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A Study on the Integration of Learning Outcomes, Learning Activities and Assessments in Teacher Education

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ABSTRACT

This research aimed to study the process of course redesign for a five-year teacher education programme, and to develop the learning management ability of the pre-service teachers. The target groups were 82 third-year pre-service-teacher students from the Faculty of Education by purposive selection. The research instruments included a student reflection form, a student learning management ability checklist, a school mentor reflection form, a peer reflection form and a teacher's stages of concern questionnaire. The research results revealed the process of course re-design on the teaching profession, learning management ability of the pre-service teachers, content, learning activities inside and outside the classroom and various assessments, which were built from the learning outcomes and the teaching professional standard for teachers. After implementing the course, the students identified that they became better at learning management ability because they had had the chance to teach in an authentic situation and had received recommendations and guidance from the lecturer and school mentors. Moreover, reflection from students with hearing impairment and peer assessment helped them understand and know what occurred throughout their learning activities. Teaching practice in a school for the deaf revealed that the satisfaction of school mentors and students with hearing impairment was positive.

Keywords: Integration, learning outcomes, learning activities, classroom assessment, teacher education

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INTRODUCTION

Since 2006, teacher education courses in Thailand have been extended from fouryear bachelor degree courses to five-year courses. Recently, the teacher education system in Thailand has been under

reform based on the Thai Qualifications Framework for Higher Education (TQF: HEd), which was launched in 2008. According to the National Education Act 2542 (B. E.) (1999) and Amendments (Second National Education Act B. E. 2545 (2002)), TQF is a mechanism for higher education quality assurance and is intended to develop the quality of students in the higher education system. The implementation of the TQF poses substantial challenges to teaching and learning. These include endemic difficulties in integrating theory practice and the shifts in focus of activity and effort from documentation to quality of teaching and learning itself. Other challenges relate to recent and significant changes in Thai higher education, which has had considerable impact on the design of teaching strategies, learning activities and assessment as supported by optimal teaching standards. Learning outcomes are statements of the attributes and capabilities that a student should have achieved on successful completion of the learning session or topics. They provide a reference point for assessing students' progress and designing strategies assessment and methods. Learning outcomes are helpful benchmarks for the standards educators will apply when measuring students' achievement using various assessment instruments and processes (Pimpa & Moore, 2012).

Redesigning the course in teacher education followed a framework prescribed by the Office of Higher Education Commission (2006), which stated that

there were significant differences in the way learning occurs in the different domains. For example, students memorise information in a different way from how they form their attitudes, and they learn to apply cognitive skills in problem-solving in yet a different way. Very different processes are involved in learning to apply ethical and moral principles in everyday behaviour and in improving interpersonal effectiveness and capacity for leadership. Psychomotor skills are developed through repeated practice with feedback on the effectiveness of performance. This means that if learning outcomes are to be achieved in the different domains of learning, different teaching strategies that are appropriate for those different types of learning must be used. The term "conditions of learning" is used to describe what are generally recognised as the most important requirements for effective teaching in each of the domains.

Success in implementing TQF for higher education must overcome the problem of how to apply teaching standards and strategies for teacher education to meet learning outcomes outlined by the TQF for current needs such as information retrieval sills, learning management ability (teaching skills), teachers' concerns and students' contexts. In addition, there are problems related to teaching. Veenman (1984) identified eight areas of concern experienced most often by beginning teachers: (1) maintaining classroom discipline; (2) motivating students; (3) dealing with individual differences; (4) assessing students' work; (5) maintaining relations with parents; (6) organising class work; (7) dealing with insufficient materials and supplies; (8) dealing with problems of individual students. Pholsarum (2003) studied instructional reform in higher education based on the Second National Education Act B. E. 2545 (2002) Section 22 and revealed that (1) in the student dimension. Bachelor-degree students lacked good human relationship skills, an endeavouring spirit, endurance and creativity. Furthermore, the undergraduate students studied also lacked skill and experience in inquiring and researching; (2) in the curriculum dimension, it was found that there was no integration of subjects to help students gain appropriate knowledge in their fields of study. Ordinary teaching always focusses on teaching a single subject in order to make students professionals of each subject area.

This study focussed on TQF and the standard of teachers' knowledge and teaching competency of the Office of Higher Education Commission (2011) and the Teacher's Council (2005) which relate to teachers in this new era of globalisation that requires knowledge application for the improvement of new methods of teaching practice and classroom management that are responsive to learners whose different levels of intelligence are to be matched with three-tier instruction. In this research, the researcher developed a teaching profession course called 'inclusive education' that initiated a course to integrate content knowledge, pedagogical knowledge pedagogical content knowledge and

into a single subject. What is seen in a single subject (inclusive education: IE) is integration of investigation of special education knowledge, design of the lesson plan for students with education needs and practice of teaching in authentic classes in order to monitor the student teachers' learning management ability and teaching concerns. Two issues were addressed: (1) What is the process of course redesign for a five-year teacher education programme? (2) How do the learning management abilities of pre-service teachers rate after the redesigned course is implemented? The research results will be used as a prototype for the development of courses for a fiveyear teacher education programme in order to apply innovative ways of teaching that will help all students achieve their learning outcomes and new professional standards.

LITERATURE REVIEW

Three-Tier Instruction

There are significant differences in the way learning occurs in the different domains. For example students memorise information in a different way from how they learn to form attitudes, and they learn to apply cognitive skills in problem-solving in yet a different way. Very different processes are involved in learning to apply ethical and moral principles in everyday behaviour and in improving interpersonal effectiveness and capacity for leadership. Psychomotor skills are developed through repeated practice with feedback on the effectiveness of performance. This means that if learning

outcomes are to be achieved in the different domains of learning, different teaching strategies that are appropriate for each type of learning must be used (Office of Higher Education Commission, 2011). The term "three-tier instruction" or Recognition Pyramid is used to describe what are generally recognised as the most important requirements for effective teaching in each domain. Three-tier instruction is an option seen in the Response-to-Intervention (RTI) Model, which is used for helping children to learn effectively in regular settings as a result of the use of appropriate teaching methods in each tier (Copenhaver, 2006). The three-tier instruction used for course redesign in teacher education adapted from the RTI Model included three tiers: (1) Tier-1 to support participation and collaboration in team tasks to achieve learning outcomes; (2) Tier-2 to support integration of all group members for all to achieve learning outcomes; and (3) Tier-3 to support individual students to achieve learning outcomes.

Standard of Teachers' Knowledge -- The Office of Higher Education Commission: Level 2 Bachelor's Degree for Education Curriculum

Knowledge for the teaching profession consists of 11 pedagogical knowledge streams: (1) Principle and educational philosophy, teaching profession and teachership; (2) Developmental and educational psychology; (3) Curriculum design and development; (4) Learning design and management; (5) Information

technology and communication for teachers; (6) Classroom management and learning environment; (7) Innovation construction; (8) Measurement and evaluation; (9) Special education; (10) Educational research; and (11) Educational administration and related laws.

It also consists of six pedagogical content knowledge streams consisting of (1) Teachers' psychology for learning management for each grade level and field of study; (2) Developing curriculum on specific subjects for learning management for each grade level and field of study; (3) Management of learning specific subjects for each grade level and field of study; (4) Classroom management for each grade level and field of study; (5) Information technology and educational communication for learning specific subjects of each grade level and field of study; and (6) Educational measurement and evaluation on learning specific subjects for each grade level and field of study (Office of Higher Education Commission, 2011).

Education Professional Standard

Teachers' knowledge consist of nine standards: teachership, educational language culture. philosophy, and psychology for the teacher, curriculum, learning management and environment for learning, research for developing students' learning, innovation and information technology in education, measurement and learning assessment (Teacher Council's, 2005). In 2013, an additional stream was included i.e. moral, ethics and code of conduct (Teacher's Council, 2013).

METHODOLOGY

Target Group

The target group of this study included a total of 82 third-year pre-service-teacher students from two departments in the Faculty of Education at Udon Thani Rajabhat University, Thailand. The subjects were 44 Thai language majors and 38 Social Study majors selected by cluster random sampling.

Instruments

The research instruments consisted of (1) Lesson plans consisting of one orientation plan and four cycles of lesson plans using three-tier instruction, (2) A student reflection form to use before and after the course, (3) A student learning management ability checklist, (4) A school mentor reflection form, (5) A peer reflection form, and (6) A teacher's concerns questionnaire.

The students' learning management ability checklist adapted from Gilmore (2010) and the teacher's concerns questionnaire based on George (1978) were translated into Thai and served as the data collecting instruments. The quality of these instruments were drawn from content validity checks by three specialists, while content validity was determined by obtaining the item-objective congruence (IOC) value for each item of each instrument. These research instruments were used with non-sampled third-year students to discover inherent problems in order to solve them before data collection.

Procedure

The research design was classroom action research. Research was separated into three phases: (1) Phase 1 course design (May to September 2013); (2) Phase 2 implementation (November 2013 to February 2014); and (3) Phase 3 evaluation (March 2014). The data analysis consisted of analysing quantitative data by percentage, mean, standard deviations, a t-test for dependent samples, a t-test for independent samples using qualitative data and summarised by content analysis using a descriptive conclusion.

FINDINGS AND DISCUSSION

The research findings of this study were based on data gathered from two groups of students who provided information about learning management ability and teaching concerns from practice teaching. The results revealed the process of course redesign and the learning management abilities of the pre-service teachers.

The Process of Course Redesign

The process of course redesign can be illustrated for each phrase as follows:

Phase 1: Course design: The process of developing the course. From documentary studies such Gagne's principles of instructional design, it can be concluded that there are three essential components of instruction: 1) objectives or goals; 2) methods, materials, media and learning experience or exercises; and evaluation

of success of the learners (Gagne' & Briggs, 1974). Therefore, the steps in redesigning the course consisted of two sets of actions:

- Step 1. Identifying the students' learning management ability and concerns about teaching by doing documentary study related to the 11 pedagogical knowledge streams, six pedagogical content knowledge streams of the Thai **Oualifications** Framework for Higher Education (TQF:HEd) and the nine content knowledge and two teaching competency requirements of the Office of the Teachers Council of Thailand (2005).
- Step 2. Designing the teaching profession course (Inclusive Education), which integrated teaching practice as part of the requirement of this course. A multi-level instruction programme was integrated to help third-year students' learning by dividing lessons into three tiers, namely: 1) Tier-1: Sufficient expression of content and tasks, active participation and collaboration in team tasks, friendliness, trust in the classroom and focus on the learning outcomes; 2) Tier-2: Working in groups; development of encouraging team, communication, fair distribution of tasks, positive atmosphere; and 3) Tier-3: Achieving the learning outcomes; every person able to

evaluate teaching performance for themselves and become better at learning management ability.

- **Phase 2: Implementation.** The integrated learning activities for developing learning management ability consisted of four stages as follows:
- Stage 1. Pre-teaching: Students were expected to find information about teaching for students with special needs from studying related documents. There were three class sessions when students were required to present the results of their study and two school visits for groups of four or five students to observe the teaching and learning in real classes.
- Stage 2. Peer-teaching and micro-teaching:
 Students had two out-of-class teaching practice sessions and received teaching reflection from peers and a lecturer followed by one in-class micro-teaching session, after which students received teaching reflection from peers and their lecturer.
- Stage 3. Practice in real classroom: At this stage, students work in groups of four or five members. Each group was sent for teaching practice at Udon Thani School for the Deaf in classes according to their respective majors.
- Stage 4. Presenting and exhibiting knowledge learned from teaching practice: Students participated in

a seminar for both Thai language and Social Study majors in order to share knowledge they had learned from the prior stage with their peers (with the results from peer reflection), school mentors (with the results from the school mentors' reflection) and lecturers.

Form these activities, the steps of teaching comprised one orientation plan that implemented giving information about seven action research cycles and tier-3 instruction. The three lesson plans following the orientation for pre-teaching consisted of three main steps:

- Step 1. Launching. This step consisted of engaging students' planning to do a task followed by lesson plan implementation; here the teacher and students made a commitment to teach at the micro level in real classes.
- Step 2. Presentation. Observation was done as students presented their work, with their lecturer as facilitator in order to give the students three-tier. Instruction varied form low to high levels of guidance in the three tiers:
 - Tier-1. Support for students who were in need of low guidance: The teacher and students made a plan for inquiring together in class activities.
 - Tier-2. Support for students in need of moderate guidance: The teacher gave advice to small groups in outside-class activities while they were doing the task and as their needs required.

- Tier-3. Support for students in need of high guidance: The teacher gave advice to individual students through out-of-class activities after tasks were completed and as the individual's needs required.
- Step 3. Conclusion. Students constructed the knowledge learnt from doing the tasks. They provided reflection through discussion on the performance of peers and their own performance in order to gather information on the strengths and weaknesses of the tasks for use in planning their next teaching session. The methods used were consistent with sound teaching strategies tailored for students from diverse backgrounds by providing guidance according to three tiers of competency and proficiency. In addition, assessment tasks offered important information to enhance students' learning experience as they were based on evidence and focussed on encouraging learning and measuring progress in relation to learning (Pimpa & Moore, 2012).

The ideas behind these activities are supported by NCATE (2000); field experience for student teachers is central to the development of their knowledge and skills. They are also relevant to Gagne and Briggs (1974) study results; their basic assumption about instructional design is that: (1) Instructional planning must be for the individual; (2) Instructional design has

phases that are both immediate and long range; (3) The work of instructional design is systematic and it affects individual human development; (4) Instructional design must be based upon knowledge of how people learn. Another conclusion for an effective teacher development programme based on extensive studies is that leadership development for teachers requires general activities that should comprise: 1) Development of activities using the school as a foundation to correct issues that obstruct the students' learning ability; 2) Development of activities encouraging cooperation from every educational member in order to build a strong social affiliation within the school, where goodwill and knowledge are available for all members. This concept indicates the level of expertise in curriculum creation and has to comply with the concept of the social platform as a learning centre; 3) Development of activities that should be transparent; 4) Development of rules that collect information by inquiring about planning, implementation and reflection

of the action gained from analysing problems; and 5) Leadership development of activities that are continuous and well-ordered and that support the culture of knowledge exchange and lifelong learning (Harris, 2003; Henderson & Hawthorne, 1995).

Phase 3: Evaluation. In this study the researcher integrated the various methods and persons to assess achievement of the learning outcomes (learning management abilities). Furthermore, students had the chance to do self-assessment on learning management ability and teachers' concerns.

Learning Management Abilities of Pre-Service Teachers

In order to obtain extended understanding of pre-service teachers' learning management abilities, the researcher conducted a t-test for dependent samples on pre- and post-test scores for both learning management ability and teachers' concerns in addition to calculating an arithmetic mean and standard deviation.

TABLE 1 Mean and Standard Deviation of Learning Management Abilities and Teachers' Concerns of Pre-Service Teachers Majoring in Thai Language and Social Studies

Major	Learn	Learning Management Ability		Ability		Teachers' Concerns			
	Pı	Pre-test Post		t-test	Pre-test		Post-test		
	\bar{X}	SD	\bar{X}	SD	\overline{X}	SD	\bar{X}	SD	
Thai Social Study Totals	44.57 41.74 43.26	4.123 2.202 3.641	62.30 63.03 62.63	3.885 2.573 3.343	45.84 46.11 45.96	4.812 4.039 4.446	60.55 59.58 60.10	2.740 3.374 3.070	

Table 1 illustrates the pre-test and posttest mean scores and standard deviation for learning management ability and teachers' concerns. The learning management ability pre-test mean scores of the Thai language and Social Studies majors were 44.57 and 41.74, whereas the post-test means were 62.30 and 63.03, respectively. The teachers' concerns' pre-test mean for the Thai language and Social Studies majors were 45.84 and 46.11, whereas the post-test means were 59.58 and 60.55, respectively.

TABLE 2 Comparisons of Pre-Test and Post-Test for Learning Management Ability and Teachers' Concerns of Thai Language Majors

Test	\bar{X}	SD	t
Learning management ability			
pre	44.57	4.123	5.865**
post	62.30	3.885	
Teachers' concerns			
pre	45.84	4.812	24.244**
post	60.55	2.740	

^{}** *p* < .01

The results showed a statistically significant difference between the pretest and post-test scores for learning management ability (t = 25.865) and a statistically significant difference between

the pre-test and post-test scores for teachers' concerns (t = 24.244), indicating that the post-test scores of both categories were significantly greater than the pre-test scores.

TABLE 3
Comparisons of Pre-Test and Post-Test for Learning Management Ability and Teachers' Concerns of Social Study Major Students

Test	$ar{X}$	SD	t
Learning Management Ability			
Pre	41.74	2.202	34.946**
Post	63.03	2.573	
Teachers' Concerns			
Thai	46.11	4.039	27.502**
Social Study	59.58	3.374	

^{**}*p* < .01

The results showed a statistically significant difference between the pretest and post-test scores for learning management ability (t = 34.946) and a statistically significant difference between the pre-test and post-test scores for teachers' concerns (t = 27.502), indicating

that the post-test scores of both categories were significantly greater than the pre-test scores.

The comparison results of the post-test mean scores of both groups of students are illustrated in Table 4.

TABLE 4
Comparison of Post-Test Mean Scores between Thai Language and Social Studies Majors on Learning Management Ability and Teachers' Concerns

	$ar{X}$	SD	t
Learning Management Ability			
Thai language	62.30	3.885	1.016
Social Studies	63.03	2.573	
Teachers' Concerns			
Thai language	60.55	2.740	1.431
Social Studies	59.58	3.374	

^{*}*p* < .05, ***p* < .01

The results showed that there were no statistically significant differences between the two groups in terms of learning management ability and teachers' concerns.

The results of this study showed that the scores for the post-test on learning management ability of both groups was significantly greater than for the pretest. Similarly, a pre-test and post-test on teachers' concerns of both groups indicated that the mean of the post-test was significantly greater than the mean of the pre- test. This possibly resulted from the following: 1) The teaching method used in this research was developed using four cycles of action research and three-tier instruction that related to the student teachers' education needs. Moreover, the

pre-service-teacher students had gained a better understanding from listening to peers' and lecturers' reflection on their work. The tasks assigned on learning activities could also have helped them to gain a clearer picture of the learning activities they planned i.e. teaching practice in an authentic situation, receiving recommendations and guidance from the lecturer and school mentors, receiving reflection on their work from students with hearing impairment and from peer assessments.

The results of teaching practice in a school for the deaf revealed that: 1) School mentors and students with hearing impairment were satisfied with the teaching; 2) Investigation into pedagogical knowledge and how it was integrated with pedagogical content knowledge e.g. how to teach Social Studies or the Thai language to the students with hearing impairment, how to design activities to teach and how to assess students' understanding, helped the third year pre-service teachers develop their lesson plans for effective real classroom teaching; and 3) Re-practice teaching twice helped reduce pre-serviceteacher students' anxiety, so that they could improve their teaching as they had the opportunity to assess their first teaching practice. These suppositions are supported by Lovat, Davies, & Plotnikoff (1995), who studied the integration of research skills development in teacher education. They found that firstly, it would seem that the students had entered teacher education lacking basic skills deemed necessary for eventual research competence, and secondly, the students' self-perception was developed to a reasonable extent by the time they were required to engage in independent study.

CONCLUSION

This research was a course redesign in teacher education for professional development to enhance student teachers' learning management ability. The findings showed that the process of course redesign was successful as it consisted of three phases: (1) Phase 1 – Course design; (2) Phase 2 – Implementation; and (3) Phase 3 – Evaluation. The teaching method integrated learning outcomes, learning

activities and assessment with threetier instruction that provided support to pre-service-teacher students by offering different levels of guidance from low to high depending on the needs of each student. Various activities, tasks, assessments and feedback were also provided in order to improve their pedagogical knowledge pedagogical content knowledge. The designing of lesson plans consisted of four stages: (1) Stage 1: Pre-teaching included discussing and sharing teaching concepts; giving information on teaching; investigating additional information on teaching with three-tier instruction; (2) Stage 2: Micro teaching, which was teaching to peers in and outside class using three-tier instruction, teaching reflection and revision; (3) Stage 3: Practising in a real classroom, where students applied the three-tier plan; teaching reflection; and plan revision; and (4) Stage 4: Presenting and exhibiting the knowledge learnt. Each stage consisted of three main steps, namely, launching, presentation and conclusion. The findings on developing learning management ability and teachers' concerns revealed that the pre-serviceteacher students' learning management ability and teachers' concerns were greater after implementation of the redesigned course.

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APPENDIX A

An example of instruments

A.I	Learning Management Ability Checklist
	Directions: Please read each statement and ask yourself:

- 1 = Strongly agree
- 2 = Agree
- 3 = Undecided
- 4 = Disagree
- 5 = Strongly disagree

Learning Management Ability	5	4	3	2	1
1. Ability to plan for instruction					
2. Ability to arrange a positive environment					
3. Aability to engage students in learning					
4. Ability to develop relationship with students					
5. Ability to provide clear explanation and examples					
6. Ability to make connections with authentic situation					
7. Ability to facilitate students in responding					
8. Ability to encourage multi-sensory integration					
9. Ability to reinforce student learning					
10. Ability to identify students' difficulties					
11. Ability to evaluate students in order to select or change the intervention					
12. Ability to improve the appropriate instruction to meet students' needs					
13. Ability to defuse stress in atmosphere					
14. Ability to conclude the lesson					
15. Time management					

