Analytical Report on

Status of Multigrade Teaching in Thailand

Under the project entitled
“Promoting Quality Learning through Enhanced Multigrade Teaching in Thailand”

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Status of Multigrade Teaching in Thailand

This document presents the analytic desk review of multigrade teaching in Thailand. It has been divided into two main parts. The first part is the review of policy documents related to multigrade teaching; and the second part is the review of research reports conducted in the area of multigrade class and multigrade teaching. The objectives of this desk review are two folds: a) to highlight how multigrade teaching is featured in, and supported by, Thai national policy; and b) to highlight what educators in Thailand pay attention to when conducting research on multigrade teaching and what findings are revealed from such research. Remarkably, throughout this report the “MT” and “MC” abbreviations will be used to refer to “Multigrade Teaching” and “Multigrade Class”, respectively.

Part 1: Policy Documents Related to MT

Education Reform in Thailand

Thailand had lunched the educational reform in 1999 by the announcement of the National Education Act B.E. 2542 (A.D. 1999), which had been later revised in 2002 to be the Amendments (Second National Education Act B.E. 2545 (A.D. 2002) (Office of the National Education Commission, 2002).

In Chapter 4: National Education Guidelines, the 1999 National Education Act states about “Education” as:

Section 22 Education shall be based on the principle that all learners are capable of learning and self-development, and are regarded as being most important. The teaching-learning process shall aim at enabling the learners to develop themselves at their own pace and to the best of their potentiality (page 10).

The “Objectives of Learning Process” have been mentioned in the sections 6-7 of the 1999 National Education Act as:

Section 6 Education shall aim at the full development of the Thai people in all aspects: physical and mental health; intellect; knowledge; morality; integrity; and desirable way of life so as to be able to live in harmony with other people (page 4).

Section 7 The learning process shall aim at inculcating sound awareness of politics and democratic system of government under a constitutional monarchy; ability to protect and promote their rights, responsibilities, freedom, respect of the rule of law, equality, and human dignity; pride in Thai identity; ability to protect public and national interests; promotion of religion, art, national culture, sports, local wisdom, Thai wisdom and universal knowledge; inculcating ability to preserve natural resources and the environment; ability to earn a living; self-reliance; creativity; and acquiring thirst for knowledge and capability of self-learning on a continuous basis (pages 4-5).

To reach the objectives mentioned earlier, the 1999 National Education Act has been provided the “Guidelines for Organizing the Learning Process” in the Section 24.
Preface

Multigrade teaching has been explicitly mentioned in the Thai educational context for a decade as one potential solution for the shortage problem of teachers in small schools. In 2006, the Ministry of Education by the Office of the Basic Education Commission (OBEC) had officially announced the policies, guidelines, innovations, and activities related to multigrade teaching. It shows the realization of the importance of multigrade teaching for small schools in Thailand. However, there are many questions about multigrade teaching in Thailand needed to be fulfilled.

This analytic desk review is one part of the project entitled “Promoting Quality Learning through Enhanced Multigrade Teaching in Thailand”, which has been granted by UNESCO. It is the first initial to understand about multigrade teaching in Thailand. The objectives of this desk review are two folds: a) to highlight how multigrade teaching is featured in, and supported by, Thai national policy; and b) to highlight what educators in Thailand pay attention to when conducting research on multigrade teaching and what findings are revealed from such research. Consequently, the component of this review is divided into two main parts according to those objectives. The first part is the review of policy documents related to multigrade teaching; and the second part is the review of research reports conducted in the area of multigrade class and multigrade teaching.

It is expected that this analytic desk review will fulfill knowledge about multigrade teaching in Thai context that may be useful for further improving the quality of multigrade teaching and the quality of education in small schools. This is one of lesson learned from Thailand.

September 2014

Asst. Prof. Dr. Khajonsak Buaraphan
Lead researcher
Executive Summary

- MOE had the definition of a small school, which is defined as a school having the number of students less than 120 students. The national statistics showed a large number of small schools in Thailand (nearly 50% of a total number of schools). However, there is no national statistics about the number of small schools that implemented MT in their schools. To promote the quality of education in small schools, OBEC announced policies, guidelines, innovations, and activities. One innovation suggested by OBEC is MT. There are several movements conducted by OBEC to support the implementation of MT in small schools. One of that is the creation of learning unit and lesson plans for MT. These learning units and lesson plans had been tried out and then distributed nationwide.

- Even though OBEC had officially announced the policies, guidelines, innovations, and activities regarding MT since 2006, there is a small number of research conducted on MT. From 2006-2013, there are only 26 studies related to MT. The research on MT is quite popular during 2011-2012. The questions left are: Why? What are areas the researchers paid attention to during that period? Does the national policy really impact on administrators, practitioners, and especially researchers?

- When consider the areas of interest that the researchers conducted on MT, there are three most-popular areas of MT research as: Development and implementation of MT lesson plans, Teacher professional development for MT, and School administration and instruction for MT.

- All studies conducted on the development of learning unit for MT in small schools reported the success in developing students’ learning on the targeted learning goals such as learning achievement, analytic thinking ability, and so on.

- In sum, this analytic desk review urges the researchers to do more studies on MT and to increase more diversity of areas in their MT research.
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Section 24 In organizing the learning process, educational institutions and agencies concerned shall:

1. provide substance and arrange activities in line with the learners’ interests and aptitudes, bearing in mind individual differences;
2. provide training in thinking process, management, how to face various situations and application of knowledge for obviating and solving problems;
3. organize activities for learners to draw from authentic experience; drill in practical work for complete mastery; enable learners to think critically and acquire the reading habit and continuous thirst for knowledge;
4. achieve, in all subjects, a balanced integration of subject matter, integrity, values, and desirable attributes;
5. enable instructors to create the ambiance, environment, instructional media, and facilities for learners to learn and be all-round persons, able to benefit from research as part of the learning process. In so doing, both learners and teachers may learn together from different types of teaching-learning media and other sources of knowledge;
6. enable individuals to learn at all times and in all places. Co-operation with parents, guardians, and all parties concerned in the community shall be sought to develop jointly the learners in accord with their potentiality (pages 11-12).

Regarding “Curricula”, the 1999 National Education Act has been mentioned that:

Section 27 The Basic Education Commission shall prescribe core curricula for basic education for purposes of preserving Thai identity; good citizenship; desirable way of life; livelihood; as well as for further education. In accord with the objectives in the first paragraph, basic education institutions shall be responsible for prescribing curricular substance relating to needs of the community and the society, local wisdom and attributes of desirable members of the family, community, society, and nation (page 14).

Section 28 Curricula at all levels of education and those for the persons referred to in the second, third, and fourth paragraphs of section 10 shall be diversified and commensurate with each level, with the aim of improving the quality of life suitable for each individual’s age and potentiality. The substance of the curricula, both academic and professional, shall aim at human development with desirable balance regarding knowledge, critical thinking, capability, virtue and social responsibility (pages 12-13).

From the announcement of the 1999 National Education Act in Thailand, there was a dramatically change in the basic education curriculum of Thailand. In 2001, the Ministry of Education (MOE) had been launched the new basic education curriculum namely “the Basic Education Curriculum B.E. 2544 (A.D. 2001)” (Ministry of Education, 2001). The major changes in this new curriculum are highlighted below.
1. **Grade levels**

There shall be 4 grade levels in accordance with learners’ development (page 7).

- 1.1 First level-primary education grades 1-3
- 1.2 Second level-primary education grades 4-6
- 1.3 Third level-secondary education grades 1-3
- 1.4 Fourth level-secondary education grades 4-6

2. **Substance**

The substance of learning consists of a body of knowledge, skills or learning processes, values or virtues, morality and right behavior. This substance is assembled into 8 subject groups (page 7):

- 2.1 Thai language
- 2.2 Mathematics
- 2.3 Science
- 2.4 Social studies, religion and culture
- 2.5 Health and physical education
- 2.6 Art
- 2.7 Career and technology
- 2.8 Foreign languages

3. **Activities for learners’ development**

Activities for learners development aim at developing and realizing individuals’ aptitude and potential, in addition to stipulated activities required for the 8 subjects groups of learning processes. Individuals are encouraged to happily participate in undertaking activities chosen by them in accord with their tendency and real interest. Vital development includes humanity in total body, intellect, emotions and social participation. Such activities may be organized as parts of implementation of the national policy in fostering quality youth to be perfect human beings. Morality, right behavior, discipline, awareness of social contribution and co-operation shall be inculcated in them. In execution of such activities, the educational institutions shall be firm in the objectives, well selected forms and appropriate procedures.

According to their nature, development activities are divided into 2 groups:

- 3.1 Guidance activities aimed at promotion and development of Individuals’ capacity and differences. Each shall be guided to identify own self and own potential. Guidance personnel shall be responsible to show ways and means to undertake actions for improving life skills, self-emotion controlling, multiple intelligence learning, and positive human relationship. Every instructor shall be responsible to guide learners in everyday life practice, in furthering education, self-development for future careers and actual works.

- 3.2 Students’ activities to be handled by them in complete circle: study, analysis, planning, application of plans, evaluation, and up-grading works. Emphasis shall be on group works such as Boy Scout, Girl Guide, Junior Red Cross and Social Service Group (pages 8-9).

4. **Learning Standards**

Learning standards stipulated for 8 subject groups in basic education curriculum define learners’ qualities in knowledge, skills, procedures, morality, right behavior, and value for each subject group. They are aimed at developing desirable character. Standards are divided into 2 groups as below:
4.1 Standards for basic education.
These are standards for each subject group in basic education learning results after graduation;

4.2 Standards for each grade level learning.
These are standards for each subject group learning after learners’ graduation from each grade level: i.e. primary grade levels 3 and 6, secondary grade levels 3 and 6. The standards are stipulated specifically for application of subjects related to learners’ quality development. Educational institutions may set up standards for solving community’s and society’s problems, local wisdom, desirable qualifications of members of family, community, society at large and the country, as well as standards for strengthening learners capacity, aptitude, and interest, as necessary (page 9).

Learning substance and standards to be applied as criteria to stipulate quality of learners after graduation at the basic education level, comprise only fundamental ones for building up quality of life. Educational institutions may add those responsive to learners’ capacity, aptitude and interest.

The example of learning substance and standards in the subjective group “Thai language” can be illustrated below (page 15).

<table>
<thead>
<tr>
<th>Subject Group</th>
<th>Learning Substance</th>
<th>Learning Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thai language</td>
<td>Substance 1: Reading</td>
<td>Standard T 1.1 Application of reading process to compile knowledge, to stimulate thinking, to make decision, to solve problems, to build up vision for living, and to acquire reading habit.</td>
</tr>
<tr>
<td></td>
<td>Substance 2: Writing</td>
<td>Standard T 2.1 Application of writing process to communicate; to be capable of writing essays, abstracts, and features, different forms of information reports, education research reports effectively.</td>
</tr>
</tbody>
</table>

Figure 1 Example of learning substance and standards in “Thai language” subjective group

5. Learning time allocation

Times allocated for classroom learning and development activities are as below:

5.1 The first level, primary grades 1-3:-annual average 800-1,000 hours: daily average 4-5 hours;
5.2 The second level, primary grades 4-6:-annual average 800-1,000 hours: daily average 4-5 hours;
5.3 The third level, secondary grades 1-3:-annual average 1,000-1,200 hours: daily average 5-6 hours;
5.4 The fourth level, secondary grades 4-6:-annual average, not less than 1,200 hours: daily average, not less than 6 hours (pages 9-10).

Seven years later, in 2008, the Basic Education Curriculum B.E. 2544 (A.D. 2001) had been revised to become the Basic Education Core Curriculum B.E. 2551 (A.D. 2008) (Ministry of Education, 2008). The major changed will be illustrated later in this review.
Summary:
Even though Thailand had launched the national educational reform since 1999 that led to several dramatically changes in the system, structure, administration and management, teaching and learning, teaching profession, etc, **MT is not explicitly mentioned in the national basic education curriculum.** Anyway, nowadays, MOE realizes the problems the small schools in Thailand faced in particular to administration and instruction and the importance of MT for small schools.

The next section describes the situation of quality of small schools in Thailand and the provision of MT as one potential solution for small schools.

The situation of quality of small schools in Thailand

According to the National Education Act B.E. 2542 (1999) and Amendments (second National Education Act B.E.2545) (Office of the National Education Commission, 2002), the Basic Education Commission (OBEC) under MOE has the major responsibility to provide basic education with quality to all students in basic education schools throughout the country. Students must be developed with their full potential.

In 2011, there were 31,255 schools under the responsibility of OBEC (data from website of OBEC). Of this number, 14,638 (46.83%) schools were the small schools, which were officially defined as having the number of students less than 120 students. The number of small schools allocated by the number of students can be depicted as Table 1.

**Table 1** Number of small schools under OBEC allocated by their sizes

<table>
<thead>
<tr>
<th>Number of students</th>
<th>Number of schools</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-20 students</td>
<td>584</td>
<td>3.99</td>
</tr>
<tr>
<td>21-40 students</td>
<td>2,001</td>
<td>13.67</td>
</tr>
<tr>
<td>41-60 students</td>
<td>3,200</td>
<td>21.86</td>
</tr>
<tr>
<td>61-80 students</td>
<td>3,424</td>
<td>23.40</td>
</tr>
<tr>
<td>81-100 students</td>
<td>3,005</td>
<td>20.53</td>
</tr>
<tr>
<td>101-120 students</td>
<td>2,424</td>
<td>16.56</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>14,638</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>

*Source: OBEC (2011)*

From Table 1, there were 5,785 (39.52%) schools with the number of students less than 60 students that must work out for some strategic administration plans with other schools or be prepared for close in the future. There were 8,853 schools (58.31%) with the number of students between 61 - 120 students.

OBEC (Office of the National Education Commission, 2006a) realizes the problems the small schools face in their administration and instruction. The problems for small schools are as follow.

First, small schools face the shortage problem of teachers. That is, the number of teachers is less than the number of classes. So, teachers in small schools are usually responsible to teach more than one classes. To cope with this problem, teachers mix students
from different classes to learn at the time in the same class. MC is widely applied in small schools in Thailand.

Second, when teaching more than one grade levels, teachers must prepare more lesson plans and take care of many students with different backgrounds and grade levels.

Third, teachers in small schools are usually assigned to teach the subjects outside their expertises. They lack specific knowledge, experiences and skills for teaching those subjects and cannot help their students learn effectively. They also cannot use a variety of teaching methods and lack cooperation with other teachers to exchange ideas of teaching for multigrade classes.

Fourth, teachers in small schools lack morale support. They face heavy workload including extra workload for several duties in schools like other medium- and big-sized schools.

Fifth, small schools lack budget because the government allocates budget to a school according to the number of students in that school. Accordingly, many small schools cannot afford for computer and telephone; so, students in these schools cannot learn computer and study through internet websites. In addition, small schools lack learning materials and media. Insum, administrators of small schools face the problem of administration and management for a whole school because of the limitations of budget, teachers, personnel, materials, media, and so on.

From such problems, OBEC faced a serious problem regarding quality of students in small schools and tried to improve the quality of students, teachers, and administrators in small schools throughout the country. In 2006, OBEC (Office of the National Education Commission, 2006b) had announced the policies, guidelines, and activities to improve the quality of education in small schools to serve the National Education Act B.E. 2542 (1999) and Amendments (second National Education Act B.E. 2545) (Office of the National Education Commission, 2002).

MT as one potential solution for improving the quality of small schools in Thailand

Then, OBEC (Office of the National Education Commission, 2006c) had launched four innovations for improving the quality of small schools, which were consisted of integrated instruction, computer-based instruction, sattlelite-based instruction, and creating networks for small schools. The details of each innovation are as follows.

**Integrated instruction**

There are five types of integrated instruction. First, the intra-discipline integration focuses on the integration within the single subject group such as science (as Figure 2).

**Figure 2** Intra-discipline integration in science subject
To do that, the students with different classes are grouped together to become MC to learn an integrated learning unit, which combines several topics together within that same subject group.

Second, the inter-discipline integration focuses on the integration among different subjects such as Thai language, Science, Mathematics, and Social studies, religion, and cultures. To do that, students from different grade levels are mixed together to become MC and learn the integrated learning unit, which combine several related contents from different subject groups. Figure 2 illustrates the inter-discipline integrated learning unit in the topic of “Banana”.

![Integrated unit on “Banana”](image)

**Figure 3 Inter-discipline integration between different subjects**

The third type of integration is the walk rally instruction. Regarding this, the students have chance to learn and get direct experiences from several learning centers set by their teachers. After that, teachers bring students to learn from the authentic learning sources such as market, garden, etc. The walk rally instruction can be implemented in both the school and classroom levels.

Fourth, the Montessori instruction focuses on integrated learning and emphasizes student-centered instruction. In this type, students have chance to learn reading, writing, and calculating naturally by depending on their interest, preparedness, and time.

The fifth type of integration is the sufficient economy philosophy-based instruction. To do that, students learn the philosophy of sufficient economy integrated in the learning unit using local learning resources such as local wisdom and local knowledge persons.

*Computer-based instruction*

There are two types of computer-based instruction: Mobile Unit and Office Station Unit. The Mobile Unit is a bus with 13-21 computers. This bus moves to serve students in small schools in the same educational service area.

The Office Station Unit means a computer room with 11-30 computers in one school that volunteers to be a learning center for students from small schools. This school is, normally, a big-sized school with full potential and resources to help.

*Sattelite-based instruction*

The sattelite-based instruction is regarded as a supplementary in the teaching and learning process for students in small schools, which is utilized to enhance the effectiveness of teaching and learning. To succeed this instruction, teachers must closely monitor, control,
and suggest students during this type of instruction and conclude the lesson along with students.

Creating networks for small schools

The specific networks are developed for helping and enhancing the quality of education in small schools. The networks can be networks inside and outside a small school. The examples of network are parent network, local community network, school committee network, local administration or organization network, academic network, teacher network, school network, etc.

Conditions of success of small schools in Thailand

OBEC (Office of the Basic Education Commission, 2006a) stated that the conditions of success of small schools in Thailand were: clear and continuous national policies, cooperative administration, using effective innovations and technologies, supporting budget continuously, and seeking resources from all stakeholders. The details are as follows.

1. To improve effectiveness of small schools and students’ learning achievements, the stakeholders as school administrators, teachers, students, parents, local community, and educational organizations must have clear understanding about goals, objectives, and strategies of education in small schools. Also, they must work together cooperatively.

2. Teachers employ student-centered teaching and learning activities. They start lessons from students’ prior understanding and use a variety of teaching methods. Teachers should support students in learning and give them love and kindness.

3. Small schools should emphasize students’ learning of Thai language and mathematics as the core subject groups. In particular, the grade 3 students should gain basic skills in listening, speaking, writing, and reading enough for learning and investigating further by themselves from a school library or any learning sources.

4. Generally, students in small schools came from poor families and had different backgrounds. So, teachers should use a variety of teaching methods to suit different backgrounds of students.

5. In small schools, students’ lack of reading and writing skills in Thai language was one source for students’ low achievements. Therefore, at the end of grade 3, students should be practiced to have enough skills in reading and writing in Thai.

6. Local, natural learning resources and knowledge persons are invaluable assets. Schools should provide students opportunity to step in and learn from these resources. They should have chance to observe, try out, prove, and discover knowledge and realities from such resources.

7. Small schools must pay attention to and have commitment in improving the quality of their students. They should seek for networks to think and work cooperatively and continuously. Small schools must be able to stand on their own feet and value in themselves. They themselves should think, make decisions, practice, and be responsible for their actions as well as value their actions.

Later in 2013, OBEC (The Office of the Basic Education Commission, 2013) has been highlighted two major goals for for improving the quality of education in small schools.
First, to improve students’ learning achievements by improving the quality of small schools and classrooms, sharing resources between schools or networks, and networking involved stakeholders for helping small schools; and

Second, to support the use of MT or integrated instruction in small schools in order to lead to teachers’ higher effectiveness in teaching and, consequently, students’ higher learning achievements.

Regarding this, MT was mentioned as one potential solution for improving the quality of small schools in Thailand.

In sum, OBEC under the Office of the National Education Commission emphasized the “All for Education” strategy in promoting the quality of small schools in Thailand. Regarding this, all involved stakeholders are invited to join in the process of administration at a school level and instruction at a classroom level. Every personnel and resources are drawn for the highest benefits for students in small schools. In addition, many innovations are implemented to help improve the quality of education in small schools; one of those is MT.

**Movements of MT in Thailand**

To solve the shortage problem of teachers in small schools and enhance small school students’ learning achievement in Thailand, the Bureau of Academic Affairs and Educational Standards under OBEC launched many movements for improving MT in Thailand. The outstanding two movements were:

First, the development of innovations for MT such as MT lesson plans, teacher manual for MT, and teaching schedule for MT for small schools, which are corresponded to the national Basic Education Core Curriculum.

Second, the development of more understanding about, and skills in, MT for school administrators, teachers, and educational supervisors, who later took responsibility as leaders for improving the quality of small schools. Table 2 presents the details of two national workshops for this second movement.
Table 2 National workshops of MT conducted by the Bureau of Academic Affairs and Educational Standards

<table>
<thead>
<tr>
<th>Workshop</th>
<th>Time</th>
<th>Objective</th>
<th>Content</th>
<th>Target group</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Developing lead personnel for MT in small schools”</td>
<td>13-15 June 2010</td>
<td>• To continuously improve effectiveness of MT in small schools</td>
<td>• Supervision for MT in small schools</td>
<td>• 1,240 Participants being responsible for MT ((1 administrator, 4 teachers, and 1 educational supervisor from each Primary Education Service Area Offices) Group 1 Chiang Mai Participant = 270 Group 2 Bangkok Participants = 380 Group 3 Surat Thani Participant = 230 Group 4 Udornthani Participant = 360</td>
</tr>
<tr>
<td></td>
<td>4 areas nationwide</td>
<td>• To build and extend networks for MT</td>
<td>• Developing instruments and techniques for MT supervision</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• To monitor and supervise MT in small schools</td>
<td></td>
<td></td>
</tr>
<tr>
<td>“Monitoring the supervision for MT in small schools”</td>
<td>2-4 September 2010 at Bangkok</td>
<td>• To monitor the results of MT supervision in small schools</td>
<td>• Analyzing data about MT derived from supervision</td>
<td>• 90 Educational supervisors who were responsible for MT supervision North Participant = 25 Northeast Participant = 23 Central Participant = 25 South Participant = 17</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• To build and extend networks for MT</td>
<td>• Writing report of results from MT supervision in small schools</td>
<td></td>
</tr>
</tbody>
</table>

Learning units for MT provided by OBEC

There are two versions of learning units created by the Bureau of Academic Affairs and Educational Standards under OBEC. The old version was created to support the old curriculum i.e. the Basic Education Curriculum B.E. 2544 (A.D. 2001), which had been tried out in 814 modeled small schools in the 2007 academic year. The new version was created to support the new curriculum i.e. the Basic Education Core Curriculum B.E. 2551 (A.D. 2008). There are manay changes occurred in the new curriculum.

First, the “Subject Groups” from the old curriculum was renamed to be “Learning Areas”. In this new curriculum, there are eight learning areas:
1. Thai Language
2. Mathematics
3. Science
4. Social Studies, Religion and Culture
5. Health and Physical Education
6. Arts
7. Occupations and Technology
8. Foreign Languages.

Second, the Grade Levels according to the old curriculum was divided into each year or grade rather than were grouped under the Levels. So, students are classified into 12 grades ranged from grade 1 to grade 12.

Third, the Learning Indicators have been created for each Learning Standard. These Learning Indicators are separated into individual grades.

For example, in the Learning Area of Science, there are eight Learning Substances:
- Substance 1: Living beings and life existence processes
- Substance 2: Life and environment
- Substance 3: Properties of matter
- Substance 4: Force and motion
- Substance 5: Energy
- Substance 6: Evolution of earth
- Substance 7: Astronomy and space
- Substance 8: Nature of science and technology

In particular to the Learning Substance 1: Living beings and life existence processes, there were two Learning Standards. The first learning standard and its associated learning indicators can be presented as Table 3.
<table>
<thead>
<tr>
<th>Learning area</th>
<th>Learning Substance</th>
<th>Learning Standard</th>
<th>Learning Indicator</th>
</tr>
</thead>
</table>
| Science       | Substance 1: Living beings and life existence processes | **Standard Sc 1.1** Understanding foundation of living beings, relationship between structures and functions of various systems operation; procedures in searching for knowledge, communication of knowledge and application of knowledge for own self-existence, taking good care of living beings. | **Grade 1**  
1. Identify characteristics of living things in the local area, and group them based on external characteristics. |
|               |                     |                   | **Grade 2**  
1. Explain benefits of plants and animals in the local area. |
|               |                     |                   | **Grade 3**  
1. Discuss various characteristics of living things in the immediate environment.  
2. Compare and identify similar characteristics of parents and children.  
3. Explain that the similar characteristics of parents and children are inherited, and apply the knowledge.  
4. Search for information and discuss some extinct and existing living things. |
|               |                     |                   | **Grade 4** (no content) |
|               |                     |                   | **Grade 5**  
1. Explore, compare and identify own characteristics, and those of family members.  
2. Explain heredity in each generation of living things.  
3. Classify plants into flowering and nonflowering plants.  
4. Identify characteristics of monocotyledons and dicotyledons based on the external organs.  
5. Categorise animals based on external characteristics and some internal characteristics. |
|               |                     |                   | **Grade 6** (no content) |
After analyzed the learning standards of the Basic Education Core Curriculum B.E. 2551 (A.D. 2008) (Ministry of Education, 2008), OBEC created the individual learning units for MT of these Learning Areas: Thai Language, Mathematics, Science, and Foreign Languages (English Language). In addition, the integrated learning units for MT were created in the learning areas of Social Studies, Religion, and Culture, Health and Physical Education, Arts, and Occupations and Technology.

The learning units and lesson plans for MT are corresponded with the learning standards and indicators mentioned by the basic education curriculum. They cover learning aspects of knowledge, skills, process, moral, ethics, and values. Also, they indicate tasks or products that students should practice for improving their skills and can be used to trace and assess student learning according to the associated learning standards.

The learning units and lesson plans for MT were grouped into main themes that supported the integration of contents from different learning areas. Accordingly, students from grades 1 to 6 learn the same theme but with different levels of difficulty. The themes of learning units for MT can be presented as Table 4.

Table 4 Themes of learning units for MT for grades 1-6

<table>
<thead>
<tr>
<th>Learning Area</th>
<th>Theme of learning unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thai Language</td>
<td>Learning Unit 1: Love to be Thais</td>
</tr>
<tr>
<td></td>
<td>Learning Unit 2: Values of life</td>
</tr>
<tr>
<td></td>
<td>Learning Unit 3: Advantages in everyday lives</td>
</tr>
<tr>
<td></td>
<td>Learning Unit 4: Invaluable heritage prestige</td>
</tr>
<tr>
<td></td>
<td>Learning Unit 5: Love each other</td>
</tr>
<tr>
<td></td>
<td>Learning Unit 6: Catch up with the Earth and people</td>
</tr>
<tr>
<td></td>
<td>Learning Unit 7: Beloved nature</td>
</tr>
<tr>
<td></td>
<td>Learning Unit 8: Power of love</td>
</tr>
<tr>
<td></td>
<td>Learning Unit 9: Happy life</td>
</tr>
<tr>
<td></td>
<td>Learning Unit 10: Magic power</td>
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<td>Learning Unit 11: Land of good people</td>
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<td>Learning Unit 12: Creative language</td>
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<td>Learning Unit 13: Record from good people</td>
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<td>Learning Unit 14: Goods from far land</td>
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<td>Learning Unit 15: Ultimate desire</td>
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<td>Learning Unit 16: Principles of life</td>
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### Table 4 (Cont.)

<table>
<thead>
<tr>
<th>Learning Area</th>
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<tbody>
<tr>
<td>Mathematics</td>
<td>Learning Unit 1: Fun numbers</td>
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<td>Learning Unit 2: Time, weighting, and measurement</td>
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<td>Learning Unit 3: Geometry</td>
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<td>Learning Unit 4: Finish patterns</td>
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<td>Learning Unit 5: Manage numbers</td>
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<td>Learning Unit 6: Use money</td>
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<td>Learning Unit 7: Fun with dimensions</td>
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<td>Learning Unit 8: Interesting statistics</td>
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<td>Learning Unit 9: Review</td>
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<td>Science</td>
<td>Learning Unit 1: Amazing nature</td>
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<td>Learning Unit 2: Substances around us</td>
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<td>Learning Unit 3: Force and motion</td>
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<td>Learning Unit 4: Energy for life</td>
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<td>Learning Unit 5: Changes of Earth plates</td>
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<td>Learning Unit 6: Travel the universe</td>
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<tr>
<td>Foreign Languages</td>
<td>Learning Unit 1: My English</td>
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<td>Learning Unit 2: All about me</td>
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<td>Learning Unit 3: Family</td>
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<td>Learning Unit 4: School</td>
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<td>Learning Unit 5: Body and health</td>
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<td>Learning Unit 6: Nature</td>
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<td>Learning Unit 7: Food and drink</td>
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<td></td>
<td>Learning Unit 8: Number and color</td>
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<tr>
<td>Integrated unit</td>
<td>Learning Unit 1: Sufficient life</td>
</tr>
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<td></td>
<td>Learning Unit 2: Good health for good life</td>
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<td></td>
<td>Learning Unit 3: Moral for Thais</td>
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<td></td>
<td>Learning Unit 4: Good people for the land</td>
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<td>Learning Unit 5: Conserve the world, conserve the environment</td>
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<td></td>
<td>Learning Unit 6: Thai kids being update with technology</td>
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<td></td>
<td>Learning Unit 7: Beginning careers for life</td>
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<td></td>
<td>Learning Unit 8: Aesthetic arts</td>
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<td></td>
<td>Learning Unit 9: Thai beautiful arts</td>
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<td></td>
<td>Learning Unit 10: Asian studies</td>
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</table>
Implementation of learning units for MT in classrooms

The Bureau of Academic Affairs and Educational Standards suggested the teachers or other personnel, who want to implement the learning units for MT in classrooms as follows.

1. Study the details of learning units and lesson plans in all learning areas.
2. Analyze lesson plans, and create weekly teaching plans for each learning area. Weekly teaching plans are the analyses of MT lesson plans that help teachers understand the relationship of learning goals, activities, and tasks for students in each grade. Teachers use weekly teaching plans to decide which grade’s lesson plan should be used to be a core especially in the whole class activity.
3. Split teaching plan for each learning area to weekly teaching plans.
4. Prepare documents, worksheets, learning materials, places, teacher, and students. The lesson plans for MT have examples of worksheet and knowledge sheet for students; teachers are responsible to choose which ones are suitable for their students. When they are appropriate, teachers can make a copy and distribute to students. In the case that worksheet or knowledge sheet has too many pages, teachers can write on blackboard or type in their computers. Sometimes, teachers can let students write on their notebooks, workbooks, etc. Teachers’ preparation before teaching makes teaching more effective.
5. Conduct activities as in lesson plans. Teachers can change and add learning activities and materials to be more appropriate. MT emphasizes cooperative learning; so, grouping and rotating groups are important activities that teachers should conduct completely as suggested in MT lesson plans.
6. Measurement and evaluation of learning. Teachers may use tools as suggested by MT lesson plans or borrow appropriate tools from other sources. Teachers should have a record of student learning for checking whether students accomplished the targeted learning indicators or not. In addition, teachers should take students’ learning into account for solving problems and improving teaching and learning.
7. Write record after teaching. MT lesson plans created by the Bureau of Academic Affairs and Educational Standards are divided into separate grades. Teachers may group two or three grades together. After that, they should bring the lesson plans of those two or three grades and collect them at the same place or folder for convenience use. After they had used the MT lesson plans, they should record problems, obstacles, errors, or suggestions of teaching and learning. In addition, teachers themselves can mix or integrate the MT lesson plans of two or three grades together to be their MT lesson plans. They can integrate the whole class, small group, pair work, and individual activities to suit their students.

Administration and instruction for MT in small schools

OBEC (Office of the Basic Education Commission, 2008) supports the ideas of MC and MT for small schools. Several ideas and principles are suggested for the successful implementation of learning units and lesson plans for MT.

- Promoting student interaction in learning together. When the students in each class are too small, it makes the classroom too quite, and not fun. Also, the group work activity cannot be conducted in this situation.
- Teaching for full potential learning. MC is a natural classroom that is corresponded with students’ lives. All students have chance to have teachers to take care of them.
• Grouping students with similar development and abilities together.
• Conducting learning activities to make students learn by themselves and learn from others.

In sum, the ideas and principles of MC are grouping students from different grades, ages, and abilities to learn together at the same time in the same classroom. MT emphasizes student interaction, cooperative learning, and learning with their best potential. Teachers group the students with similar learning development and ability together and conduct learning activities to help students learn by themselves and from others.

The school must consider these components in administration and instruction for MT (Office of the National Education Commission, 2008).

1. Assigning a teacher to MC
In assigning a teacher to MC, the teacher’s background such as knowledge, skill, competency, and attitude should be considered.

\underline{Knowledge}
Teachers should have knowledge in these areas.

\underline{MT techniques}
MT techniques include, first, a variety of classroom management such as a whole class, small group, pair work, and individual work activities. Second, teachers should conduct daily routine activities that make students accustom with and can learn by themselves even there is no teacher in the class such as using learning media to help students on task and learn by themselves and in group. The third technique is teaching methods that are highly effective and corresponded with the nature of disciplines. Fourth, teachers should know a variety of teaching methods that can be used to help promote the quality of MT such as team teaching, independent study, small group task, a whole class activity, peer learning, and center-rotation learning. The details of MT techniques are presented below.

1. Whole class activity
The whole class activity is an activity aimed to prepare all students before learning. The introduction phase of the whole class activity is very important because a teacher must review students’ prior knowledge, describe main activities, and assign specific task for students to accomplish at the end of class. In each day, students in each group will rotate doing activities ranged from small group work, pair work, individual work, and small group learning with the teacher activities. The lesson plans for MT must have these main activities. The teacher can create more worksheet or activity to suit their students’ backgrounds.

2. Pair work activity
Students in the same grade are paired to learn and work together. However, oftentimes, a teacher can pair students with different grades to learn by coaching. In this case, young students can learn from senior students.

3. Small group activity
A teacher analyzes students’ abilities and groups the students with similar ability together to work in the small group activity. The teacher set worksheet or activity sheet according to students’ ability in each group.

4. Peer learning
In peer learning, a student learns with and from their peer or a group of peers.

5. Individual work activity
6. Small group learning with a teacher activity

From the mentioned activities, each student is assigned to accomplish the task, which is suitable to his or her ability, aptitude, and interest. Students have good interaction with others, learn to be a giver and a taker, are self-disciplined, and have good responsibility. A variety of learning activities helps teachers have more time to take care of students as individuals and small groups.

Knowledge about advantages and usefulness of MT
Teachers should have knowledge about the advantages and usefulness of MT with respect to the academic aspect and others for students in small schools.

Knowledge about time management for MT
Teachers should have knowledge about managing the balanced structure of curriculum that cover teaching of each day, week, semester, and academic year.

Knowledge about classroom management for MT
Teachers should have knowledge about managing spaces in a class, managing media for student further study, and managing learning resources both inside and outside classrooms for students learned with MT.

Skill and competency
Teachers for MT should have good skills and competencies in these aspects.

- Skill in classroom management. Teachers should assign tasks for all students to work according to their abilities. Teachers should have positive interactions with their students.
- Skill in analyzing student ability individually
- Skill in conducting a variety of learning processes, which promote students’ learning according to their abilities
- Skill in seeking or creating media assisted MT
- Skill in using a variety of measurement and evaluation of student learning authentically

Attitude
Teachers for MT should:

- Believe that MT is useful for students regarding their development of intelligences, social skill, and emotion
- Believe that students can learn by themselves and from others

In addition, parents should regard the advantages of MT in both academic and non-academic aspects and believe that MT helps solve the shortage problem of teachers.

Promoting self-discipline in students
Teachers for MT must nurture self-discipline in all students and mutually set the classroom rule. During the implementation of MT, a teacher must move around the MC and at that time other students must learn, study knowledge sheet, and complete worksheet or task on their own. Consequently, students’ self-discipline is very important for learning in MC. The classroom rule should be set by all students and used for students as a whole. The classroom rule should be communicated to students with simple language, attached with colorful pictures or poem, and has not too many items. The example of classroom rule for grade 1 students is:

- Be careful and safe,
- Be kind, and
- Be polite.
Also, the example of classroom rule for grade 2 students is:

- Listen to a teacher carefully,
- Practice according to instruction,
- Be quite in working and not bother friends, and
- Respect our friends both words and action.
- Be kind
- Be polite.

2. Mixing classes for MC

MC is consisted of students with different classes, ages, and abilities, who learn together at the same time with a variety of learning formats such as whole class, small group, pair work, individual work, and small group learning with teacher activities. In grouping students, these things should be considered.

- Levels of development or ability of students. In managing classrooms for MT, teachers should not group students with too much different abilities in the same group such as grouping grade 1 with grade 5 students. On the contrary, teachers should group students with similar ability in the same group such as grouping grade 1 with grade 2 students, grade 3 with grade 4 students, and grade 5 with grade 6 students.
- Levels of learning achievement, interest, and satisfaction in groups or local languages that students use in their everyday lives
- The ratio of a teacher and number of students in MC should not exceed 1 : 20 because teachers cannot monitor student learning and take care of students effectively.

3. Managing learning timetable

A school can set learning timetable for students in MC to be corresponded with the structure of national basic education curriculum, school curriculum, or school’s emphases. In morning, students are emphasized to learn language and mathematics. In afternoon, they learn integrated units by emphasizing important skills for seeking more knowledge such as thinking skill, team skill, communication skill, etc. The examples of learning timetable for multigrade classes of grades 1-3 and grades 4-6 students can be presented below.
<table>
<thead>
<tr>
<th>Table 5 Example 1 of learning timetable for grades 1-3 students</th>
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<tbody>
<tr>
<td><strong>Time</strong></td>
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<td><strong>Day</strong></td>
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<td><strong>8.30-12.00 am</strong></td>
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<thead>
<tr>
<th>Table 6 Example 2 of learning timetable for grades 1-3 students</th>
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<tbody>
<tr>
<td><strong>Time</strong></td>
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<td><strong>Day</strong></td>
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<tr>
<td><strong>8.30-12.00 am</strong></td>
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<th>Table 7 Example 1 of learning timetable for grades 4-6 students</th>
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<tbody>
<tr>
<td><strong>Time</strong></td>
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<td><strong>Day</strong></td>
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<tr>
<td><strong>8.30-12.00 am</strong></td>
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<tr>
<th>Table 8 Example 2 of learning timetable for grades 4-6 students</th>
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<tbody>
<tr>
<td><strong>Time</strong></td>
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<tr>
<td><strong>Day</strong></td>
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<td><strong>8.30-12.00 am</strong></td>
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In summary, the administration of MT must consider the important component, that is, teachers’ knowledge of, skill in, competency in, and attitude towards, MT must be taken into account in assigning teachers to MC. In managing MC, the school administrator must consider the development, ability, learning achievement, interest, and satisfaction of students. The number of students in a MC should not more than 20 students. The classroom and learning management should support both the Basic Education Core Curriculum and MT.

4. Managing learning environment for MT
Managing learning environment for MT should consider two things i.e. classroom management and learning environment management. Each component has the characteristics as follows.

Classroom management
The classroom for MC should be wide enough for conducting various activities continuously. Teachers can separate whole area in a classroom into many parts for conducting several learning activities including big group, small group, and individual learning. So, MC should have corners or centers for doing activities as:

- Clam corner or individual work corner
- Testing center
- Area for a whole class activity
- Pair work corner
- Area for small group work
- Media, visuals, and documents center
- Area for small group learning with a teacher
- Knowledge board or student product display area

The examples of classroom management for MT for grades 1-3 and grades 4-6 students can be shown as Figures 4 and 5, respectively.
Figure 4 Classroom arrangement for MC of grades 1-3
**Figure 5** Classroom arrangement for MC of grades 4-6

- Textbooks
- Blackboard
- Materials and supplementary books
- Small group
- Supplementary books
- Grade 4 student products
- Grade 5 student products
- Grade 6 student products
- Book shelves
- Book shelves
- Shelve for students’ stuff
- Teacher’s table
- Door
- Door
- Door
- Pair work activity area
Learning environment management

Teachers should manage learning environment to support students’ learning through MT. The followings are things must be taken into account when managing learning environment for MT.

- Students participating in learning process
- Students being motivated to be interest and satisfied with learning
- Teachers conducting learning activities to serve student individual differences regarding preparedness, interest, aptitude, and belief
- Teachers using a variety of learning materials, which are corresponded to learning unit
- Teachers conducting learning experiences that challenge students
- MC being clean; materials and objects in MC being systematically organized and convenient for use
- Students feeling safe and having good relationship with others
- MC having appropriate knowledge board or student product display are
- MC being safe for students.

5. Supports of materials, media, and budget for MT

Learning materials are tools for supporting learning process in MT in order to help students effectively gain knowledge, skill, and attributes as mentioned in the learning standards. Learning materials are varied including natural materials, printings, technology, and local learning network. Teachers should select learning materials to suit students’ various learning development and styles.

Teachers can seek for and use or adapt existing learning materials in MT. In addition, teachers and students can create new learning materials by themselves. Small schools should provide enough learning materials for developing students’ authentic learning. In doing so, small schools, the primary education service area offices, and involved organizations should:

- Provide effective learning resources, learning centers, information technology for learning, and learning networks in schools and communities. Students can investigate and exchange learning experiences between schools, communities, and the world.
- Create and seek for learning materials for students’ study and promoting teachers’ knowledge. Local materials should be applied to be learning materials.
- Select and use various quality and appropriate learning materials being corresponded with students’ learning methods and individual differences, and nature of learning areas.
- Systematically evaluate the quality of chosen learning materials.
- Research for developing learning materials to make them suitable with students’ learning process
- Monitor the quality of learning materials and their use continuously. The aspects of quality of learning materials include: the correspondence with curriculum, learning objectives and activities; leading to correct concepts; using simple and correct language; being easy to understand; and being interest for students.
Summary:
MOE had the definition of a small school, which is defined as a school having the number of students less than 120 students. The national statistics showed a large number of small schools in Thailand (nearly 50% of a total number of schools). However, there is no national statistics about the number of small schools that implemented MT in their schools. To promote the quality of education in small schools, OBEC announced policies, guidelines, innovations, and activities. One innovation suggested by OBEC is MT. There are several movements conducted by OBEC to support the implementation of MT in small schools. One of that is the creation of learning unit and lesson plans for MT. These learning units and lesson plans had been tried out and then distributed nationwide.
Part 2: Research Reports Related to MT

Nuchada Pathraphithanon (2006) conducted a survey research to study MT methods of the teachers at the kindergarten unit, Bangkok. MT in this study was consisted of managing learning activities, classroom control, and monitoring individual students. The comparison was made among these variables: MT method, age, education degree, teaching experience, and number of students in class. The sample was purposively sampling and was consisted of 28 teachers who were responsible for MT in the kindergarten units in Bangkok. In overall, the teachers heavily emphasized monitoring individual students. Another was MC control. The differences were found MT method, classroom control, and monitoring individual students were different according to the teachers’ educational degree, teaching experience, and number of students in the class. The researcher suggested further study in relation to the effective MT model for kindergarten students.

Sondej Seesang (2007) studied the administrative models for improving the quality in small schools and he found four models of administration.

The first administrative model was MT, which students with different grades or ages with similar or different abilities were grouped together in the same class and learn together by using the activities being suitable for each group of students.

The second administrative model was integrated teaching, which teachers integrate contents from different topics in the same discipline or different disciplines into the same teaching and learning unit. This learning unit was implemented in an integrated fashion.

The third administrative model was networking volunteer two or three schools within the 15 kilometers area. This school network, then, group students together for teaching and learning. There were two characteristics of networking: small schools networking with a big school, and small schools networking with each other.

The fourth administrative model was using information computer technology (ICT) in administration and instruction. This aims for more effectiveness of teaching and learning in each learning strand.

Kingphet Songserm (2007) interviewed one school administrator’s opinions about multilevel schooling in primary school and created the teaching unit for 22 grades 1-3 students in multilevel schooling. From interview, the school administrator reflected several problems and ideas for multilevel schooling.

Teacher

Teachers in multilevel schooling lack knowledge about multilevel teaching and lack preparation about teaching and materials being suit for students with different abilities and ages. The new teaching methods for multilevel schooling create more work load for teachers. In reality, teachers have other responsibilities that interfere them when preparing for their teaching. So, they must sacrifice their time and thinking in developing teaching and learning.

Teaching and learning

Teaching and learning in multilevel schooling should be fun for students because students must learn with the same teacher for many years. Teachers must prepare their teaching beforehand such as a variety of worksheets, classroom environment, learning resources and materials. However, presently, most schools hold on traditional teaching methods and lack teaching and learning materials. In addition, teachers had heavy workload, so they let their students do worksheets by their own. The school administrator suggested
that teaching in multilevel schooling must be flexible to suit students with different abilities. Teachers must prepare their teaching more and prepare remedial periods for low achievement or slow learners and students with special needs.

**Parents and community**

Parents lack understanding about multilevel schooling and its importance for a school with insufficient number of teachers. They also lack understanding about education for students with special needs. So, school administrators must inform parents and communities about MT, which is the teaching method for solving the problem of lacking teachers in a small school.

**Students**

Students may not understand the system, teaching and learning, peer learning, learning with their own paces in multilevel schooling. Teachers may not be able to monitor all students in their classes. Some students did not learn with their own abilities and lost the chance to learn. In addition, they may be bored to learn with the same teaching and learning activities conducted by the same teacher for many years.

**Administrators and policies**

School administrators must change administration system in their schools to suit multilevel schooling. School policies must be set to support effective MT. School administrators should pay attention to, monitor, and support teachers’ welfare and morale. They should continuously corporate with parents, communities and local organizations nearby schools and work closely with their teachers. Moreover, schools administrators should not pay too strong attention to students’ achievement because this may affect teachers who must take care students with special needs and with low achievement in their multigrade classes.

**School environment**

The schools with multilevel schooling were usually small-size, which lack budget for constructing buildings and creating learning environment and resources. Most parents of students in multilevel schooling were poor agriculturists. So, fund raising in this case was difficult. School administrators should utilize learning resources in schools and communities as much as they can and emphasized students’ social environment.

**Others**

Multilevel schooling should consider the differences of culture, value, and language that students hold. Small schools got small budget from the government, so they could not buy sufficient and modern learning materials. Also, teachers in multilevel schooling should be trained for new knowledge in dealing with students with specific special needs.

**Suggestions**

School administrators being responsible for multilevel schooling should encourage teachers’ awareness of importance of MT for regular students and students with special needs. School administrators should raise teachers’ morale and motivation and support teachers to go to training, meeting, and conference. They should promote teaching by using Thai language and mathematics as the core subjects, and multi-disciplinary teaching. They should seek for essential teaching materials and encourage teachers to design lesson plans for MT. School administrators should realize and pay attention to, and make all stakeholders (i.e. teachers, parents, community members, school board, and students) understand about MT.
Kingphet Songserm (2007) created the curriculum of multilevel schooling composing of one lesson plan for one week, which was consisted of all worksheets, for 22 grades 1-3 students with different capabilities. This lesson plan integrated eight learning strands according to the Thai Basic Education Core Curriculum, that is, Thai Language; Mathematics; Science; Social Studies, Religion and Culture; Health and Physical Education; Arts; Occupations and Technology; and Foreign Languages. She named her lesson plan as “Cherd-Choo-Boo-Cha-Mae” or “Praise My Mom”. She asked three experts to validate her multigrade curriculum and found that this curriculum has a high level of index of consistency (I.O.C.) in all items including clarity of curriculum, curriculum materials (i.e. lesson plan, worksheets) and application of curriculum. After that, she implemented the multigrade curriculum with 22 students in MC (grades 1-3) and then used information from this implementation to improve the curriculum to be more complete. The complete multigrade curriculum was consisted of concept maps of all learning contents; the analysis of linkage between learning strands, learning standards, and expected learning outcomes; lesson plan; and worksheets for MC.

Kingpetch Songserm (2009) employed the research and development (R&D) technique to develop and evaluate the MT model for special students in primary schools. The sample of this study was 31 grades 1-3 teachers, parents, and students in Ban Sarom, Surin province. The results revealed that the regular students and special students in the MC had learning achievements at a good level. The teachers, parents, and students expressed their satisfaction to each aspect of MT at a good level. The panel of experts evaluated the quality of MT model for special students in primary schools in overall at a highest level.

Payon Nguantong (2009) employed the Delphi technique to develop the criteria for evaluation of the MC learning management in small schools under the offices of Suphan Buri educational service area and verified the quality of the developed criteria. He asked a panel of experts consisting of 19 experts on MC learning management and 58 classroom teachers in small schools organizing MC learning management under the Office of Suphan Buri Educational Service Area to rate the developed criteria. The experts were obtained from multi-stage random sampling.

The research findings showed that the developed criteria for evaluation of the MC learning management small schools had quality. It was comprised of 60 items that could be classified into five aspects:

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<thead>
<tr>
<th>Aspect</th>
<th>No. of items</th>
<th>Detail</th>
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<tbody>
<tr>
<td>1. Classroom Management</td>
<td>12</td>
<td>1.1 Manage classroom to suit MT and can be easily adjusted for diverse purposes</td>
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<td></td>
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<td>1.2 Manage student seats by considering students’ abilities and body defects</td>
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<td>1.3 Set a teacher’s seat in the suitable place, where he or she can view all students in classroom</td>
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<td>1.4 Have essential teaching materials and can apply them conveniently</td>
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<td></td>
<td>1.5 Set knowledge board, academic corner, self-learning corner in classroom</td>
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<td></td>
<td></td>
<td>1.6 Class has enough space for MT and individual group works</td>
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</tbody>
</table>

UNESCO Analytical Report on Status of Multigrade Teaching in Thailand
<table>
<thead>
<tr>
<th>2. Planning And Preparation For Learning Management</th>
<th>14 items</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1 Design activities to suit student individual differences and development in each grade level</td>
<td></td>
</tr>
<tr>
<td>2.2 Analyze learning contents of all grade levels and sequence them from simple to complex in each grade level</td>
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<tr>
<td>2.3 Select the common contents for MT by considering their different levels of difficulty</td>
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<td>2.4 Determine learning goals including knowledge, skills and desirable characteristics that are different according to students’ grade levels</td>
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<tr>
<td>2.5 Study and analyze students case-by-case in terms of learning ability, interest, aptitude, and weakness</td>
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<tr>
<td>2.6 Prepare groups or pairs of students in many formats that are suitable with learning activities</td>
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<tr>
<td>2.7 Inform students about steps in MT</td>
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<tr>
<td>2.8 Create integrated learning unit with lesson plans, learning indicators, and student products</td>
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<tr>
<td>2.9 Create integrated lesson plan being suit with learning standards, indicators, curriculum, and local context</td>
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<tr>
<td>2.10 Set learning objectives to suit learning contents and time for students in each grade level</td>
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<tr>
<td>2.11 Prepare correct and modern contents that correspond with learning objectives and sequence learning contents to suit students and time</td>
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<tr>
<td>2.12 Prepare appropriate activities for MT and for individual learning</td>
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<tr>
<td>2.13 Prepare enough learning media, materials, handouts, worksheets for students</td>
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<tr>
<td>2.14 Determine method and prepare assessment tools being suit learning objectives and behaviors intended to measure</td>
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<tr>
<th>3. Organizing Learning Activities</th>
<th>18 items</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1 Learning activities are diverse and suitable for ages, abilities and grade levels of students</td>
<td></td>
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<tr>
<td>3.2 Emphasize integration both intra- and inter-disciplinary for building students’ holistic knowledge</td>
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<tr>
<td>3.3 Emphasize students to investigate, observe, collect data, analyze, and make conclusions for constructing knowledge by themselves</td>
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<td>3.4 Set learning activities to promote students’ body movement and try to rotate activities</td>
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</tbody>
</table>
3.5 Set learning activities to promote students’ exchange of ideas or interactions through working in group and in pair
3.6 Introduce lesson with the problem that can be solved differently depending on different abilities and knowledge of students in each grade level
3.7 Use time for introduction and review of student prior knowledge in MT not more than 15 minutes
3.8 Use time for individual or pair or group activities not more than 30-45 minutes
3.9 Use time in MT for concluding knowledge around 5-15 minutes by requiring students with lower level conclude the lesson first
3.10 Conduct activities according to all steps in lesson plans continuously and adapt activities to suit real situations
3.11 Use appropriate, enough time for students’ practice and inform next learning activities
3.12 Teacher is facilitator in managing learning and help solve problems
3.13 Stimulate students’ interest in attending activities by using reinforcement techniques when students doing desirable characteristics
3.14 Be patient in explaining complex stuff for students having problem in their self-management and in telling solutions to students too early
3.15 Use space in classroom in doing activities appropriately
3.16 Insert learning activities for enhancing students’ Thai language skill in communicating their ideas, knowledge, feelings, and perspectives
3.17 Set inter-person activities for promoting students’ social adaptation
3.18 Set classroom rule that is clear, easy to understand, and suitable to students’ grade levels and encourage students to respect and follow the rule

4. Learning Media and Learning Sources

4.1 Learning media and sources link with goals and contents, and suit to students
4.2 Computer and technology-based learning media are effective and modern and respond student individual differences
4.3 Learning media link things around students to help them learn in diverse dimensions
4.4 Learning media encourage students’ self-learning and creative thinking
4.5 Use learning media suitably with learning objectives, contents, and activities
4.6 Use learning media and materials to be most worthwhile and to suit levels of students, lessons, and time
4.7 Use a diversity of learning media and sources e.g. printings, real things, natural environment
4.8 Use appropriate computer and technology-bases media as an important tool in teaching and learning
4.9 Utilize products from students in higher level to promote understanding in students in lower level

5. Learning Measurement and Evaluation

<table>
<thead>
<tr>
<th></th>
<th>7 items</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1</td>
<td>Set assessment methods being suitable with learning objectives, behaviors, and activities in multigrade lesson plans</td>
</tr>
<tr>
<td>5.2</td>
<td>Use a variety of assessment techniques e.g. authentic assessment, performance assessment, and portfolio assessment</td>
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<tr>
<td>5.3</td>
<td>Assessment covers students’ knowledge, skills, key competencies, and desirable characteristics in each year</td>
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<td>5.4</td>
<td>Assessment being conducted along with learning activities</td>
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<tr>
<td>5.5</td>
<td>Assessment being conducted as being stated in the curriculum by using methods appropriate with grade levels</td>
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<tr>
<td>5.6</td>
<td>Let students, friends, and parents involve in assessment by setting assessment criteria together</td>
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<tr>
<td>5.7</td>
<td>Analyze and review feedback from assessment for improving learning activities continuously</td>
</tr>
</tbody>
</table>

Both the aspect-wise and item-wise criteria for evaluation of the multigrade learning management were appropriate based on the predetermined criteria, with the rating means of more than 3.50 which were significant at the .05 level.

Phiphat Sonsomnukek (2010) tried to develop a MC management model for small schools under the Office of Sakon Nakhon Educational Service Area 1. The qualitative research was employed to study the state of the MC management and construct a MC management model. The participants included 40 school administrators, 40 teachers and two educational supervisors. The data collection included group discussions and a questionnaire. The results of the study were as follows.

**The state of MC management**

**Understanding about MT**
- Teachers and school administrators lacked understanding of and experience in MT
- The teachers in the middle part of Sakon Nakhon had understanding of and experience in MT more than the teachers in the other parts
- The school administrators should encourage teachers to go to MT training

**Classroom management for MT**
- Teachers should mix students with similar abilities together and separate grade 1 students because students in this grade level need more preparation
- Classroom management for MT must be corresponded with the number of teachers and students
- Classroom space in small schools for MT was too small

**Classroom practice for MT**
- Teachers generally taught outside their area of expertise
- Teachers must prepare multigrade lesson plans, multigrade learning activities, group, pair and individual worksheets, and emphasized language skills
- Teachers taught main subjects in the morning and integrated subjects in the afternoon
- The cooperative learning should be used as coaching and peer learning
• Teachers in small schools usually lacked learning materials and teaching time because of heavily extra workload
  
  *Teachers’ attitudes to MT*

• Teachers lacked confidence in MT and morale

• Teachers were still using traditional teaching methods

• School administrators should promote teachers’ training about MT

• There was a lack of authentic assessments by the teachers

• Students had poor learning achievement

*Classroom management for MT*

• Teachers should mix students with similar abilities together and should not mix grade 1 students with other grades because the grade 1 students need more preparation than others

• Classroom management for MT was not fixed; it depended on school contexts such as the number of teachers, students, etc.

• School administrators should ask teachers and stakeholders about appropriate classroom management for MT

**The MC management model**

Phiphat Sonsomnuek (2010) created three classroom management models for MT.

*Model A: A mix of three grade levels*

In this model, the students in

a) kindergarten 1 and 2,

b) grades 1-3,

c) grades 4-6

were mixed together, respectively. So, there was totally three multigrade classes. One teacher was assigned for teaching each group. So, the total number of teachers was three.

The limitations of the Model A was the ratio of students per teacher should not more than 25:1. This ratio was appropriate for teachers to effectively monitor their students' learning. Another problem was that teachers may face was that the kindergarten 2 students may change their behavior to be like grade 1 students as not want to sleep or being bored in learning; so teachers must use different learning activities to encourage students’ interest. In addition, grade 1 students should not be mixed with students in other grade levels because they demand more care from teachers.

*Model B: A mix of two grade levels*

In this model, the students in

a) kindergarten 1 and 2,

b) grades 1-2,

c) grades 3-4, and

d) grades 5-6 were mixed together, respectively. So, there was totally four multigrade classes. One teacher was assigned for teaching each group; however, there can be two teachers for grades 5-6 class to help each other or rotate duties in teaching. The limitations of the Model B were the ratio of students per teacher should not more than 25:1. Another was that grade 1 students should not be mixed with students in other grade levels because they demand more care from teachers.

*Model C: A mix of some grade levels*

In this model, there was a mix between MT and regular class teaching. For example, the school could manage classrooms into five groups:
a) kindergarten 1-2,
b) regular class of grade 1,
c) mixed class of grades 2-3,
d) mixed class of grades 4-5, and
e) regular class of grade 6.

So, there were three multigrade classes and two regular classes. One teacher was assigned for teaching each group; however, there can be two teachers for grade 6 class to help each other or rotate duties in teaching. The limitations of the Model C were the ratio of students per teacher should not more than 25:1. Another was that grade 1 students should not be mixed with students in other grade levels because they demand more care from teachers.

The quality of the management model constructed by Phiphat Sonsomnuek (2010) was evaluated by five experts. In overall, the experts evaluated the appropriateness and possibility of the MC management model was at the highest level. In addition, the general conditions and usability of the models were rated at a high level.

Benjamas Inrit (2010) conducted a case study of modeled multigrade school under the Singburi Primary Education Service Area Office for studying the administration and teaching for MC. She collected data from one school administrator, all teachers, six students, and six parents. The data collection included classroom observation, interview with the school administrator, and focus group discussion with the students and parents. The results revealed that the modeled multigrade school raised awareness of MT for all stakeholders. The school split one classroom to two classrooms and set various corners essential for MT. The school asked the teachers to volunteer for specific multigrade classes; but also considered the appropriateness of teachers. Regarding the MT timetable, there was core subjects teaching in the morning and integrated teaching in the afternoon. The educational supervisors, peer teachers, and the school administrator observed teachers’ teaching in multigrade classes. In addition to the budget allocated from the government, the school raised budget for MT from school personnel. All involved stakeholders participated in multigrade education according to their responsibilities.

According to MT in the modeled multigrade school, the teachers prepared teaching by writing their multigrade lesson plans in line with the Ministry of Education’s (MOE) format. The teachers had weekly teaching plans, conducted learning activities according to their created lesson plans. In introduction of the lesson, the teachers greeted the students, mutually set the classroom rules, ordered the students to do activities, used real objects, worksheets, diagrams, and questions to encourage the students participate in learning. Learning experiences were set to challenge the students, and motivate student interest and satisfaction in multigrade learning. The teachers tried to build students’ disciplines, encourage students to learn cooperatively and have positive interactions. The teachers used learning materials and assessment methods as designed in their lesson plans.

Regarding the results of MT, the teachers took care all students closely. The students changed their behaviors to be more positive and desirable. The teachers had lesson plans; so they saved time in preparing the lesson and teaching. It was easier for the teachers to monitor their classes. The school administrator could manage their works easier. The parents accepted the school administrator’s management of, and the teachers’ teaching of, multigrade classes.
Rangsan Muenhong (2011) studied the MT and learning under the condition of teacher shortage at Bandonchai School under the Lampang Primary Educational Service Area Office 3. This study aimed to explore the pattern of MT and learning, the achievement of grade 1-6 students in the academic year 2008-2009, and the opinion of teachers, students, parents and school according to MT and learning. The data were collected by classroom observation and group interview with the participants. The participants were two teachers, 17 grades 1-6 students, 17 parents, and 7 school committees. He found that Bandonchai School set two multigrade classrooms: one for grades 1-3 and another for grades 4-6 students. The teachers tried to mix students with similar preparedness, ages and experiences. The classroom environment was set to suit MT as having experience corner, self-study corner, knowledge board, area for whole class teaching, testing center, area for pair work, learning material center. But, there is no area for individual study. In particular to the area for group work, the teachers adjust area and tables in classroom according to learning activities. The area in the MC for grades 1-3 was quite limited because one part had been dominated to be a school library. It was the same as the MC for grades 4-6 because one part had been dominated to be a technology and computer room. The school administrator considered teachers’ background in assigning teachers for multigrade classes. The teacher who graduated in primary education and had five year experience in teaching was assigned to teach a MC for grades 1-3 students. Another teacher who was not permanent in-service teacher was assigned to teach a MC for grades 4-6 students. Anyway, both teachers participated in MT once and had chance to visit school with excellent MT once. For grades 1-3 mix class, the school set the integrated teaching on every Monday and Thursday afternoon. In morning, there were normally the classes for core subjects as Thai language and mathematics. In afternoon, there were normally the classes for core subjects as Science, English language, computer, and other activities as student club, student guidance, music, and scout. For grades 4-6 mix class, the school set the integrated teaching on every Monday to Thursday afternoon. In morning, there were normally the classes for core subjects as Thai language, mathematics, Science, English language. In afternoon, there were normally the classes for core subject as computer, and other activities as student club, student guidance and student remedial. The ratio of formative and summative assessment was 60:40. The levels of scores were categorized into eight levels. The school tried to communicate with parents about MT that was conducted because of the shortage of teachers. The parents understood the situation.

From classroom observation of MT, the teachers prepared before teaching by studying the national core curriculum, school curriculum, the documents about concepts and theories of MT, studying CDs about MT administered by the Ministry of Education (MOE) and consulting with their peers. The teachers also prepared their lesson schedule and plans.

MT

In teaching for multigrade classes, the teachers conducted the learning activities according to the prepared lesson plans by emphasizing student individual differences. They used learning materials for every classes. They grouped students in the first class to talk about the taught topic or targeted main concepts. Students studied further by themselves with a variety of media depending on their preparedness, abilities and learning characteristics. Students and teachers exchanged information and set topics, and assigned tasks. After that, teachers grouped students for reviewing main concepts learned and let students exchange their learning with each other through presentation in front of the class. Students set basic criteria for evaluating their success. Students selected their topics for further self-study. In
work group, students had chance to choose their team. They have to apply what teachers taught to solve assigned problems. In sum, teachers collected all students and then separated them according to their grade levels to do assignment. In case of any confusion, teachers explained to students and let older students explained to younger students. Group work was utilized first, later the individual work was assigned.

**Classroom management for MT**

Teachers manage areas in their classrooms to serve MT e.g. knowledge board, experience corner, document and media corner, student display corner, learning timetable and classroom rule. Teachers try to set learning environment to encourage students to participate in learning process and motivate students’ interest and learning. Teachers used learning materials and conducted challenging learning activities being corresponded with learning units. Classrooms were clean and learning materials were kept in convenient places in classrooms. Students sat in rows. Outside classrooms, the school had gardens, herb garden and trees. The 6m x 9m space of classrooms were donated to be the 3m x 6m school library.

**Assessment for MT**

Teachers used several questions to check students’ understanding during class. They also checked students’ worksheets and exercises.

**Students’ achievement in MT**

From 2007-2009, students showed a good level of achievement in all eight learning areas.

**Stakeholders’ opinions about MT**

**Teacher**

Teachers expressed that MT effectively helped solve the shortage of teachers. Teachers used MT to monitor students’ learning and serve students’ individual differences. Teachers faced no difficulty in preparation and implementation of MT. However, they reflected that the budget allocated for MT was limited because the budget was allocated by the number of students. The number of teachers were enough for the number of students; however, there should be one more assistant teacher.

**Student**

Students expressed that teachers set suitable learning environment and used several areas in the school as learning sources. The school conducted MT appropriately according to the school context with limitations regarding personnel, building and materials. All students loved to learn by MT and they reflected that time for each MT was enough. They appreciated teaching time. However, students needed more learning materials such as in science, mathematics, and Thai language learning areas. In addition, they reflected that the school buildings were not enough and classroom spaces and light were limited. They needed one more school building.

**Parent**

Parents were appreciated with MT because teachers expressed their attention and commitment in teaching for their students. They were also appreciated with the positive changes of students’ learning achievement, behaviors, habits and responsibilities. Parents wanted the school to add more essential knowledge for everyday lives as Thai language, mathematics, and social studies, religion and culture.

**School committee**

The school committee expressed that MT was suitable for the school with the shortage of teachers. Students may learn with fun and have appreciated learning achievement. Teachers for multigrade classes had high responsibility because they had to
teach and do extra work. Some teachers must take responsibility as school administrator that made them go to meeting, seminar and conference more and more. Teachers had good relationship with local community. The school set learning environment appropriately to the school context and learning activities.

All stakeholders suggested the school to improve light in classrooms and build more building. They would like teachers to emphasize teaching in mathematics, English, and social studies, religion and culture. The school should grow more flowers.

Pornsawan Kositjnda (2011) studied the characteristic of professional administrator and multigrade classroom instruction administration in small schools under Primary Educational Service Office. She collected data from the questionnaire distributed to 21 small schools. There were four informants for each school. A total number of respondents was 84.

She found that, first, the overall characteristics of professional administration in small schools were at a high level. The respondents highlighted that school administrators for multigrade school should be a leader in: moral and ethics, continuing self-improvement, academic, management, society and community.

Second, the multigrade classroom instruction administration in small schools was at a high level. The highlights were placed on: classroom management, measurement and evaluation, teaching preparation, teaching and learning materials.

Last, the interrelation between the characteristic of professional administrator and multigrade classroom instruction administration in small schools was statistically significant at .01 level.

Anchalee Rabuphin (2011) studied the current state and needs of MT for science in primary schools in Nakhon Ratchasima. She collected the teachers’ opinions on current MT in science (n = 16), and school administrators’ needs on multigrade education (n= 94). The instrument used was a questionnaire. Then, she developed the MT model in science for primary schools and asked five experts to evaluate the created model. The model was implemented at Khamtai School under Primary Education Service Area Office in Nakhon Ratchasima. The research design was one group pre-test post-test design. The sample was 18 grade 4 students, and 10 grade 6 students in the first semester of 2011 academic year 2011. After implementation, she asked educational supervisors, teachers, school administrators to evaluate the effectiveness of created model for MT in science with respect to its input (i.e. teacher, student, format, and learning environment), process, and output (i.e. students’ learning achievement and satisfaction to MT).

**Current state of MT in primary science**

She found that teachers’ opinions on current state of MT in primary science, as a whole, was at a high level. The highlights were: encouraging student interactions during learning, using small group learning, managing groups of students, and encouraging student engagement in discussion and making decision. Teachers suggested that MT in primary science should use smaller group activities because most activities in science were experiments that there were some students who could complete experiments early. So, teachers should set additional activities for this group of students.

**Needs for MT in primary science**

Most school administrators using multigrade education in science involved in developing MT because MT was new for them. Most school administrators needed the development of MT model in science in their schools because they wanted to solve the
teacher shortage problem. Most school administrators were ready to participate in developing MT model for increasing students’ achievement and applying in other subjects. Most school administrators needed MT to serve a lack of teachers, budget and teaching and learning materials especially modern, expensive technology, and learning sources. In addition, teachers had heavily extra workload. These affected the quality of teaching and learning. Most school administrators stated that MT was corresponded with their school contexts because students having low achievement, and school having limitations in teachers and budget. Most school administrators need developing MT in other subjects in order to develop students in all subjects as being mediated by the curriculum. Most school administrators thought that MT was appropriated to small school because teachers could know students more from teaching the same students more than one year. It helped developing students individually and continually. Most school administrators need to implement the MT model created in this study in their schools to enhance students’ achievement in science and to apply in other subjects.

Anchalee Rabuphin (2011) created the MT model in science for primary small schools. The model was consisted of 10 lesson plans using these core principles: being flexible, responding to student individual differences, encouraging student interaction, and leading all students with differences to reach the goals of curriculum. The basic steps of the model were: preparation of students, teaching, remedial lesson, conclusion, and assessment. The panel of experts validated the created lesson plans at a high level. The implementation of the created MT model showed that the efficiency of the model at 75.20/ 70.10, which was higher than the assigned criteria. The efficiency index (E.I.) was 0.5797 showing the students attending this model increased their scores 57.97%. The post-test result showed that the mean score of the students increased 12.45 scores.

The supervisors, teachers, school administrators evaluated the effectiveness of created model for MT in science with respect to input at a highest level for teacher and format and at a high level for student and learning environment. They evaluated the effectiveness of created model regarding its process at the highest level. For output, the created model help students develop their learning achievement. Also, students expressed their satisfaction to the created model for MT in science.

In conclusion, the developed MT model in science for primary small schools met the criteria of efficiency and effectiveness index. The students gained learning achievement after learning using the developed MT model. They were satisfied with the developed MT model. Consequently, the MT model should be promoted for learning management in small schools for the students’ higher learning achievement.

Supamarch Kultangwattana (2011) studied the states and problems of MT in small schools at key stages 1-2 under the Office of Nakhon Phanom Educational Service Area 1. The multistage random sampling was used to determine the sample that were 94 school administrators and 188 teachers (n = 282) in small size schools at key stages 1-2 in the 2009 academic year. The instrument used to collect the data was a five-rating scale questionnaire, which had the discrimination power between 0.24 - 0.81 and the reliability of 0.97.

This study showed that, in overall, the school administrators and teachers reflected that MT conducted for key stages 1-2 students in small schools under the Office of Nakhon Phanom Educational Service Area 1 was at a high level. Specifically, MT in the aspects of
adjusting curriculum, teaching, student role, teacher role, school administrator role, parent role were at a high level; while the classroom management was at a medium level.

In overall, the school administrators and teachers reflected that the problems of MT for key stages 1-2 students in small schools under the Office of Nakhon Phanom Educational Service Area 1 was at a medium level. Specifically, the problems of MT in the aspects of classroom management, adjusting curriculum, teaching, student role, teacher role, school administrator role, and parent role were at a medium level.

The opinions of the administrators and teachers on the states of multigrade teaching in small schools at key stages1-2 under the Office of Nakhon Phanom Educational Service Area 1 were not significantly different at the .05 level. However, the opinions of the school administrators and teachers were significantly different in the aspect of classroom management. In this aspect, the administrators had opinion in a lower level than teachers.

The opinions of the school administrators and teachers on the problems of MT in small schools at key stages 1-2 were significantly different at the .01 level in all aspects i.e. classroom management, adjusting curriculum, teaching, student role, teacher role, school administrator role, and parent role. In addition, the administrators had opinion about problems of MT in higher level than teachers in all aspects.

When the researcher brought the states and problems of MT in the aspects with mean lower than average mean to 10 experts to evaluate the necessary for improvement. She found that the classroom management, adjusting curriculum, teaching, student role, and parent role aspects were the aspects that needed improvement.

Montrathip Inglum, Karnda Nakawej, and Dararat Uthaipayak (2011) compared young children’s public mind in mixed-age classrooms before and after the field trip activities. The subjects were 15 preschool children from preschool level 1 and 2 in mixed age classes at Ban Nonthaworn School in Chaiyaphum province. The research was carried out in the first semester of academic year 2011. The experiment was conducted for 10 weeks, 3 days per week with the total of 30 times. The research instruments were field trip activities’ lesson plans which have the content validity at 3.77 and the public mind behavior observation form which has the reliability of .85. The obtained data were analyzed by using mean and standard deviation. The research result revealed that young children’s public mind after they were exposed to field trip activities was significantly increased at 24.46 %.

Jinnathip Kaewchin (2011) tried to use the coaching technique to develop teachers’ MT and the results of their teaching on student learning at Ban Kham Kha School, Ubonratchathani province. The participants were one school administrator, seven teachers, and 67 students in multigrade classes. They all were purposive sampling in the 2011 academic year. The researcher interviewed the school administrator, observed the teachers’ multigrade classes, interviewed teachers, and conducted focus group discussion with the parents. She found that Ban Kham Kha School had a complete administration and instruction for multigrade classes. The school set learning environment suitable for MT and received budget from the Ubonratchathani Primary Education Service Area Office, parents, and local community. The teachers conducted MT according to their lesson plans. They had positive attitudes towards supervision by coaching and satisfied with MT. Regarding the effects of MT on students’ learning, the result of the Ordinary National Education Test (ONET) in the 2009 academic year showed that the grade 6 students had higher achievement in all subjects. The
focus group discussion with parents revealed that the parents satisfied and understood about MT. They supported and helped the school in developing learning environment for MT.

Ratchaneewan Samanmit (2011) conducted a multiple case study of MT processes of good practice small primary schools. She aimed to analyze teachers’ MT, to study the effects of MT on students’ learning, to analyze the school administrators’ administration and management to support MT in the good practice small primary schools. She found that the teachers in the good practice schools for MT conducted three formats of MT. In the first format, the teachers divided teaching into three periods including grouping, splitting, and then grouping again. In grouping period, the teachers gave students basic knowledge and conclude knowledge. The splitting period aimed to extend the students’ knowledge. This first format was used in the science and mathematics learning strands. In the second format of MT, there were two periods of teaching including grouping for preparing students’ readiness and the splitting period for extending students’ knowledge. The second format of MT was for Thai language learning strand. In the third format of MT, the teachers used grouping activity all time. This format of MT was for English and Thai language learning strands. The effects of MT model on the students were the students could understand the lesson quicker because the students from both classes helped each other in learning. They also had more social skill from students’ interactions in group. The school administrators divided the administration and management for multigrade classes into two periods. The first period was to prepare all stakeholders for MT by giving them knowledge about MT. The school administrators also prepared for multigrade classes by assigning the teachers to multigrade classes, improving curriculum, and improving learning environment and materials for MT. In the second period, the teachers’ MT in all aspects was monitored and supervised.

Sawang Tonsri, Paisarn Worakam, Piyatida Panya (2011) aimed to develop multigrade learning management for Grade 3-4 students of Ban Nonetard School, Office of Roiet Elementary Education Area 2, by using two cycles of action research, which each was consisted of planning, action, observation and reflection. The research participants were five teachers, and the target group consisted of 16 grades 3-4 students obtained by using purposive sampling. The key informants for this study were seven school committee members, 15 parents of grades 3-4 students, and five elementary education supervisors. The data collection instruments of this study were a form of meeting minutes, an interview form, a form for recording focus-group discussion, a questionnaire, an observation form, and multigrade learning management plans for teaching 8 content strands of grades 3-4. The researchers found that, in the school context aspect, there were not enough teachers for all grade levels, and there were a small number of students in each class. The lesson plans for multigrade learning management were then developed for teaching grades 3-4 by using the following steps of action research: Step 1 - Planning for eight learning units of eight learning strands for multigrade learning of grades 3-4; Step 2 - Implementing the multigrade learning management plans in teaching grades 3-4 students; Step 3 - Observing implementation results of Cycle 1, which showed that the multigrade learning in this cycle did not meet the established objectives of the lesson. There were problems as students’ inability to finish their worksheets in time, teachers’ nervousness in multigrade learning management, and incongruent and inappropriate use of instructional materials. These problems were later taken into consideration in planning to improve multigrade learning in Cycle 2 to improve students’ actual practice, and to ensure instructional flexibility and practicality. Step 4 -
Reflecting on implementation results of Cycle 1 by adjusting the multigrade learning plan for Cycle 2 to ensure flexibility in practice within appropriate learning time. It was found that teachers of the target group became more confident in their teaching; they were able to apply instructional materials appropriately and adequately; and learning activities were congruent with every step of the instructional procedure.

The Bureau of Academic Affairs and Educational Standards, OBEC (2011) conducted a national study of administration and teaching for multigrade classes in small schools by using the qualitative approach. This study had two main objectives: to study administration and teaching for multigrade classes in small schools; and to study the results of administration and teaching for multigrade classes on student learning. The participants were the school administrators, teachers, parents, and students from 70 small schools nationwide. The data collection methods included interview with the school administrators, focus group discussion with the teachers, interview after MT with the teachers, focus group discussion with the students and parents, and collection of related documents. The within-case and cross-case analyses were employed in analyzing data.

**School administration for MT**

The school administrators raised teachers’ awareness and understanding about MT by sending the teachers to participate in MT workshops. The school administrators talked with the teachers informally about MT. They set the official meeting with the teachers to announce, communicate, and persuade the teachers about MT. The school visit was organized to set a good example of MT for the teachers. The within-school networks were created and the meetings of networks were conducted. The school administrator communicated with the students about MT.

The school administrators managed multigrade classes by analyzing needs and importance. The number of multigrade classes was depended on the number of students. The school administrators asked the teachers to volunteer to a specific MC and also considered the teachers’ skills and abilities.

The teachers in all participating schools set teaching plan for MT together and analyzed the appropriateness of the teaching and the Basic Education Core Curriculum. The core subjects as Thai language and mathematics were placed in the morning of teaching plan; while in the afternoon, there were English language and integrated curriculum. The teaching plan was set to a year plan and semester plans. There was a revision of teaching plan every year according to the suggestion from OBEC.

The school administrators managed learning environment in the schools and classrooms to suit MT. In the multigrade classes, there were a student product corner, investigation corner, pair work corner, individual work corner, and library. Technology was utilized in multigrade classes such as television, computer, etc. The multigrade classrooms were clean, beautiful, safety and had enough light. In addition, the schools utilized local contexts as learning sources for the students such as agricultural areas, markets, and shops.

The schools derived materials and budget from OBEC, parents, and local communities and organizations. The budget was allocated mostly for the student free lunch project, textbooks, scholarships, and developing the schools. The Provincial Primary Education Service Area Office supported the external supervision for MT and the documents related to administration and instruction for multigrade classes. In addition, there was internal supervision conducted by the school administrator through informal classroom visit and
informal conversations with the students and teachers for solving the teaching and learning problems related to multigrade classes.

All schools tried to promote the teachers’ morale in conducting MT. The teachers were also encouraged to join the workshops related to MT, which were conducted by the Provincial Primary Education Service Area Office. The good practice multigrade school visits were conducted to give the teachers’ experiences about good MT. The excellent teachers for MT were promoted to compete for the national reward. The school administrator paid respect and gave honor to the teachers. All teachers were encourage to get teacher professional promotion. The essential materials for MT were also supplied to the teachers.

The common problem for almost small schools was a lack of budget. In addition, the schools lacked materials and innovations or they were not appropriate for MT. The teachers in small schools had heavy workload; so they could not teach continuously. The suggestions were providing more budget for multigrade schools, more learning materials and innovations, decreasing teachers’ workload to let them teach for full curriculum.

MT

Most of the teachers used the multigrade lesson plans created by OBEC. They are grade-level-lesson plans. The teachers studied lesson plans, analyzed the difficulty of targeted contents and teaching methods, studied learning standards and indicators, set learning goals and objectives, created teaching schedule, and prepared worksheets, exercises, and tests. All teachers adapted learning activities, materials, and assessment in the OBEC multigrade lesson plans because those learning activities, materials, and assessment did not cover or were not appropriate for their students. Sometimes, they were too many or difficult or vice versa.

In the introduction phase, all teachers greeted the students, described the learning objectives of the lesson and set the classroom rule. In the teaching phase, most of the teachers used worksheets according to the students’ grade levels. The teachers explained to the slow students until they understood like others. Most of the teachers required the students to investigate further by themselves. The learning activities included peer learning, coaching, and cooperative learning. The teachers employed various learning materials such as real objects, pictures, cards, games, and music. In the conclusion phase, the teachers gathered all students and used several question to help the students conclude the lesson. The students were free to ask any question to the teachers. At final, the teachers assigned the students homework and sing a song before closing the lesson. The teachers assessed the students by examining their worksheets and products. They also observed students’ behavior.

Results of MT on student learning

Student

The students developed more understanding about the lesson. In particular, the students had chance to learn contents in other grade levels in the MC. They learned from a variety of learning materials. So, the students learned according to the Basic Education Core Curriculum. They were fluently in writing and reading. Many students from small schools joined in various academic competitions and got many rewards. Many schools showed that their students increased learning achievement, had interpersonal and working skills. They could investigate particular topics further by themselves. The students in multigrade classes had desirable characteristics such as being discipline, responsible, diligent, polite and eager to learn and learning with happiness.

Teacher
More than a half of the teachers got guidelines for MT from the OBEC lesson plans and MT workshops. More than a half of the teachers were appreciated with MT because they saved more time from mixing classes.

**School administrator**

More than a half of the school administrators had more understanding about administration, supervision, assessment, and teaching techniques for multigrade classes. They satisfied with the change of teachers’ teaching behaviors that affected the more quality and more desirable characteristics of students.

**Parent**

More than a half of the parents had satisfaction with the characteristics, good relationship and open mind of school administrators. They expressed that the school administrators sacrificed themselves for the schools and had strong commitment for developing the schools. The schools got many awards and were accepted from all segments. The school administrators took care the teachers and students in all aspects. They participated in important school and local events. The parents satisfied with the quality and learning achievement of students from MT such as being able to write, read and calculate with fluency. The students had more learning achievements. The schools asked the parents to help take care their child at home and keep watch their behaviors. More than a half of the parents satisfied with the students’ improvement such as being more responsible, polite, and courage to express; changing more desirable behaviors; reading textbooks more; and gaining higher grades or scores.

Krittiyaporn Nuchkrathok (2012) studied the results of using MT on Geometric Figures for grades 2 - 3 students at Bankapee School, Nakhon Ratchasima in the second semester of the academic year 2011. The participants were 18 students. The instruments used for collecting data were lesson plans on the topic of Geometric Figures, exercises and the Learning Achievement Test. In MT, the teacher emphasized peer and group learning so that students helped and taught each other. Up to this, slow learners could learn and had positive attitudes to learning. Students had fun with movement activities and learned from direct practice.

The results showed that the average score of the students’ achievement was higher than 75% (the school’s criteria). The percentage of the score of grade 2 students’ achievement was 85.35 (S.D. = 5.50). The percentage of the score of grade 3 students’ achievement was 89.73 (S.D. = 3.44).

Khanuwat Somboon (2012) investigated the problems and needs in the administration of multigrade classes in the small school under the office of Phayao Primary Education Service Area 1. The population of this study was the school administrators and teachers of multigrade schools under the Office of Phayao Primary Education Service Area 1, which was 28 schools. Twenty eight school administrators and 123 teachers (n = 151).

In overall, the results showed that the multigrade schools faced problems in administration for multigrade classes in a high level. There were four main problems. The problems about learning materials, aids and sources, teachers and personnel, and budget were at a high level; while the problem about school administration was at a medium level.

Specifically, the details of four main problems in administrative management in multigrade schools were as follows.

**Teacher and personnel**
Teachers and education personnel in multigrade schools must have professional development in MT. The next problem was teacher’s preparation of learning activities for students. Teachers were not suitable for their students. There was a lack of cooperation between teachers.

**Budget**

The multigrade schools had insufficient budget for administrative management in the school. The next problem was a lack of support from public agencies and organizations. There was also had a problem about the use of budget according to the budget plan.

**Learning materials and places**

The school lacked teaching and learning materials and spaces for the students to learn with multigrade. Also, the existing teaching and learning materials were not suitable for the students.

**Administrative management**

The major problem was preparing learning activities in the administration of multigrade classes. The next problems were classroom management and environment, time usage in learning activities, and students’ participation in measurement and evaluation of their learning. Another problem was teachers must follow school administrators or educational supervisors in MT.

In overall, the results showed that the school administrators and teachers in multigrade schools needed teachers and personnel, budget, and learning materials, aids and resources in a high level; while needed school administration at a medium level.

Specifically, the details of four main needs in administrative management in multigrade schools were as follows.

**Teacher and personnel**

The most need for teachers was encouragement for positive attitudes towards MT and working in the school. Teachers needed professional training and development in teaching methods, preparing learning activities, and classroom management in MT.

**Budget**

All schools needed enough budget support from the government, the local or external agencies and organizations for administrative management in MT and learning for the students.

**Learning materials and places**

All schools needed much more teaching and learning materials and aids that were suitable for the students and grade level. In addition, the usefulness of teaching and learning materials and aids must be considered.

**Administrative management**

All schools needed classroom management that was suitable for the students and classroom level. Other needs were preparing learning activities, good classroom environment, and cooperation among teachers, and student involvement in measurement and evaluation of learning.

Pisithgul Kamlangsin (2012) examined the effectiveness of activity package for developing grade 4-6 students’ analytical thinking ability in multigrade classes. The population was consisted of 138 grade 4-6 students of Bankhwao Educational Quality Development Network Center 1. The samples being purposive sampling were 23 grade 4-6 students at Nongsom School under Chaiyaphum Primary Educational Service Area Office 1. The study was conducted in the second semester of the 2011 academic year. The research tools were
composed of the activity package for developing analytical thinking ability and the measurement test of analytical thinking ability. The obtained data were analyzed by using E1/E2 technique and dependent t-test.

The research revealed that the efficiency of using the activity package in developing grades 4-6 students’ analytical thinking ability was at 81.74/81.01 that was higher than the required criteria (80/80). In addition, the students’ analytical thinking ability after learning by the activity package was significantly higher than before learning at the statistical level of .01. Specifically, the students had analytical thinking ability with respect to analyzing importance (mean score = 93.04), analyzing relationship (mean score = 79.13), and analyzing principle (mean score = 70.847).

Chukasem Yanpradub (Yanpradub, 2012) studied learning achievement and satisfaction in Thai language subject on Thai Part of Speech using TAI model in MC of students from Prathomsuksa 4-6, Nakhon Rachasima Primary Educational Service Area Office 7. The sample group was derived from purposive sampling, which was consisted of 34 students from grades 4-6 from Triratsamakkee School, Nakhon Rachasima, in the 2011 academic year. There were eight, 15, and 11 students from grades 4, 5, and 6, respectively. The research instruments were three sets of the 40 items achievement test of Thai language subject on Thai Part of Speech. The first set of the achievement test was for grade 4 students, and the second and third sets were for grades 5 and 6 students, respectively. In addition, there was a questionnaire on the students’ satisfaction to the learning unit.

The research findings were as follows. Regarding the learning achievement of Thai language subject on Thai Part of Speech using TAI model, grade 4 students had pre-test mean score at 17.63 (44.06%) and the post-test mean score at 30.00 (75.00%). The grade 5 students had pre-test mean score at 19.00 (47.50%) and the post-test mean score at 30.73 (76.83%). And the grade 6 students had pre-test mean score at 17.82 (44.55%) and the post-test mean score at 30.45 (76.14%).

The post-learning achievement of Thai language subject on Thai Part of Speech using TAI model in MC for grades 4-6 students was significantly higher than the pre-learning achievement at the .05 statistical level.

The learning achievement of Thai language subject on Thai Part of Speech using TAI model in MC for grades 4-6 students was not significantly higher than the criterion of 75% at the .05 statistical level. The students were highly satisfied with the Thai language subject on Thai Part of Speech using TAI model. Specifically, the students were most satisfied with helping other students in their teams, scores earned for their groups, learning with TAI model, and appraisals from the teacher.

Aphiwan Cha-oun (2012) tried to develop personnel at Ban Hin Rae School, Khon Kaen province, for implementing MT in their school. The participants were one school administrator, two knowledge persons, 20 students (four, 12, six grades 4, 5, and 6 students, respectively). The total number of participants was 23. The researcher employed two cycles of PDCR (Plan, Do, Check, and Reflection) of the action research to design his MT personnel development program. That is, he planned for developing MT by using SWOT (Strength, Weakness, Opportunity, and Threat) meeting with his team. He found that teachers lacked understanding in MT, skill in designing learning units and lesson plans for MT, and skill in conducting MT in their classrooms. From these problems, he created two strategies in developing teachers’ understanding about, and skill in, MT. The first strategy was conducting
MT workshop; and another was supervision for MT. In MT workshop, two knowledge persons were invited to help teachers develop more understanding about MT and more skill in designing lesson plans and learning unit for MT. The supervision of MT had occurred to monitor the participating teachers' implementation of their multigrade learning units in their classrooms. The teachers' MT were observed; after that, the supervisors provided feedback for the teachers. The overall results from those mentioned activities was reflected by the involved persons.

The first cycle of the PDCR emphasized the use of workshop to enhance the teachers’ understanding about, and skill in, MT. The results from this cycle showed that the teachers were satisfied with the workshop at a high level regarding preparing and conducting the workshop for developing teachers’ understanding about MT and the teachers could design lesson plans and learning units for MT. From the evaluation of workshop, the participating teachers reflected that the workshop succeed according to its goals and faced no problem. From classroom observation during supervision for MT, the teachers could conduct appropriate multigrade learning activities. However, the aspects the teachers still lacked were conducting activities to encourage students to exchange ideas with each other, or to interact during pair and group work activities. The overall evaluation of teachers’ teaching in multigrade classes was at a medium level. This led to students’ learning behaviors and satisfaction were at the medium level. In sum, teachers’ understanding about, and skill in, MT were not enough for them to effectively conduct multigrade learning activities. This problem led to the second cycle of PDCR.

The results from the second cycle of PDCR using the supervision strategy revealed that the teachers could effectively conduct MT and learning activities in their classrooms. The students had opportunities to exchange ideas with each other or interacted with other during pair and group work activities. After receiving feedback from supervisors, the teachers developed more understanding about MT, more confidence in teaching, and could conduct effective multigrade learning activities.

Songsak Phattanasang (2012) tried to develop personnel at Ban Nong Pong Rat Bam Rung School, Nakhon Ratchasima province, for MT. The participants were one knowledge person and four teachers, who volunteered to participate in this study. The researchers conducted the SWOT meeting with his team about MT. He found that teachers in multigrade schools lacked understanding about MT. So, the workshop should be conducted for enhancing teachers’ understanding about MT, skill in writing lesson plans for MT, and implementation of the created multigrade lesson plans. The researcher employed two cycles of PDCR (Plan, Do, Check, and Reflection) of the action research to design his MT personnel development program. The first cycle of PDCR was the knowledge management (KM) strategy. The process of KM was consisted of knowledge identification, knowledge acquisition, knowledge organization, knowledge access, knowledge sharing, and learning person. The second cycle of PDCR was the learning person development, which was consisted of these activities: personal mastery, mental model, shared vision, team learning, and system thinking. The volunteered teachers participated in the workshop to enhance their understanding about MT and practice writing lesson plans for MT. After that, the supervisor observed teachers’ implementation of their created lesson plans for teaching MT and provided feedback to the teachers. The overall results from both strategies was finally reflected by involved persons.

The results of the first PDCR cycle revealed that the knowledge management (KM) and the development of personnel to become a learning person strategies helped the
participating teachers had more understanding about analyzing curriculum that led to more effective writing of their lesson plans. After the workshop, the teachers developed more understanding about analyzing curriculum and effective writing of lesson plans from 60.00% to 86.25%. In overall, the students were appreciated the MT at a highest level. However, from classroom observation, the teachers still lacked confidence and skill in MT. They could not effectively manage time for each multigrade learning activity. The multigrade learning activities were not appropriated. The learning materials lacked diversity and were not interesting and suitable to learning activities. Assessment methods could not cover all desirable behaviors expressed by the students. The students lacked eager to learn. So, from all of these problems, the quality of implementation of MT were lacked.

In the second PDCR cycle, the teachers tried to improve their lesson plans and prepare learning materials and assessment methods. They submitted their revised lesson plans to the supervisor for checking them. From classroom observation, the teachers used more variety of activities in the introduction of lesson such as games, telling story, etc. Therefore, the activities were more interesting and the students were happier to learn. In the teaching phase, the teachers conducted a variety of integrated activities for their students. Teachers taught and collected data about students better and made students participate in the activities. In summary, the teachers prepared learning materials and resources and assessment tools. The teachers expressed their attention for successful MT by focusing on their students. They emphasized the students to learn from direct experience. The weaknesses from the previous teaching mostly solved. The students smiled, laughed, had fun, interacted with other, and thought, planned and worked as team. The two strategies employed in this study should be applied to other multigrade schools.

Thaisak Wongkham (2012) studied the personnel development for MT, Ban Non Sao Ei, the Office of Chaiyaphum Primary Educational Service Area 2. This study aimed to develop teachers’ basic understanding about MT, helped teachers develop lesson plans and assess students’ learning in multigrade classes. The participants were three volunteered teachers from three different multigrade classes i.e. grades 1-2, grades 3-4, and grades 5-6 classes. The three main strategies the researcher used in the professional development program for MT were workshop, school visit, and teaching supervision. Two PDCR (Plan, Do, Check, and Reflection) cycles of the action research was utilized in this study.

The results of the first cycle of PDCR showed that the teachers who participated in the workshop developed more understanding about MT (31.50%). From classroom visit, the teachers gained experiences about teaching and learning strategies, managing classroom environment, and assessment for MT. The teachers expressed the confidence in MT in their future classrooms. In overall, the teachers had understanding about MT at a high level. From classroom observation, the teachers had understanding about MT and assessment such as whole class teaching, pair activity, group activity, peer learning, individual learning and small group learning with the teacher. Three of four teachers could measure and evaluate student learning in all multigrade activities. The results of this first cycle were utilized to plan the activities for the next cycle of PDCR aimed to improve teachers’ knowledge and ability to teach multigrade classes more effective.

In the second cycle of PDCR in this study, two strategies were used including working together and observation of assessment in MC. To do this, the teachers worked together to improve their understanding about assessment in MC that was the main problem for them. The data from observation showed that the teachers were eager to employ assessment in all
six activities i.e. the whole class activity, pair activity, group activity, peer learning activity, individual work, and small group learning with teachers. All teachers expressed their confidence in assessment of learning in multigrade classes.

Porntawee Simlerng (2012) developed the teachers’ understanding and teaching about MT by using two cycles of PDCR of action research. The study was conducted in Ban Jamuen School, Chaiyaphum province. The three strategies used for developing teachers’ understanding and teaching about MT were workshop, multigrade school visit, and peer support. There were three teachers participated in this study.

From the workshop conducted in the first cycle of PDCR, two teachers had understanding about MT and writing lesson plans for MT in a high level; while another had understanding in a medium level. In writing lesson plans for MT, the teachers could specify key learning contents, learning objectives, learning activities being appropriate with targeted contents, select learning materials, and determine assessment methods and tools. They expressed more confidence in applying understanding from the workshop in their future multigrade classes. The experiences from multigrade school visit showed the teachers the example of format, method, and process of MT. The teachers observed real practice of MT and collected the example of multigrade lesson plans, student products, teacher products, a variety of teaching techniques, and peer support strategy. From classroom observation and supervision, the students participated in a variety of activities and learned by themselves with fun. The teachers used a variety of teaching activities that made students learn all time and being eager to learn. Peer and group learning activities made the students exchange ideas with, and help teach, each other. The teachers used various modern learning materials that promoted student participation with those materials. Authentic assessment was also employed. The evaluation showed that both the teachers’ teaching performance in MT and students’ learning were at a high level. Of three teachers, two had a high level of teaching performance; while another had a medium level of teaching performance. This led to the second cycle of PDCR for improving teachers’ teaching performance in MT.

The strategies used in the second cycle of PDCR was peer support. The teachers worked together to find out ways to improve their lesson plans and MT. Peers who had more understanding about, and skill in, MT helped others who had less understanding and skill. After this cycle, the teachers could conduct MT at a high level in all aspects. They could conduct learning activities appropriately to their students. The teachers were happy in MT, taught naturally, used more learning materials, and conducted teaching and learning activities continuously. The students learned with fun, had chance to practice their skill, and helped their friends in learning.

Ornuma Suwanrat (2012) conducted a case study of Ban Kok Chareon School in Phang Nga province. She aimed to study the administration model for MT and factors supporting the successful administration model of Ban Kok Chareon School. The participants were the school administrator, teachers, school personnel, educational supervisors, school committee, parents, students, and local community representatives. The data collection methods included interview, classroom observation, and documents.

She found that the school administrator raised more awareness of MT in stakeholders by using a variety of methods. The school used the multigrade lesson planed created by the Office of Basic Education Commission (OBEC) in MT. The teachers conducted learning activities in multigrade classes in line with the OBEC mentioned including promoting students’
potential, disciplines, reading, writing, and analytic thinking. The school conducted the projects for promoting teaching and learning in each learning strands. The school managed the classroom space as a guideline provided by the OBEC. There were many experience corners. The students participated in managing their classrooms. The school had enough classrooms and special rooms for MT. In addition, the school set the learning environment in the school to suite with MT. The school derived enough budget from the Ministry of Education (MOE) for conducting MT. Also, the school derived budget, materials, lesson plans, and learning media from the community’s donation. All stakeholders took their roles and responsibilities. There were both internal and external supervisions for teachers to appropriately conduct MT in their classes. The school personnel had chance to attain the professional development program for MT. The school administrator promoted the teachers’ morale continually to encourage them to practice MT effectively.

The factors supporting successful MT in this modeled school were that the school administrator were aware of the importance of, and had understanding about, MT. The mutual administration was employed in this study. The teachers had understanding and ability to conduct MT. They were responsible for their roles and duties, worked as a team with other teachers, and continually improved themselves. Other personnel in the school were responsible and could cooperatively work with others. The Phang Nga Primary Education Service Area Office supported the school continuously and seriously and also encouraged all stakeholders’ morale. The school committees were responsible to their roles and duties and had the characteristic of leader. The parents, graduated students, local people worked together and gave cooperation to the school in developing education and local wisdom in the students. The local agencies and organizations took part education and provided budget and materials. There were a variety of local learning resources including the learning resources regarding religion, nature, local wisdom, and sufficient economy. The school could employ MT correctly and appropriately. The morale, commitment, and faith of stakeholders to the school were the key factor affecting MT.

Sawang Tonsri (2013) used two PDCR cycles of action research for developing multigrade learning management for grades 3-4 students of Ban Nonetard School, Office of Roi-Et Elementary Education Area 2. The participants were five teachers, who taught 16 grades 3-4 students, seven school committee members, 15 parents of grades 3-4 students, and five primary education supervisors. The data collection included interview, focus group discussion, questionnaire, classroom observation, and documents.

Regarding the school context, it was found that there were not enough teachers for all grade levels and there were small students in each class. The teachers lacked understanding about MT because they had a few training about MT. Normally, even though the teachers mixed classes together, they did not teach in an integrated fashion. They still taught separate classes within a mixed class. The teachers had negative attitude towards MT. They felt that MT took more time than regular class because a teacher must teach many contents at the same time. Teachers could not prepare their teaching effectively. The school administrators expressed that there was no fixed answer for MT. It depended on the number of students, teachers, and school budget. The lesson plans for multigrade learning management were then developed for teaching grades 3-4. The panel of experts, in overall, evaluated the created lesson plans in a highest level. Particularly, the aspects of potentiality and appropriateness were evaluated at a highest level; while the aspects of general context and usefulness were evaluated at a high level. The following steps of action research were
employed: Step 1 - Planning for eight learning units of eight learning strands for multigrade learning of grades 3-4; Step 1 – Implementing the multigrade learning management plans in teaching grades 3-4 students; Step 3 – Observing implementation results of cycle 1, which showed that the multigrade learning in this cycle did not meet the established objectives of the lesson and there were problems as follows: students’ inability to finish their worksheets in time, teachers’ nervous in multigrade learning management, and incongruent and inappropriate use of instructional materials.

There problems were later taken into consideration in planning to improve multigrade learning in the second cycle of PDCR in order to improve students’ actual practice, and to ensure instructional flexibility and practicality Step 4 – Reflecting on implementation results of cycle 1 by adjusting the multigrade plan for cycle 2 to ensure flexibility in practice within appropriate learning time. It was found that teachers of the target group became more confident in their MT; they were able to apply instructional materials appropriately and adequately; and learning activities were congruent with every steps of the instructional procedure. The students expressed that they were fun in leaning in multigrade classes because they had opportunities to work with their peers in group work activity. They regarded the whole class activity as a good activity because they had chance to talk with to others about main concepts intended to learn. The students, oftentimes, did not raise their hands to answer the teachers’ questions. The teachers had to point specific students and ask questions. The students understood and could conclude targeted concepts. Oftentimes, the students had opportunity to practice according to worksheets. The worksheets were not too difficult for students.
### Table 9: Summary of research reports during 2006-2013

<table>
<thead>
<tr>
<th>No.</th>
<th>Year</th>
<th>Name of author</th>
<th>Area of MT to study</th>
<th>Sample/Participant</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2006</td>
<td>Nuchada Pathraphithanon, Sondej Seesang</td>
<td>MT methods of teachers at kindergarten unit</td>
<td>28 teachers</td>
</tr>
<tr>
<td>2</td>
<td>2007</td>
<td>Kingphet Songserm</td>
<td>Administrative models for improving quality of small schools</td>
<td>Literature review</td>
</tr>
<tr>
<td>3</td>
<td>2007</td>
<td>Payon Nguantong</td>
<td>Creation, validation, and implementation of a MT lesson plan</td>
<td>1 teacher, 22 students, and 3 experts</td>
</tr>
<tr>
<td>4</td>
<td>2009</td>
<td>Kingphet Songserm</td>
<td>Development of criteria for evaluation of MC learning environment</td>
<td>19 experts, 58 teachers</td>
</tr>
<tr>
<td>5</td>
<td>2009</td>
<td>Benjamas Inrit</td>
<td>Development and evaluation of MT for special students</td>
<td>31 students</td>
</tr>
<tr>
<td>6</td>
<td>2010</td>
<td>Phiphat Sonsomnuek</td>
<td>Administration and teaching for MC</td>
<td>1 administrator, 2 teachers, 6 students, 6 parents</td>
</tr>
<tr>
<td>7</td>
<td>2010</td>
<td>Rangsan Muenhong</td>
<td>Development of MC management model for small schools</td>
<td>40 administrators, 40 teachers, 2 educational supervisors</td>
</tr>
<tr>
<td>8</td>
<td>2011</td>
<td>Pornsawan Kositjinda</td>
<td>MT and learning</td>
<td>2 teachers, 17 grades 1-6 students, 17 parents, 7 school committees</td>
</tr>
<tr>
<td>9</td>
<td>2011</td>
<td>Anchalee Rabuphin</td>
<td>Characteristic of professional administrator and MC instruction administration in small schools</td>
<td>84 administrators</td>
</tr>
<tr>
<td>10</td>
<td>2011</td>
<td>Supamarch Kultangwattana Montrathip Inglum, Karda Nakaweij, and Dararat Uthaipayak</td>
<td>Current state and needs of MT for science in primary schools</td>
<td>94 administrators, 16 teachers</td>
</tr>
<tr>
<td>11</td>
<td>2011</td>
<td>Jinnathip Kaewchini</td>
<td>Current state and problems of MT in small schools</td>
<td>94 administrators, 188 teachers</td>
</tr>
<tr>
<td>12</td>
<td>2011</td>
<td>Ratchaneewan Samanmit</td>
<td>Learning development in MC from field trip activity</td>
<td>15 students</td>
</tr>
<tr>
<td>13</td>
<td>2011</td>
<td>Use of coaching technique to develop teachers’ MT and its effects on student learning</td>
<td>1 administrator, 7 teachers, 67 students</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>2011</td>
<td>Good practice of MT</td>
<td>1 school</td>
<td></td>
</tr>
<tr>
<td>No.</td>
<td>Year</td>
<td>Author(s)</td>
<td>Title</td>
<td>Participants</td>
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</tr>
<tr>
<td>15</td>
<td>2011</td>
<td>Sawang Tonsri, Paisarn Worakam, Piyatida Panya</td>
<td>Development of multigrade learning management for grade 3-4 students</td>
<td>7 school committees, 16 students, 15 parents, 5 educational supervisors</td>
</tr>
<tr>
<td>16</td>
<td>2011</td>
<td>Bureau of Academic Affairs and Educational Standards</td>
<td>Administration and teaching for MC</td>
<td>70 small schools nationwide</td>
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<tr>
<td>17</td>
<td>2012</td>
<td>Krittiyaporn Nuchkrathok</td>
<td>Implementation of MT on Geometric Figures for grades 2 - 3 students</td>
<td>18 students</td>
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<tr>
<td>18</td>
<td>2012</td>
<td>Khanuwat Somboon Pisithgul Kamlangsinsin</td>
<td>Problems and needs in administration of MC</td>
<td>28 administrators, 123 teachers, 23 students</td>
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<td>19</td>
<td>2012</td>
<td>Chukasem Yanpradub</td>
<td>Grades 4-6 students’ learning achievement and satisfaction in MC on Thai Part of Speech</td>
<td>34 students</td>
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<tr>
<td>20</td>
<td>2012</td>
<td>Aphiwan Cha-oun</td>
<td>Teacher development for implementing MT</td>
<td>1 administrator, 1 teacher, 2 knowledge persons, 20 students</td>
</tr>
<tr>
<td>21</td>
<td>2012</td>
<td>Songsak Phattanasang Thaisak Wongkham Porntawee Simlerng</td>
<td>Teacher development for MT</td>
<td>4 teacher, 1 knowledge persons, 3 teachers</td>
</tr>
<tr>
<td>22</td>
<td>2012</td>
<td>Ornuma Suwanrat</td>
<td>Administration model for MT and factors supporting successful administration model</td>
<td>1 school</td>
</tr>
<tr>
<td>23</td>
<td>2013</td>
<td>Sawang Tonsri</td>
<td>Development of multigrade learning management for grades 3-4 students</td>
<td>7 administrators, 7 school committees, 5 teachers, 15 parents, 5 educational supervisors</td>
</tr>
</tbody>
</table>

From Table 9, there were 26 research reports in relation to MT. These reports were conducted during 2006-2013. When allocated by year of publication, the result can be shown as Table 10.
Table 10 Summary of research reports during 2006-2013 allocated by year of publication (n = 26)

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of research report</th>
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<tbody>
<tr>
<td>2006</td>
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<tr>
<td>2010</td>
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<tr>
<td>2012</td>
<td>9</td>
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<tr>
<td>2013</td>
<td>1</td>
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</tbody>
</table>

From Table 10, most of research reports related to MT were conducted in the years of 2011-2012. Interesting, OBEC had announced the policies, guidelines, innovations, and activities regarding MT since 2006, but it took 5 years later to get in the popular stage of MT research reports. One interesting question is what area that researchers are interested in doing research on MT. The analysis to answer this can be shown as Table 11.

Table 11 Summary of research reports during 2006-2013 allocated by areas of study of MT (n = 26)

<table>
<thead>
<tr>
<th>Area of MT to study</th>
<th>Number of research report</th>
</tr>
</thead>
<tbody>
<tr>
<td>Development and implementation of MT lesson plans</td>
<td>6</td>
</tr>
<tr>
<td>Teacher professional development for MT</td>
<td>5</td>
</tr>
<tr>
<td>School administration for MT</td>
<td>3</td>
</tr>
<tr>
<td>School administration and instruction for MT</td>
<td>3</td>
</tr>
<tr>
<td>Current states, problems, and needs for MT</td>
<td>3</td>
</tr>
<tr>
<td>Teachers’ teaching methods in MT</td>
<td>2</td>
</tr>
<tr>
<td>Learning environment in MC</td>
<td>2</td>
</tr>
<tr>
<td>Learning management for MT</td>
<td>1</td>
</tr>
<tr>
<td>Good practice of MT</td>
<td>1</td>
</tr>
</tbody>
</table>

From Table 11, the favorite area of interest of the researchers who conducted research on MT were Development and implementation of MT lesson plans, Teacher professional development for MT, and School administration and instruction for MT, respectively.
Summary:

- Even though OBEC had officially announced the policies, guidelines, innovations, and activities regarding MT since 2006, there is a small number of research conducted on MT. From 2006-2013, there are only 26 studies related to MT. The research on MT is quite popular during 2011-2012. The questions left are: Why? What are areas the researchers paid attention to during that period? Does the national policy really impact on administrators, practitioners, and especially researchers?

- When consider the areas of interest that the researchers conducted on MT, there are three most-popular areas of MT research as: Development and implementation of MT lesson plans, Teacher professional development for MT, and School administration and instruction for MT.

- All studies conducted on the development of learning unit for MT in small schools reported the success in developing students’ learning on the targeted learning goals such as learning achievement, analytic thinking ability, and so on.

- In sum, this analytic desk review urges the researchers to do more studies on MT and to increase more diversity of areas in their MT research.
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