unlike the traditional science education curriculum.

Key Words: Science Education, STEM Education, Science Teacher education curriculum

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1. Introduction

Science teacher education in Thailand has been implemented based on several educational policies (ONEC, 2015). These educational policies are often initiated by government agencies such as Office of the National Education Commission, Teachers' Council of Thailand and Institute for the Promotion of Teaching Science and Technology (Faikhamta et al., 2016; Faikhamta et al., 2018). Important educational policies were to increase a number of qualified teachers in Thailand and to develop teaching practice that focused on students (student-centered approach). Recently, teaching practice in Thailand has been focused on the integration of Science, Technology, Engineering and Mathematics (STEM) approach. However, recent studies shown that science teachers still cannot develop students' scientific knowledge and skills. (Institutes for the Promotion of Teaching Science and Technology (IPST) & OECD, 2017). There are two main challenges on science education in Thailand. First, science teachers lack of in-depth knowledge and ability to relate scientific knowledge to real world context. Second, science teachers lack of pedagogical techniques and skill to deliver knowledge.

Regarding to science teacher education curriculum in Thailand, there are two main types of programs including a five-year bachelor program and a two-year master program (Teachers' Council of Thailand, 2013). These programs need to follow the framework for the Teacher Qualification Standards from the Teacher Council of Thailand and the Office of Higher Education Commission. However, each university can flexibly design the teacher education curriculum to follow the framework.

In this article, we introduce a new science teacher education curriculum based on both in-depth scientific knowledge and skill, and pedagogical content knowledge practice at King Mongkut's University of Technology (KMUTT). The new curriculum also emphasizes on the integration of multi-disciplinary using

STEM approach unlike the traditional science education curriculum.

2. University Level in KMUTT

New approach in Science teacher education curriculum design

The concept of science teacher education curriculum introduced at KMUTT is based on both in-depth scientific knowledge and skill, and pedagogical content knowledge practice. This newest program is a two years Master of Science Program in Science Education. The main aims of the program is to provide a precise, thoughtful and critical introduction to integrating science knowledge, teaching science, and drawing on leading STEM education research carried out at KMUTT. We work in close partnership with schools in designing, delivering and assessing our course in order to develop excellent, reflective classroom practitioners particularly in English Program (EP) or Enrichment Science Classroom schools. This program is available in four areas of study, namely, Physics, Chemistry, Biology and Mathematics. To respond to the curriculum concepts, these learning outcomes are constructed as follow:

1. Students must be able to explain Physics, Chemistry, Biology and Mathematics knowledge at high school level,
2. Students must be able to apply science, technology, engineering and mathematics (STEM Education) in contexts that make connections to real life,
3. Students must be able to design and conduct experiment laboratory,
4. Students must be able to obtain researching and communication skills especially by using information technology,
5. Students must be able to qualify teaching profession in term of moral and ethics, design and develop of learning, and assessment.

(i) Requirements and curriculum to get teacher license

In order to receive the Teaching License in Thailand, the curriculum must agree with the 11 standard certificate courses for Teaching Licenses issued by the Teacher Council of Thailand which includes philosophy of education, curriculum, teacher professionalism, professional ethics, language and culture, psychology for teachers, research for learning development, educational measurement and evaluation, educational quality assurance, learning and classroom management, and innovation. Our Master of Science (Science Education) curriculum is designed to follow the requirements of the Teacher Council of Thailand. Table 1 shows the mapping of the subjects in our curriculum with the 11 standard certificate courses for Teaching License.

Table 1. Mapping between the subjects in the curriculum and 11 standard certificate courses for Teaching Licenses.

Standard certificate courses	Subjects in our curriculum
Philosophy of Education	SCE 650 Educational Philosophy and Curriculum
Curriculum	
Teacher Professionalism	SCE 651 Moral and Ethics for Teachers
Professional Ethics	
Language and Culture	
Psychology for teachers	SCE 652 Psychology for Teachers
Research for Learning Development	SCE 653 Research Methodology in Science Education
Educational Measurement and Evaluation	SCE 654 Learning Assessment and Quality Assurance
Educational Quality Assurance	
Learning and Classroom Management	SCE 655 Learning Innovation for Schools
Innovation	

These 6 subjects shown in Table 1 and SCE 656 Practicum in Science Education are listed as compulsory subjects in teaching profession required to complete the curriculum. In addition, students are required to gain 4 credits in science subjects, 6 credits for internships, 4 credits for elective subjects and 12 credits for thesis to complete the curriculum. The structure of curriculum can be summarized as in Table 2.

Table 2. Structure of curriculum for Master of Science (Science Education).

1. Compulsory Subjects	
1.1 Subject in Teaching Profession	at least 21 credits
1.2 Subjects in Sciences (choices of Phy, Chem, Bio, Maths)	at least 4 credits
2. Elective subjects	at least 4 credits
3. Internships	6 credits
4. Thesis	12 credits

Program Structure

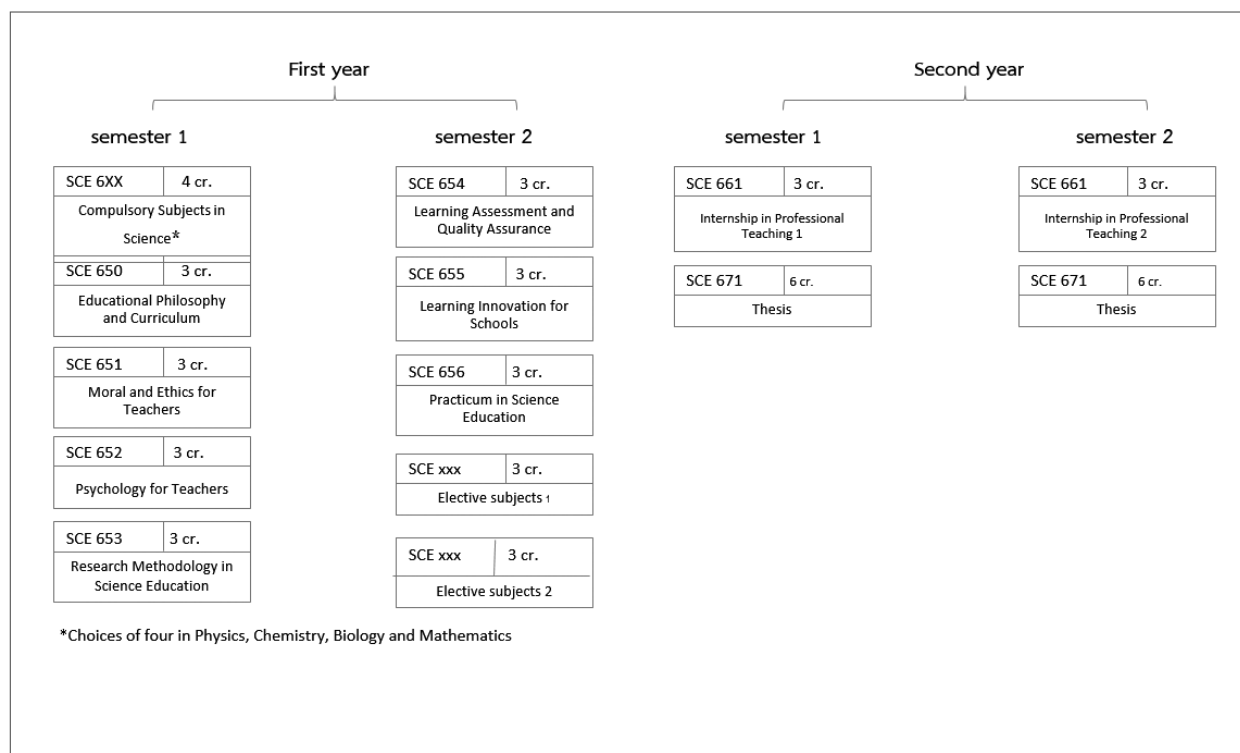


Figure 1. Program structure of the curriculum.

The structure of the program is divided into three modules – the first module is the compulsory subjects in Teaching Profession. This module is the most complicated part in the curriculum as all of the subjects must be in correspond with the Teacher qualification and Licensing issued by the Teacher Council of Thailand. Each subject is worth three credits. Altogether this module is worth 21 credits which is approximately 45% of the curriculum. Once the students complete this module, they automatically qualify for the Teaching license issued by the Teacher Council of Thailand.

The second module is the subjects in science and mathematics. This can be further divided into the compulsory subjects, containing two subjects in each area of study. Below is the details of the compulsory subjects in each mathematics and science subjects:

Physics

SCE601 Physics in the Real-World context

SCE602 Laboratory in Physics for teachers

Chemistry

SCE611 Integration of Chemistry in Daily Life

SCE612 Laboratory of Chemistry

Biology

SCE631 Molecular Cell Biology and Cell Biology Assay

SCE632 Laboratory of Biology

Mathematics

SCE641 Algebra

SCE642 Visualizing Mathematics

The aims of these subjects are to provide a deep knowledge to the students and show them how science and mathematics are related to the real world, for example, SCE601 Physics in the Real-World context is the one of the subjects which intends to provide the link between the basic physics principles and the real world phenomena and technology. At the end of this course, students should be able to use the basic physics principles to explain and describe the working principle of the technology and phenomena.

Furthermore, there are also two elective subjects that the students have to choose from. The students must choose one of the elective subjects across the field that they are major at. This is to encourage them to see the nature of science in the field apart from the one which the student takes as their major. Another aim of the elective students is to broaden their horizon. This is important as being a teacher. The students should know the current status of science and technology so that they could become a good science motivator.

To sum up, this module is worth 8 credits which is approximately 17% of the curriculum. It should be noted that the students can take the elective subjects more than 2 subjects with the increase in the credit that they earn.

As shown in the program structure (Fig. 1) these two modules must be completed within the first year of the study. As in the second year the students must take the final module which is the internship at a school in Thailand and thesis. This counts approximately 38% towards the curriculum. At this stage the student must do the internship at one of the science-based classroom at one of the schools in Thailand and these classrooms must be taught in English. The internship runs across two semesters and it is one of the criteria in order to receive the Teaching license. While the students do their internship at school, they also have to do the research in order to write their thesis. This is to enable them to do research in the actual environment so that they realize that the research they do is active and solve the actual problems.

(ii) Teaching practice

Teaching practice is compulsory in our science education program. In order to complete the requirements for teacher license, students need to do teaching practice for two semesters in the second year of the Master of Science (Science Education) program. Students are expected to teach at least 8 hours per week for a total of 120 hours in each semester and do other administrative and school works for another 120 hours. Before students participate in a teaching practice, it is required to enroll in Practicum in Science Education. This is one of the subjects that integrates between Science and Mathematics concepts and practical implementation of classroom management, teaching and learning processes and lesson plan, classroom observation. This subject allows students to demonstrate their attainment of skills, knowledge and attitudes as a professional teacher. The aim of this subject is to develop the teaching design and allow them to apply the knowledge they learn in both science and education in the situation set-up in the class. They will have a chance to visit schools in Thailand to observe the environment and how Thai students are taught in the class. Then they have to design the classroom learning design on a topic that they are interested to teach. At the end they have to perform the actual teaching among the students taking the same subjects. They will be graded according to their work throughout the semester and the final teaching in the class.

During the second year the student will have a professional teaching experience at secondary school. The students will plan, design the lesson plans, assessment and teaching at a secondary school. The student will gradually develop an integrated, personal plan for classroom management in secondary schools as well as analyze and reflect on teaching and classroom research.

(iii) Indicators for developing teachers

There are four aspects for developing teachers in the science education programs, which are knowledge, professional teaching experience, code of conduct, and teacher professional development activities. In terms of knowledge, students in science education program must satisfy all 11 standard certificate courses for Teaching Licenses issued by the Teacher Council of Thailand and other requirements of curriculum. For professional teaching experience, students are required to do teaching practice in school for one year and have a report that aligns with the requirements of the Teacher Council of Thailand. For code of conduct, it is expected that teacher students have self-discipline, self-development in the profession, personality and vision for educational developments. Finally, for teacher professional development activities, it is compulsory that students in the program have to participate in teacher professional development activities such as volunteer, teaching practice and ethic workshop at least once in each year.

(iv) Characteristic points on teacher education system

As mentioned in Introduction, there are two major aspects of which the science teachers lack in Thailand – the first one is the in-depth understanding in science content and the link of science to the real world context. This aspect includes the experimental skills such as experimental design and analysis of data. The latter is the lack of approaches the teachers could use to deliver their content in the class. To respond to these two aspects, the latest curriculum at KMUTT was designed based on five concepts.

- (1) The graduates must be able to effectively assess the students' learning ability and find the appropriate method to deliver the content they would like to deliver,
- (2) The graduates must be able to integrate the knowledge across different areas in science, for example, they can show to their students how to relate the physical quantities in a physical equation using mathematical relationship,
- (3) The graduates must show a good understanding in the basic knowledge in the area of science and mathematics that they study,
- (4) The graduates must be able to link their basic knowledge to the modern world, namely, they can show to their students how the basic knowledge can be used to explain physical phenomenon and the current technology,
- (5) The graduates must be able to design and construct simple science demonstration instrument or model with supporting their teaching.

These concepts are summarized in Fig. 2. As can be seen, the first two concepts try to deal with the problem in which the teachers are lack of the approaches used in teaching, whereas the last three concepts are to strengthen the knowledge of the teachers and help them understand how science and mathematics can be used in the real world.

CONCEPTS OF NEW CURRICULUM

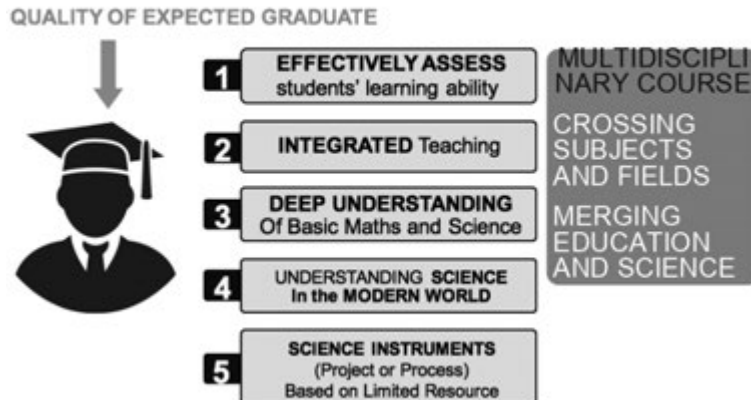


Figure 2. Concepts of the new curriculum at KMUTT.

Moreover, to enhance the deep understanding in science and mathematics of the teachers, our curriculum aims to recruit those applicants who have graduated in the science and engineering fields, rather than the applicants from those who graduated from the educational fields. To get a clear view of what kind of graduate from this course we expect to get. Fig. 3 is an example of the subject allowing our students to relate what they learn in science and education and link them together. In this example, the student expected to design the leaning curriculum they will use in the actual class at school. They may design to teach the topic of reflection, refraction and total internal reflection in a Physics class using 7E approach. They had to design from the beginning up to the end as shown in Fig. 3, keeping in their mind that the classroom learning design must contain the link to the real world context. They may build an instrument or find the appropriate classroom materials in order to support their teaching.

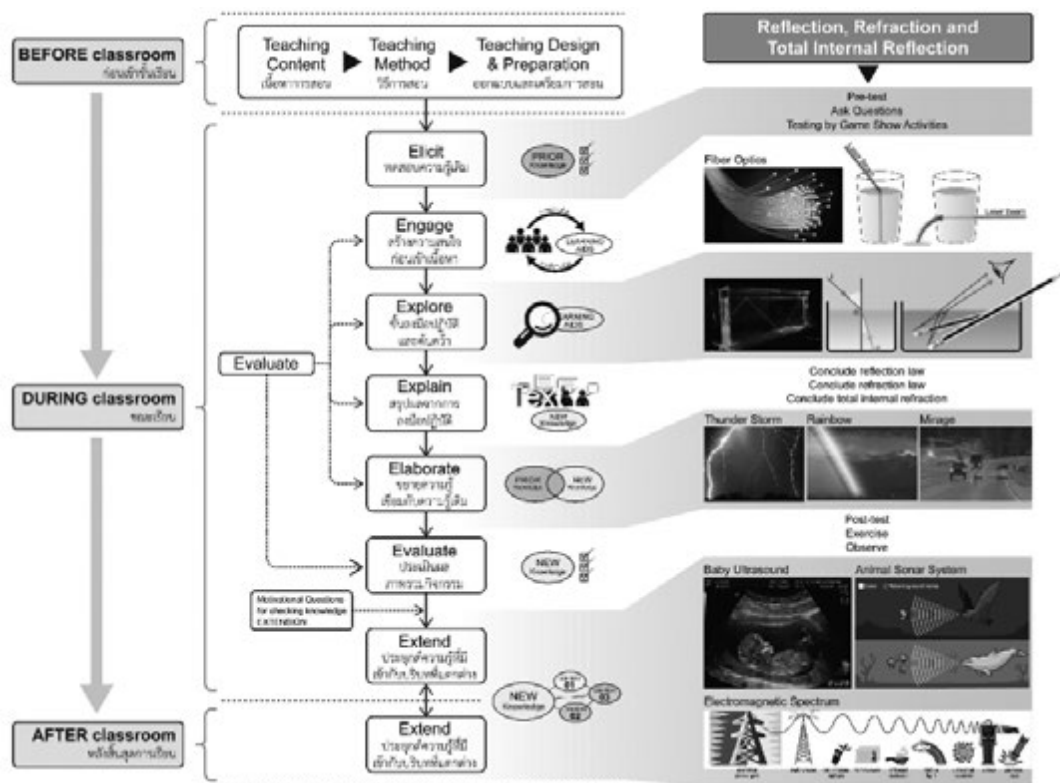


Figure 3. Example of the classroom learning design which we expect from our graduate.

At the end, we expect that our graduates must be able to teach in the science-based classroom taught in English in the schools in Thailand.

3. Conclusion

This article outlines a new science teacher education curriculum by focusing on teacher qualifications, learning outcomes and course structure. It is expected that teachers who have been trained by this program will be able to illustrate the ability to relate scientific knowledge in their fields to the real world context and find the appropriate materials or instruments to support their teaching with emphasis on the integration of multi-disciplinary using STEM approach.

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Nurturing Educational Leaders in Mahidol University

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Abstract: Mahidol University recognizes that education plays an important role in changing the society; and offers a Doctor of Education Program and Master of Education Program in Educational Management (International Program). The programs aim to prepare top educational leaders who can generate new knowledge in educational management, innovation, and advanced research in educational management at the national and international level; and make significant contributions to the field of education. The students of these two programs comes from various countries, work and positions. The curricula were designed based on international education trends; the educational management system from the global, local, and school perspectives; research and strong knowledge in educational management and educational leadership. The programs develop educational leaders by adopting the concept of professional development, which is all knowledge gained from courses can be used in their related work; and also using multi-methods both in teaching and learning such as classroom learning, field trip, mini-projects and thesis. There are 3 perspectives of accomplishment of the students in Educational Management International program, academic skills, career skills, and personalities.

Key Words: Mahidol University, Educational leaders, Leadership development, Educational management, Outcome-based education

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1. Introduction

Mahidol University is a Thai public university. It was established in 1888. It was Thailand's first medical school. It was originally at Siriraj Hospital, which is also Thailand's first hospital. In 1943, university focus was expanded. The university became the University of Medical Sciences. It is one of the oldest institutions of higher learning in Thailand and also well-known for being the first medical school in Thailand.

On the March 2, 1969, His Late Majesty King Bhumibol Adulyadej bestowed the name Mahidol University. It is the named after his father, H.R.H. Prince Mahidol of Songkla. Every year on this date, the university celebrates the name in the spirit of H.R.H. Prince Mahidol of Songkla. H.R.H. Prince Mahidol of Songkla philosophy of education, "True success is not in the learning, but in its application for the benefit of mankind" is also celebrated.

The university has three campuses around Bangkok. The biggest campus is Salaya campus, which is located in Nakhon Pathom province. There are also two smaller campuses located in the inner city of Bangkok, which are Phayathai and Bangkoknoi campus. In addition, there are also campuses in Nakhonsawan, Kanchanaburi and Amnatcharoen provinces.

Mahidol University is determined to become a world-class university. Hence, the university prioritizes the importance of efficiency and integrity within the administration. It follows the Code of Good

Governance, which consists of the Rule of Law, Ethics, Transparency, Participation, Accountability, and Utility.

Mahidol University had continued to progress in all aspects to stay relevant and conform to the rapidly changing world and society. The significant role of the university is to produce quality graduates. These graduates are knowledgeable in their chosen fields and mindful of morality, to serve as human capital for the country's current development. Moreover, the university has encourages academic development, internationalization, and innovations. It also supports improvements of university's physical systems and environment as an eco-university.

Mahidol University is recognized as a large higher education institution. It comprises of academicians and professionals in every field, from arts to sciences. Therefore, the current university administration has set its target to maintain its status as the leading university in the country and the region. The university aspires to be the source of knowledge for the benefits of society and country as stated in the university's slogan, "Wisdom of the Land".

Mahidol University vision is to be a World Class University.

The mission of Mahidol University is to excel in health, sciences, arts, and innovation with integrity for the betterment of Thai society and the benefit of mankind.

The organizational culture of the university is "MAHIDOL". Each letter in "Mahidol" has a profound meaning that reveals what the university stands for. The meaning of each letter is explained separately below.

M: Mastery means to master profound and logical knowledge, conduct oneself with readiness, intelligence, vision and self-improvement.

A: Altruism means to be altruistic for the benefit of others, attend to the interests of the public and the organization, have a sense of social responsibility, and prioritize those the university serves.

H: Harmony mean Be harmonious; respect and appreciate colleagues, be united in solidarity, and considerate of others.

I: Integrity means to show integrity, keep one's word, concern oneself with evidence-based working processes, and adhere to moral and ethical principles.

D: Determination means to be determined and decisive; have faith in one's duties; build values; and demonstrate perseverance.

O: Originality means to foster originality; and excel and distinguish oneself by creating innovations for the future.

L: Leadership means to exercise leadership; be calm, firm and steadfast; show vision for the future; and possess the power to persuade.

In term of strategies, Mahidol University currently has four strategies. Mahidol University's Strategic Plan for 2016-2019 (Division of Planning, Mahidol University, 2018) is explained below.

The first strategy is to excel in research that has global and social impacts. This can be done by producing researches of international-standard and developing new knowledge and innovations that serve the needs of society.

The second strategy is to excel in outcome-based education to develop globally-competent graduates. This can be achieve through outcome-based education, transformative leadership, and student or alumni engagement. Outcome-based education creates international-standard curricula that focuses on student learning outcomes. Transformative leaders develop graduates with knowledge, skills, morals, ethics, and leadership skills for the betterment of society and the country. Student or alumni engagement builds bonds

and fosters pride in Mahidol students and alumni for furthering the University's advancement.

The third strategy is to excel in professional services and social engagement. This can be achieved by enhancing excellent academic services that meet international standards and striving for quality of life improvement, particularly the areas of health and well-being.

The fourth strategy is to excel in management for sustainable organization. This can be fulfilled through supportive finance, talent workforce, environment, administration and governance, branding, and IT infrastructure. It is also important to develop supportive departments that work towards sustainable management; ensure that they conform with the eco-university guidelines; and cover the areas of human resources, finance and accounting, information technology, communications, and international quality development standards.

All strategies align with Mahidol University's aspiration to become a world class university. The university's current milestone is being ranked as the top university in the region and No.1 in Thailand.

As one of the pioneers and main advocates of the globalization of higher education in Thailand, the university is determined to become a world class university. A key factor to achieving this is the university continued focus on the globalization of the physical and intellectual aspects of academic, research, and university life. This affects everyone, especially students, who now receive numerous opportunities to incorporate an international experience into their studies through multiple activities including student exchange, dual and double degree programs, international collaborative research projects, internships and student competitions.

When combined with the university focus on outcome-based education and the commitment to tackling the major issues facing global society, these experiences provide well-rounded graduates with the professional and interpersonal skills needed for a successful career in an increasingly globalized world-skills. Some of these skills are leadership, entrepreneurship, and cultural sensitivity.

Mahidol University is a large organization that provides a variety of services to the public. These services affect both Thai society and the economy. Therefore, it is crucial that the university is administered morally and ethically. It must also operate with transparency and integrity in its day to day operations and developments in order to enhance the efficiency and quality of all its services.

Mahidol University is committed to developing innovative solutions to many of today's most important challenges. This is done through research and academic activities with a wide-range of partners. Some examples of the researches are on precision medicine, systems biology, protein crystallography, glycobiology, shrimp, starch, soy sauce biotechnology, enzyme technology, material science, and rubber technology. These researches contributed by the university has greatly impacted Thai industries.

The university social science researchers have also been recognized internationally in the field of human rights, and peace building and national reconciliation of Thailand. The researchers are so well-known that Mahidol University was chosen by the ASEAN University Network (AUN) to be the secretariat of the AUN Human Rights Education Network and AUN Health Promotion Network.

In term of instruction, there are currently 17 faculties, 7 institutions, and 6 colleges at the university. The next section is about the programs in educational management that the university offers.

2. Educational Management Programs

Mahidol University has its origin in higher education in medical practices. Currently, the university emphasizes on social sciences as well and recognizes that education plays an important role in changing the society. Although Mahidol university doesn't provide teacher education program at the undergraduate

level, but it provides graduate programs that focus on educational policies. Therefore, the university's Department of Education, which is in the Faculty of Social Sciences and Humanities, offers a Doctor of Education Program in Educational Management (International Program) and Master of Education Program in Educational Management (International Program).

Doctor of Education Program in Educational Management (International Program) is a 3 years program and Master of Education Program in Educational Management (International Program) is a 2 years program. The programs aim to prepare top educational leaders who can generate new knowledge in educational management, innovation, and advanced research in educational management at the national and international level; and make significant contributions to the field of education. The students of these two programs comes from various countries such as United States of America, China, Bhutan, Democratic Socialist Republic of Sri Lanka, Cambodia, Vietnam, Republic of the Philippines, Lao People's Democratic Republic, Republic of the Union of Myanmar. They also work in various positions that range from school directors, policy makers, educational researchers, to teachers or lecturer. They also work in various types of educational institution ranging from formal public schools, private schools, university, to other institute of non-formal and alternative education.

The programs believe that educational leaders should have new approaches to ensure that the level of managerial competences can cope with all new challenges. Therefore, these two programs were developed by exploring and understanding the role and functioning of schools that change and put pressure and expectation on educational leaders.

The situations in schools or other educational institutions are also similar to other organizations. There are gaps between the knowledge and skills needed at school and knowledge and skill that school administrators or leaders in other educational institutions possess. Schools or other educational institutions are also affected by external factors like the expansion due to unprecedented rapid changes in society during the past few decades; the rapid development of information and communications technology; the growing production of knowledge in the economy; increasing internationalization and globalization; changes in occupational structures; and changes in the contents and challenges in education. Additionally, many reform initiatives have focused on educational leaders as the key to improving education system. The findings from researches indicated that school administrators or leaders in the educational institutions have the most direct, sustained contact with teachers, students, parents. They also have considerable control over the policy, teaching methods, and the climate of schools, and learning. It is reasonable to assume that improving educational leaders' knowledge, skills and dispositions is one of the most critical steps to improving education systems (Desimone, Smith & Ueno, 2006; King & Newman, 2001; Korkko, Ammala, & Turunen, 2016).

Due to the situations mentioned above and diversity in students' culture, background and expertise, the programs provide an understanding of the educational management system from the global, local, and school perspectives. The curricula were designed based on international education trends; and research and strong knowledge in educational management and educational leadership.

The doctoral program requires students to obtain a total of 48 credits for graduation. It offers a wide-range of courses focusing on advanced research. The courses offer are Advanced Research Methodology in Educational Management, Seminar on Education Management Innovation, Concepts and Principles of Educational Management, Policy and Planning in Educational Management, Seminar on Contemporary Issues and Trends in International Education Management, Role of Educational Leaders and Human Resource Management, Educational Leaders Development and Teacher Professional Development

Alternative Education and Educational Management for Special-Need Persons, Effective Psychology for Educational Administrators, Management of Lifelong Learning and Adult Education, Marketization in Education, Information and Communication Technology in Educational Management, Design and Development of Online Learning System and Massive Open Online Courseware, and Dissertation.

The master program requires students to obtain a total of 36 credits. It focuses on educational management concepts and practical researches. The courses offered are Education Management, Seminar on Educational Management, Education Research Methods, Qualitative Research in Education, Morality and Professional Ethics for Educational Leaders, Educational Policy and Management Process, Leadership and the Challenges in Education, Human Resource Management, Education and Development, Organization Behavior, Knowledge Management, Quality Assurance in Education, Management Information System, Financial Management in Education, and Thesis.

These two programs develop educational leaders by adopting the concept of professional development, which is all knowledge gained from courses can be used in their organization or related to work. It also develops educational leaders by using multi-methods both in teaching and learning (Knowles, Swanson, & Holton, 2005). All courses are conducted to cover an array of approaches whereby students attending the class can gain real experiences in educational management and take responsibility for their own learning. In the classroom, the programs cover theoretical ideas, concepts, related researches, educational policies and educational practices from various countries. Students can totally participate in class through discussion, reflection, and sharing ideas and experiences. Each course will assign students courses to complete both individual and group assignments, and also complete mini-projects or events based on their interest by themselves. This ranges from mini research projects, organizational development projects, to educational charity projects. These will develop students' self-directed learning and lifelong learning skills; and students also pursue joint learning with classmate, share their knowledge, negotiate meanings, form their identities, and develop their practices in educational management. The programs also provide actual experiences in educational management for student through field trips in Thailand to Thai-standardize school, international school, school in rural area, Center of non-formal education, training center or education-based company; and field trips to university or school in other countries such as Australia, Germany, Netherlands, Japan, Hong Kong, Vietnam, and Singapore. Students gain the experiences in local and international education systems and also gain the academic networking, which provides a forum for exchange, transformation and creation of knowledge, and cross boundaries between different schools and fields of expertise. The last and most important part of the curriculum is thesis (master program: 12 credits) or dissertation (doctoral program: 36 credits). Students will develop a topic of interest and be closely supervised, received support and feedback from major advisor and co-advisors.

Faculty of Graduate Studies (FGS) is one of the program support unit. FGS directs and assists programs in supervising, coordinating and supporting the graduate programs of Mahidol University to ensure high standards and quality through many academic activities such as soft skill training courses, extracurricular activities, and scholarship. FGS offers soft skill training courses on standard professional and personal skills for graduate students. These training courses are available both online and in actual classroom. The courses aim to develop students' four skills, which are language and communication skills, leadership and management skills, research skills, and information technology skills. FGS also offers extracurricular activities for students e.g. international night, cultural activities, field trip, and sports events. Additionally, students can apply for FGS scholarship to attend international conferences, which is great for their academic experiences (Faculty of Graduate Studies, Mahidol University, 2018).

3. Educational leaders with a global perspective

The prominent outcomes of the programs, both Doctor of Education Program and Master of Education Program in Educational Management (International Program), bring about the changes in various dimensions. The programs feature great curricula leading most graduates be ready to confront with the foreseeable transformation. Both practical management concept and active research influence their current and future careers to become beyond. The major accomplishment of the programs is divided into 3 categories, academic skills, career skills, and personalities.

Due to the courses provided to the graduate students, their academic skills have been enhanced. The theoretical lessons strengthen their scope of becoming sophisticated scholars, who are capable of applying educational theories and knowledge of educational management into their own socio-cultural conditions. Since most students are international students, this diverse environment provides them a precious experience of sharing knowledge and cultural contexts. With this opportunity, the students would graduate with high level of analytical thinking since they have learnt from different cultural aspects extending their experience used to apply into each own culture. Therefore, this needs analytical skill that they have a great prospect to enhance during studying in diverse context. Moreover, being an elite in educational management, the course broadens students' knowledge of pedagogy and leadership meaning that they will comprehend about schooling and enhance an appreciation of external forces such as politics, economy, and society, which influence the educational leaders' decision making. For a provision of excursion or field trips both in the country and abroad, the lessons learned from the excursions prepare students to lead and manage educational institutions in a dynamic and evolving environment since their perspective in various kinds of education have been broadened. The valuable experiences from visiting other learning sources or institutes provoke them to be leaders in reshaping the education system and contributing to enhancement of other dimensions related to teachers and students' wellbeing. Additionally, real-world activities like being volunteers and conducting a research contribute students to develop their academic skills especially creativity and critical thinking. To indicate the advantages of real world activities, students' vision of conducting a research will be articulated with participating in community or any other educational institute. They are able to create accurate research problems, which have a potential to help develop people's quality of life particularly in education aspects. As mentioned about the research based learning, they are capable of applying knowledge and experience of systematic literature review, which contribute to effective change and analysis as a fundamental for strategy changes in order to keep up with unpredictable changes in the world of education. With the assistance of the variety of researcher methodologies instructed in the course, students can select the most appropriate research methods by analyzing the comparable strengths and weaknesses of particular method to be utilized in the research study. As students have improved their creativity through this course, they can establish the implementation of programs and services to create a collaboration with community members and develop students population in their own countries. Moreover, to present their academic creativeness, the students graduating from these programs can demonstrate expertise in establishing safe and effective school environment to promote students' quality of learning. Being prepared to become sophisticated leaders, students illustrate a theoretical understanding of leadership to develop their own ability and bring about the positive changes tin the future.

Apart from the academic skills mentioned above, the students graduating from these programs have represented career skills prominently. First of all, due to multicultural class, they would have an ability to accept and learn from differences. Irrespective of nationality, all students constantly learn from others

and open to new information provided in the class. These new shared knowledge would extend their horizon. From this point of view, they can survive in certain career position since they are open-minded to experience diverse situations by learning, training, and accepting criticism. Another substantial career skill students have been promoted by the programs is ability to plan and prioritize work. Since the courses teach them to be effective managers, they have become good time managers as the deadline never causes sorrow and stress. Time management skill is a significant key to achieve career goal so that the students from these programs have a good sense of work gauge to allocate the time needed to accomplish the given task. Additionally, one of the major subjects students must complete in these courses is leadership in education, therefore; they have been improve their leadership skill that plays a key role in a career path. For basic elements of successful leadership practices, they are capable of setting directions, developing people, and transforming organizations. These 3 functions reflect their readiness to be effective leaders in this rapidly changing world. Also, ability to make decisions and solve problems is involved in leadership skill. Working with a large number of people from different background is something a good leader must keep up with meaning that making decision requires high skill in analyzing personal needs, which sound a difficult task for a leader to make it done at once. Hence, graduating from the programs would provide students with the opportunity to practice decision making and problem solving via organizing academic seminars and conferences. Also, working in team needs communicative and interpersonal skills that they have been trained during attending the programs. They have developed the ability to build relationships with ones in many situations. To achieve the goal, communicative skill represents a crucial key to run the institute smoothly without serious troubles. The students from Educational Management International Program, Mahidol University, come up with high competency of communicative skill because of frequently participating in educational events. Furthermore, most students who have passed the hard time conducting a research would enhance their analytical skill. Through the process of conducting a research, they can analyze and answer the problem especially in education field very quickly since they have experienced a great deal of information during research such as theories learnt from reviewing the literature, collecting data, analyzing data, and reporting research results. The lesson learnt socializes them to be analytical that is very substantial for career.

Being socialized in the institute, the students of Educational Management International Program share their identities and personalities with one another. First of all, they know exactly what they want to be or they want to go meaning that they are confident to stay strong in the certain position. They have studied in multicultural class that encourages them to accept themselves as professional because they have been provided with the prospect to exchange ideas and experiences with diverse people from different backgrounds and countries. Therefore, the first eminent personality of the students here is being self-aware. Another personality that helps them successful in a career path is being resourceful. The best leader with wide perspective should be resourceful and open to new ideas. To walk with the modern world, it is inevitable that an effective educational leader must implement advanced technology into the organization and never say no to technological gadgets. As an educator, the students graduating from these programs get used to many kinds of technology. This point of view can promote the way to access the information that aids people absorb and retain information. Apart from the personalities mentioned above, our graduates have been nurtured to be continual learners. Every step they take, they might be curious because the course lecturers sometimes combine question-based learning. Consequently, it leads the students to be a felony learner. Be open to listening to the ideas of those around them is a sign of good continual learners. Most

graduates never stop discovering whatever they want to know. Most of them enroll another course relate to education such as teacher training program. 21 century educational leaders must have an ability to trust and empower others. These are significant traits of active leaders. The graduates have learnt how to trust and empower others through voluntary activities.

To sum up, there are 3 perspectives of accomplishment of the students in Educational Management International program, academic skills, career skills, and personalities. In the aspect of academic skills, the graduates have become sophisticated scholars, analytical thinkers, education leaders, creative and critical thinkers, and effective researchers. In terms of career skills, the graduates can accept and learn from differences, have prioritizing skill, leadership skill including ability to make decisions and solve problems, communicative skill, interpersonal skill, and analytical skill. The last perspective of program accomplishment is personalities. After graduating from the programs, the students have become self-aware, resourceful, continual learners, able to trust and empower.

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An Overview towards Development of Geography Education Curriculum in Indonesia: A Comparative Study across Asia and ASEAN via TWINCLE Program

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Abstract: Indonesia has two mechanisms of education, public schools and Islamic or Catholic schools. Both schools have differences, public schools apply the national curriculum to their everyday practices, while Islamic schools or Catholic schools generally apply the national curriculum with an additional amount of credit to learn more about religion. The curriculum serves as a study guide for the implementation of education in Indonesia. The curriculum applied in Indonesia is undergoing various improvements starting from the curriculum of 1947 to the present time applying the 2015 curriculum. To support it, Indonesia is equipped with teachers with bachelor or higher education. Faculty of Geography, Universitas Gadjah Mada (UGM) as one of the TWINCLE consortium member in Indonesia has involved simultaneously in international cooperation program to improve the quality of learning both for teacher as well as student. The program provides different experiences from both teachers to and from Japan to Indonesia, and communicates directly with Indonesian student and teacher. TWINCLE program is expected to expand the development of learning materials, given the examples of high school student research that is done diversely.

Key Words: Teacher, Curriculum, Yogyakarta, Education system, Higher education

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1. Introduction

1.1. Education System in Indonesia

Based upon International Bureau of Education, UNESCO, there are two classified education systems running in Indonesia. The Figure 1 indicated that education system in Indonesia followed two mechanisms, such as public school and Islamic school. The public school implement national curriculum for its daily practices, while the Islamic school or Catholic school generally implement national curriculum with additional amount of credit to learn more about religion. Children at very young age, may enter Kindergarten since 2 – 3 years old, as pre-school students, and formally starts Elementary at about 7 years old. Pre-school and early year of Elementary school normally spend 3 – 5 hours of learning program per day and have 5 working days so far. Spending 6 years of elementary school, students normally starts to gain more learning program per day, up to 6-7 hours per day in 5 working days. Additional extra activity such as boy-girls scout, athletics, and many other activities are generally included in 5 working days. Students in Indonesia should learn basic education for 9 years, comprises from 6 years of elementary and 3 years of junior high school.

School age	Higher Education	Islamic S3 Program	S3 Program	Specialist 2 Program			
		Islamic S2 Program	S2 Program	Specialist 1 Program			
		Islamic S1 Program	S1 Program	D4 Program	D3 Program	D2 Program	D1 Program
	Middle Education	Islamic Sen. Sec. School	Senior General Sec. School				Senior Vocational Sec. School
		Islamic Jun. Sec. School	Junior Sec. School				
	Basic Education	Islamic Elementary School	Elementary School				
		Islamic Pre school	Kindergarten				
	22						
	21						
20							
19							
18							
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7							
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5							

Figure 1. Education System in Indonesia

Completing 9 years of basic education, students in Indonesia urges to follow senior high school program for another 3 years round. This program lasts proximately 7 – 8 hours learning activity per day for 5 weekdays. In here, there are three types of senior high school, such as public school, Islamic school, and senior vocational school. Senior high school students are exposed to many elaborated learning materials, which helps them in preparation of entering higher education system.

1.2. Education System Curriculum in Indonesia

Indonesia had been very much dynamic in terms of its education system. According to its roadmap, there are nearly four curriculums system ever established with several revision and addition in terms of its content (Figure 2).

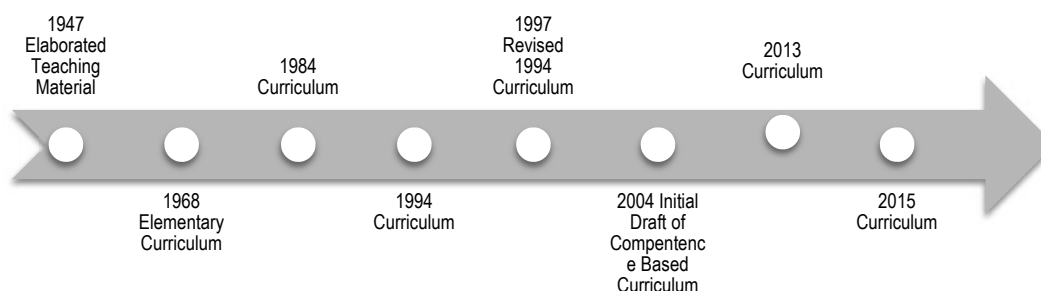


Figure 2. Roadmap of Education Curriculum in Indonesia

Fundamentally, education system in Indonesia is based upon National Constitution Year 1945. It mentioned that the government should carry out national education system in order to increase human resource quality. At very early of its development, the main objective of elaborated teaching material (1947) was rather political. It was only 2 years after independence of Republic Indonesia from Dutch colonies henceforth the education system was rather remained unstructured. The implementation of 1947 curriculum took sometimes, until 1950 whereas education system aimed at character development of Indonesian human resources with full independence, sovereign, and equal to other nations across the

globe. During the establishment of this curriculum, most schools emphasized upon nationalities, law and regulation and civic society empowerment for better national future. Universitas Gadjah Mada, established 19th December 1949, was among one of the eldest university ever established during this period in Indonesia together with University of Indonesia and Institute Technology Bandung. Located in Yogyakarta Special Province and initiated by one of the most influential role model in Education, the late Sultan of Yogyakarta (Hamengkubuwono IX), UGM has been very much taking role either in national politics and civic society empowerment up to now.

After nearly a decade, curriculum development for education system in Indonesia was getting more structured. There are five important elements to integrate within education curriculum, such as moral, intelligence, emotional, artistic/aesthetic, and skills. The 1964 Curriculum was established during Orde Lama, the national terms for Indonesian political era. During Orde Baru, which was 1968 onwards, the national education curriculum was more directed into more theoretical basis, which left out some of the original facts findings, and focused upon intelligence and skills. The notion of this curriculum was actually teacher centered learning (TCL), as it pointed out students as mere object within learning process. The education system framed in a management by target, to generate more educated human resources in Indonesia (Figure 3).

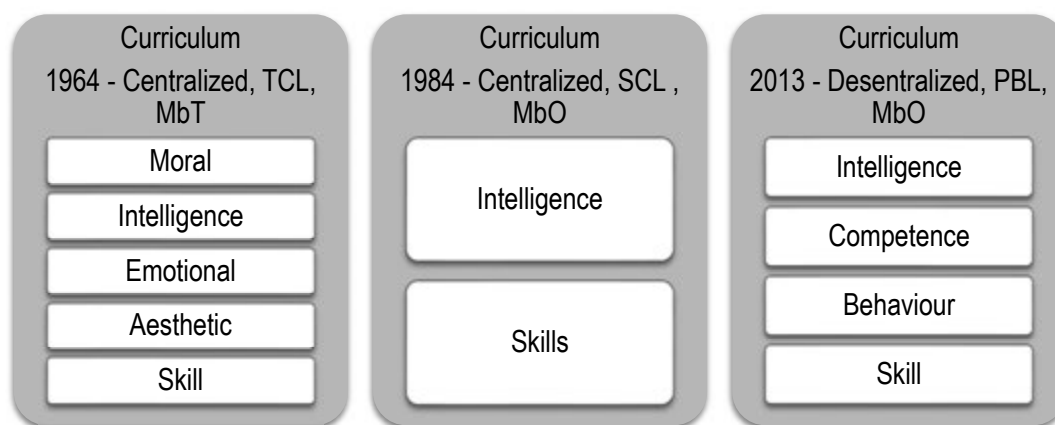


Figure 3. Element of Education System in Indonesia

The national program on “Compulsory Basic Education for 6 Year” was launched at May 2nd 1984. It marked significant change upon education system in Indonesia. All children at 6 – 12 years old are obligatory to attend basic education, with national budget to cover, which means all Indonesian citizens are supported to gain education. Having more elaborated curriculum, the 1975 and 1984 system emphasized several education alternatives, such as management by objective (MBO) and student centered learning (SCL). The management by objective indicated more detailed instructional method, system, and discussion into a syllabus for one particular subjects. Scholar believes SCL transferred more knowledge, as well as increase student involvement within learning process. In most cases, students are having hard time to digest materials, which delivered only by the teacher. Therefore, SCL, made possible for student to not only rely upon teacher as main source of information, they should also learn to find facts in their surrounding with various impetus from the teacher. In here, teachers generally exhausted since learning materials should also prepared in advance for so many students activities.

As it dynamically shifted, the national education curriculum indicated several added elements, while some others were gone. According to 1997 competence based curriculum, the national government set a

combination of previous curriculum. Unfortunately, this was too much for education system. Students get additional local content within its curricula, and it was too much for any level of education to handle. It emphasized upon three important aspects, such as competence selection, evaluation and alternative development strategies. The Act No 20/2003 on Secondary Education System highlighted three important aspects, such as universal, comprehensive, and proactive. The universal concept allows education system to have openness, transparency, integration, and coordinated. Whilst, comprehensive and proactive geared to drive education system into more flexibility in answering recent topics, phenomena and many other dynamic global issues arisen. It was also on the same era, whereas, national education system then implement the competence based education system in 2003. In senior high school, students were able to focus either one of which, such as natural science, social science and linguistics. In 2006, the national government added up some national policy (Decree of Ministry of National Education No 23/2006) to decentralized curriculum development in each of region across Indonesia and divide competence of each course content. The main idea was to provide balance between students enrolled in Java Island and those living outside Java Island. The students variability across Indonesia are heterogeneous, therefore, for some reason, some adjustment need to be taken into account.

Nearly a decade after Indonesian political turmoil back in 1998, whereas political direction was changed, the national education system gained more attention via national budget. It was in 2009, the national program on “Compulsory 9 Years Education” released. Logically, the national government increase its budget to support all Indonesian citizens aged 7 – 16 to gain basic and junior high school. Recently, education system in Indonesia could no longer alienate from global interaction. Hence, most of the content of learning materials should adopt update version of global concepts, and able to implement problems. The problem based learning (PBL) get more allocated hours within learning program, to enable students elaborate their surrounding even more intensively.

According to its function, the curriculum becomes a learning guide that has a purpose, content, and systematic learning materials (Prihantoro, 2015). This should be implemented by teachers in order to achieve educational goals (Suyanto, 2017). In its implementation, the 2013 curriculum has several sections, including plans, implementation and evaluation. In the plan, teachers undertake daily planning in accordance with the 2013 curriculum, develop a learning plan and conduct intergroup discussions. Then the next will be implemented in the learning activities are varied according to classroom conditions. And the teacher must perform tests through daily tests, midterms, and final exams (Gunawan, 2017).

Institutionally, basic education system, junior and senior secondary education system are managed under authority of Ministry of National Education. Meanwhile, since 2014, higher education system is shifted under authority of Ministry of Research, Technology and Higher Education. The cabinet of new presidential separate education system since higher education likely bears more responsibility such as research as well as community development. Law No 12 Year 2012 verse 35 aforementioned each higher education institution should develop that higher education curriculum using National Standard of Higher Education (Decree of Ministry of Research and Higher Education No 44/2015) as main guideline system.

Firmly, the higher education system in Indonesia generates four types of graduates, such as academic graduates, vocational graduates, professional graduates, and specialist graduates. In more specific, teachers are generally academic graduates from pedagogic institution or pedagogic higher education. Professional teacher generally equipped with academic degree and professional certificate, which may be obtained via regular certificate as teacher and professional certificate as teacher.

2. Research Context

Ministry of Research and Higher Education, 2015 cited total number of public higher education institution was 122, while for private higher education was 3,124. Among these numbers, small numbers of the higher education generates teachers for Geography. The following are some statistical fact finding related to teachers in Indonesia.

Table 1. Education background of teacher in Indonesia

Nr	Teacher	Bachelor or higher (%)	Bachelor or lower (%)
1	Kindergarten	47.71	52.29
2	Special school (impaired students, disabled, disorder, etc.)	13.01	86.99
3	Elementary school	15.79	84.21
4	Junior high school	7.89	92.11
5	High school	3.12	96.88
6	Vocational high school	6.04	93.96

Source: Ministry of Education and Culture, 2016

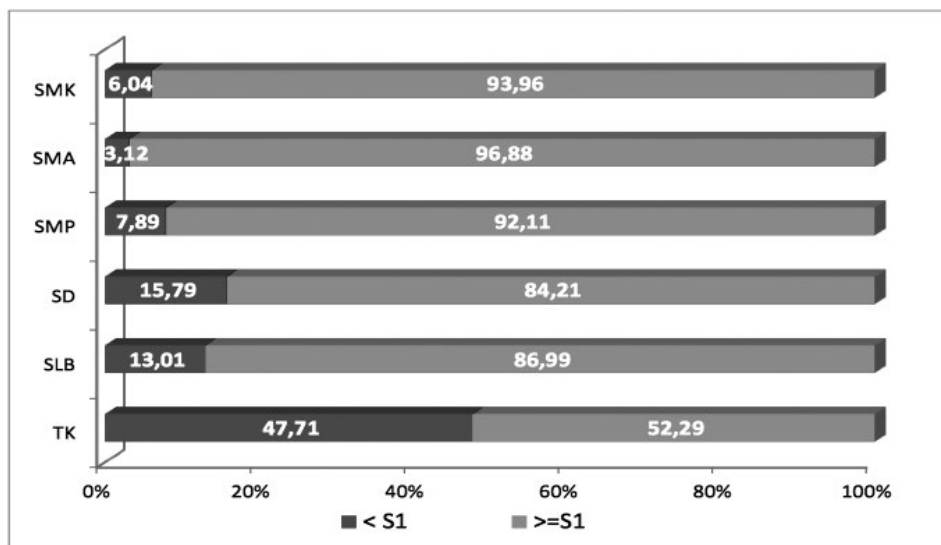


Figure 4. Education background of teacher in Indonesia

Table 1 and Figure 4 indicate that teacher background is predominantly bachelor (S1) especially for kindergarten schoolteacher, special schoolteacher and elementary schoolteacher. Meanwhile, those schoolteachers for junior high school, high school and vocational school has been exposed quite a lot with bachelor and master program as their education background. Highlighting this fact finding, this research intends to elaborate any to develop alternative teacher education curriculum via a joint program under TWINCLE Program especially for kindergarten, special school and elementary school teacher.

Several benefits are expected as the result of this program i.e. enhancement of scientific studies for students of primary and secondary schools as well as universities in ASEAN countries, give ASEAN students a chance to touch the cutting-edge science and technology of Chiba University, promote

cooperative programs between ASEAN and Japanese universities through TWINCLE, deploy more Chiba Universities' students to ASEAN universities and more importantly promote mutual understanding of cultural issues between ASEAN and Japan.

Twin College Envoys Program (TWINCLE) Program aims bachelor and graduate students to acquire international abilities through activities in Japan and ASEAN. The TWINCLE is a program to empower teachers who have global ability and vision and researchers who have a global mind under a consortium chaired by the Chiba University. The program aims to gather at least 15 universities in six participating countries, in order to develop activities, which pairs up graduate students skilled in educational research with those striving for cutting edge practical scientific research, and trains highly skilled individuals. There are five universities in Indonesia participates in this program, such as Institute Teknologi Bandung (ITB), Institute Pertanian Bogor (IPB), Universitas Indonesia (UI), Universitas Gadjah Mada (UGM) and Universitas Udayana.

TWINCLE Program has finished Phase 1, and has continued to Phase 2 from 2017. Taking university as main hub in each member countries is an essential strategy to invite more involvement from teachers from kindergarten to high school level. Only few of basic education institution has ever expanded their network into international level, unless those private institution.

3. Result and Discussion

3.1. Exchange learning material

Existing activities under TWINCLE program has been very extensive especially in UGM. Technically, the program was aim to bring international experience closer to either teacher to-be from Japan to Indonesia, and directly communicate with Indonesian students and teachers. There are two high school affiliated with UGM, which enable this program to run. At annual meeting, there are representatives from high school, either teacher or principal whom are invited to visit Japan with various sharing experience.

3.2. General advantage of TWINCLE Program

The partnership between Chiba University and UGM has long been strengthened to the series of collaboration. On 22 February 2017, Chiba University has brought their delegation visiting Universitas Gadjah Mada to organize their TWINCLE Program. UGM, represented by Director of Partnership and Head of International Office (Dr. Hizbaron) and some faculty members, attended the event annually of the program between UGM and Chiba University particularly opening ceremony of TWINCLE program.

In general, TWINCLE program supports bachelor and graduated students to acquire international abilities through activities in Japan and ASEAN. Currently there has been some implementation of TWINCLE Program at Faculty of Geography UGM which is basically the teaching experiments done by Chiba's student at senior high school in Indonesia. During this experiment, Chiba's student is accompanied by UGM student whom have visited Chiba for preparing the methodology of education. Dr. Hizbaron proposed more UGM's students to be further involved in this program by joining exchange program to Japan to get broaden knowledge and experiences (Figure 5). Besides that, to plan for hundreds of years into the future, it is best to bring up talented people.



Figure 5. Further prominent activities carried out within TWINCLE Program

After being visited by UGM's students in October 2016 for TWINCLE program, Chiba University's students then come to Yogyakarta, Indonesia. They stay for two weeks in Yogyakarta. Two groups (H and I) consist of ten students stay from 20 February until 3 March 2017. Students of Chiba University whose majors are education and other subjects respectively visit senior high schools in Yogyakarta. Two senior high schools are visited in this year, SMA N 3 and SMA N 6 Yogyakarta city. They provide Indonesian students with knowledge and experiments regarding cutting-edge science-technology and Japanese culture, it was based on their research. Unit H talk about mechanism and science explanation behind soap making and how to create soap from flower lipid. Another group, unit I presents solar cells making from coffee (dye sensitized solar cells) and to make students understand the mechanism of solar cells and also inspire student to use sustainable energy. In the final presentation, students from SMA N 3 Yogyakarta city also presented their school projects, i.e. mosquito propagate invention.

It was not easy at first because it was their first time to teach foreign student in English, but at the end all of senior high school students are so excited. This program not only enriches their knowledge but also broaden their perspective. At the weekend, Chiba University students also got an opportunity to travel around Yogyakarta City. Accompanied by Universitas Gadjah Mada students, they visit some famous tourist attractions, museum, world heritage sites, and also natural sites such as Museum of Ullen Sentalu, Malioboro, Prambanan and Borobudur temple, Sikunir Peak Dieng Central Java, and also Kalibiru. Furthermore, the students also had an opportunity to do some batik craft making in Batik Winotosastro.

3.3. Proposed teacher curriculum development on higher education

3.3.1. National Olympics for Geography (OLGENAS)

Faculty of Geography has initiated to conduct annual National Olympics for Geography (OLGENAS). The main objective of the event is actually to bridge gap between higher education curricula with high school curricula on geography subject. OLGENAS is the one and only scientific Olympics in Geography since 2006. Students from junior high and senior high compete for 5 days in various topics and sub events in the faculty as well as in the field. In 2018, it's already the 13th OLGENAS which successfully organize by Faculty of Geography. This series of high school Olympic competition includes written tests

conducted in groups, outdoor learning or field activities oriented to introduce various landscapes in the area of Yogyakarta, multimedia examination, laboratory tests, as well as presentation of scientific essays and posters. In organizing the competition, OLGENAS is oriented towards improving students competency competitiveness covering cognitive, psychomotor, and affective aspects as a benchmark of successful learning in which each student is trained to deal with any challenge in the future.

Various topics and sub events in OLGENAS not only addressed to the students, but also for the teacher who accompanied them from each school. There are several events for the teacher i.e. one day seminar, workshop related to competencies development and talk show. In addition, there is Geography Exhibition which presents research centers in UGM as well as agencies or communities related to tourism and the creative economy. The exhibition purpose is to provide information on tourism and broaden views related to efforts to preserve a tourist spot and increase economic growth in Indonesia.

3.3.2. Conceptualization of research since the early stage

Cooperation among institutions related to teacher education in the field of Geography to improve learning materials conducted in kindergarten, special needs school and elementary school. Considering that, the background of kindergarten teachers, special needs school and primary school dominated at undergraduate level, it needs a lot of support, one of them by providing stimulation activities both at non degree and degree level.

The geography of science is very complex and detailed, so at the kindergarten level, special needs school and elementary school, these subjects are still part of another subject. Therefore, the development of more concrete learning materials is needed, such as laboratory experiments, providing examples of product forms and understanding them directly in the field as an easier form of delivery for students.

Through the implementation of the TWINCLE program, it is expected to expand the development of learning materials, given the example of high school student research conducted are varied. It is expected to develop understanding and interest in natural and social science as early as possible to kindergarten; special needs school and elementary teachers. This interest can be implemented in early independent research, as applied in Japan. This will help the young generation of Indonesia to adapt well when entering the higher education level. Higher education highly prioritizes the implementation efforts in the classroom. Therefore, interest in research can come as early as possible.

The segregation of understanding of each curriculum at the level of secondary education and higher education, it is necessary deepening of the curriculum for students at low levels. It functions to get not only moral, intelligence, emotional, aesthetic and skill, but also competence in the preferred field.

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Teacher Education System in the Philippines and Pangasinan State University

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Abstract: Pre-service Teacher Education Curriculum is one of the most important aspects of every Teacher Education Program as it prepares 'practice teachers' to become licensed professional teachers after graduation. This article presents an overview of the pre-service teacher training system in the Philippines vis-à-vis Pangasinan State University (PSU) particularly on the following aspects, as provided by law: 1) requirements and the curriculum to get teacher license; 2) teaching practice; and 3) indicators for developing/beginning teachers. In addition, it also discusses the characteristic points or the best practices of PSU's teacher education system. Tables as well as shortlist of best practices have been presented for ease of understanding. It can be concluded that there were curricular changes made from the old CHED Memorandum Order (CMO) 30 series of 2004 to the new CMOs 74, 75, & 76 series of 2017. These changes and adjustments have been made in response to Department of Education (DepEd) K to 12 curriculum. The new curricula are aligned to the Philippine Professional Standards for Teachers (PPST) as well as to the Commission on Higher Education's (CHED's) Policies, Standards, and Guidelines (PSGs) to ensure quality education.

Key Words: Pre-service teacher education curriculum, Teacher license, Philippine Professional Standards for Teachers, CHED Memo Orders, Pangasinan State University

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1. Introduction

The Teacher Education Curriculum (TEC) in the Philippines requires all pre-service teacher education students to finish required number of units for General Education and Professional Education courses, Specialization/Major, Elective, Mandated/Compulsory courses, and for some institutions additional/enhancement course/s to qualify for graduation. On the other hand, graduates of non-education degrees shall take 18 units of professional education courses (Field Study and Practice Teaching) to qualify for the Licensure Examination for Teachers. This is in compliance with the Republic Act 7836 (The LET Law) and with Article II of CHED Memorandum Order (CMO) 30 series of 2004. Some changes/adjustments have been made to the new teacher education curriculum as mandated by CMOs 74, 75, and 76 series of 2017. Such adjustments are in consonance with the offering of the K to 12 curriculum by the Department of Education (DepEd). Some courses were already offered in senior high school while few other courses were subsumed in other subjects to reduce the number of units required. This reduction of units does not shortchange the students though. Thorough planning has been made to make sure that pre-service TEC students experience the teaching-learning process in a well-crafted curriculum, seamlessly. Metaphorically, the Teacher Education Institution (TEI) is like a cook who meticulously prepares a sumptuous menu (the

curriculum) for her customers (the students). If this sumptuous menu is well-digested by the customers, then it will transcend to the future generation benefiting them as well. Below, are topics that will elaborate this metaphor.

2. National Government Level in the Philippines

(i) Requirements to get teacher license provided by law

These are given in Tables 1, 2, 3 and 4. In compliance with the Republic Act 7836 (The LET Law) and with Article II of CMO 30 series of 2004, graduates of non-education degrees shall take 18 units of professional education courses (Field Study and Practice Teaching) to qualify for the Licensure Examination for Teachers.

Table 1. Old Teacher Education Curriculum.

	BEEd	BSEd
General Education Courses	63	63
Professional Education Courses	54	51
• Theory/Concept Courses	12	12
• Methods/Strategies Courses	27	24
• Field Study Courses	12	12
• Special Topics Courses	3	3
Specialization/Content Courses	57	60
TOTAL UNITS	174 units	174 units

Based from CHED Memo Order (CMO) 30 s. 2004

Table 2. New curriculum of Bachelor of Elementary Education (BEEd) students.

Courses	Units
General Education Courses	36 units
Professional Education Courses	42 units
Major Courses	57 units
Elective	3 units
Mandated Courses (PE and NSTP)	14 units
TOTAL	152 units

Based from CMO 74 s. 2017

Table 3. New curriculum of Bachelor of Secondary Education (BSEd) students.

Courses	SPECIALIZATION					
	English	Filipino	Mathematics	Science	Social Science	Values Educ.
General Education Courses	36 units	36 units	36 units	36 units	36 units	36 units
Professional Education Courses	42 units	42 units	42 units	42 units	42 units	42 units
Major Courses	63 units	60 units	63 units	73 units	63 units	63 units
Elective	6 units	6 units		14 units	6 units	
Mandated Courses (PE and NSTP)	14 units	14 units			14 units	
Physical Education 1-4			8 units			8 units
NSTP 1 & 2			6 units			6 units
TOTAL NUMBER OF UNITS	161	158	155	165	161	155

Based from CMO 75 s. 2017

Table 4. New curriculum of Bachelor of Early Child Education (BECEd) students.

Courses	Units
General Education Courses	36 units
Professional Education Courses	42 units
Special Topics	3 units
Specialization Courses	63 units
Mandated Courses (PE and NSTP)	14 units
TOTAL	158 units

Based from CMO 76 s. 2017

(ii) Teaching practice provided by law (Based from CMO 75 s. 2017)

Field Study courses and Teaching Internship are offered during the teacher education students' 4th and last year in college, as shown in Table 5.

Table 5. Courses offered to Teacher Education students on their last year.

FOURTH YEAR			
1 st Semester	Units	2 nd Semester	Units
Field Study 1	3	Teaching Internship	6
Field Study 2	3		
Total	6	Total	6

(iii) Indicators for developing teachers provided by law

These are shown in Table 6.

Table 6. Philippine Professional Standards for Teachers: Beginning Teacher Indicators (BTIs)

Domain 1: Content Knowledge and Pedagogy	Domain 2: Learning Environment	Domain 3: Diversity of Learners	Domain 4: Curriculum and Planning	Domain 5: Assessment and Reporting	Domain 6: Community Linkages and Professional Engagement	Domain 7: Personal Growth and Professional Development
1.1.1 Demonstrate content knowledge and its application within and/or across curriculum teaching areas.	2.1.1 Demonstrate knowledge of policies, guidelines and procedures that provide safe and secure learning environments.	3.1.1 Demonstrate knowledge and understanding of differentiated teaching to suit the learners' gender, needs, strengths, interests and experiences.	4.1.1 Prepare developmentally sequenced teaching and learning process to meet curriculum requirements.	5.1.1 Demonstrate knowledge of the design, selection, organization and use of diagnostic, formative and summative assessment strategies consistent with curriculum requirements.	6.1.1 Demonstrate an understanding of knowledge of learning environments that are responsive to community contexts.	7.1.1 Articulate a personal philosophy of teaching that is learner-centered.
1.2.1 Demonstrate an understanding of research-based knowledge and principles of teaching and learning.	2.2.1 Demonstrate understanding of learning environments that promote fairness, respect and care to encourage learning.	3.2.1 Implement teaching strategies that are responsive to the learners' linguistic, cultural, socio-economic and religious backgrounds.	4.2.1 Identify learning outcomes that are aligned with learning competencies.	5.2.1 Demonstrate knowledge of monitoring and evaluation of learner progress and achievement using learner attainment data.	6.2.1 Seek advice concerning strategies that build relationships with parents/guardians and the wider community.	7.2.1 Demonstrate behaviors that uphold the dignity of teaching as a profession by exhibiting qualities such as caring attitude, respect and integrity.
1.3.1 Show skills in the positive use of ICT to facilitate the	2.3.1 Demonstrate knowledge of managing classroom	3.3.1 Use strategies responsive to learners with disabilities,	4.3.1 Demonstrate knowledge in the implementation of relevant and	5.3.1 Demonstrate knowledge of providing timely,	6.3.1 Demonstrate awareness of existing laws and regulations that	7.3.1 Seek opportunities to establish professional

Domain 1: Content Knowledge and Pedagogy	Domain 2: Learning Environment	Domain 3: Diversity of Learners	Domain 4: Curriculum and Planning	Domain 5: Assessment and Reporting	Domain 6: Community Linkages and Professional Engagement	Domain 7: Personal Growth and Professional Development
teaching and learning process.	structure that engages learners, individually or in groups, in meaningful exploration, discovery and hands-on activities within the available physical learning environments.	giftedness and talents.	responsive learning programs.	accurate and constructive feedback to improve learner performance.	apply to the teaching profession, and become familiar with the responsibilities specified in the <i>Code of Ethics for Professional Teachers</i> .	links with colleagues.
1.4.1 Demonstrate knowledge of teaching strategies that promote literacy and numeracy skills.	2.4.1 Demonstrate understanding of supportive learning environments that nurture and inspire learner participation.	3.4.1 Demonstrate understanding of the special educational needs of learners in difficult circumstances, including: geographic isolation; chronic illness; displacement due to armed conflict, urban resettlement or disasters; child abuse and child labor practices.	4.4.1 Seek advice concerning strategies that can enrich teaching practice.	5.4.1 Demonstrate familiarity with a range of strategies for communicating learner needs, progress and achievement.	6.4.1 Demonstrate knowledge and understanding of school policies and procedures to foster harmonious relationship with the wider school community.	7.4.1 Demonstrate an understanding of how professional reflection and learning can be used to improve practice.
1.5.1 Apply teaching strategies that develop critical and creative	2.5.1 Demonstrate knowledge of learning environments	3.5.1 Demonstrate knowledge of teaching strategies that are inclusive of	4.5.1 Show skills in the selection, development and use of a variety	5.5.1 Demonstrate an understanding of the role of		7.5.1 Demonstrate motivation to realize professional

Domain 1: Content Knowledge and Pedagogy	Domain 2: Learning Environment	Domain 3: Diversity of Learners	Domain 4: Curriculum and Planning	Domain 5: Assessment and Reporting	Domain 6: Community Linkages and Professional Engagement	Domain 7: Personal Growth and Professional Development
thinking, and/or other higher-order thinking skills.	that motivate learners to work productively by assuming responsibility for their own learning.	learners from indigenous groups.	of teaching and learning resources, including ICT, to address learning goals.	assessment data as feedback in teaching and learning practices and programs.		development goals based on the Philippine Professional Standards for Teachers.
1.6.1 Use Mother Tongue, Filipino and English to facilitate teaching and learning.	2.6.1 Demonstrate knowledge of positive and non-violent discipline in the management of learner behavior.					
1.7.1 Demonstrate an understanding of the range of verbal and non-verbal classroom communication strategies that support learner understanding, participation, engagement and achievement.						

3. University level at Pangasinan State University (PSU)

(i) Requirements and curriculum to get teacher license in PSU

Pangasinan State University (PSU) follows the prescribed minimum requirements and curriculum by the Commission on Higher Education (CHED). PSU-Bayambang Campus, being a Center of Excellence (COE) in Teacher Education, goes beyond the minimum requirements set by CHED by adding 6 units for the Competency-Based Enhancement (CBE) Program. CBE 1 (2 units) is a review and mock Licensure Examination for Teachers (LET) in General Education subjects; CBE 2 (2 units) is for Professional Education subjects; and CBE 3 (2 units) is for Specialization/major subjects. These are all taken by 4th year College of Teacher Education (CTE) students in one semester particularly those who will not yet undergo Practice Teaching.

(ii) Teaching practice in PSU

Six (6) units of Field Study (FS) courses are taken by 4th year BEEd and BSEd students during 1st semester. FS courses are intended to provide students with practical learning experiences in which they can observe, verify, reflect on, and actually experience different components of the teaching-learning processes in actual school settings. The experiences will begin with field observation and gradually intensify until students undertake practice teaching/teaching internship.

Teaching Internship (6 units) is taken by 4th year BEEd and BSEd students during 2nd semester by which they experience to teach in real classroom setting. They have their On-Campus and Off-Campus teaching, too. On top of these, some students may have the opportunity to have their Practice Teaching abroad through the SouthEast Asia (SEA)-Teacher Student Exchange Program or the local *Erasmus Mundus* Student Exchange Program where they can learn from nine (9) other members of the National Network of Normal Schools (3NS).

(iii) Indicators for developing teachers in PSU

Pangasinan State University quality audited its curriculum/syllabi of courses through the Curriculum Quality Audit (CQA) process assisted by the Philippine Normal University-Research Center for Teacher Quality (PNU-RCTQ) and by an external auditor from the University of New England (UNE), Dr. Joy Hardy. Through CQA, the syllabus becomes evidence that may warrant changes in the curriculum. These evidences allow the details of the curriculum to be much more visible and transparent to program heads and regular faculty alike. Decisions on curriculum and courses can easily be double-checked for warrant using evidences produced and compiled within the CQA process. PSU aligned its syllabi of courses to the Beginning/Developing Teacher Indicators as stated in the Philippine Professional Standards for Teachers (PPST) and to that of CHED's Policies, Standards, and Guidelines (PSGs).

(iv) Characteristic points on teacher education system in PSU

PSU, particularly Bayambang Campus being recognized as Center of Excellence (COE) in Teacher Education, sustains the following BEST PRACTICES:

- 1) Commitment to Quality Assurance measures like COE; Certificate of Program Compliance (COPC); International Organization for Standardization (ISO). PSU is the first State University and College (SUC) in the Philippines awarded with multi-campus ISO 9001:2015 certification; Institutional Sustainability Assessment (ISA); Accrediting Agency for Chartered Colleges and Universities in the Philippines (AACUP) Accreditation. PSU Bayambang is awarded with Level IV Reaccredited status which means that its College of Teacher Education (CTE) Programs are comparable to the standards abroad and such programs are functioning, very adequate, and excellently effective; and Investors in People (IiP) award. Another milestone to PSU named as the first State University and College (SUC) IiP Silver Awardee in the country that sets a frontier to build a productive, holistic, and well-rounded SUC with empowered and highly efficient workforce as it successfully integrated in its system the IiP brand of people management. The IiP is an internationally-recognized body with the mission to inspire organizations to bring out the best in its people;
- 2) Participation in 'Erasmus Mundus' student exchange program of the National Network of Normal Schools (3NS). PSU receives as well as sends Practice Teachers/Teacher Interns to our 9 sister normal schools known as Normalites or schools in the Philippines that specializes in training/honing teachers;
- 3) Sending of Practice Teachers to the South East Asia (SEA)-Teacher Program or the international version of the Erasmus Mundus student exchange;
- 4) Giving of Incentives to Board Topnotchers. Top 1-3 receive Php150 000; Top 4-5 receive Php100 000; Top 6-10 receive Php80 000 and a privilege to be hired in the university as an Instructor;
- 5) Demonstration-teaching and research presentation of CTE students in national and international fora;
- 6) Maintaining high employability rate and employability alignment of alumni;
- 7) Having ISO-certified research process flow and other programs/activities;
- 8) Publication of researches in national and international refereed journals;
- 9) Patenting of researches and inventions;
- 10) Establishment of sustainable research centers;
- 11) Providing technical expertise develop programs for Food Technology and education for national and international trainings;
- 12) Having participatory/collaborative approach of research;
- 13) Granting of awards and incentives for researchers (monetary incentive; service credits; and faculty

deloading);

14) Maintaining strong national and international linkages;

15) Practicing well-developed operational planning process in the CTE

Indeed, Pangasinan State University sustains its culture of excellence in instruction, research, extension, and production. Its Teacher Education Curriculum is comparable to global standards worthy of emulation by other institutions.

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Teacher education system in Vietnam and VNU, University of Education

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Abstract: This article aims to explore the teacher education system in Vietnam and presents a case study of VNU – UEd with a new model of teacher education. The study has two folds. First, the study introduces an overview of teacher education in Vietnam including the requirements, curriculum framework, teaching practice and some indicators needed for teacher development. Second, a case study analyzing the new model of teacher education in VNU- UEd with the combined training between universities (partner) that are members of Vietnam National University in Hanoi is thoroughly discussed. The model A+B with two types 3+1 and 4+1 is proposed, the advantages and disadvantages of this new and unique model of teacher education in Vietnam are also mentioned.

Key Words: Teacher education, Teacher education curriculum, Vietnamese teachers, Vietnam National University, University of Education

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1. Introduction

In Vietnam, education has received special attention and is considered one of the top national policies. This is stated in the Constitution of the Socialist Republic of Vietnam ‘Educational development is the top national policy aimed at raising the people's intellectual level, developing human resources and fostering talents’ (Article 61). Thus, teacher education plays a significant role to fulfill this noble objective. Currently, there are two main models in teacher education program, they are consecutive and concurrent (parallel) model. In consecutive model (CsM), after obtaining a Bachelor of Arts (BA) or Bachelor of Science (BSc) degree or equivalent, students study at a faculty of education for one-year (or two-years depending on the university) program to receive their Bachelor of Education (Bed) degree. In concurrent model (CcM), students will study for a BA or BSc degree at a university simultaneously to complete the requirements for a BA which is usually over a four-year period. As a result, in term of the training organization, in the CcM, disciplinary studies and pedagogical studies are integrated and taught at the same time while the CsM focuses mostly on pedagogy following the disciplinary studies which are already completed by university graduates interested to go into teaching. In the past 10 years, Vietnam education has achieved positive results such as increased enrollment, diversification of delivery modes and improved school infrastructure. In addition, Vietnamese students have attained many significant achievements in international competitions such as International Mathematic Olympiad (IMO)¹, Intel international science and technology competition (Intel ISEF)² or in Program for International Student assessment (PISA)³. However, critical comments about the quality of the general education have been raised in mass media. For example, in the recent “National Conference in Education 2017” organized by the Committee on Culture, Education, Youth, and Children on 22th September 2017, Madame Nguyen Thi Nghia, Deputy Minister of Ministry of Education and Training (MOET) claimed that “Although general education has achieved

many positive results, it also revealed some limitations. In particular, the level of attainment of knowledge, skills and attainment of standards for the compulsory education between rural and urban areas, among Kinh children and ethnic minorities is also disparity. Foreign language skills in general and English are limited. [...] There is a part of students showing limited morality, lifestyle, limited ability in cooperation and creativity.”

This paper aims to introduce teacher education system in Vietnam in general and at the University of Education which is a member of Vietnam National University, denoted by the VNU, UEd in particular.

2. National Government Level in Vietnam

2.1. Requirement to get teacher license

Education in Vietnam is arranged on a national level by the MOET. According to the Ministerial decision 1981/QĐ-TTg, issued on 18th October 2016, the education levels and training levels of the national education system include:

- a) Pre-school education includes kindergarten and pre-primary education;
- b) General education includes primary education, lower secondary education and upper secondary education;
- c) Vocational training for elementary, intermediate and college levels;
- d) Higher education offers undergraduate, master and doctoral degrees.

This can be structured in the Figure 1 ⁴:

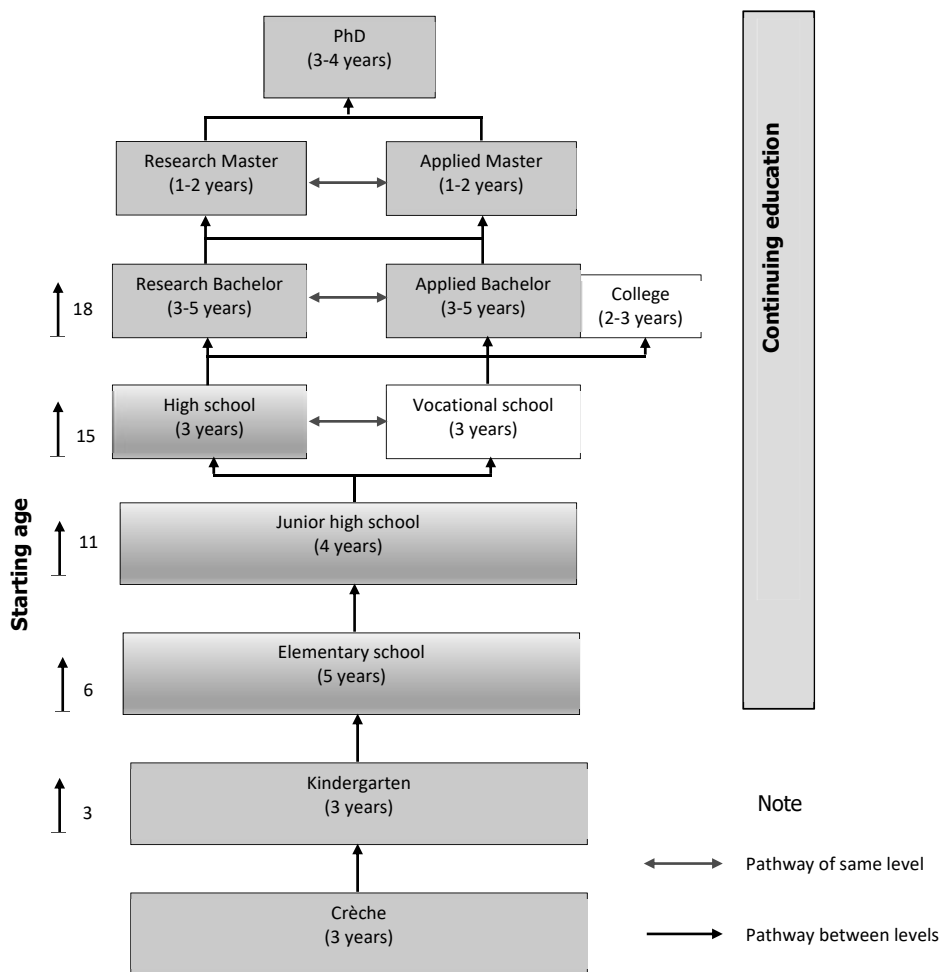


Figure 1. Education system in Vietnam

In Vietnam, teacher education institutions are subjected to state management by the MOET. Students of the institutions are exempt from school fees. Table 1 provides a summary of the types of teacher training institutions currently available at the end of the academic year 2017-2018 ⁵.

Table 1. Number of teacher education institutions (academic year 2017 – 2018).

Type	Supplying Teachers for	Number of credits in the program	Quantity
University of Pedagogy ⁶	Junior and Senior high schools; elementary schools; Kindergartens	120-140 credits	6
Comprehensive university having a teacher training program	Junior and Senior high schools;	120-140 credits	55
VNU, University of Education	Junior and Senior high schools	130-140 credits	1
Teacher Training College	Junior high schools (and some elementary schools)	90-110 credits	29
Comprehensive college having a teacher training program	Junior high schools (and some elementary schools)	90-110 credits	22
Teacher training professional school ⁷	Kindergartens, elementary schools	40-60 credits	2
Vocational school having a teacher training program	Kindergarten, elementary schools	40-60 credits	Unidentifiable

Those teacher education institutions (113 in higher education) are recruiting approximately 55,000 new teachers out of around 216,000 students under training in those institutions⁸. From Table 1, we can draw some remarks:

- Teacher training colleges are under the management of localities, so it is difficult to manage the concentration on enrollment targets.
- The system of teacher education is varied in terms of level (from vocational/professional school to university), and management (from government management like VNU to municipality management like colleges or provincial universities). To standardize staff, the MOET is designing teacher standards; accordingly, a teacher degree is from college level au minimum. The MOET also intends to restructure the network of teacher training institution to limit the teacher training only to some universities.
- The number of teacher education institutions has also considerably increased over the past years. Comparing to the past, in 1980s, there were 45 schools for training elementary school teachers; 44 colleges

for training junior school teachers; 10 universities for training senior high school teachers⁹. Due to the noticeable increase (from 99 institutions in years 1980 to about 150 institutions in 2017) and to the un-unified and incoherent management, inadequate planning of admission policies from cities and provinces teacher training institutions with diverse form of training including both formal and non-formal school, short-term and long-term, the redundant and shortage occur in different level of education. For instance, in 2017 there are 21,005 teachers at junior school in redundant and 32,641 teachers at kindergarten in shortage¹⁰.

Table 2 provides information about degree standard regarding teacher at diverse levels of education¹¹.

Table 2. Teacher Training Systems by Level of Education.

Level \ Training System	Standard	Above Standard
Pre-elementary	Vocational/Professional school	College, university
Elementary school	Vocational/Professional school	College, university
Junior high school	College	University
High school	University	Master

The National Assembly has passed the amending and supplementing articles of Education law in which the minimum required degree for elementary and junior school teacher is college degree. The content of training at teacher training institutions is approved by the MOET. Teacher training institution curricula are generally followed by the 28/2006/QĐ-BGDĐT Ministerial decision issued by the MOET on 28/06/2006. The program has 210 teaching units (about 140 credits; 1,5 teaching unit = 1 credits) not including Physical education (5 teaching units) and Military Education (165 periods). Gradually, universities have changed their yearly training curricula to credit-based training with around 120-140 credits per program.

According to this decision, the content can be classified into two groups of subjects as shown in Table 3:

Table 3. General content of teacher training curriculum.

I. General education knowledge (not including Physical education and Military education)	80 teaching units (TU)
There are 19 modules in this part. For example, modules in Mathematics Teacher training curriculum include: Marxism – Leninism, Ho Chi Minh Ideology, Philosophy, Vietnam communist party history, Ho Chi Minh ideology, Foreign language, Informatic, Psychology.	
II. Minimum education professional knowledge	130 (TU)
-Subject knowledge: for example, General Algebra, Differential equation, Complex function, Probability...	75
-Additional knowledge: soft skills	30
-Practicum (practicing pedagogy)	10
-Internship, professional knowledge	5
-Thesis or graduation exam	10

In order to be enrolled in a teacher training institution after the high-school exit examination¹², the student's score obtained from the exam should be higher or equal to the "pass mark" (with 3 subjects) which was 15.5 points in 2017. Then the admission score varies from university to university. For instance, in 2017, the admission scores for mathematics teacher students in 3 pedagogical universities at Hanoi, Ho Chi Minh city and Danang were 26, 26.25 and 24.25 respectively. The "student cycle" can be structured as Figure 2:

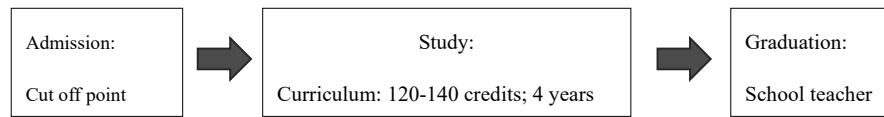


Figure 2. Student cycle in teacher training university in Vietnam.

University has the right to define its admission score and the combination of subjects that students have to take in the high school exit exam. For instance, for some universities, mathematics students have to take the stream A which constitutes of Mathematics, Physics and Chemistry. Other universities can ask students to do additional exam such as a competency assessment.

2.2. Teaching practice

As mentioned in the Table 1, up to now, there are 113 teacher education institutions in higher education in Vietnam. Excepted for the VNU-UEd, for every other institution, teacher program is taught by lecturers within the institution. Even in the regional university as Danang university, teacher program is of the university of pedagogy which is within the University of Danang and taught by lecturers of the university of pedagogy. The teaching method varies from lecturer to lecturer depending on their background and subject. As a result, if lecturers of pedagogy subject use active teaching methods, their students will get benefits because students can mirror what they learn from their teachers to apply to their future teaching.

As mentioned in the table 4, in the fourth year, teacher students have apprenticeships (practicing pedagogy) at school divided in general by two steps¹³:

- Step 1: Take school visit to understand school structure, school activities, and do class observation. This step occurs in the 2th year;
- Step 2: Teach at school for chosen major starting at the 3th year. In the 3th year, students have about 4 weeks at schools to participate in education activities, observe teaching given by school teachers, and teach about 3 or 4 periods. In their last year, students have to take more responsibilities of organizing education activities such as events, games, visiting outside of school, and teaching more periods (e.g., from 6 to 8 periods). For some major universities of education (i.e., Hanoi University of Education, Ho Chi Minh University of Education) students can do apprenticeships at their experimental schools.

3. Teacher Education Program in VNU-University of Education

Since 1999, the Faculty of Pedagogy, precursor of VNU-UEd, has been authorized to train BA in teacher education in Mathematics, Physics, Chemistry, Biology, Literature, and History with new model of teacher education by the combined training between university members in VNU. Students who want to get BA in teacher education in Mathematics, Physics, Chemistry, or Biology can earn credits of basic courses from University of Natural Science. For Literature and History, students can earn credits from University of Social Sciences and Humanities because both institutions are members of VNU.

The Bachelor of Arts degree in Secondary Education Teacher in VNU-UEd is available to students preparing to teach Mathematics, Physics, Chemistry, Biology, Literature, or History on the secondary school level (grades 6–12). Before 2015, it is required that students finish almost 3 years in the member universities then spend the last one year to study the pedagogy knowledge and teaching skill in VNU-UEd. However, there are some issues in student’s administration leading to the policy change that the courses of pedagogy should be selected as early as possible as of freshman and sophomore. Comparing to teacher education institutions in Vietnam as mentioned in the part I, VNU-UEd is the first university to apply the new model of teacher education in Vietnam. The new model is the combined training with other university members. This model is then called Model A +B.

Before 2015, responsibility of administration of the first three years belonged to other member universities; however, it was regained to VNU-UEd for student’s administration of all four years.

(i) Requirements and curriculum

Receiving the Bachelor of Arts degree in Secondary Education Teacher in VNU-UEd, students have to earn from 135-137 credits depending on each major. The curriculum is divided into 6 sections as shown in Table 4. The first section (M1-common knowledge) with around 28 credits is the common knowledge that any students have to learn, is required by VNU. It includes some subjects such as Marxism – Leninism, Ho Chi Minh Ideology, Communist Party of Vietnam, Informatics, and Foreign Language. Student can choose one of the foreign languages such as English, Russian, French, Chinese, and German to study. In fact, most of students choose English. However, the score of foreign language is not counted in GPA, it is a condition of graduation.

The second section (M2- general basic knowledge) with 6 credits includes the basic knowledge about psychology and education. The third section (M3-general educational knowledge) is the knowledge related to teaching methods, assessment in education, curriculum development, and research method. The fourth section (M4-major basic knowledge) of which the number of credits depend on each major, is the basic knowledge of each major. They are calculus, differential equation, general algebra in Mathematic major, for instance. The fifth section (M5- professional knowledge), of which the number of credits depend on each major, is the professional knowledge of each major. The sixth section (M6-thesis and practicum) with 10 credits is internship and graduation thesis. There are compulsory and elective subjects from M3 to M5.

Table 4. The distribution of number of credits for each major in teacher education in VNU-UEd.

Teacher education in	M1	M2	M3		M4		M5		M6	Total credits
			Compulsory	Electives	Compulsory	Electives	Compulsory	Electives		
Mathematics	29	6	12	6	43	0	20	10	10	136
Physics	28	6	12	6	30	6	22	15	10	135
Chemistry	28	6	12	6	52	5	6	12	10	137
Biology	28	6	12	6	31	6	28	9	10	136

Teaching each section is authorized by each member university – the partner. VNU-Ued is in charge of the courses related to pedagogy of each major (M2, M3), and some courses in M4, M5, M6. The internship of teaching is also VNU-Ued’s responsibility as in Table 5.

Table 5. Responsibility for teaching in the model of teacher education in VNU-Ued.

Teacher education in	VNU- University members		VNU – University of Education
	University of Natural Science	University of Social Science and Humanities	
Mathematics	M1, M4, M5		M2, M3, M6
Physics	M1, M4, M5		M2, M3, M6
Chemistry	M1, M4, M5		M2, M3, M6
Biology	M1, M4, M5		M2, M3, M6
Literature		M1, M4, M5	M2, M3, M6
History		M1, M4, M5	M2, M3, M6

* VNU-Ued is in charge of some courses in M4, M5 related teaching/ pedagogy

* Members universities are in responsible for students’ thesis (M6) if they choose their major

(ii) Apprenticeship in VNU-Ued

There are only 10% to 20% elective credits in the total credits in each major (Table 1). Therefore, there are about 7 to 14 optional subjects and others are compulsory. Each subject is of 2 to 3 credits depending on the position of the subject to each major. One credit is 15 credits hours dividing into theory hour, practice hour and self-study hour. The distribution of credit hours in each subject is different. The VNU-Ued is among very few major teacher education institutions which possess the experimental school where all students can do apprenticeship activities from 2nd year including understanding school structure, school activities, teacher and student portfolios, and participating in school events such as Teacher day, Young association days. Firstly, it is aimed to create a real professional environment to provide opportunities for students to get acquainted with the reality of the high school education environment, teaching activities, comprehensive education and social activities of pupils as well as professional activities of teachers, and to apply scientific knowledge and pedagogy into education. Secondly, it provides opportunities for students to connect with the reality of education in the first years. Students are equipped with active professional experience in accordance with individual study plans (students may be selected, registered for participation in this activity). In additional, the form of organizing a subject belonging to the M3 and M5 sections includes theory and practice (seminar, discussion, practice). The program includes practice at university and experimental school and/or at satellite secondary schools at Hanoi city. Besides, VNU-

EUD has renovated the student's graduation thesis, i.e., change the thesis form in the direction of grinding to build up the profile of the teacher's career development, change the instruction format with the guidance council for the group of students (by major). Each council has four members, including representatives from experimental schools and from lecturers at different faculties such as educational technology, quality management and science education. The thesis will be in the form of "Course Materials" including the following components: (i) syllabus for the whole curriculum in correspondence with the discipline taught at school after graduation; (ii) 01 videoclip lecture about 15 minutes (conducted in the third year) and self-commentary analysis of the achievements and failures of this lecture content; (iii) Evaluation forms and self-assessment forms for at least 10 full-time lectures, including the conclusion of the guidance council. The grading is based on the work product of each year. The council is required to meet with students (2 times / semester) for students to report progress, demonstrate product results, support and gives suggestions to help students overcome weaknesses, improve skills.

From the academic year 2018-2019, for a better selection, we divide students in first years into only 2 majors: "Mathematics and natural sciences" and "Social sciences". At the end of the first year, students will be assigned to one of 6 majors according to their first-year result in each major and their initial choice noted in the registration procedure at the admission step.

(iii) Indicators for developing teachers

According to Loc, N. T. M. (2012), the model of teacher education in VNU-Ued is an updated model for training teacher with the based-competency learning outcome to develop teachers. Figure 3 shows some indicators for developing teacher of the model.

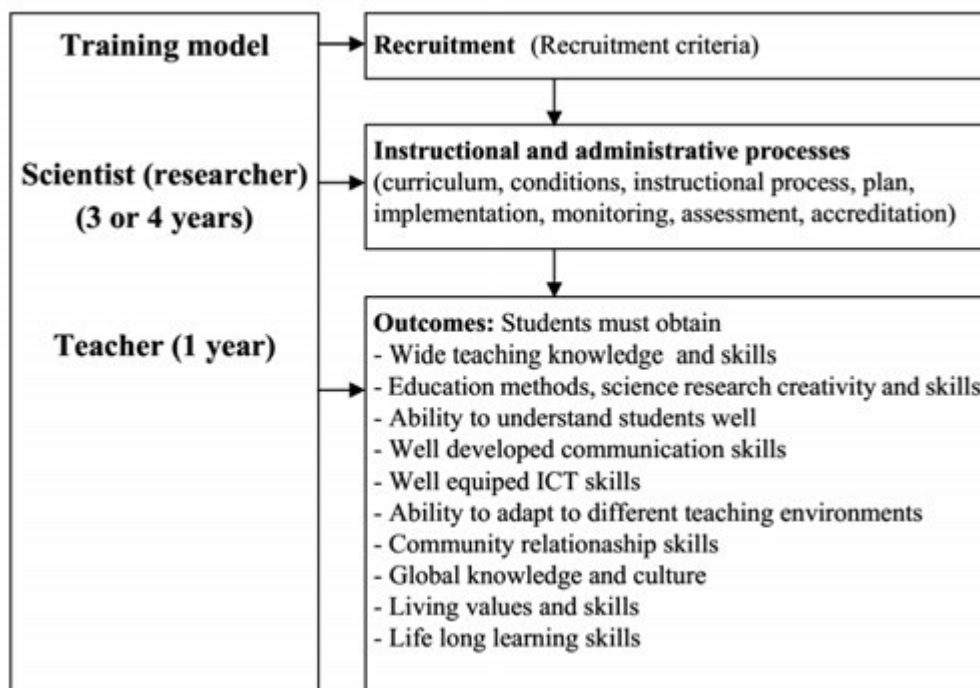


Figure3. Indicators of Learning outcomes of the model of teacher education in VNU-Ued (Loc, N. T. M., 2012)

Since 2015, VNU-Ued has innovated its curriculum of teacher education focusing on leaning outcomes that are indicators to develop teachers. Firstly, students who want to become teachers need to have

professional knowledge, that is, they have to know the content of their subjects and curriculum, understand the fundamental concepts, structure and enquiry processes relevant to major/ subjects they teach. Secondly, students must have good professional practice with a repertoire of effective teaching strategies and use them to implement well designed teaching programs and lessons. Thirdly, students must have the engagement with their carrier through their interactions with their students, colleagues, parents/careers and the community. Basing on the framework, VNU-Ued designs a setting of learning outcome for the model of teacher education.

(iv) Characteristic points of teacher education system in VNU-Ued

VNU-Ued is the first university in Vietnam running the model combined training between universities. It is the new model with some characteristics:

- (1) The specialized training in professional knowledge of each major and professional practice of teaching/ pedagogy though two training stages in two universities.
- (2) The flexibility of the model with various courses in combination of two educational institutions. Students can choose any course during their training process. It makes to minimize training time as much as possible.
- (3) The model saves training costs and resources. Student can use the facilities and resources of two institutions.
- (4) The combined training opens more chance for students to choose career. To be trained in the model, students have more knowledge and various skills in two training environments.

However, there are some issues, for example student's sense of belonging. Many students think that they are not Ued's students because they are trained 3 years in other member universities. In addition, the training administration has to cope with difficulty of managing student's GPA in a timely manner.

4. Conclusion

The paper has reviewed the components of Vietnam education systems as well as new requirements set by the MOET for teachers. The shift from annual system to credit-based system provides the flexibility to make the education more responsive to the students' needs. As a member of VNU, VNU-Ued has taken advantage to collaborate with other university members to maximize learners' chance to acquire their knowledge and credits from other institutions by using the new education model of A+ B. Besides that, the university has also caring out several innovative measures to enhance training qualities and to create a more interactive and professional environment which integrates occasions for apprentice activities at school in one hand and advanced technology (e-teaching portfolio) in the other hand. With the context of implementing the new curriculum (in the academic year 2019-2020 for the 1st grade for elementary school and in the academic year 2020-2021 for the 6th grade for junior high school and so on) and the need to re-train teachers who teach subjects which do not exist anymore in the new curriculum (like physic education at junior school) the university will apply for the fully CsM model (for student who has already a bachelor's degree) with already fully used CcM model. Despite obstacles mentioned above, VNU-Ued is and will be the pioneer and innovated teacher education institution in Vietnam.

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Footnotes

1. At the IMO 2017, Vietnam delegation won 4 golden prizes, 1 silver and 1 bronze prizes, ranked at 3th place among 111 participating countries.
2. At the Intel ISEF 2018, Vietnamese students won 01 official contest and 01 encouragement prize.
3. At PISA 2015, Vietnam ranked 8 out of 70 countries. More precisely, in science, Vietnam ranked 8th (Top 10) in Science; gained the 22nd place in Mathematic field and ranked 32nd in the Reading comprehension field.
4. On 18th October 2016 the Ministerial decision 1982/QĐ-TTg about the Vietnamese qualification framework has been issued. According to this, the qualification system has been divided into 8 level: Level 1 - Elementary Level I; Level 2 - Elementary level II, Level 3 - Elementary level III, Level 4 - Intermediate level; Level 5 - College; Level 6 - University; Level 7 - Master; Level 8 - PhD.
5. According to the Nguyen Huu Chinh's report for MOET admission figures, issued on 4/2018.

6. In Vietnamese, it means “Đại học Sư phạm”. But now some of these universities prefer the name “University of Education” when translating their university name in English.
7. According to the Education Law 44/2009/QH/12, issued by the Assembly on 25th November 2009.
8. According to the report on 2016-2017 academic year of MOET issued on 27/12/2017.
9. MOET 2006.
10. According to the report on 2016-2017 academic year of MOET issued on 27/12/2017.
11. According to the Education Law 44/2009/QH/12, issued by the Assembly on 25th November 2009.
12. In Vietnamese « Kỳ thi tốt nghiệp THPT quốc gia ». The function of this exam is double: to give a baccalaureate diploma and also to serve the university admission procedure.
13. In Vietnamese “Kiến tập” for step 1 and “Thực tập” for step 2. Literally translated into English: “Practice to observe” and “Practice to do”.

A Summary of the Lao People Democratic Republic Lao Educational System

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Abstract: This study investigated a briefly of the Lao People Democratic Republic Lao Educational System. To realize this aim, a qualitative method was applied for a documental reviewing research was employed in areas of different kinds of documents in order to summarize the Lao Educational system. Results signified that there was a long history of Lao education in terms of different levels and different eras such as Education within families, Education in the Royal families, Education in the Buddhist temples, Colonial education period, Lao Education after 1975, and Structures and Organization of the Education s System.

Key Words: Educational system, Documental reviewing, Era of Lao education, Structures and organization of the education system

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1. Background

Lao People's Democratic Republic (Lao PDR) is a small country surrounded by land that is located in the central Indo-China peninsula in Southeast Asia. Its bordering connected with China in the North, Cambodia in the South, Vietnam in the East, Myanmar in the Northwest, and Thailand in the West (Sisamone & Xangxia, 2008). The country is divided into three geographical regions, the Northern, central, and southern areas. The North is made up steep mountain ranges that are mostly covered by forests, the central region is known for its extensive caves, impressive limestone landscapes, and the south, where the Mekong delta lies, is dotted with multiple islands. The country covers the areas 236,800 square kilometers and composed of 18 political provinces and regions, 141 districts and about 12,000 villages, Vientiane (Vieng Chanh) is the Capital of Lao PDR (Bureau, 2011; Tadao, 2001).

The population of Laos is estimated 6.9 million (2017). According to the history there have a division of Lao people into the three geographical rather than cultural groups of Lao Lum (Lowland), Lao Theung (Upland), and Lao Sung (highland). Moreover, Lao PDR is an ethnically different country with forty-nine officially recognized ethnic groups in the national census. Most of the population live in the rural areas, majority of the people depending on their own agricultural production (Keophouthong & Ngouay, 2011).

Each ethnic group has its own traditions and culture. The major religion of the country is Buddhism about seven of ten Lao people are Buddhist. Apart from Buddhism belief, about 3% of people believe in animism. There have also others respect Christian, Muslim and Bahai faiths (Thongloon, 2011).

In the past, there were many power countries controlled Laos for centuries. In 1778, Laos was dominated by Siam/Thailand take time for more than a century. Next, from 1893 to 1954 Laos was occupied by France. Then, from 1955 to 1975 Laos again was covered by the US Army and a pro-America marionette. Unfortunately Laos affected from American bombed heavily during the Vietnam

War in particularly the period's 1970-1973. Finally, the Soviet Union and Vietnam had great political and economic influence over the country; Lao PDR also encountered a lot of problems in terms of educational system, living conditions and so on. (Thongloon, 2011).

2. The Historical Education in Laos

The historical education context of Lao PDR is needed to look back in order to understand the whole structure systems from the past to the present periods. The different periods are presented as followings:

2.1. Education within families.

It can be said that a family is a fundamental unit of the Lao society. Even though it is a small unit, but it is very important because it is the first point in order to start journey in education of human. In the old day, the term "education" might not be the same thing as we think today, because in that time there were not schools all in Laos. However, the learning and teaching process were exactly took place. According to Somlit, (1996) said that people understood how to transfer of knowledge by their own ethnic group. The first teachers were parents and the most important teachers also were brothers, sisters and relatives. This type of this educational system was neither organized in school nor curriculum. They used learning by doing methods throughout the observations and imitations with agriculture, animal husbandry, handicraft, hunting, daily household activities. According to Keophouthong & Ngouay, (2011) stated that education within families is informal education in the structure of families was mostly practically organized for life skills which related to the needs of the families. For example, parents teach their children in the very natural way that children are taken to the farm by their parents when they are very young. When they grow up they have learnt from what they have seen in the childhood.

Traditionally, sons and daughters learn all the skills from their parents. It is understood that education within family in the ancient time was not very much concerned to general education, but it was related to occupational education and social education. It means that their children have to follow up the traditions, culture, and the society existing surround themselves to be their main actors in this type of education. As already mentioned, the education was not only formally organized, but also without school, without curriculum, and without teachers. There were only parents, and elderly people who provided education to their own family members (somlit, 1996).

2.2. Education in the Royal families

The study of the education of the royal family offers us to understand the historical aspects of Lao education at that time. During that era alphabetical scripts did exist, people began to use education purpose. The instructional implementation could be organized in anyplace depending on convenience and the relation among both teachers and learners (somlit, 1996). The documents for learning/teaching used for legal purposes were documented as palm leaf manuscripts and contained instructions for the dissimilar positions in the royal patronage. Thus, the instructional process of this type using palm leaf manuscripts was to privilege of the royal family elite. In addition, the close relationship between the heritage of the royal family and religious beliefs afforded a heavy position to Buddhist monks, who practiced as the link between the royal family and its subject (Keophouthong & Ngouay, 2011).

2.3. Education in the temples

For many centuries Lao people have believed in Buddhism which has become the dominant religion in

Lao P.D.R. Any religion came into Laos has been adjusted been treated in the Lao ways. The temples (Wats) education mainly focuses on the principles: "Do good receive good, do evil receive evil". Temples are not important institutions for both old days and modern generation, but for all walks of life including the rich, the poor, and the good and bad people as well. The temples play important role to provide service to all the people educated in the ancient and present times, because temples have an important function offer the education to people in the society such as Buddhist monks, general public (somlit, 1996).

The Buddhism arrived to the Kingdom of Laos' Lane Xang in the 14th century, the monk education took place. The monks' education reached all levels including the capital city and local levels of ethnic groups. The strategies of learning of monks were divided into two types; 1) Learn from scripts, especially the palm leaf manuscripts by using traditional self-made paper, wooden board or bamboo bottles. 2) Learn orally from the teachers in Pali language in the form of ceremonious way performed by the monks. The leading monks have organized with other monks had responsibilities to translate and copy palm leave documents from Pali to Lao language for general educational purposes (somlit, 1996). However, a symbiotic relationship was developed between the Kingdom and Buddhism to the level of civilization with religious education and cultural architecture by supporting the construction of temples buildings while the monks had an important role to officially acknowledge the royal heritage and the social power of the kingdoms. The education not only offered to the Buddhist monks, but also provided to the public education (Keophouthong & Ngouay, 2011; somlit, 1996).

Temple education was extended as an activity for public education. This area covers spiritual and cultural issues, such as religious ceremonies, the practices to respect Buddha, giving offerings, paying attention to the follow rules and so forth. More important is that a monastery is a place to instruct people in many subjects, e.g. mathematics, architecture, handicraft, painting and sculptures by professional teachers. The young boys from poor families usually spent some time in the temple to be educated with the subjects' education. They also have contributed to the temple life by helping the monks with the daily duties. The learners gain the knowledge trough learning by doing rather than reading. Due to these traditions, reading, writing behaviours became less important in Lao society. More important learners can live in the temple and food is available. However, female's education was out of interest of the society when have comparison with male's situation. Women are districted within the family. They learn at home how to cook, sewing, knitting, water collecting. Moreover, if ladies are literate they might be able to write messages to the men which is not acceptable by the society of those days (Keophouthong & Ngouay, 2011; somlit, 1996).

Therefore, it is said that the Lao education of the ancient time has not been well improved. The instructional implementation lacked of resources of documentations and records. The education of those days was required only for some administrative purposes of Lao feudal regime. In the part of the family education or public education, it is armed at the understanding of the family institution. However, the temple education is to point out that it is a central place which serves as an institution of two classes of people: the rulers and the general public to gain knowledge and literacies.

2.4. Colonial education period

In 1893, Laos became a French colony caused the traditional Buddhist educational system became less important as the French introduced elitist, secular French language - education focused on the 'civilization' mission of the colonial power. Next in 1946, only little two percentages of school-age children were intake in school because French have reluctance to contribute education in the countryside (Fry, 2012).

Kongsy & Bounchanh (2011), describe that French rulers did not pay any attentions to support education to the Lao population at large. What however, became important duty was to develop French Indochinese individuality across the Southeast Asia region. This was implemented by choosing Lao Youth from privileged families for studies in French in order to build support for the colonial system in Laos. In 1954, the French colonial viewed that Lao people should gain the educational system as pitiful and undeveloped persons. They did not benefit the Lao population (Keophouthong & Ngouay, 2011).

The educational system was offered by the French colonial in Laos along with two different strands which depended on their colonial mentality and the complexity of the colonial situation in Indochina: 1) They maintained the traditional temple schools in modified forms by combining the traditions of Buddhist education by focusing on moral values and religious teaching with the offering of western science and maths. The reasons that they needed to integrate their civilization agenda with the main traditional culture, unfortunately, with poor results partly, because of the monks' resistance towards western influence. 2) The another strand was the development of Franco-Lao schools in the whole of Indochina. The educational system controlled with 5+4+3 years consisting of primary, lower secondary, and upper secondary education (Keophouthong & Ngouay, 2011). Both lower and upper secondary levels all education was offered to match with the French system; curriculum and textbooks were the same use in France. Even though, the primary schools was a little bit different from French system in term of contents, but Lao students began to learn French on the first school day of grade one (Kongsy & Bounchanh, 2011).

Throughout 40 years since Laos was ruled by the French colony, the Lao education was in the worst situation. Based on 1938 information there were only 84 schools within the country. Out of those schools only six completed primary schools with six academic years and only one school was secondary. The total number of students was 6,320 of which 1,400 were students of complete primary schools and 197 were students of the only one secondary school (Khamphao, 1996).

However, there were two main reasons for the educational progress slow in Laos. Firstly, France lacked of confidence about the political situations in Laos that made the French reluctant to invest in education. Secondly, Laos found that education was a new issue to the country. They also thought that the French education type was not suitable with Lao tradition that Lao parents supported their children to study at the Buddhist temples to prepare to be monks instead of to join the western education system. So, there were Lao students covered only 1/3 of the total students attending schools (Khamphao, 1996).

2.5. Lao Education after 1975

After Lao PDR gained its Independence and declared the country as the Lao People's Democratic Republic on the 2nd of December in 1975. The Lao government has always had a fair policy in order to defend and supports the rights and benefits of all Lao people. The Lao People's Revolutionary Party (1996), the educational system in a new era started in the beginning of 1990 after the introduction of the NEM in 1986 which opened up for market forces and donors from the West. This new era of education occurred with the 'World Declaration on Education For All' that changed 'Education For All' (EFA) into a world slogan for education that was displayed in Thailand in 1990 (Keophouthong & Ngouay, 2011). As a consequence, educational investment should be emphasised and increased to meet the needs of socio-economic parts. In specific, education is taken consideration on a main intervention for poverty relief. The general purposes of education in the 21st century need to educate Lao people to be good persons and loyal to the country and the citizen's democratic regime. Moreover, to strengthen the national education system implementation in order to progressing students' learning outcomes; and to train skilled labour force (UNESCO, 2010).

According to the 1995 Constitution promotes gender equally as stated that Lao population are all equal before the law regardless of their gender, social status, education, belief and ethnic group. In this case refer to the articles 22 and 23 of the Constitution mentioned that “Population of both genders enjoy equal rights in the political, economic, socio-cultural and family affair” (Sisamone et al., 2008). It is fact that the high quality education plays an important role key in socio-economic and local development as well as be able to reduce the poverty (Sisamone et al., 2008).

In 1987, education purposes were remodelled in the context of overall economic development and in harmony with the new economic mechanism that recognised education as the driving force in socio-economic improvement and offered priority to the construction of an educational system. This could provide the skilled workforce requirement for its suitability with an update economy (Gonzales, 2007). Education is monitoring system to drive socio-economic development, and giving the first importance to the improvement of structure changes of the Lao country (Shuichi, 2010).

Lao government introduced three main important programs in education, namely, 1) improving justice and access/opportunity, 2) guaranteeing quality and relevance, and 3) educational administration (Sisamone et al., 2008). Regarding to the program, the government extended the education program in rural and ethnic areas for making sure that all school-aged students could equal access to education and also purposed to decrease adult illiteracy throughout the country. In 2000, it obviously sees that the progress of both private and public education systems were rapidly growing in all provinces (Sisamone et al., 2008). However, Laos is one the least developed and poorest countries in the Asia-Pacific region and experiences many limitations to development and poverty decreasing, especially in education section in the past ten years. Nevertheless, Lao PDR tried to continue to make progress with basic education with primary and secondary enrolments. Primary net intake rates make it clear that primary application for schools has in fact improved significantly. In 2006, the enrolments net rate reached 86 Per cent for males and 81 for females (Gannicott, 2009). In 2001, the report stated that primary net intake rate is 94.1% (female 93.3% and male 95.0%) (Yangxia & Sithath, 2011).

2.6. Structure and Organization of the Education System

Education system in Lao PDR formally consists of pre-school education (crèche and kindergarten); primary education; lower secondary education; upper secondary education; Technical and vocational education, training (including teacher education); higher education; and non-formal education. The private education has been encouraged including schools and colleges levels in 1990 (Gonzales, 2007). In addition, as mentioned earlier section that temple education is first study of Lao people. Of cause, nowadays religious education (Buddhist education) has been accepted to be a part of Lao PDR education system. It provided to the masses and novices by the monks in the temple. In 1998, education of Buddhist monks was offered formally (Ministry of Education, 2000). Therefore, a researcher may present each part of education system in Lao PDR as followings:

2.6.1. Pre-school Education

Due to the law of education in 2007, early childhood education is attended in crèches and kindergartens. The crèches are for children who have the age from three months to three years, while kindergartens provide to children ages from three to five years. In 2002, the Lao government started a program with purposes at introducing pre-primary classes in primary schools in both rural and remote areas, being progressively extended throughout the country. Yet, pre-school education is not compulsory (UNESCO,

2010). Pre-school education is a preparation of pupils for kindergarten education. This stage plays dominant role in order to create the children to gain intellectual, physical and socio- emotional readiness for their further study in the next elementary school level (Khamphay, 2002). Moreover, Early childhood education (ECE) are provided based-knowledge to practise four skills: listening, speaking, reading and writing including observing, drawing as well as basic social skills and behavioural performances (UNESCO, 2010).

2.6.2. Primary Education

Yearly lesson time table on primary education is shown as Table 1. Primary education is compulsory and the duration of the study is five years with the age six for those who enrol. Both primary and lower secondary educational levels are taken consideration as a basic education. At the end of primary education students having passed the primary education achievement examination receive a certificate of the level (UNESCO, 2010). The main objectives of primary education, according to education strategy (2000-2010), focus on five main prospects of education in order to develop morality, intellectualization, vocational, physical, and arts. This dimensions should help to improve students to become not only patriotic, maintain citizen's democracy, but also create students' knowledge, skills, experiences and the capacity to further study in higher levels (Sisamone et al., 2008). Moreover, primary education still also addresses on the education of students to understand how to live in society by practising the spirit of nationalism, for example loving their hometown, village, family and their schools. In addition, learners should admire leaders, parents, teachers, seniors and friends; having patience to study and so forth (Sisamone et al., 2008).

It is generally accepted that the children's experiences have a deep influence on their general development, particularly in the first year of their lives. It is also necessary to provide lifelong forms for physical, cognitive, emotional and social development. Because this is the most critical period for brain development that impact growth in patterning cognitive, language, social and education skills (Gonzales, 2007).

2.6.2. Secondary Education

Yearly lesson time table on lower and upper secondary education is shown as Table 2. This secondary educational level comprises of six years which is divided into lower secondary and upper secondary education and the duration of study is three years for each. In 2010, the structure has been started to change from three years of lower secondary into four, but for upper secondary education is still three years. Enrolment to upper secondary education (general and vocational, including primary school teacher training) is opened up to all students who having passed the lower secondary achievement exam. Student who passed the upper secondary education achievement examination level, receive a diploma. For technical education institutions at the upper secondary education provide three – or four years programmes. In addition, the framework has been planned to offer a vocational stream in upper secondary education with new structure of secondary education that established by the Education Law in 2007 (UNESCO, 2010). The purposes of secondary education increase students to gain knowledge, capacity and ability. In fact that it focuses on learning how to correctly use the Lao language and to enhance the students' based-knowledge such as mathematics, natural sciences and social sciences, laws, information system, international languages, technology and vocational skills (Sisamone et al., 2008).

Table 1. Yearly lesson time table on primary education

Subject	Number of Yearly Periods in each Grade				
	1	2	4	5	6
A. Core Curriculum:					
Lao Language	396	330	246	246	246
Mathematics	99	132	165	198	198
The world around us	66	99	99	99	99
Drawing	33	33	33	33	33
Arts	33	33	33	33	33
Handicraft	33	66	66	66	66
Physical education	66	66	66	66	66
B. Co-curriculum Activities					
Saluting the flag	33	33	33	33	33
School activities	132	132	132	132	132
Assembly	33	33	33	33	33
Total Yearly Periods	924	924	924	957	957

Table 2. Lower and Upper (general) Secondary Education: Yearly Lesson Timetable.

Subject	Number of Yearly Periods in each Grade					
	6	7	8	9	10	11
	Lower Education			Upper Education		
A. Core Curriculum:						
Lao Language	198	165	132	66	33	33
Lao Literature	-	-	-	66	99	99
Mathematics	198	198	198	198	198	198
Drawing	33	-	-	-	-	-
Arts	33	33	-	-	-	-
Physical education	66	66	66	66	66	66
Social Sciences:						
- History	33	66	66	66	66	66
- Geography	33	66	66	66	66	66
- Civics	33	33	33	66	66	66
Natural Science	99	165	231	-	-	-
Biology	-	-	-	66	66	66
Physics	-	-	-	99	99	132
Chemistry	-	-	-	66	66	66
Foreign languages	99	99	99	99	99	99
Technical studies	66	66	66	66	66	33
B. Co-curriculum Activities						
Saluting the flag	33	33	33	33	33	33
School activities	132	132	132	132	132	132
Assembly	33	33	33	33	33	33
Total Yearly Periods	1,089	1,155	1,155	1,188	1,188	1,188

Source: (UNESCO, 2010) World Data on Education vii Ed 2010/2011.

2.6.3. Higher Education

Higher education has been increasing progressively since the year 2000. In 1995, there was only the National University of Laos (NUOL). At the present time, there are five public universities, eight Teacher Training College (TTCs), and ninety-two private colleges throughout the country (Thongloon, 2011).

The National University of Laos (NUOL), other universities, TTCs, and private higher education institutions offer higher education (UNESCO, 2010). The system of higher education programs were introduced among academic, professional and technology for those who have graduated upper secondary educational level (Shuichi, 2010). For a higher diploma programs usually take time for three years to complete, university levels conduct programs take five to seven years, depending on the subject area. For instance, bachelor's degree to complete a medical field with 6-7 years, for Master's degree program last a minimum of one and a half to two years, and a doctoral degree program take a minimum of three years to graduate (Ministry of Education, 2000; UNESCO, 2010).

Higher education institutions systems are public and are administered by the government. The Department of Higher Education and Vocational Education is offered to response for managing, coordinating, and monitoring the system. In 1995, higher education has rapidly expanded in both public and private sectors. The increasing of the private sector is particularly important. It is obviously seen observed that by the year 2000 there were 14 private higher education institutions were newly established (Shuichi, 2010).

2.6.4. Non-formal Education

The non-formal education is a form of education system for servicing education to people and labourers without limitation of age, learning time and place. It purposes to provide education to multi-ethnic Lao population for who lack of the opportunity to study or cannot continue their study in the formal education (Bounkhong, 2003). This education system is also to offer learning activities to meet the needs of adults to obtain knowledge and skills. The main works of non-formal education were literacy programs and formal education equivalency programs for adults in order to contribute government personnel staff. Moreover, non-formal education still also provides other educational needs outside of formal education system as well as offers a mixture of literacy and basic education for the uneducated population, including programs to promote the education levels of the citizen (Ministry of Education, 2000).

The non-formal education system has a specific focus on vulnerable target groups such as the poor, women, and ethnic minorities. As mentioned that Lao PDR had affected by the war for years of fighting in many parts of the country. The people lacked of opportunity to gain education particularly a large group of adults who have limited or no formal education countrywide: women and ethnic minorities in remote areas; government employees; military personnel; police; and contribution of basic vocation for disadvantaged, and low-income people (Ministry of Education, 2000).

The Ministry of Education has offered policy to non-formal education in three target groups of age: for people who are not attending schools with the ages between 6-14 years old; those who do not have definite vocations with the ages between 15-25; and those who are illiterate and have not completed primary school with ages between 15-40 and people who have ages 40 years old above interest in education (Ministry of Education, 2000). Khamphay (2002), stated that this is a big attempt to strengthen the organization of administration of both adults and non-formal education, its conducting curriculum development, teaching and learning process in order to create illiteracy and upgrade people. The purposes of the curriculum of non-formal education formulates aside 40% for local curricular development in order to integrate with

curriculums local knowledge to correspond to economic and socio-cultural perspectives of communities and their value local persons' living conditions (Sengdeuane, Phouangkham, & Yangxia, 2008).

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Introducing Teacher Education in Taiwan and the Practice of National Taiwan Normal University

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Abstract: This chapter aims at introducing the Taiwanese teacher education system and the curriculum and practice of teacher education in National Taiwan Normal University (NTNU). Taiwan is a case worth of studying because its quality assurance within teacher education has been ranked as the top among 17 countries. This chapter starts with an overview of teacher education system in Taiwan including its brief historical development and current teacher training process. Then, the practice of teacher education in NTNU is introduced. NTNU is the largest teacher training institute in Taiwan and the only one included in the 14 top research-intensive universities in Taiwan. Its curriculum and practicum practices are in the leading place among other teacher training institutes in Taiwan. Moreover, NTNU is ranked 22nd in the field of education study by the Times Higher Education in 2017. Therefore, applying NTNU as an example explicates the state-of-the-art teacher education in Taiwan.

Key Words: Teacher education, Curriculum of teacher education, Practicum, Reform of teacher education, Taiwan

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Introduction

This chapter aims at introducing the teacher education system and the curriculum and practice of teacher education in the leading teacher training higher education institute in Taiwan. Taiwan is a case worth of studying because its quality assurance within teacher education has been ranked as the top among 17 countries (Ingvarson & Rowley, 2017). In this chapter, I would like to offer an overview of teacher education system in Taiwan including its brief historical development and current teacher training process. Then, the practice of teacher education in National Taiwan Normal University (NTNU) is introduced. NTNU is the largest teacher training institute in Taiwan and the only one included in the 14 top research-intensive universities. Its curriculum and practicum practices are in the leading place among other teacher training institutes in Taiwan. Moreover, NTNU is ranked 22nd in the field of education study by the Times Higher Education in 2017. Therefore, applying NTNU as an example explicates the state-of-the-art teacher education in Taiwan.

In 2017, major revisions of teacher education have been announced by the Department of Teacher and Art Education, Ministry of Education. The latest amendment of Teacher Education Act finished the legalization process in June 2017. Although some of details are still in the process and not yet revealed, certain directions could still be figure out. These changes are going to be explicated in this chapter.

Before moving to teacher education, it is crucial to explicate the education system in Taiwan. Please refer to Figure 1 for details. The pre-university school system is 6-3-3. That means six years of primary

and three years of junior and senior high school respectively. Teacher education in Taiwan only takes place in higher education level.

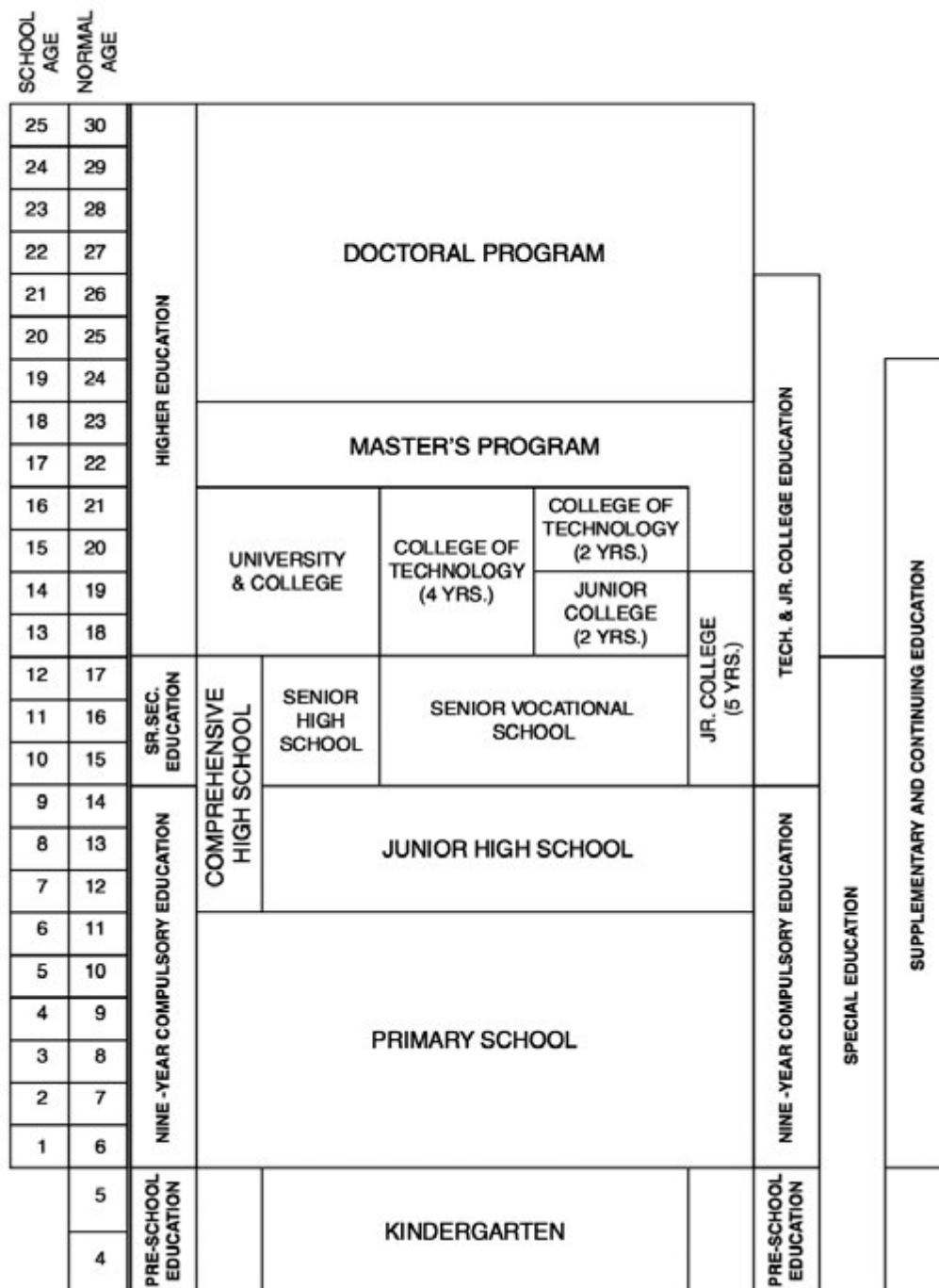


Figure 1. Education System in Taiwan (source: Chou, C. P., & Ching, G. (2012))

Regarding the school calendar, an academic year is divided into two semesters, Autumn semester (September to January) and Spring Semester (end of February or early March to end of June), by Summer and Winter Vacation. Each semester is 20 weeks in pre-university education levels and 18 weeks in higher education. Summer vacation usually lasts for about two months and winter vacation about three weeks.

Like other Asian societies that influenced by Confucius's thought, exam culture is prominent in Taiwan. There are two high-stake examinations taking place annually at the end of junior high and senior high

school: one is 'Comprehensive Assessment Program for Junior High School Students' and the other 'General Scholastic Ability Test (GSAT)'. The former exam result is used to apply for senior high school and the later for university entrance. Taiwanese students suffer from high pressure from the high-stake examinations that based on pen-and-paper testing strategy.

The Development of Teacher Education in Taiwan: A Brief Historical Overview

The development of official teacher education in Taiwan started in late 19th century under the Japanese colonial government. In 1896, the first teacher training programme was initiated in Taipei (Yang & Chen, 2012). Then, teacher education was continued after 1945 when Taiwan was returned to the Chinese Nationalist government ruled by Kuomintang (KMT). However, the content of teacher education was different from the Japanese colonial period. In other words, teacher education has a long history in Taiwan. There are various stages of teacher education after 1945. From 1945 to 1994, teacher education was monopoly and controlled by central government (Lin & Teng, 2012). At that time, only three normal universities, nine teachers colleges (TCs) and one department of education in a national university could offer teacher training programs. The difference between normal universities and TCs is that normal universities were responsible for training secondary school teachers including junior high, senior high and vocational high schools while TCs was for primary schools. In pre-1994 era, teacher education is centrally controlled by the Ministry of Education. For example, the number of students could enroll in teacher training programs was decided by the Ministry of Education based on its prediction of the need of teachers in various level of schooling. Moreover, all pre-service student teachers were fully funded with scholarship by the Ministry of Education and guaranteed to have teaching positions in primary and secondary schools after they successfully graduated from universities and completed the respective requirements of teacher training programs they enrolled in.

A milestone event in the development of Taiwanese teacher education takes place in 1994. It is widely-acknowledged that 1994 is the starting year of the latest education reform in Taiwan and the reform of teacher education is one of the key issue for public debate (Wu, 2004; Chin & Wen, 2014) and the trend of Taiwanese education reform follows decentralization and market force (Lin et al., 2014). Consequently, the Ministry of Education issued 'Teacher Education Act' to lift the monopoly of teacher education. From 1995 onwards, universities and colleges in Taiwan can offer teacher training programs as long as they have college of education and center of teacher education. One of the implications of this open market policy in teacher education is that the number of students registering in teacher training programs is no longer controlled by the Ministry of Education but the market force. Most qualified teachers have to apply for jobs by themselves because the supply of teachers is more than the demand from schools. In other words, the job-guaranteed system was abolished. The whole teacher education is no longer centrally controlled but left to market force.

Although Taiwanese teacher education has been influenced by decentralization and marketization, there were several revisions of teacher education initiated by the Ministry of Education. Due to the theme of this edited volume, I am not going to cover various revisions of teacher education. On the contrary, this chapter focuses on the current teacher education and the future changes after 2018.

National Government Level of Teacher Education in Taiwan:

At national level, the Department of Teacher and Art Education under the Ministry of Education is in charge of teacher education in Taiwan. There are four types of teacher training programs: pre-school

teacher training, primary school teacher training, secondary school teacher training and teacher training for special education. In 2016, 72 higher education institutes (HEIs) offer teacher training programs (Ministry of Education, 2016). The annual quota of student teachers across Taiwan and distribution of this quota to individual HEI is regulated by the Ministry of Education. The detailed number in various teacher education programs is in Table 1.

Table 1. The number of students can be accepted in teacher education across Taiwan 2016.

Level of Schooling	Students Numbers (persons)
Pre-school	2025
Primary	2197
Secondary	4428
Special Education	793
Total	9443

Source: Ministry of Education. (2016). Yearbook of Teacher Education Statistics.

For example, NTNU can recruit 810 students in tis teacher education program and it is nearly one-fifth of the annual quota for secondary level in 2016. The Ministry of Education allows each HEI to have autonomy to set up the selection criteria of student teachers. The current path to get a teaching license is in Figure 2.

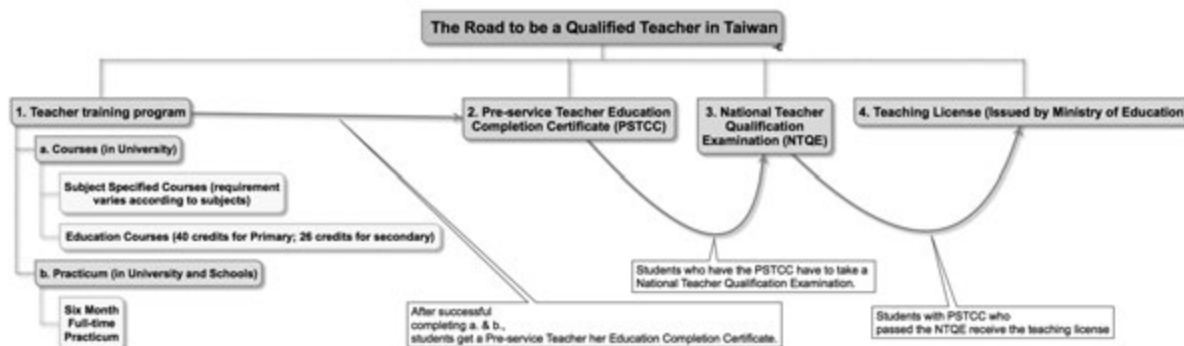


Figure 2. The Current Path to become a Qualified Teacher in Taiwan (Illustrated by Dr. Tzu-Bin Lin)

1. Introduction to the structure of teacher training program

There are two major components within teacher training program: one is taught courses; the other is practicum. In this section, the taught courses and practicum are discussed sequentially.

a. Taught Courses:

Students who enroll in teacher training program need to complete two sets of courses in university. They are subject specified courses and education courses. The former refers to the subject that the student teacher will teach in the future such as Physics, English, Chinese, Mathematics and so on. The required credits for graduation varies because different departments have respective regulations. Take English

department for example, it is usually about 128 credits. In Taiwan a credit in universities is equal to 18 teaching hours. These subject specified courses offer a solid ground of subject professional knowledge.

Regarding Education courses, it aims to train students become education professionals. The course structure covers following dimensions:

1. Basics of Education,
2. Methods of Education,
3. Teaching Materials, Methods, and Practice,
4. Emerging Education Issues,
5. Principles and Theories of Education,
6. Student Development and Guidance,
7. Curriculum, Teaching, and Evaluation.

The credit requirement for different levels of schooling is: 48 credits for pre-school, 40 credits for primary track, 26 for secondary track and 40 for special education. The reason why there is a higher credit requirement for pre-school and primary track is because pre-school and primary school teachers have to teach three or more subjects and need to cover the homeroom teacher duty. At junior and senior high schools, teachers are more subject-oriented. A Taiwanese secondary school teacher usually has his/her own specialized subject area. The Ministry of Education has a detailed guideline on the requirement of subject specified courses and education courses for the teacher training institutes to follow. However, the Ministry still allows certain flexibility to these institutes to offer enriching courses to student teachers. How NTNU provides these taught courses is going to be discussed as an example later in this chapter.

Students need to complete both subject specified and education courses before end of July or end of January so that they can go to school for practicum. Completion means that students have to make sure they get all the required credits with passing marks.

b. Practicum:

The purpose of having practicum is to enculturate those teachers-to-be (Huang, 2013). The design of school practicum has experienced several changes in the past two decades. At its current form, the duration of practicum is six months and it is full-time work in school with no pay because student teachers have not got the teaching license. Their status is still student, or trainees. Twice a year, student teachers can apply for practicum. Two rounds of practicum commence from August to the end of January, and from late February to end of June. After student teachers fulfilled all the course requirements, they can find their ideal schools and obtain the consent from school principals so that they can do their practicum in schools.

There are four key areas that students have to cover during their practicum under the guidance of school mentor and university supervisor: conducting teaching demonstrations, gaining homeroom teacher experience, acquiring administration experience and practicing professional development with school teachers. The weighting of the four areas is 45%, 30%, 15% and 10% (Ministry of Education, 2011). During the practicum, student teachers need to stay in school eight hours per day from Monday to Friday and rotate among different administration offices besides following school mentor. Student teacher is required to be visited by assigned supervisor from university at least once in school and to be observed at least one full period of teaching demonstration. Moreover, once in a month, student teachers have to attend reflection meeting held by his/her own department and various professional development activities organized by universities. In terms of assessment of practicum, the school representatives including principal, head of academic affairs and school mentor mark 50% and supervisor from university side another 50%.

2. The Way to Obtain Teaching License

The steps I introduce in this section is the second and third phase in Figure 2. Once the student teacher succeeds in both taught courses and school practicum, s/he will receive a Pre-service Teacher Education Completion Certificate (PSTCC) issued by the Ministry of Education. With PSTCC, the individual can register for taking National Teacher Qualification Examination (NTQE) which is a pen-and-paper examination held by the Ministry of Education to test the candidates' knowledge of education foundations, educational psychology, pedagogy and proficiency in Chinese. NTQE is held in the first weekend of every March and the average passing rate is about 60~70%. For those who passed NTQE, they are going to receive teaching license usually within a month.

3. New Policy Directions of Teacher Education: Changes from 2019

In terms of the process of acquiring teaching license, the Department of Teacher and Art Education, Ministry of Education proposed a new amendment to the 'Teacher Education Act' in 2017 and passed the legalization process at the Legislative Yuan (the Taiwanese Parliament) on the 14th June 2017. Significant changes include the following dimensions: the change the sequence of teacher training programs, announcing a new curriculum guideline for teacher training programs and indicators of teacher professional literacy, and delegating the power of designing curriculum framework to teaching training institutes (Ministry of Education, 2017).

In Figure 3, the new sequence of teacher training programs is illustrated and can be a contrast to Figure 2. The major change is that NTQE has been move to the last year of university. Student teachers who gained three quarters of credits from education courses can apply for taking NTQE. Only those who passed NTQE and completed all the courses can do their practicum.

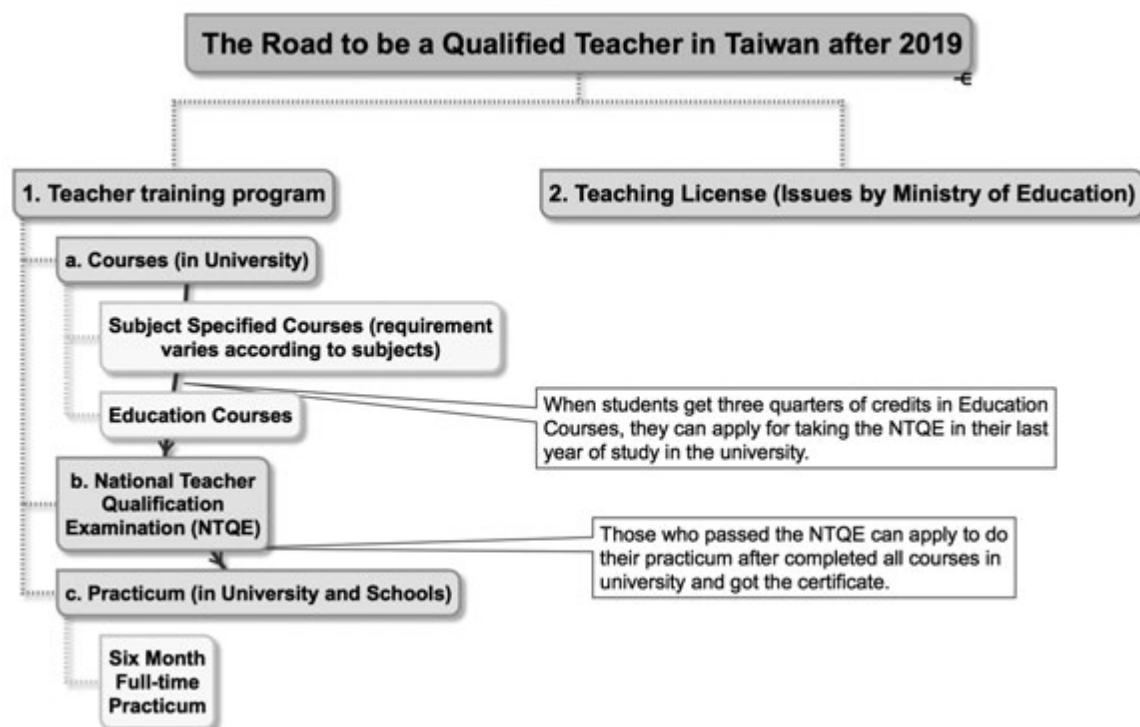


Figure 3. The Road to be a Qualified Teacher in Taiwan after 2019 (Illustrated by Dr. Tzu-Bin Lin)

While writing this chapter, the Department of Teacher and Art Education, Ministry of Education has been working on the new curriculum guideline for teacher training programs and indicators of teacher professional literacy as well as the detailed procedure to delegate the curriculum design to teacher training institutes. The Department of Teacher and Art Education plans to reveal the indicators at the end of June, 2018. The major changes include a new curriculum guideline of teacher education and the merging of primary track and secondary track of teacher training. These change is a response to the call of having teachers who can teach the new 12-year Basic Education Curriculum. The pre-university level of curriculum is going to be have better connection with each other and further integration under the 12-year Basic Education Curriculum so the need of new generation of teachers is urgent.

University Level (in National Taiwan Normal University):

As aforementioned, NTNU is the leading teacher education university with the highest quota given by the Ministry of Education to recruit student teachers in Taiwan. In this section, the current practice of its teacher training programs is introduced. There are two teacher training programs offered in NTNU: secondary education and special education. In the near future, NTNU is going to offer teaching training program for primary school teachers. NTNU's teacher training program for secondary level is the most comprehensive one in terms of its curriculum structure and course offered and innovative practicum practices. Due to the new policy of delegating power of teacher training curriculum design has not been officially announced, the content discussed in this section still follows the current system rather than the new system in 2019.

a. Taught Courses:

The curriculum structure and detail instruction of teaching training program in NTNU is listed in Table 2. Two main categories are: compulsory and elective courses. Students enrolled in teacher training program have to complete both compulsory (18 to 20 credits) and electives (8 to 6 credits) to fulfill the requirement. The reason why there is flexibility on the credits requirement is because some subject areas demand two more credits on 'Teaching Practice'. In other words, some subjects only need 2 credits while others ask for 4 credits on 'Teaching Practice'.

Table 2. The Curriculum Structure of Teacher Training (Secondary Education Track)

	Fields	Course Titles	Credits	Remarks
Compulsory Courses 18 (20) credits	Basics of Education (4 credits)	Introduction to Education	2	Students need to choose 2 courses out of 4.
		Educational Psychology	2	
		Philosophy of Education	2	
		Sociology of Education	2	
	Methods of Education (10 Credits)	Principles of Instruction	2	Students need to choose 5 courses out of 6.
		Classroom Management	2	
		Learning Assessment	2	
		Principle and Practice of Guidance	2	
		Curriculum Development and Design	2	
	Teaching Materials, Methods, and Practice (4-6 credits)	Teaching Materials and Methods for each subject (e.g. Chinese, English, Arts, Science and etc.)	2	
Teaching Practice for each subject		2-4		
Elective Courses 8 (6) credits	Emerging Education Issues	*Education Issues	2	*Educational Issues is a must have elective. The topics covered are environmental education, safety education, ocean education, sex and gender education, drug education,
		Vocational Educational and Training	1	
		Career Planning	1	
		Reading Education	2	
		Environmental Education	2	
		Informational Education	2	

		Local Education	2	multicultural education, media literacy education, aborigine education, information education and etc.
		Local History Educaiton	2	
		Gender Education	2	
		Science Education	2	
		Human Relations	2	
		Parent Education	2	
	Principles and Theories of Education	History of Education	2	
		Studies of Contemporary Educational Thoughts	2	
		Educational Administration	2	
		Secondary Education	2	
		Principles of Moral Education	2	
		Theories of Aesthetic Education	2	
		Introduction of Educational Business	2	
		Student Development and Guidance	Remedial Teaching	
	Differentiated Instruction		2	
	Introduction to Special Education		3	
	Introduction to Education for Gifted		2	
	Cognitive Psychology		2	
	Developmental Psychology		2	
	Psychology of Adolescence		2	
	Techniques of Behavior Modification		2	

		Studies in Adolescent	2	
	Curriculum, Teaching, and Evaluation	Professional Literacy for Teachers	2	
		Teacher Professional Development	2	
		Educational Service-learning	2	
		Educational Statistics	2	
		Computers and Science Teaching	2	
		Computers and Earth Science Education	2	
		Computer-Aided Instruction	2	
		Science and Culture	2	
		Guidance of Science Fair and Independent Studies	2	
		Development of Science Concepts	2	
		Psychology of Learning Mathematics	2	
		The Development of Mathematics Concept	2	

b. Practicum:

NTNU has averagely 300 contracted schools across Taiwan per semester for its student teachers to do six-month practicum. The number of contracted school is on the top over other teacher training institutes in Taiwan. Besides the requirement offered by the Ministry of Education, Office of Teacher Education and Career Service (OTECS) and the College of Teacher Education has established a checklist for mentors in school and supervisor from NTNU to use to evaluate student teachers performance in schools.

Moreover, OTECS has a well-established mechanism to select 3 to 4 contracted schools for their high performance in offering high-quality practicum experience to NTNU student teachers. These schools are awarded with the title, High-Quality Practicum School, by NTNU. In the future, OTECS will choose certain number of schools from the pool of High-Quality Practicum (HQP) Schools to be the 'Professional Development Schools (PD Schools)' and create a university-and-secondary school partnership. OTECS is currently draft a plan of PD schools. The more HQP and PD schools NTNU has, the more places we can send our student teachers to acquire good learning experience during the their practicum. Furthermore,

these HQP and PD schools are assisting NTNU to offer good experience for those overseas students to have their international practicum in NTNU. At this moment, NTNU receive international practicum students from six different countries including Japan (Chiba University), Canada (University of British Columbia, UBC), Sweden (Uppsala University) and China (Hong Kong University, Shanghai Normal University and Beijing Normal University).

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Perspective on Teacher Training in Japan -Teacher Training Index-

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Abstract: In order to construct a new system on teacher training and recruitment to adapt and to solve present situation, Government of Japan revised a law on education. One of the important points of the revision is appointers of principals and teachers of public elementary schools etc. are obligated to formulate an “Index” for improving the quality of teachers with considering situation of each region. Chiba prefecture and Chiba city also formulated an “Index” by collaborating with Faculty of Education, Chiba University. Faculty of Education, Chiba University has contributed to not only on the formulating an “Index” but also other activities on teacher education in Chiba prefecture and Chiba city.

Key Words: Teacher Training Index, Chiba Prefecture and City, Chiba University

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1. Background:

Teacher is a profession whose quality effects on identity formation of students strongly, i.e., success of education in school depends on the quality of teachers strongly. Due to such importance of quality of teachers in education, “Fundamental Law of Education” which is a principal law on education in Japan prescribes the obligations of teachers and government as follows; “Teachers should continue study and training on education” and “Government should provide training opportunities for teachers to improve their quality on education”. By continuing study and attending the training opportunities, teachers are expected to adapt to day-by-day changing situation of society involving school. For example, globalization and highly informed society have been diffused to schools. Teachers are expected to educate students under such situation with adopting advanced techniques and information. Additionally, schools as workplace for teachers has also been changed in Japan drastically. One of the serious phenomena at schools in Japan is large amount of retirement and mass recruitment of teachers. This phenomenon induced imbalance of age composition, accordingly, being obstacle to transfer knowledge and skills on education from senior teachers to young teachers. In order to construct a new system on teacher training and recruitment to adapt and to solve such present situation, Government of Japan revised the “Special Act for Education Personnel” in 2016. One of the points of the revision is appointers of principals and teachers of public elementary schools etc. are obligated to formulate an “Index” for improving the quality of teachers with considering situation of each region. In the process to formulate the “Index”, following concepts are requested to be involved; (1) To emphasize the point that the role of teacher is highly specialized (2) To be a guide for improve quality as a teacher

with overlooking entire career of each teacher (3) To be a clue to step up to advanced stage as a teacher (4) To be systematic to enable effective and continuous learning for teachers. In the process to formulate the “Index”, consultation with council members which consist of universities etc. is obligated. Such policies of above revision are also prescribed in “Guidelines to formulate an index for improving the quality of the principals and teachers of public elementary schools” by the government of Japan.

2. Expected qualities for teacher based on laws:

Expected qualities for teachers based on the “Government Curriculum Guideline” in Japan are as follows; (1) To grow faculty focusing on three pillars, i.e., "knowledge and skills", "skills for proper thinking, judging and expressing" and "posture for learning and human nature" (2) To implement curriculum management focusing on cross curriculum learning (3) To connect smoothly among different school stages (4) To teach focusing on active learning (5) To enrich standards for learning evaluation. Additionally, based on the "Improvement of the competence abilities of teachers in the future of school education" which is a report by Central Education Council in 2015, following seven qualities are also expected to teachers; (1) To learn qualities on mission, responsibility, educational affection, technical knowledge on subjects and teaching, practical teaching skills, comprehensive humanity and communication skills (2) To learn a self-learning attitude (3) To improve their qualities through their life (4) To lean an inquisitive mind (5) To learn a mind to continue learning (6) To learn capacity to collect, select, and utilize information properly (7) To connect and to construct knowledge effectively.

3. Viewpoints of the guideline for the “Teacher Training Index”:

In the process to formulate the guideline for the “Teacher Training Index”, in addition to the “Expected qualities for teacher based on laws” which were described in the Chapter 2, following six viewpoints should also be considered. (1) Changing situation of society (2) Situation in and around schools (3) Collaboration with families and communities (4) Growth of qualities of teachers (5) Improvement of school as organization. Especially regarding the “(4) Growth of qualities of teachers”, it is important for teachers to continue to grow in their daily activities in schools. Namely, to achieve the improvement of the qualities of teachers, not only by the training provided by the appointer, but also activities in their schools are also important.

About the purpose of the “Teacher Training Index”, following two points should be noted. (1) The purpose of the index is not to produce monomorphic teachers but to educate basic qualities as a teacher and to develop good points of each teacher (2) The purpose of the index is not to use as evaluation criteria on teachers.

Following two viewpoints should also be noted in the process to formulate the “Teacher Training Index”. (1) The formulating process should be conducted by collaborating with universities etc. (2) Proper number of elaborated training should be scheduled. Excess number of training spurs busy situation to teachers.

4. “Teacher Training Index” adopted by Chiba prefecture and Chiba city:

Chiba prefecture and Chiba city have collaborated with Faculty of Education, Chiba

University on many activities concerning to education in Chiba area. For example, they are working to educate teachers and to encourage research on education cooperatively by organizing a council. Additionally, “Teacher license renewal course” which is obligated for all teachers to attend every 10 years is provided by the Faculty of Education, Chiba University. Faculty of Education, Chiba university has also established a Graduate School focusing on teachers education and teachers in Chiba area are dispatched as students to the Graduate School.

Table 1. Index for teacher training in Chiba Prefecture and Chiba City

Aim and Policy: To educate teachers to be qualified and to be trusted									
Pillars	Components	Pre-Employment Stage	Employment Stage	After Employment <Stage 1> To improve quality and skill on subject teaching and class management etc.	After Employment <Stage 2> To be a middle-level manager on school management etc.	After Employment <Stage 3> To be a school management leader			
Basic qualities as teachers	<ul style="list-style-type: none"> •Sense of mission •Responsibility •Educational affection •Morality •Faith of discipline 	<ul style="list-style-type: none"> •Sense of teacher •Role of teacher •motivation to be teacher •Obligations 	Teaching Practice and Internship Program at schools	Rich in humanity and filled with a sense of responsibility	Have a sense of ethics, healthy body and mind	<ul style="list-style-type: none"> A person who has a sense of responsibility, educational affection,with a sense of duty as the teacher. A person has strong passion for the teaching profession.In addition, he should have high ethic feelings as a public educational personnel and observe service rules and accomplish his duties justly. 			
	<ul style="list-style-type: none"> •Sociality •Communication ability 	<ul style="list-style-type: none"> •Discriminating •Motivation to continue studying •Communication ability 				<ul style="list-style-type: none"> A person who has enough socializing skills and communication skills. A person should collaborate with other staff of a school depending on his duties positively with pupils,parents,and a local community. 			
	<ul style="list-style-type: none"> •Discriminating •Motivation to continue studying •Adoption to changing society 	<ul style="list-style-type: none"> •Basic knowledge on idea, history on education •Basic knowledge on social, institutional and managerial aspects on education 				<ul style="list-style-type: none"> A person who makes effort to study and cultivate his mind, to enhance his quality as a teacher with wider view. A person should also put newly required knowledge and skills into practice. 			
	<ul style="list-style-type: none"> •Basic knowledge on teaching 					<ul style="list-style-type: none"> A person should understand social or institutional matters about education,and its significance, and the history. A person should try to collect information about the latest trends. 			
Practical capacity on teaching subjects	<ul style="list-style-type: none"> •Specialty on subjects 	<ul style="list-style-type: none"> •Aims and contents perscribed in the government course guideline 							<ul style="list-style-type: none"> A person should provide expertise on the subjects in his classes. A person should try to improve his class, in order to study active,interactive,and in more depth.
	<ul style="list-style-type: none"> •Conduct classes •Skill on teaching 	<ul style="list-style-type: none"> •Basic theory on teaching •Process of study •Skill on teaching •Concrete plan on classes 							<ul style="list-style-type: none"> A person should provide learning process for problem solving, with a grasp of the community and the students. A person should also use his ingenuity to improve his lessons,considering unit learning and time schedule, acquisition and utilization and inquisition for students.
	<ul style="list-style-type: none"> •Study support for special support required students 	<ul style="list-style-type: none"> •Understand on special support required students 							<ul style="list-style-type: none"> A person should grasp a situation about students who need special support and ,in cooperation with home and other staff of a school and an organization concerned,devise the support in the leaning individually.
Practical capacity on student guidance	<ul style="list-style-type: none"> •Understand students •Construct relationship •Student guidance 	<ul style="list-style-type: none"> •Process and character on development of srudents •Theory and meaning on student guidance 							<ul style="list-style-type: none"> A person should understand development of the body and mind of the students and their each situations. A person should also get control of the class and give effective guidance, under a relationship of trust with students.
	<ul style="list-style-type: none"> •Educational consultation •Individual coaching 	<ul style="list-style-type: none"> •Theory and meaning on educational consultation •Bacic knowledge on educational consultation 							<ul style="list-style-type: none"> Toward solution of the problems of each students, one should be considerate of their feelings and anguish. A person should also encourage them to adapt to a school life and help to the growth of the personality.
	<ul style="list-style-type: none"> •Understand special support required students •Support on life 	<ul style="list-style-type: none"> •Understand characters of special support required students •Method to provide required support on life 							<ul style="list-style-type: none"> A person should understand the individual situation of the students needing special support . In cooperation with home and other staff of a school and organ concerned, a person should perform study support individually.
	<ul style="list-style-type: none"> •Education on human-rights •handling problem behaviors 	<ul style="list-style-type: none"> •Philosophy on human-rights education •Philosophy on handring problem behavior 							<ul style="list-style-type: none"> A person should perform appropriate instruction for students for a problem in the student instruction, under the idea of the human rights education, such as bullying, school refusal, information morals, in cooperation with home, other staff of a school, and organ concerned.
	<ul style="list-style-type: none"> •Career guidance •Career education 	<ul style="list-style-type: none"> •Sense and theory on career guidance and career education 							<ul style="list-style-type: none"> A person should give lessons made in a viewpoint of the self-realization of the students. A person should also give experience-based activity, guidance and enhancement of the counseling.
Capacity to contribute to school management	<ul style="list-style-type: none"> •Curriculum management and operation 	<ul style="list-style-type: none"> •Sense and drafting method on curriculum •Sense to conduct curriculum management for each school 				<ul style="list-style-type: none"> A person sholud carry out each curriculum organized at school and one sholud always improve it to be adjusted to reflect actual condition of the school and improve from a viewpoint of the curriculum management. In addition, a person sholud try for appropriate correspondence about the formation of the curriculum of the students needing special support. 			
	<ul style="list-style-type: none"> •School-task sharing •Cooperation with teachers 	<ul style="list-style-type: none"> •Overvwl all tasks in school 				<ul style="list-style-type: none"> A person should support school administration as a member of the organizations, and achieve one's role with responsibility. 			
	<ul style="list-style-type: none"> •Cooperation with parents, community and organizations 	<ul style="list-style-type: none"> •Method to cooperate with families and communities •Sense and method to cooperate with organizations concernrd 				<ul style="list-style-type: none"> A person should try to cooperate with home and community, and organization concerned ,to create the school open for community. 			
	<ul style="list-style-type: none"> •Research system 	<ul style="list-style-type: none"> •Sense and method to improve quality by research and training 				<ul style="list-style-type: none"> A person should grasp results and issues in the training and the study. A person should try to do his study and cultivation necessary to improve nature ability as a teacher. A person should also try to establish campus training system. 			

Based on such collaboration, formulation of the “Teacher Training Index” of Chiba prefecture and Chiba city has been conducted by collaborating with Faculty of Education, Chiba University. Accordingly, the “Teacher Training Index” of Chiba prefecture and Chiba city has been established in 2017. Outline of the “Teacher Training Index” is shown as Table 1. Aim and policy of the “Teacher Training Index” is “To educate teachers to be qualified and to be trusted”. Content this aim and policy consists of following four pillars; (1) Basic qualities as teachers (2) Practical capacity on teaching subjects (3) Practical capacity on student guidance (4) Capacity to contribute to school management. Detailed aims are prescribed on each stage, i.e., pre-employment stage, employment stage, after employed stage. Regarding the “after employed stage” it is divided into three based on the years since employment, i.e., stage 1, 2 and 3.

5. Revision of the system on teacher training in Chiba prefecture and Chiba city:

Since established the “Teacher Training Index”, Chiba prefecture and Chiba city is revising the system on teacher training. In the being revised system on teacher training, the four pillars and the aims on each career stage which are mentioned in the above chapter are being reflected. The revision will be completed in 2018.

6. Revision of curriculum for teacher license in Chiba university:

As mentioned in the above chapters, detailed aims are prescribed not only on “after employed stage” but also on “Pre-employment stage” in the “Teacher Training Index” of Chiba prefecture and Chiba. Namely, curriculum for teacher license in Faculty of Education, Chiba university was expected to revise to reflect the aims. At the same time, Ministry of Education, Culture, Sports, Science and Technology, Japan (MEXT) ordered universities in Japan re-certification of curriculum for teacher license. Under these recent situation, curriculum for teacher license in Faculty of Education, Chiba university has been revised. By this revision, aims and content in the curriculum for teacher license seemed to be clear.

7. Assumed issues by revision of “Teacher Training Index” and curriculums:

By this revision on curriculum for teacher license at each university, some issues are assumed. One issue is originality on the curriculum will be lost and unified curriculum will be implemented among the universities in Japan. As another issue, gap on aims between “Teacher Training Index” and each university is also be assumed. To escape such issues, we should note such viewpoint through the process to revise the “Teacher Training Index” and curriculum for teacher license.

