An Innovative Integrated Model of School-University Partnership

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ABSTRACT

This study was intended to explore an innovative integrated model for supporting future teachers learning to teach under the impact of teacher education reform of Taiwan, particularly, in the internship. It begins by introducing the change of teacher education reform issued in 1994, followed by the description of the impact of teacher education on quality control. Then, it describes an innovative approach of internship through the school-university partnership. The innovation approach is intended to enhance mentors' knowledge and skill, such that mentors have better ability in mentoring future teachers. The aspects of innovation include the course of the mentoring, the process of mentoring, an integral model of mentoring, and its evaluation of the mentoring program. The characteristics of the partnership are summarized. Several tensions and difficulties emerged under the integrated model of mentoring are described in the end.

Keywords
Mentors, integrated model, internship, school-university partnership.

1. INTRODUCTION

Teacher preparation programs across countries have made considerable efforts to improve the content and the process of the practicum (Fairbanks, Freedman, Kahn, 2000; Field & Latta, 2001; Nichols & Tobin, 2000; Nilssen, 2003; Strong, Baron, 2004; Wang & Odell, 2002). The practicum stipulated allows a future teacher (FT) to have field experience in school settings for an entire school year with the support of university faculty and school teachers (Booth, 1995). Due to fact that the responsibility for mentoring FTs in Taiwan lies with the mentor in the schools who are not subject specialists rather than with the university faculty, so that FTs have little professional learning with school teachers during practicum (National Hsinchu University of Education, 2006).

The Teacher Education Act (TEA) passed in 1994 significantly changed the way that teachers in Taiwan are trained. With the influence of economic, political and social constructs (Fwu & Wang, 2002; MOE, 1994). The TEA brought into law two important changes (MOE, 1994): 1) Teacher preparation can be offered from any institution in which has a teacher education program; 2) School-based practicum is reduced to half year from a whole year; 3) Teachers are certified by the processes of graduating from a qualified teacher certification program (4 years), completing a half-year practicum, and passing a certified teacher examination.

A great deal of teacher education researchers have paid a lot of attention on the studies of teacher preparation, but these studies are limited on the learning opportunities for FTs provided by the teacher preparation program (Huang & Chin, 2003; Lo, Hung, & Liu, 2002; NHUE, 2006). There was relatively little research on the support given to FTs until the privilege of teacher colleges or normal universities for teacher preparation was deprived. The focus of this study is on the effect of an innovative integrated model of mentoring that was designed to improve the skill and knowledge of mentors' in supporting FTs' quality of teaching during the internship of the elementary school-university partnership.

2. THE IMPACT OF TEACHER EDUCATION REFORM IN TAIWAN

Several issues regarding teacher education impacted by the teacher education reform are addressed as follows.

2.1 *Variance in Teacher Training Among Universities*

All four-year public and private universities and colleges are allowed to run teacher education programs as long as they meet the requirements of the MOE. The teacher education program in any university needs to be approved by the MOE which requires the school to meet criteria regarding the staff and faculty, curriculum, and facilities of the program(s). However, the process of instruction, training, and practicum vary with different programs (MOE, 1994). Some programs have inadequate number of faculties, while some lack of practical experience in internship (MOE, 2005). The enactment of the TEA accelerated the number of TE programs set by regular universities from 9 programs in 1994 increasing up to 88 programs in 2006 (MOE, 2005). Due to these circumstances, two teacher colleges upgraded to be a comprehensive university (MOE, 2005). The declining budget of government for higher education and the limited amount of the faculty and facilities made the transformation of universities of education or to seek for compiling into nearby universities (Cheng, 2009; Lee, 2008).

2.2 *Initiation of National Certified Teacher Examination*

Due to the decreasing birth rate (Sheau, 2006), the supply of teachers is much more than the demand. The number of teachers to be prepared is reduced by 50% from 1994 to 2009; when only 9,123 students were admitted to schools of education (MOE, 2009).

Although fewer teachers are being educated more institutions are involved; to control teacher quality, a National Certified Teacher Examination (NCTE) was initiated in 2004. The examination assesses FTs' knowledge of general pedagogy instead of subject matter pedagogy. The items of examination do not assess FTs' pedagogical content knowledge of mathematics.

2.3 *FT's Practical Knowledge Undeveloped in the Practicum*

The practicum provides FTs with an opportunity to develop the professional knowledge but it often results in FTs developing technical skills of classroom management, rather than the wisdom of professional practice (Fwu & Wang, 2002; Huang & Chin, 2003; Lo, Hung, & Liu, 2002). Within ten years, a great deal of studies on teacher preparation show that FTs complained that they are required to devote a great deal of time to administrative affairs of schools, due to the ambiguity of FT's role (Lin, 2007; Lo, et. al, 2003; National Hsinchu

University of Education, 2006). FTs in school placement were neither a student (because of their completion of courses of TE program) nor a teacher (because of no salary). FTs were required by mentors or by school administrators to devote a great deal of time to doing school administrative affairs. The FTs were afraid of rebelling school teachers' authorities because the part of their grade of internship was graded by mentors. This leads to lack of professional learning during the internship. In addition mentees complained that they were mentored by the mentors who did not have enough professional knowledge in mentoring (Lo, Hung, & Liu, 2002; Huang & Chin, 2003; Lin, 2007).

To increase the quality of mentoring, the National Science Council (NSC) associated with MOE called for research proposals. This study was developed under the situation. This study began by constructing professional standards for mentors and for FTs and followed by designing a mentoring program, developing a model of mentoring, and evaluating mentoring program.

4. AN INTEGRATED MODEL OF MENTORING FOR IMPROVING THE QUALITY OF INTERNSHIP

4.1 Courses of the Mentoring Program

The goal of the half-year mentoring program as part of the study was to enhance mentors' knowledge and skills in mentoring. The mentoring program was based on the professional standards of mentors that were conducted by the first year of study (Lin & Tsai, 2007).

The program was divided into two sections: summer workshop and half school-year mentoring practice. The course of each section covered five topics: curriculum, pedagogy, assessment, social mathematics norm, and topics about individual students. Curriculum topics refers to the objectives of instruction, the scope and sequence of the content to be learned, resources of teaching, textbook, and the plans and schedules for teaching. Pedagogical topics involve the discussions on subject matter knowledge, instructional strategies, clarity of explanation, questioning, problem-posing, and analyzing students' various solutions. Assessment analysis is for understand students' performance as well as their progress. The social mathematics norm reviewed the issues about social interaction in mathematics classroom, the norms of groups of students in a class. Individual students included discussions about the background, learners' needs, behavior, and progress of an individual student (Lin, 2007).

The courses of the mentoring program were implemented in a six-day with 36 hours summer workshop; followed by half school-year with 42 hours of instructional time. The summer workshop was to provide a learner oriented conception to mentors' and FTs' for teaching mathematics, while the half-year course was to enhance mentors' knowledge and skills in mentoring and FTs' knowledge of teaching.

4.2 *Partnership of University-School*

It is not possible to develop FTs' professional knowledge if the mentors' mentoring knowledge and skills have not been well developed (Cobb, & McClain, 1999). Thus, developing mentors knowledge and skill of mentoring is prerequisite before they mentor with FTs. To reduce mentors' tension and burden from their participation in the mentoring program, each mentor was only trained to specialize in one subject by a teacher educator from mathematics department of the university. For instance, the mentors A, B, C, and D were trained to be an expert in mathematics teaching assisted by the teacher educator of mathematics education, while mentors P, Q, R, and S were trained to be an expert in Chinese teaching assisted by the teacher educator from Chinese department.

Four groups involving in the partnership were: mathematics mentors group (MMG), Chinese mentors group (MMG), mathematics FTs group (MFTG), Chinese FTs group (CFTG), displayed in Figure 1. MMG consists of a mathematics teacher educator and four mentors. MFTG consists of four pairs of FT-mentor in mathematics.

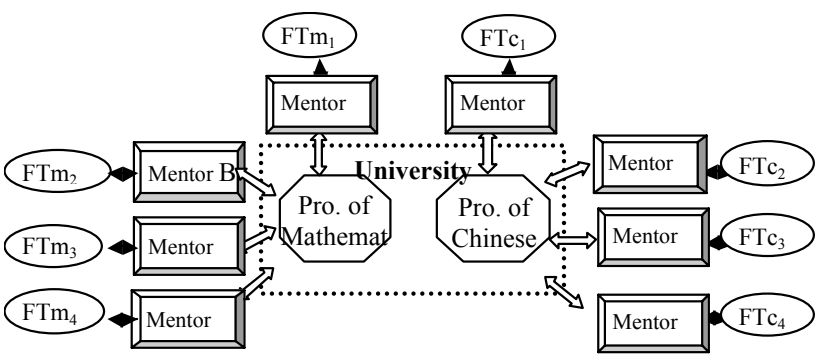

Figure 1: The School-University Partnership

The school-university partnership was designed to assist mentors in developing mentoring knowledge and skills, and then to enhance FTs' professional practice during the practicum. In developing the school-university partnership, there were four main considerations. First, the school to be recruited was dependent on the willing of the mentors and the FTs. Second, the school to be recruited at least consists of the mentors from mathematics and Chinese. Third, the school has a commitment to maximize the FTs' involvement in the community of mentors while at the same time minimizing the possible disruption this participation might cause the mentors and schools. Fourth, some kind of ancillary benefits and feedback for giving back to the school from the university when designing the mentoring program. The collaboration of school and university is depicted in Figure 2.

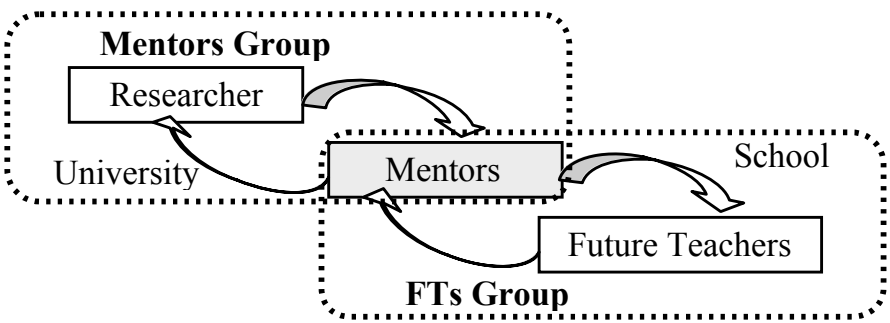

Figure 2: Collaborative Model of Mentoring in School-University

4.3 The Integrated Model of Mentoring

Due to the fact that FTs were to be a primary school teacher who teaches several subjects, but mathematics and Chinese are required subjects to be taught by a home-room teacher. To this end, an integrated model of the mentoring was developed in the study.

The model was called one-subject mentors with multiple-subjects future teachers (OSM-MFT). It means that each mentor was only trained to specialize in one subject by a teacher educator of the university, while a FT is trained in all subjects from two mentors who are interested in mathematics or Chinese, as in Figure 1.

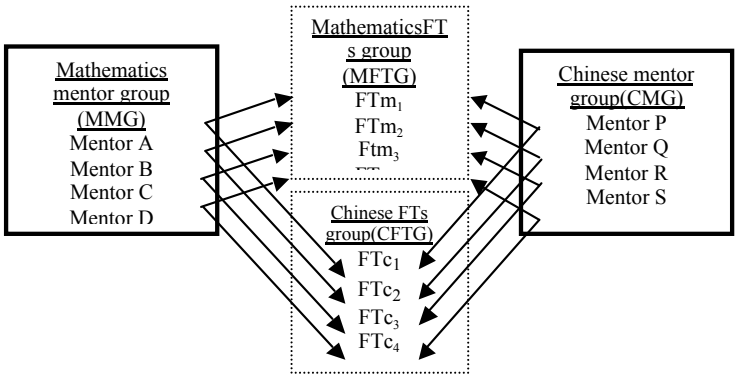

Figure 3: The OSM-MSFT Model Between Mentors and FTs

Figure 3 reveals was that each participant FT was mentored by a mentor in MMG and mentored by another mentor who is in CMG. Each FT in the mathematics group was mentored by a mentor from MMG and a mentor from CMG..

The integrated model took the critical constructivist perspective on mentoring, that knowledge is actively built by learners through the process of active thinking (Wang, & Odell, 2002). The teacher educators and the mentors were viewed as learners and generators of new knowledge and practices of mentoring. Likewise, the mentors and the FTs were also viewed as learners and generators of new knowledge, and they had to count on each other. The integrated model stressed mentors' active construction of mentoring knowledge through what they have leaned in practice and constant dialogue with teacher educators. There was a one-hour classroom observation on every Thursday morning and a follow-up three-hour mentoring group meeting in the afternoon throughout each phase of the mentoring program. Each mentor was required to immediately share with FTs the main ideas discussed in the MMG meeting.

Scheduling proved to be a challenge as two mentors needed to be available for each group of mentees: FTm1 and FTc1 in Figure 3 for example. FTm1 and FTc1 were arranged to present in mentor A classroom simultaneously to watch mentor A's lesson, and also appeared in Mentor P classroom simultaneously to watch Mentor P's Chinese lesson at other time. The mathematics class of these two mentors was arranged at the same time on the course schedule. It is the same for Chinese class. Both FTm1 and FTc1 always appeared altogether in the same classroom at the same time.

4.4 *Four Phases of the Mentoring*

Four mentors participating in the study had no experience in mentoring. To help them put their visions for mentoring into practice, the mentors were supported in four phases.

Phase 1

The first phase was two weeks long and involved providing mentors support with the concept of induction through mutual sharing amongst mentors the teacher educator. The mentors were provided with techniques to offer emotional support for interns to reduce psychological stresses caused by the conflicts between their personal lives and professional requirements. Each mentor took turns to report in public how the introduction of the intern to students and parent was accomplished in the first few days of the school year. Each FT was asked to report their feelings about how the introduction was handled by the mentor.

Phase 2

In the second phase, from week 3 to 6, each mentor was asked to teach several lessons for FTs in their own classroom. Before teaching each mentor would explain the purpose and method of the lesson so the FT could observe the lesson with greater understanding and purpose. In this way, each FT could see how their mentor taught a lesson. It was followed by a short conversation with the mentor concerning the relationship between the syllabus, the lesson plan, and the lesson actually taught. This phase provided the mentors an opportunity to support FTs on learning how to observe a lesson which was learner focused reinforced that the mentors had learned the teaching approach.

Phase 3

The third phase, from week 7 to 10, teacher educator supported the mentors and FTs as they worked together in preparing a lesson and a peer observation (called as LPPO). The process starts with the FT observing a mentor preparing a lesson and then observing the mentor teach the lesson. This was followed by other mentors' observation on how the mentor carried out the lesson, and then observing the mentor asking the intern a series of questions, such as explaining how well the lesson plan was carried out, how well the objectives she have achieved in the lesson, identifying the changes she made in the lesson compared to the lesson plan. During the third phase, other mentors not only

learned from the mentor-intern relationship but also other mentor comments about the mentoring process, lesson plan and teaching, but also gave the mentor comments or suggestions on mentoring. Each mentor-intern pair took turns engaging in the activities of LPPO. The FT of each pair was asked to report what she learned in the activity of LPPO.

Phase 4

From weeks 11 – 14 each FT participated in teaching of classes. During this phase the mentor was a passive observer, assisting only as needed. The goal of this phase was to observe the impact of the mentoring on FT mathematics teacher performance. During this phase, each FT was evaluated by other FTs, mentors and a researcher. The evaluation of mathematics teaching consists of two aspects: teaching preparation and teaching behavior.

5. DATA COLLECTION AND ANALYSIS

Data collection consists of both qualitative and quantitative data. Pre- and post-tests were given to all participants. Mentors completed a self-assessment of the professional standards, and a survey regarding the workshop and mentoring practices. The summer workshop survey asked participants to rate the contents of the course.

Each FT's teaching was assessed according to the lesson preparation and teaching behavior. The indicators of lesson preparation include 7 items: understanding instructional objectives, structure of materials, mathematics content, readiness of preparation, activities building on students' pre-experience, adaptation of teaching activities, and lesson plan.

The effect of the integrated model of mentoring is organized at three levels in accordance with the model of Kirkpatrick and Kirkpatrick (2006). At the reaction level, the mentors were interviewed on the feedback of summer workshop and half-year school mentoring activities for measuring what they thought and felt about the program. At the learning level, pre-test and post-test were conducted aligned with self-assessment 5-scale questionnaire professional standards, to assess the extent to which mentors change attitudes, improve knowledge and skill. At the behavior level, classroom observation, interview, and mentors' mathematics journal were measured how mentors transferred their knowledge and skill in mentoring as a resulted of the mentoring program. Each mentor was also conducted individually with a semi-structure interview.

6. EFFECT OF THE INTEGRATED MODEL OF MENTORING

The effect of the integrated model of mentoring includes the participants' valued to the model and their reactions to the mentoring program.

6.1 Mentors' and FTs'Valued the Integrated Model

All mentors were committed to the integrated model because this model created the opportunity for them to learn a new pedagogy for teaching Chinese from their FTs who participated in the CMG. Conversely, the Chinese mentors have the same agreement. Mentors also mentioned that two FTs working with each mentor had greater potential to stimulate multiple perspectives than only one FT working with each mentor. The suggestion of the model the mentors made was that the two FTs worked with two same grade mentors since their concerns had the same focus.

For FTs, the integrated model afforded them rich professional learning. For instance, when creating a lesson plan FTs learned to create a strong lesson plan for effective teaching, including predicting potential responses from students and how to follow-up on those responses by preparing questions. The FTs learned to pay more attention to the sequence of the activities to be taught. They also learned that the sequence of the activities relied on the objectivities of the lesson, the context of the problems to be posed, the numbers involving in the problems, and students' prior knowledge.

6.2 The Effect on Mentor Learning

6.2.1 Reaction Level: Mentors' Satisfaction with the Course of Mentoring Program

The results show that all four of the mentors were satisfied with all topics covered during the summer workshop and half-year. The mentors had slightly less satisfaction with the lesson plan engaged in the school year ($\overline{M}=4.5$) than in the summer workshop ($\overline{M}=4.25$). Su made the comment on lesson plan as follows.

> ….What I learned in design of lesson plan in summer workshop was about the essential components, such as students' anticipated solutions, prior knowledge, objectives of the lesson, and key questions to be asked. Based on this experience, it helps me to move to observe how Juei worked with her

assigned FTs on planning a lesson and then wrote it into a lesson plan. I saw that Juei asked her FTs to read the textbook and search for relevant resources in advance. She asked them to make sure of the objective of the lesson and to be aware of the need of adaptation of the activities covered in the textbook.

6.2.2 *Learning level: Improvement of Mentors' knowledge of teaching and mentoring*

Regarding the knowledge of teaching, the percentages of pre- and post-test four mentors performed increase from 40% to 80%, from 53% to 80%, from 40% to 73%, from 40% to 67% respectively. The result indicates that the mentors enhanced their knowledge for teaching fractions because of what they learned in the program.

With regard to the conception of mentoring, initially, in their view of FTs' expectation for the role of mentors was to provide emotional and technical support. Learning to teach, in their view, was to be left FTs' own accumulation of teaching experience and lessons based on trial and error. Their lack of knowledge was clarified their responses to self-assessment questionnaire. Before entering the program, the mentors had no confidence in performing 7 items out of 16 items (termed as 7/16) of professional literacy, 18/34 items of mathematics teaching, and 22/36 items of mentoring practice, respectively. Through the process of mentoring, they gained more confidence in teaching and mentoring. The post program survey found that only 5 items; 2 items of teaching and 3 items of mentoring were not improved. The positive impact was note by Juei, who was pleased to her more awareness of problem-posing.

6.2.3 *Behavior Level: Transfer occurred in Mentoring FTs*

The mentors transferred their knowledge of teaching into their mentoring practice. The transfers of problem posing and lesson plan are presented here. The aspects the mentors attended to when working a lesson plan with FTs from Phase 2 to Phase 4 of the mentoring program are described in Table 1. Table 1 shows that the mentors expanded their perception of lesson plan and improved their ability to help FTs in writing a lesson plan. Comparing to Phase 2, two more aspects the mentors learned from the mentoring program on preparing a lesson were the scope and sequence of the mathematics contents and students' various anticipated solutions. They tried hard to ask FTs to put the possible key and follow-up questions on their own lesson plans.

Table1: Aspects of Lesson Plan the Mentors Attended to in Different Phases of Mentoring

Phase 2	*Phase 3*	*Phase 4*
Objectives of the lesson	Objectives of the lesson Objective of each activity	Objectives of the lesson Objective of each activity
--	Analysis of the scope and sequence of the content	Analysis of the scope and sequence of the content
Pupils' prior knowledge	Pupils' prior knowledge	Pupils' prior knowledge
Status of the lesson	Status of the lesson	Status of the lesson
Sequence of the activities	Sequence of the activities including the problems to be posed	Sequence of the activities including the problems to be posed
The setting	The setting	The setting
Instructor's activities	Instructor's activities with key & follow-up questions to be asked	Instructor's activities with key & follow-up questions to be asked
--	Students' activities including anticipating students' solutions	Students' activities including anticipating students' solutions

7. DISCUSSION

With reconceptualizing the meaning of a school-university partnership, the integrated model of mentoring provides some evidence for the crucial importance of the mentor in the development of the FTs' professional learning. It gives the view that simply placing FTs in school without adequate mentoring support would give FTs little chance to develop their classroom teaching skills and understanding. The teacher educators of a university offered the support with an integrated model of mentoring for mentors in school. However, there were several tensions and difficulties which emerged under the integrated model of mentoring.

Although the mentors and FTs agreed to participate, many commented that they were not given enough detail on the nature of the program. Initially the mentors showed hostility due to a belief that they now had additional work. They struggled with the additional work and the improvement of professional knowledge. However, the factors of additional work appeared not to play a significant part in influencing mentors choosing to take on the

role. Gaining professional knowledge and professional confidence became an internal incentive. The difficulties mentors encountered in the integrated model included additional work, tight schedules, and lack of cooperation from FTs. Likewise, additional work and tight schedules were the difficulties for the FTs during practicum. The willingness of FTs participating in the integrated model of mentoring drastically decreased as time passed, since they have little opportunity to become an initial teacher in the school. Some of the FTs who planned to transit their profession to other occupation lacked professional engagement during practicum.

The finding of the study revealed the FTs' and Mentors' satisfaction with the course of mentors and FTs in the practicum through the integrated model of the collaboration of university and school. This indicates that the successful model has the following characteristics: (1) The partnership of university and school is based on a model of team-work between mentees and mentors, and teacher educators who supervise them. (2) We treated FTs not only as students but as members of the profession. (3) The integrated model is school-led in the sense that mentors in schools take the main responsibility for FTs and supervisors in university take the main responsibility for mentors.

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