A STUDY OF THE EFFECTIVENESS OF THE TRAINING KIT ON AN INTEGRATION OF MULTIPLE INTELIGENCES IN ENGLISH LANGUAGE CLASSROOMS

A THESIS

BY

RAJINI SRIKURUWAL

Presented in Partial Fulfillment of the Requirements for the

Master of Arts Degree in Teaching English as a Foreign Language

at Srinakharinwirot University

March 2011

A STUDY OF THE EFFECTIVENESS OF THE TRAINING KIT ON AN INTEGRATION OF MULTIPLE INTELIGENCES IN ENGLISH LANGUAGE CLASSROOMS

A THESIS

BY

RAJINI SRIKURUWAL

Presented in Partial Fulfillment of the Requirements for the

Master of Arts Degree in Teaching English as a Foreign Language

at Srinakharinwirot University

March 2011

A STUDY OF THE EFFECTIVENESS OF THE TRAINING KIT ON AN INTEGRATION OF MULTIPLE INTELIGENCES IN ENGLISH LANGUAGE CLASSROOMS

AN ABSTRACT

BY

RAJINI SRIKURUWAL

Presented in Partial Fulfillment of the Requirements for the

Master of Arts Degree in Teaching English as a Foreign Language

at Srinakharinwirot University

March 2011

Rajini Srikuruwal. (2011). *A Study of the Effectiveness of the Training Kit on an Integration of Multiple Intelligences in English Language Classrooms.* Thesis, M.A. (Teaching English as a Foreign Language). Bangkok: Graduate School, Srinakharinwirot University. Advisor Committee: Assoc. Prof. Chaleosri Pibulchol, Assoc. Prof. Dr. Somson Wongyounoi.

This study aimed to measure how effectively the training kit enhanced the teacher trainees' knowledge of the concept of multiple intelligences (MI). It also aimed at measuring how effectively the kit could enable the teacher trainees to construct lesson plans integrated with the concept of MI and apply them in their teaching practice. The teacher trainees who participated in this study involved 12 experienced English language teachers who taught English as a foreign language to various grade level students under the basic education core curriculum of Thailand. The research instruments consisted of seven training plans, the test on the concept of multiple intelligences which was used as a pre-test and post-test to measure the development of the teacher trainees' knowledge and the observation tools which were employed to collect data on the teacher trainees' ability to construct and apply lesson plans integrated with the concept of MI.

Mann Whitney U-test statistic was employed to compare the results from the pre-test and post-test. The results revealed no significant difference between the teacher trainees' knowledge of the concept of MI before and after the training. The training kit could moderately provide necessary skills for the teacher trainees to construct lesson plans integrated with the concept of MI and the teacher trainees could fairly apply lesson plans integrated with the concept of MI in their teaching practice.

การศึกษาประสิทธิภาพชุดฝึกอบรมการบูรณาการพหุปัญญา ในการจัดการเรียนการสอนภาษาอังกฤษ

บทคัดย่อ

ของ

รัชนีย์ ศรีคุรุวาฬ

เสนอต่อบัณฑิตวิทยาลัย มหาวิทยาลัยศรีนครินทรวิโรฒ เพื่อเป็นส่วนหนึ่งของการศึกษา
ตามหลักสูตรปริญญาศิลปศาสตรมหาบัณฑิต สาขาวิชาการสอนภาษาอังกฤษในฐานะภาษาต่างประเทศ
มีนาคม 2554

รัชนีย์ ศรีคุรุวาฬ. (2554). *การศึกษาประสิทธิภาพชุดฝึกอบรมการบูรณาการพหุปัญญาในการจัดการเรียนการสอนภาษาอังกฤษ*. ปริญญานิพนธ์ ศศ.ม. (การสอนภาษาอังกฤษในฐานะภาษาต่างประเทศ). กรุงเทพฯ: บัณฑิตวิทยาลัย มหาวิทยาลัยศรีนครินทรวิโรฒ. คณะกรรมการควบคุม: รองศาสตราจารย์เฉียวศรี พิบูลชล, รองศาสตราจารย์ ดร. สมสรร วงษ์อยู่น้อย.

การวิจัยครั้งนี้มีวัตถุประสงค์เพื่อศึกษาประสิทธิภาพของชุดฝึกอบรมในการพัฒนาความรู้และความเข้าใจเรื่องพหุปัญญา และศึกษาประสิทธิภาพของชุดฝึกอบรมในการเสริมสร้างสมรรถภาพการนำความรู้เรื่องพหุปัญญาไปประยุกต์ในการสร้างแผนการเรียนรู้และการสอนของครู กลุ่มตัวอย่างประกอบด้วยครูที่มีประสบการณ์การสอนภาษาอังกฤษซึ่งสอนภาษาอังกฤษในฐานะภาษาต่างประเทศภายใต้หลักสูตรแกนกลางการศึกษาขั้นพื้นฐานในระดับชั้นต่างๆจำนวนสิบสองคน เครื่องมือที่ใช้ในการวิจัยได้แก่ แผนการฝึกอบรมจำนวนเจ็ดแผน แบบทดสอบความรู้และความเข้าใจเรื่องพหุปัญญาซึ่งเป็นเครื่องมือที่ใช้ในการวัดความรู้และความเข้าใจของครูทั้งก่อนและหลังการฝึกอบรม และแบบสังเกตซึ่งเป็นเครื่องมือที่ใช้ในการประเมินความสามารถของครูผู้เข้าฝึกอบรมในการสร้างแผนการเรียนรู้และการสอน

ผู้วิจัยใช้สถิติทดสอบของแมน-วิทนีย์ในการเปรียบเทียบคะแนนจากแบบทดสอบก่อนและหลังการฝึกอบรม ผลการวิจัยพบว่า ความรู้และความเข้าใจเรื่องพหุปัญญาของครูก่อนและหลังการฝึกอบรมไม่แตกต่างกันอย่างมีนัยสำคัญ ชุดฝึกอบรมสามารถเสริมสร้างและพัฒนาความสามารถของครูผู้เข้าฝึกอบรมในการนำความรู้เรื่องพหุปัญญาไปประยุกต์สร้างแผนการเรียนรู้อยู่ในระดับปานกลาง และครูผู้เข้าฝึกอบรมสามารถนำแผนการสอนที่สร้างขึ้นมาประยุกต์ใช้ในการสอนอยู่ในระดับปานกลาง

The thesis titled

"A Study of the Effectiveness of the Training Kit on an Integration of Multiple Intelligences in English Language Classrooms"

by

Rajini Srikuruwal

has been approved by the Graduate School as partial fulfillment of the requirements for the Master of Arts degree in Teaching English as a Foreign Language of Srinakharinwirot University

…….. Dean of Graduate School

(Assoc. Prof. Dr. Somchai Santiwatanakul)

March , 2011

Thesis Committee

…….. Major-advisor

(Assoc. Prof. Chaleosri Pibulchol)

…….. Co-advisor

(Assoc. Prof. Dr. Somson Wongyounoi)

Oral Defense Committee

……. Chair

(Dr. Phnita Kulsirisawad)

…….. Committee

(Assoc. Prof. Chaleosri Pibulchol)

…….. Committee

(Assoc. Prof. Dr. Somson Wongyounoi)

……..... Committee

(Assoc. Prof. Arunee Wiriyachitra)

ACKNOWLEDGEMENTS

I would like to express my gratitude to many honorable people who have supported me and put sincere effort into helping me complete this study.

I express my deep gratitude to my advisor, Associate Professor Chaleosri Pibulchol, whose valuable advice truly inspired the success of this study. With her wide knowledge and kind guidance, she lit the path of my research. I also convey my sincere gratitude to my co-advisor, Associate Professor Dr. Somson Wongyounoi, for his constructive advice that empowered this study.

I express my warmest thanks to the director and teachers in Satit Bangna School who supported me in the process of collecting the data. Special thanks to Dr. Phnita Kulsirisawad, Associate Professor Arunee Wiriyachitra and the oral defense committee who helped with the final polishing of this thesis.

My sincerest thanks to Assistant Professor Thomas F. Radzienda who proofread and made valuable suggestions to the study.

My loving thanks to all my TEFL friends and my family who are always by my side and have provided the warmest understanding throughout the pursuit of my degree.

Finally, my heartful thanks to my father who has inspired every facet of my life.

Rajini Srikuruwal

TABLE OF CONTENTS

TABLE OF CONTENTS (continued)

LIST OF TABLES

CHAPTER I

INTRODUCTION

Background of the Study

English has become the most important language in global society and is needed in nearly every sector such as education, business and tourism. Realizing such importance, many Thai educators have been giving more weight to the teaching and learning of English language to promote students' English proficiency. According to Thailand's basic education core curriculum B.E. 2551 (Ministry of Education in Thailand, 2008), learners should be able to use English as a means for successful communication. With this in mind, emphasis has been given to teaching methodologies. English language teachers have attempted to revise and improve their teaching techniques, the aids they use and the lessons they plan.

In promoting the English proficiency of Thai students, educators have recognized the importance of moving away from traditional teacher-centered approaches to learner-centered ones. A learner-centered approach requires substantially more than merely asking students what they want to learn. Teachers must realize that each individual is unique. According to findings about the brain and how we learn by Caine and Caine (1991), every brain is unique. We all possess the same set of brain systems that are integrated differently. In order to advocate learner-centered approach, learners should be exposed to diversified learning processes which enable them to achieve curriculum goals. This is confirmed by Gardner who argues that the challenge of this millennium is whether we can make individual differences central to teaching rather than treating everyone in a uniform way (as cited in Berman, 2000). Educators should not overlook students' unique abilities and individualism that are among the most important

aspects in education. Therefore, it becomes extremely important for educators to provide equal learning opportunities for each individual in the classroom (Essinki, 2009). In the process of advocating learner-centered approach, many learner-centered theories and approaches have been recognized, namely, differentiated instruction, learning styles, brain-based education, and *multiple intelligences (MI).*

Among the above learner-centered approaches, multiple intelligence based (MIB) instruction recognizes students' diverse capabilities. MIB instruction stems from the theory of multiple intelligences proposed by Howard Gardner in 1983 in *Frames of Minds*. According to Gardner (1983), each individual is unique and possesses at least seven dimensions of intelligence. Later, he added the eighth intelligence. The eight intelligences are: mathematical/logical intelligence, verbal/linguistic intelligence, musical/rhythmic intelligence, bodily/kinesthetic intelligence, visual/spatial intelligence, interpersonal intelligence, intrapersonal intelligence and naturalist intelligence.

The theory of multiple intelligences (MI) accounts for individual differences. It helps teachers organize lessons that uniquely empower every child in the class. The theory suggests that children learn, process information and express knowledge in different ways (Hickey, 2004). It provides insights and strategies for educators to understand and stimulate the potential of their students. According to MI theory, students' success does not depend merely on mathematic and linguistic skills. Rather, focus should be on all of a child's intelligences. The theory helps students understand their abilities, recognize their strengths, work with their weaknesses and build their self confidence (Greenhawk, 1997).

Fogarthy and Stoehr (1995) state that one of the primary educational challenges of the twenty-first century is to maximize opportunities for students to enhance their higher order thinking allowing them to be critical and creative. This notion coincides

with Thailand's basic education core curriculum B.E. 2551 which recognizes thinking capacity, problem solving capacity and the capacity for applying life skills as key competencies among learners. In addition to individual differences, MIB instruction helps stimulate higher order thinking and enables students to be involved in real life experiences. According to Armstrong (2000), MI theory presents a model that enables educators to move beyond heavily linguistic and lower order thinking activities into a broad range of complex cognitive tasks to prepare students for real life problems. To implement MIB instruction, activities must be challenging and relate to individuals' five senses as well as meta-cognition. This requires students to relate new input to their existing knowledge. During the implementation stages of MIB instruction, students have opportunities to practice thinking skills, solve problems, and reflect on their intelligences (Lazear, 1999).

Real life problems require a combination of intelligences (Gardner, 1983). Consequently, MIB instruction focuses on all intelligences and serves as an alternative for teachers to develop students' higher order thinking skills. In addition, MIB instruction allows teachers to create *smart environments* where students engage in diversified activities, various resources, and meaningful interactions with people to develop their intelligences to a greater extent (Campbell, Campbell & Dickinson, 1999). This notion is further supported by Greenhawk (1997) and Horre (2004) who state that the adoption of the theory can help teachers assist students' higher level content and prepare them to deal with uncertainty.

While higher order thinking is essential, MIB instruction also engages students in varieties of learning experiences that involve many senses (Greenhawk, 1997). It helps educators to do the teaching holistically by presenting content through various activities (Johnson, 2007). The activities used in MIB instruction require students to practice skills

in eight different areas. Therefore, the students are exposed to unforgettable learning experiences that connect with other subject areas.

Many studies have considered the implementation of MIB instruction in foreign or second language classrooms. A study by Haley (2001) experimented with MI theory among foreign language teachers. The teachers involved reported that the students receiving MIB instruction expressed positive attitude towards their foreign language classroom. Christison (1996) reports her students' positive attitudes after the implementation of MI in her EFL classes. The students learnt more about their strengths and weaknesses and were more aware of their own learning processes. Conroy, Marchand, and Webster (2009) implemented MI in their writing class and found that their students enjoyed writing, became confident in their abilities and improved their writing skills. In addition, a study by Abdallah (2010) reveal positive effect of the multiple intelligences based training programme on developing first-year's English majored oral communication skills at Assiut University.

The benefits of MIB instruction have led to the necessity of advocating MIB instruction among English language teachers. According to Altan (2002), competent teachers must be aware of individual differences. Shearer (2004) adds that the use of MI Developmental Assessment Scales facilitates teachers to raise awareness of their own dimensions of intelligence in addition to acknowledging it in their students. This in turn increases acceptance of MIB instruction and facilitates students to engage their own strengths in their learning process. Christison (1998) adds that it is important to provide new information and creative ideas in order to challenge existing teacher education programs. However, according to Shore (2004) and Kallenbach and Viens (2004), very little empirical research on MI has been done on adult level and in teacher preparation. To fulfill the gap in studies related to MI, the present research project emphasizes on

creating and measuring the effectiveness of a training kit in guiding English language teachers to integrate MI theory in their English language lessons. The training kit consisted of theoretical part which focused on providing information regarding the concept of MI theory and practicum part which focused on constructing and applying MI lesson plans. The training kit integrates MI theory so that English language teachers can take individual differences into considerations and prepare their students for real world experiences.

Objectives of the Study

This study aims to measure the effectiveness of the training kit in two important ways:

1. By enhancing teacher trainees' knowledge of the concept of multiple intelligences.

2. By enabling teacher trainees to construct lesson plans that integrate the concept of multiple intelligences in their English language lessons and apply them while teaching.

Research Questions

1. Can the training kit enhance the teacher trainees' knowledge of the concept of multiple intelligences theory?

2. Can the training kit provide necessary skills for the teacher trainees to construct lesson plans integrating the concept of multiple intelligences in English language lessons?

3. To what extent can the teacher trainees apply lesson plans integrated with the concept of multiple intelligences in their micro teaching?

Significance of the Study

The results from this study will produce a useful kit for training groups of English teachers to cater students' individual differences while preparing the students to face real life experiences. This study also serves as a guideline for the development of other learner-centered training programs.

Scope of the Study

Population and sample

The population for this study was in-service English teachers who teach English as a foreign language (under the basic education core curriculum of Thailand) to primary and secondary level students. A group of twelve in-service and experienced EFL teachers from Satit Bangna School were purposively selected to represent the population of the study. The teachers in the sample group consisted of foreign and Thai teachers who taught English to students of various grade levels from both regular and English programs.

The variables

The independent variable in the study was the use of the training kit on an integration of MI in English language classrooms. The dependent variables in the study were as follows:

2.1 The teacher trainees' knowledge of the concept of MI theory.

2.2 The teacher trainees' ability to construct lesson plans integrated with the concept of MI theory for their English lessons.

2.3 The teacher trainees' teaching practice during micro-teaching.

Definition of terms

1. The *training kit* is comprised of the theoretical and practical aspects of integrating MI in English classrooms. The theoretical part focuses on the concept of MI while the practicum part focuses on constructing lesson plans integrating the concept of MI into English lessons and applying them in micro-teaching.

2. The *concept of multiple intelligences* refers to general background information regarding the eight intelligences, the MI teaching strategies and MI assessment.

3. The *lesson plan* integrating the concept of MI refers to the lesson plan for English lesson which consists of four stages: awakening the intelligences, amplifying the intelligences, teaching with or for the intelligences, transferring the intelligences (Lazear, 1999), and MI assessment.

4. The *effectiveness of the training kit* refers to the potential of the kit to enhance the teacher trainees' knowledge of the concept of MI and their ability to construct lesson plans integrating the concept of MI as well as applying them in micro teaching.

4.1 The *knowledge of the concept of multiple intelligences* refers to the teacher trainees' understanding of MI theory which is evaluated by comparing scores from the pre-test and the post-test.

4.2 *Ability* refers to the teacher trainees' skill and knowledge gained from the training to construct lesson plans integrated with the concept of MI for English lessons and applying them in their micro teaching which is evaluated through observation tools.

4.3 *Micro teaching* refers to the practicum session of the training within which the teacher trainees conduct their teaching practice using lesson plans integrated with the concept of MI.

This chapter has provided the general background and specific objectives of the research. To facilitate the research process, a thorough review of related literature is provided in chapter two.

CHAPTER II

LITERATURE REVIEW

In order to construct a training kit based on an integration of multiple intelligences (MI) in English language classrooms, literature regarding MI theory, the training course, related research and studies are presented in the following sections.

1 The Concept of Multiple Intelligences Theory

1.1 Multiple Intelligences Theory

1.2 The Eight Intelligences

1.2.1 Verbal/Linguistic Intelligence

1.2.2 Logical/Mathematic Intelligence

1.2.3 Visual/Spatial Intelligence

1.2.4 Bodily/Kinesthetic Intelligence

1.2.5 Interpersonal Intelligence

1.2.6 Intrapersonal Intelligence

1.2.7 Musical Intelligence

1.2.8 Naturalist Intelligence

1.3 Multiple Intelligences Assessment

1.4 Multiple Intelligences Based Instruction

1.5 Multiple Intelligences and Thinking skills

1.6 Multiple Intelligences and Leaning Styles

2. Training Course

2.1 Definition of a Training Course

2.2 Types of Training

2.3 Objectives of Training

2.4 The Procedure of Training Course Development

2.5 Training Techniques

3. Related Research

3.1 Impact of Multiple Intelligences on Students' Performance, Attitude, and Higher order Thinking Skills

3.2 Impact of Multiple Intelligences on Adult Literacy and Teacher Education

1. The Concept of Multiple Intelligences Theory

1.1 Multiple Intelligences Theory

The theory of multiple intelligences (MI) was proposed by Howard Gardner in 1983 in *Frames of Minds*. The theory inherits features of the new concept of intelligences that overturns the traditional view of intelligence. Traditionally, psychologists viewed intelligence as a linear concept that could be measured by a single IQ test score. The IQ test (Intelligences Quotient Test) was designed by Binet and Simon in 1905 to predict which youngsters in Persian primary school would succeed and which would fail. The IQ test gained widespread popularity for many decades. According to the IQ test concept, intelligence is a single, static construct and measures innate attributes that are not affected by training, age and experiences (Christison, 2005; Fogarthy & Stoehr, 1995; Horre, 2000).

In the past two decades, many researchers in cognitive and neural science have proposed different views regarding intelligence. Gardner regards intelligence as "…a pluralistic view of the mind, recognizing many different and discrete facets of cognition and acknowledging that people have different cognitive strengths and contrasting cognitive styles" (Gardner, 1993, p. 6). According to Gardner, intelligence consists of

various abilities and cannot be characterized by a single quantifiable test score. He adds to the definition of intelligence "…the ability to solve problems or fashion products that are of consequence in a particular cultural setting or community" (Gardner, 1993, p. 15). Gardner further defined intelligence as "a bio-psychological potential to process information that can be activated in a cultural setting to solve problems or create products that are of value in a culture" (Gardner, 1999, p. 34)

According to Walters and Gardner (1995) (as cited in Abdallah, 2008, p. 23), intelligence is human cognitive competence described in terms of a set of abilities, mental skills and talents. All normal individuals possess these skills and abilities but with varying degrees and in diverse combinations. White, et al. (1995) (as cited in Abdallah, 2008, p. 25) states that people are not simply 'smart' or 'not smart'. Rather, they possess varying degrees of intellectual strengths depending on the context in which they are working.

MI theory has provided a revolutionary concept of intelligence that is multifaceted, culturally shaped and cannot be measured by a simple IQ test. MI theory proposes that people are different because they combine varying degree of intelligences depending on their contexts and situations.

1.2 The Eight Intelligences

Armstrong (2000), Christison (2005), Fogarthy and Stoehr (1995), Haley (2001), Horre (2000) have defined the eight intelligences and their characteristics as well as suggested supportive activities as follows:

1.2.1 Verbal/Linguistic Intelligence involves sensitivity to the meaning and order of words. It includes ability to use language as a means for successful communication as well as a means to retain information. It encompasses expertise in speaking, listening, reading, and writing. Individuals with strong verbal intelligence

usually communicate well, enjoy reading, writing and public speaking, read effectively by linking new input to existing knowledge and are able to put words in writing easily. Activities that support linguistic intelligences are those that encourage students to strengthen their linguistic skills to communicate effectively. Such activities include writing and telling stories, playing word games, and attending lectures.

1.2.2 Logical/ Mathematic Intelligence is the ability to recognize relationships, reasons, logic and patterns. It also includes the ability to use numbers to solve problems. Individuals with dominant logical intelligence are comfortable with using numbers and can solve complex problems. They think logically, precisely and systematically. They usually express interests in the fields of computer, science, engineering and technology. Activities that support logical/mathematic intelligence are the ones that encourage students to strengthen their thinking skills as well as apply their intelligence to recognize, classify, and solve problems. Analyzing situations, using Socratic questions, playing with logic puzzles and working with numbers all contribute to development of the logical/mathematic intelligence.

1.2.3 Visual/ Spatial Intelligence embraces the ability to perceive images accurately and recreate or transfer those images. It includes sensitivity to forms, shapes, space, lines and colors. Individuals with strong visual/spatial intelligence learn and remember best by using visuals. They are very imaginative and creative. They are able to create concrete visual representation and spend a long time drawing, painting and sketching. Activities that support visual/spatial intelligence are ones that encourage the students to practice perceiving and relating images to assist their learning process. Such activities include visualization and imagination, creating maps or diagrams, using graphic symbols, presenting information through charts and graphs, using videos and movies.

1.2.4 Bodily/Kinesthetic Intelligence involves the ability to control and use body to convey ideas, express feelings and solve problems. Individuals with strong bodily/kinesthetic intelligence remember best when they are directly and physically involved in the learning process. They are full of energy and love to apply their bodily potentials. They usually express interests in sports. Activities that support bodily/kinesthetic intelligence are the ones that encourage students to use their bodies to represent ideas to nurture their learning process. Such activities include role-playing, hand-on activities, field trips, miming and body maps.

1.2.5 Interpersonal Intelligence suggests the ability to work well with others, understanding the feelings, moods, motivations and intentions of others. Individuals with strong interpersonal intelligence use their strength to convince others. They usually exhibit strong communication skills and seek opportunities to work with others. Teachers can create activities that support interpersonal intelligence by encouraging students to interact with others and apply their intelligences in the learning process. Such activities include cooperative groups, simulation, peer teaching and group brain storming.

1.2.6 Intrapersonal Intelligence engenders the ability to understand oneself, one's own strengths and weaknesses, feelings, motivations, desires, intentions and learning behavior. Individuals with strong intrapersonal intelligence usually possess healthy self esteemed. They often seek ways to express their feelings and thoughts while they can effectively control their moods and feelings. These individuals tend to establish goals for self- developments. Students of this nature should be provided opportunities to experience themselves as autonomous beings. Teachers may offer activities such as independent study, personal reflection time, self paced learning, personal goal setting and writing journals to nurture this intelligence in students.

1.2.7 Musical Intelligence is comprised of sensitivity to musical pitch, rhythm, tone and melody. Musical intelligent students can apply these skills to create their own musical productions. Individuals with strong musical intelligence exhibit the potential to learn music, sing and play musical instruments. They usually enjoy different types of music and are able to sing and remember many songs. They express interest in occupations such as becoming singers, composers or vocalists. Activities such as group singing, playing recorded music and creating new melodies can be employed to nurture musical intelligences in their learning process.

1.2.8 Naturalist Intelligence is the ability to recognize nature's patterns, plants and animals as well as to classify nature. Individuals with strong naturalist intelligence usually enjoy outdoor activities and acknowledge the importance of the environment. They love adventurous activities and enjoy nature and animals. Activities that nurture naturalist intelligence are those that allow students to explore the "nature" related to their learning. Such activities include bringing pets to class, listening to outdoor sounds, noticing relationships in nature, watching nature videos and gardening.

1.3 Multiple Intelligences Assessment

Assessment is an essential part of the learning process. Many schools rely on standardized tests to assess students' academic performances. According to Altan (2002) and Horre (1994), most standardized tests often depend exclusively on linguistic and mathematic abilities. Students with strong mathematic and linguistic intelligences usually perform very well on standardized tests, consequently, leaving behind those students who are weaker on these dimensions of intelligence.

Students are assessed to determine the quality of their performances. Assessment is not only conducted by teachers but can also be done by students to assist them in perceiving their own learning progress. According to Altan (2002), students do

not learn in the same way; students have different learning styles. To support a learner-centered teaching approach, students should not be assessed in a uniform way. Teachers should employ diversified assessment techniques to generate a complete, accurate and clear picture of what students know (Christison, 2005).

MI assessment is both authentic and diverse, going far beyond assessment of linguistic and mathematic abilities. Altan (2002), Bellanca, Chapman and Swartz (1997/2001), and Christison (2005) contend that since students are being prepared to function in real life, assessment techniques should be consistent with what they are expected to know and do in the wider world. Thus, assessment should assess how well students understand material as well as apply the concepts they have learned in authentic applications. Altan (2002) suggests numerous MI assessment techniques including projects, progress interviews, presentations, essays, dialogue journals, paired explanations, portfolios, graphic organizers, exhibitions and performances.

In summary, in order to honor individual uniqueness, MI assessment offers a variety of ways to assess students' diverse performances. MI offers authentic assessment of what students are expected to know and do in their real lives outside the classroom.

1.4 Multiple Intelligences Based (MIB) Instruction

No fixed or definite application of MI theory has been established. However, many guidelines have been suggested for inspiring diversity in the classroom to ensure that teachers embrace all the intelligences during the school week. Among many guidelines, Armstrong (2000) suggests:

1. Focus on specific objectives or topics
2. Think about ways to bring each intelligence into the lesson.
2. Consider the possibility of bringing in the intelligences in step two
3. Brainstorm as many activities as possible for each intelligence

4. Select appropriate activities
5. Set up a sequential plan
6. Implement the plan

Lazear (1999) further classifies four stages for the implementation of MI in the classroom: awakening the intelligences, amplifying the intelligences, teaching for/with the intelligences and transferring the intelligences. Although one intelligence may be the focus of a given lesson, many other dimensions of intelligence may be involved at the same time (Christison, 2005). MIB instruction allows students to become aware of their own intelligences. Lesson plans integrating the concept of MI are diversified and require creativity. As MI training in this study focused on the four stages mentioned, detailed explanation for each stage of implementation is helpful to develop a deeper understanding of MIB instruction.

Awakening the intelligence

Activities should trigger learners' intelligences by relating to their background knowledge, five senses, intuitions and meta-cognition. For example, teachers can use riddles to trigger students' linguistic intelligence in lessons about describing objects. By using riddles, students become familiar with the language used to describe objects. Students with strong linguistic intelligence are effectively challenged to use their background knowledge regarding language to discover the answer to the riddles (Lazear, 1999).

Amplifying the intelligence

Learning activities should also amplify the intelligences by demonstrating the use of intelligences in the learning process and allowing students to practice them. For example, after using riddles to trigger learners' linguistic intelligence, teachers can introduce five sense questions such as, "*What does it look like? How does it*

sound?" Students then select an object and practice describing it with their friends. This example introduces the five sense questions to support students to think logically. Students improve their linguistic intelligence by practicing the kind of language used to describe objects and also strengthen their interpersonal intelligence through interactions with friends (Lazear, 1999).

Teaching with/ for the intelligence

Activities in this stage engage students to use their practiced intelligence as a tool in their learning process. For example, after practicing the five sense questions, teachers can stick word cards on students' backs and ask them to make inferences about the word by asking their partners yes/no questions. This activates usage of the five senses introduced earlier (Lazear, 1999).

Transferring the intelligence

In the fourth stage, teachers should open opportunities for students to reflect on their intelligences and transfer them to life outside the classroom. For example, after the interactive activity, teachers let students state what they like or dislike about the lesson, how the five sense questions helped them in their learning process and ask them to relate what they learned to other subject areas such as science (Lazear, 1999).

1.5 Multiple Intelligences and Thinking Skills

Thinking and learning skills help students effectively gather and absorb information as well as transform it and generate new ideas (Simister, 2007). Many educators and futurists claims that the most important skill students will need to exhibit in the twenty-first century is the thinking skill because it allows them to be critical and creative (Fogarthy & Stoehr, 1995). One of the early proponents of teaching thinking skills was Benjamin Bloom with his work *Taxonomy* (1950). This text classifies educational objectives as a means of expressing qualitatively different kinds of thinking

skills such as knowledge, comprehension, application, analysis, synthesis, and evaluation. These skills start from lower to higher levels of thinking.

In the 1990s, Lorin Anderson revised these skills in terms of remembering, understanding, applying, analyzing, evaluating and creating. 'Remembering' emphasizes students' skills in recognizing, recalling, listing, describing, identifying, retrieving, locating, naming and finding. 'Understanding' emphasizes interpreting, exemplifying, classifying, summarizing, inferring, comparing and explaining. 'Applying' includes executing, implementing, using and carrying out. 'Analyzing' focuses on differentiating, organizing, attributing, comparing, deconstructing, outlining and structuring. 'Evaluating' is comprised of checking, hypothesizing, experimenting, judging, testing, detecting and monitoring. Finally, 'creating' emphasizes students' skills in generating, planning, designing, constructing, inventing, devising and making (*Thinking skills*, 2006).

Realizing the importance of thinking skills, it is important for teachers to help students become better thinkers by creating open minded environments where open ended tasks and multiple solutions are offered. Clearly, MI theory involves activating thinking skills. This includes awakening students to their own intelligences, maximizing opportunities for practice, developing, and applying their intelligences in the learning process as well as outside the classrooms. Together, these develop students' thinking skills and prepare them for real world uncertainties.

1.6 Multiple Intelligences and Learning Styles

Multiple intelligences and learning styles are two different theories that assist the learning process. Christison (1998) provides a very clear example to point out the distinction between these two concepts. The first person wants to develop his musical intelligence by buying CDs from the store, listening to them and then trying to play what he hears. Conversely, the second person develops his musical intelligence by studying

and reading the musical notes and then tries to play. The two people are working to develop their musical intelligences using *different learning styles*.

According to Denig (2004), MI focuses on *what is taught* (product) while learning style focuses on *how it is taught* (the process). The theory of MI proposes changes to teaching methodology that emphasize using students' abilities in the same way, at the same time and in the same period of time. Alternatively, the theory of learning styles proposes changes in the teaching methodology that emphasize providing different instructional resources at different sequences according to how each student learns best. The two theories focus on different perspectives of acquiring information but they are similar in the sense that they support the learning process.

2. Training Course

2.1 Definition of Training Course

A training course has definite objectives intended to bring about improvements in skills, knowledge and attitudes toward certain issues for both personnel and institutional development. Training is an exchange of ideas and information to fulfill the needs for knowledge and skills for personnel to carry out jobs effectively. It is also a process of enhancing human performance (Dolasinski, 2004; Rothwell, 1996; Silberman, 1998).

A training course differs from a regular school curriculum in a way that it serves more functional purposes. Training focuses on acquiring necessary skills and knowledge to accomplish a task while creating positive working attitudes. An effective training course serves the needs of an organization plus those of the personnel involved. Conversely, a school curriculum encompasses broader objectives which cannot be achieved within a short period of time. It focuses on establishing strong foundations and

providing diverse kinds of knowledge and skills that help learners receive new input effectively.

The present research is geared toward measuring the effectiveness of the training kit which has an objective of providing the skills and knowledge required by teachers to plan their lessons in a way that takes individual differences into considerations.

2.2 Types of Training

It is beneficial to acknowledge the many types of training available to ensure that the most suitable kind of training is employed. Dolasinski (2004) identifies many types of training. First is one-on-one training. This is a traditional on the job training where a trainer spends individual time with a trainee. In this format, a specific skill can be taught and the trainer can assure the exact application of the skill. However, it lacks the richness of group dynamics. In a similar sense, peer monitoring is an informal type of training where an experienced person trains a new employee. To benefit from group dynamics, group training involves three or more people being trained together. It encourages teamwork and competition, provides opportunities for different groups to work together or interact with one another and offers initiatives.

Less formal methods of training include self directed or individual development training. This is when trainees discover things by themselves. The role of a trainer in this format is to facilitate, monitor and guide trainees during their learning processes. Another format can be called “training moments” that consist of informal training between employer and employee. These occur when an employer notices and wishes to improve certain behavior of the employee. An equally informal format is training through technology. This is a flexible learner centered training approach that provides just-in-time training. It allows trainees to learn whenever and however they want.

Finally, many companies enlist off the shelf training which includes training modules or programs developed and marketed for general application.

Thongprayoon (2008) classifies training into pre-service, in-service, project related, and self-development trainings. This study focuses on training in-service teachers enlisting group training where participants are exposed to various activities that enable them to actively engage in their learning experiences.

2.3 Objectives of Training

To ensure a successful outcome, a training course should have clear objectives. According to Lawson (1998), the objectives of training usually fall into three categories. The first is attitude development which is used when an organization wants to change the attitudes of personnel or increase their awareness toward certain issues or ideas. Next is skill development which focuses on developing skills required to perform a task or procedure. The third type of objective in a training course is knowledge development which relates to demonstrating acquired knowledge, comprehending information and analyzing concepts.

Silberman (1998) states that a training course usually responds to an organizational need and focuses on three kinds of learning goals. For one, *cognitive goals* are set in response to a lack of knowledge situation. On the other hand, *behavioral goals* are set in response to a lack of skills. In a more abstract sense, *affective goals* are set in response to a situation where participants express a lack of desire.

Rothwell (as cited in Thongprayoon, 2008, p. 44) proposes the same view stating that training usually bears three kinds of objectives. First, knowledge enrichment objectives are usually set to provide necessary knowledge among personnel regarding rules and regulation, responsibilities, work management and knowledge needed to perform a particular task. Second, skill development objectives are set to supply

necessary skills in order to perform job effectively. Third, attitude shaping objectives that aim to promote positive attitude towards jobs to bring about personnel's satisfaction, happiness, encouragement, and motivation.

In summary, the objectives of training mainly revolve around knowledge, skills, and attitude. It is understood that training produces successful outcomes if the objectives are achieved in the interest of personnel as well as organizational development. The objectives the training kit used in this study is to supply necessary knowledge and skills to English language teachers regarding the implementation of MI theory in English language classrooms to empower them to improve and diversify their teaching techniques. This in turn helps to create positive attitudes towards their teaching careers.

2.4 Procedures of Training Course Development

The training course development process is fundamentally similar to the development of a regular school curriculum. The two processes share similar steps with minor differences. The main distinction is that the learners are different. A training course is used to teach personnel specific skills and knowledge needed to perform particular tasks effectively while creating positive attitudes towards certain issues.

Silberman (1998) proposes general guidelines for active training programs that consist of assessing the need for training and participation; setting general learning goals; specifying objectives; designing training activities; sequencing training activities; starting detailed planning; revising design details and evaluating total results. Supplementing Silberman's guidelines, Chang (1995) identifies six steps in the "High-IMPACT" training model. These include identifying training needs, mapping the approach, producing learning tools, applying training techniques, calculating measurable results and tracking ongoing follow-through.

Vella (1994) takes slightly different approach that engages the five sense questions discussed earlier. This approach works with a series of questions, beginning with, "Who are the learners? What are their culture perspectives? What do they expect from the learning?" The facilitator proceeds to ask, "Why is the course necessary? When is the appropriate time for the training? How much can be taught in the available time? Logically, the procedure moves on to questions such as, "Where is the best location to support the activities of the training? What are the training contents? What is expected from the training? Skills? Knowledge? Attitudes? Finally, Vella's approach comes down to the question, "How does the training framework work?

Considering these three diverse approaches to training, it is quiet evident that the process of developing a training course requires careful planning. It involves decisions made prior to training such as needs analysis and training techniques. Additional items must be planned and conducted during and after the training to promote life long learning experiences. These include follow-up observations and program evaluation for future improvement.

2.5 Training Techniques and Activities

The most important elements in training that require careful consideration are the techniques and activities that support the learning process while fulfilling the aims and objectives of the training. Many different techniques and approaches can be employed to conduct training successfully. In the process of selecting supportive techniques and activities, it is important to look at the learning process. According to Silberman (1998), learning is not just a pouring of information into another person's head. One of the approaches used to ensure a successful learning experience is a trainees centered approach that involves own mental involvement and participation.

According to Murdoch (1990), teachers with some experiences have firmly established patterns of classroom behavior that can cause resistance when they enter training. Thus, it is important to help trainees integrate new input into their existing skills and behaviors. By integrating new suggestions teachers develop a more complete methodology and theoretical foundation. Krashen and Terrell (1983) state that people acquire what is being said rather than how it is said. Learners learn best when they are involved in problem solving or other interactive activities. To create such learning experience, teachers need interactive and impressive learning experiences that encourage them to transform their learning experiences into their own classrooms (Murdoch, 1990). Moreover, training techniques and activities should be sufficiently diversified to motivate the trainees. Learners learn best when they enjoy the training and feel relaxed. They also learn more when the analytical and creative sides of the brain are stimulated (Dolasinski, 2004).

The training has to be far more than just a lecture. Despite its popularity and advantages, Johnson, Johnson, and Smith (1991) (as cited in Silberman 1998, p. 3) claim there are many disadvantages of lecturing such as decreases audiences' attention with each passing minute. It assumes that all learners need the same kind of information at the same pace. As discussed earlier, *all learners, and all brains, are unique.*

In summary, the training techniques and activities used to fulfill training objectives should be participative, interactive, fun, diverse and relevant. Race (2001) and Woodward (1992) have suggested using participative activities that allow trainees to integrate new input while creating opportunities for them to discuss and share ideas to improve their skills. The training kit employed in this research includes interactive activities and techniques to empower trainees to be actively involved in the learning process and to promote memorable life long learning. The training techniques and

activities in the training kit provide various ways for trainees to achieve their goals and analyze the concepts acquired.

3. Related Reseach

3.1 Impact of Multiple Intelligences on Students' Performance, Attitudes and Higher-Order Thinking Skills

Many studies have been devoted to studying and implementing MI theory in schools and classrooms. These studies expressed favorable outcomes in terms of Thai learners' higher-order thinking skills. Sutsin (2007) reports the improvement in problem solving abilities among preschool children after using multiple intelligences based instruction namely, *Experience Learning Activities Applying the Multiple Intelligences Model*. The model consists of five steps; active learning, cooperative learning, analysis, constructivism, and application. The approach involved the children in various problem solving situations and high peer interaction which in turns helped develop their problem solving abilities.

U-pahard (2007) experimented MI theory with pre-school children. The purpose of the study was to compare the children's reasoning ability obtained through Multiple Intelligences Model for Learning. The model consists of the similar five steps presented in the study by Sutsin (2007) above. The results of the study reveal significant difference between the children's reasoning ability before and after implementing the model.

Pandum (2008) studied the relationship of multiple intelligences and adversity quotient of secondary school III students in Ratchaburi. The results reveal canonical correlation between multiple intelligences and students' problem solving abilities which indicate that multiple intelligences abilities have strong impact on the students' problem solving abilities.

Apart from the studies above, there have been several studies conducted in other countries devoted to study the implementation of MI theory which revealed positive outcomes in terms of students' academic performance, higher-order thinking skills and attitudes towards their classrooms. Christison (1996) reports her students' positive attitudes after implementation of MI in her EFL classes. She introduced MI theory to her students and involved them in the four stages of MI implementation. This allowed the students to learn about themselves and become aware of their own learning processes.

Haley (2001) experimented with MI theory among foreign language teachers. The purpose of the study was to identify, document and promote effective real-world applications of MI theory in foreign language classrooms. The teachers involved in the study taught students from grades eight to twelve. They communicated with the researcher, shared lesson plans, discussed progress and shared teaching and assessment techniques through the internet. The teachers divided the students into control and experiment groups. The students in the experiment group were taught via MIB instruction while the students in the control group were taught using traditional instruction. The results reveal that students' strengths and weaknesses are affected by a teacher's pedagogical style. Results also show gains in students' achievements in both groups. However, most of the students in the MIB group express more positive attitudes towards their foreign language classrooms.

Greenhawk (1997) reports that implementation of MI theory allowed her school to create a "school-wide culture of achievement". She introduced the Maryland School Performance Assessment Program in response to statewide tests. Unlike other standardized tests, her assessment requires students to apply basic skills to solve difficult problems. With the adoption of MI theory, performance on the Maryland School

Performance Assessment rose by 20 % in one year. Adoption of MI theory has led to the creation of a new school culture of excellence, diversity and achievement.

Implementation of MI in the New City School began in 1988. The teachers formed teams to read chapters in *The Frames of Minds* and discussed ways to apply MI theory in their classrooms. Horre (2004), reports that MI implementation allows students to practice solving real-life problems, perform well on standardized tests and strive toward excellence. As a positive side effect, the MI journey New City School also enhanced faculty collegiality (Interpersonal Intelligence).

Conroy, Marchand, and Webster (2009) conducted action research by implementing MI in their writing classes. They created and implemented a Writer's Workshop curriculum with MI activities. The results reveal that the students involved in the study enjoyed writing, became confident in their abilities and improved their writing skills.

Hickey (2004) explored how the upper elementary/middle grade teachers approach the development of social studies instructional units incorporating multiple intelligences. The study involved five teachers who reported their students' increased level of motivation after implementing MIB. According to the results, students' choice plays an integral part in MIB. MI model is validated for both students and teachers when students' realize their own areas of learning strength.

The advantages of MIB reported in this chapter have inspired the present research to advocate English teachers in Thailand to effectively integrate MIB instruction in their English language classrooms. This serves to raise students' academic achievements, maximize opportunities to practice thinking skills, and create positive learning experiences.

3.2 Impact of Multiple Intelligences on Adult Literacy and Teacher Education

Very limited number of studies explored the impact of MI on adult literacy and teacher education. Kallenbach and Viens (2004) studied the effect of MI theory in adult literacy education. The study involved adult literacy educators who developed MI based practices with support from the research directors. This Adult Multiple Intelligences (AMI) was conceived in response to the lack of MI research, practice, and resources in adult literacy. This study aimed to study how MI theory supports instruction and assessment in Adult basic education (ABE), adult secondary education (ASE), and English for speakers of other language (ESOL). The data analysis was categorized into MI-inspired instruction and MI reflection. MI-inspired instruction focused on classroom practices and materials while MI reflection focused on using MI to engage the adult learners in reflecting on their strengths, weaknesses, interests, and preferences. Analysis of the MI inspired instruction category reveals that MIB instruction helps reduce teacher directedness among adult students and increase the adult learners' sense of control and initiative. It also advocates authentic learning experiences and make learning meaningful for learners. Analysis of MI reflection reveals that teaching MI theory helps adult students embrace non-traditional learning activities, enhances students' perceptions of their abilities and helps them identify their learning strategies.

A study by Abdallah (2010) investigated the effect of MIB training programme on developing first-year English majors' oral communication skills. The participants included thirty first-year English majors at the Faculty of Education, Assiut University. It was found that MIB training programme has significant positive effect on developing oral communication skills of the first-year students.

Another study conducted by Shorre (2004) studied the effects of MIB instruction in teacher education courses on teacher efficacy. The study involved two teacher educators who provided instruction based on MI to their student teachers. The study reveals positive teacher efficacy and that MI provides a supportive framework for teacher education by focusing on the key elements of the adult learning process such as encouraging clear learning purposes, incorporating self evaluation, facilitating self-directed learning and valuing learners' experiences.

Green and Tanner (2005) examined the application of MI theory to online training of English language teachers. The online course was 'Teaching Writing to Speakers of Other Languages' for the TESOL Certificate Program of New School University in New York. Participants and instructor logged on and worked on the course at different times. After implementing MI task, it was found that MI is a useful tool to innovate the online course. It helps learners to engage and learn better. Once the learners have chosen to complete the task that suits their intelligence profile, they become responsible for their own learning process.

A study conducted by Shearer (2004) investigated the reliability of assessment for MI known as Multiple Intelligences Development Assessment Scales (MIDAS). It also explored how an MI profile might be used by teachers and how it could promote strength based learning activities. The teachers selected students to complete the MI assessment and then engage them in MI activities developed by Shearer. The study shows MIDAS and MI activities help increase teachers and students' awareness of their intelligence profiles, increased acceptance of MI theory, and leads to strength based instruction.

In conclusion, MIB instruction has positive impacts on both adult learners and teachers. It helps keep the teacher education program challenging and innovative.

Research concerning MIB instruction in adult education and in teacher education supports the adult learning process.

This chapter has shown advantages MIB instruction and the importance of advocating it among foreign language teachers. In response to the lack of studies on measuring the effectiveness of MI training, a training kit on an integration of multiple intelligences in English language classrooms was constructed and its effectiveness was measured employing the methodology discussed in the following chapter.

CHAPTER III

RESEARCH METHODOLOGY

The purpose of this study was to measure the effectiveness of the training kit in enhancing the teacher trainees' knowledge of the concept of multiple intelligences (MI). It also aimed at measuring how effectively the training kit could enable the trainees to construct lesson plans integrated with the concept of MI and apply them in their micro teaching. The research methodology includes population and sampling, research instruments, data collection, and data analysis

Population and Sample

The population in this study was in-service English language teachers who teach English as a foreign language EFL (under the basic education core curriculum of Thailand) to primary and secondary levels students. Twelve in-service and experienced English language teachers were purposively selected from Satit Bangna School to represent the population of the study. The teachers in the sample group consisted of foreign teachers and Thai teachers who taught EFL to students of various grade levels from both regular and English programs.

Research instruments

The research instruments used in this study consisted of the followings items:

1. The training kit
2. Test on the concept of MI theory
3. Observation tools
    3.1 Lesson Plan Inventory

3.2 Micro Teaching Observation Tool

1. The training kit

The training kit was used to train EFL teachers at Satit Bangna School. It consisted of 7 training plans which lasted for 15 hours (See Appendix A). The training plans were comprised of theoretical and practicum parts. The theoretical part of the training focused on the following areas:

1. Introduction to MI theory
2. MI assessment
3. MI and thinking skills
4. MI teaching strategies
5. Interactions with MI lesson plans

The practicum part of the training focused on the following:

6. MI lesson planning
7. Micro-teaching and reflection

To construct the training kit, literature regarding the theory of MI and training program development were revised as discussed in chapter two. The training kit was revised by three experts and pilot tested with a different group of EFL teachers. Appropriate adjustments were made to the training kit.

This study focused on training in-service teachers enlisting group training where participants were exposed to various activities that enable them to actively engage in their learning experiences. The training techniques consisted of demonstration, discussion, brainstorming, pair work, group work and reflection.

2. Test on the concept of MI theory

The test on the concept of MI was used as a pre-test and post-test to evaluate the teacher trainees' knowledge of the concept of MI (See Appendix B). The test focused

on three components, namely, introduction to MI theory, MI teaching strategies, and MI assessment. Related literature concerning test construction and specifications was reviewed, from which 35 multiple choices items were constructed. Three experts were consulted to confirm the content validity of the test items. Items with item objective congruence (IOC) values lower than 0.6 were revised. As a result, three items were excluded.

The remaining 32 items were tested with a pilot group of EFL teachers with varying levels of knowledge regarding MI in order to conduct item analysis and establish its reliability. Items with index of difficulty ranging from 0.2 to 0.8 and registering on the index of discrimination higher than 0.2 were selected for inclusion in the test. As a result, a set of 26 multiple choices items were finally selected for inclusion on the pre-test and post-test. The test carried a verified reliability of 0.8137 and the IOC values of the test items ranged from 0.6 to 1 (See Appendix B).

3. Observation tools

The observation tools consisted of the lesson plan inventory (LPI) and the micro teaching observation (MTO) tool which were used by two observers. The first observer was the researcher and the second observer had prior knowledge regarding the concept of MI and earned the highest scores in the pilot test. The two observers also had knowledge regarding the teaching of EFL.

3.1 Lesson Plan Inventory

The lesson plan inventory was used to evaluate the teacher trainees' lesson plans integrated with the concept of MI prior to the micro teaching session (See Appendix C). It consisted of two parts. Part A was in the form of a checklist which contained statements stated the components of an MI lesson plan. These statements focused on three sub parts: activities in the MI implementation stage, activities that

encourage thinking skills, and activities in MI assessment. The statements in each part were rated on a scale of 5 to 1 as follows: 5 indicates *excellent*; 4 indicates *good*; 3 indicates *fair*; 2 indicates *a need for more effort*; 1 indicates *weak*.

The statements were revised by three experts and the item objective congruence (IOC) was calculated for each statement. Seven statements concerning MI implementation were included in the first part. Four statements concerning thinking skills were included in the second part while the part concerning MI assessment contained five statements. The lesson plan inventory was used to evaluate the lesson plans constructed by the participants in the pilot study. The correlation coefficient was then calculated between the results obtained by the two observers using Pearson product moment correlation. The r value obtained was 0.934 which indicates high correlation between the results from the two observers. The IOC values of the statements ranged from 0.6 to 1 (See Appendix C).

In order to support the quantitative data from part A, part B was an open ended session where comments and suggestions by the observers were recorded.

3.2 Micro Teaching Observation Tool

The micro teaching observation (MIO) tool was used to evaluate the teacher trainees' abilities to apply their lesson plans in micro teaching (See Appendix C). The MTO tool consisted of two parts; part A was a checklist which described desirable teaching behaviors. The statements were organized into three sub parts: teaching behaviors in the stages of MI implementation: behaviors in encouraging thinking skills: and teacher's behaviors when assessing learners. The statements were rated using the same scale as the lesson plan inventory described above. The statements were revised by three experts and the IOC for each statement was calculated. Eight statements concerning MI implementation were included in the first part. Five statements concerning thinking

skills were included in the second part while the part concerning assessment contained three statements. The IOC values of the statements ranged from 0.6 to 1 (See Appendix C).

The MTO tool was used to evaluate the participants' teaching practice in the pilot study. The correlation coefficient between the observers' results was calculated using Pearson product moment correlation. The r value obtained was 0.956 which indicates high correlation between the results from the two observers.

In order to support the quantitative data from part A, part B was an open ended session where comments and suggestions by the two observers were recorded.

Data collection

Using pre-test and post-test scores, the teacher trainees' knowledge of the concept of MI was tested on the pre-test prior to the training for comparison with post-test scores.

The teacher trainees worked in groups to create the lesson plans. There were three groups of teacher trainees. Each group produced one lesson plan. The lesson plan inventory (LPI) was used by the two observers to evaluate three lesson plans constructed yielding a set of six results. The correlation coefficients between the results obtained from the two observers were calculated using Spearman rank correlation statistic as shown in Table 1.

After calculating the correlation, three results from the LPI were randomly chosen. The mean scores for each part and the sum were calculated.

TABLE 1 CORRELATION COEFFICIENTS BETWEEN THE TWO SETS OF RESULTS FROM THE LESSON PLAN INVENTORY

Parts in the LPI (Part A)	Correlation coefficient between the two observers (r)
Part 1	0.875
Part 2	1
Part 3	1

Remark: * Part 1 = Activities in the MI implementation stages, Part 2 = Activities that encourage thinking skills, Part 3 = Activities in MI assessment.

MTO tool was used to observe and evaluate the trainees' abilities in applying the lesson plans integrated with the concept of MI in micro teaching. Nine teachers conducted their teaching practice based on their lesson plans. Each teacher was observed according to the part he or she was entitled by the two observers yielding a set of eighteen results. The correlation coefficients between the results obtained from the two observers were calculated using Spearman rank correlation statistic as shown in Table 2.

TABLE 2 CORRELATION COEFFICIENTS BETWEEN THE TWO SETS OF RESULTS FROM THE MICRO TEACHING OBSERVATION TOOL

Parts in the MTO Tool (Part A)	Correlation coefficient between the two observers (r)
Part 1	0.852
Part 2	0.8
Part 3	0.8

Remark: * Part 1 = Teacher's behaviors in MI implementation stages, Part 2 = Teacher's behaviors in thinking skills encouragement, Part 3 = Teacher's behaviors in assessing the learners

Finally, comments and suggestions (Part B) made by the two observers in the lesson plan inventory and micro teaching observation tool were summarized and reported.

Data Analysis

Due to the small sample size, Mann Whitney U-test statistic was used to compare the results from the pre-test and post-test in order to evaluate the teacher trainees' understanding of the concept of MI.

The second part of data analysis analyzed the teacher trainees' ability to construct lesson plans integrating the concept of MI in their English classrooms. After calculating the correlation coefficients between the results obtained from the two observers, three results from the LPI were randomly chosen and the mean scores for each part as well as the sum were analyzed using the following scale: A mean of 4.51-5.00 illustrates *excellent* ability in constructing English language lesson plans integrated with the concept of MI, a mean of 3.51-4.50 illustrates *good* ability, a mean of 2.51-3.50 illustrates *fair* ability, a mean of 1.51-2.50 illustrates *a need of more effort*. Finally, a mean of 1.00-1.50 illustrates *weak* ability in constructing lesson plans integrated with the concept of MI.

The third part of the data analysis focused on the teacher trainees' ability to apply the lesson plans integrated with the concept of MI. After calculating the correlation coefficients between the results obtained from the two observers, a set of nine results from the Micro Teaching Observation Tool were randomly selected and the mean scores for each part plus the sum were analyzed as follows: A mean of 4.51-5.00 illustrates *excellent* ability in applying the constructed lesson plans in micro teaching, a mean of 3.51-4.50 illustrates *good* ability, a mean of 2.51-3.50 illustrates *fair* ability, a mean of

1.51-2.50 illustrates *a need of more effort*. Lastly, a mean of 1.00-1.50 illustrates *weak* ability in applying the constructed lesson plans in micro teaching.

Finally, the comments and suggestions by the two observers in the observation tools were summarized and reported.

CHAPTER IV

FINDINGS

The data in this chapter was collected via the test on the concept of multiple intelligences (MI) and the observation tools. This chapter presents the analysis of quantitative and qualitative data.

Research question 1:

Can the training kit enhance the teacher trainees' knowledge of the concept of multiple intelligences theory?

The test on the concept of MI (Appendix B) was used to compare the teacher trainees' knowledge regarding the concept of MI before and after the training. The test consisted of twenty-six multiple choice items focusing on three components, namely introduction to MI theory, MI teaching strategies and MI assessments. Mann Whitney U-test statistic was used to analyze the results from the pre-test and post-test.

The U value obtained from the U-test statistic was 54, which is higher than the critical value in the table ($p>.05$). This indicates insignificant difference between the pre-test and post-test which implies that the teacher trainees' knowledge of the concept of MI before the training was insignificantly different from their knowledge after the training.

The average difference in scores between the pre-test and post-test for each component was further calculated as shown in Table 3

TABLE 3 AVERAGE DIFFERENCE IN SCORES BETWEEN THE PRE-TEST AND POST-TEST FOR EACH COMPONENT

Test Components	**The average differences between pre-test and post-test**	**Percentage gain based on full scores**
Component 1	0.42	5.3 %
Component 2	0.75	7.5 %
Component 3	0.58	7.3%
Total	1.92	7.4%

Remark: * Component 1 = Introduction to MI theory, Component 2 = MI teaching strategies, Component 3 = MI assessment.

The Table shows slight gains in all three components. The second component which focused on MI teaching strategies had the highest percentage gain of 7.5%. Component 1 and 3 which focused on introducing MI theory and MI assessment gained 5.3% and 7.3% respectively.

Research question 2:

Can the training kit provide necessary skills for the teacher trainees to construct lesson plans integrating the concept of multiple intelligences in English language lessons?

The lesson plan inventory (LPI) was used to evaluate lesson plans constructed by the trainees to measure the effectiveness of the training kit in providing skills for the teacher trainees to integrate the concept of MI in their English lessons (Appendix C). The LPI was divided into a checklist (Part A) and comments (Part B). Part A contained statements stated components of MI lesson, namely, activities in the MI

implementation stages, activities in thinking skills, and activities in MI assessment. Part B was an open ended session where observers offered their remarks.

Part A

The teacher trainees worked in groups to create lesson plans. There were three groups of teacher trainees. Each group produced one lesson plan. The three lesson plans were evaluated by two observers using LPI yielding six results obtained from the LPI. After calculating the correlation coefficients between the results obtained from the two observers, three LPI results were chosen randomly to be analyzed. Table 4 shows the mean scores obtained.

TABLE 4 SCORES AND MEAN SCORES FROM THE LESSON PLAN INVENTORY

Lesson Plan Inventory	Result 1	Result 2	Result 3	Mean Scores	Ability Level
Part 1	3.71	3.71	3.57	3.67	Good
Part 2	3.5	4.5	3.75	3.91	Good
Part 3	1.4	2.6	3.4	2.46	Need more effort
Total	2.93	3.56	3.56	3.35	Fair

Remark: * Part 1 = Activities in the MI implementation stages, Part 2 = Activities that encourage thinking skills, Part 3 = Activities in MI assessment.

The mean scores obtained in part 1 (M = 3.67) shows the teacher trainees' '*good*' ability in constructing MI lesson plan in terms of MI implementation stages. Scores in part 2 (M = 3.91) also shows the teacher trainees' '*good*' ability in constructing MI lesson plans in terms of encouraging thinking skills. The result from part 3 concerning MI assessment was (M = 2.46), which indicates a need for more effort. Overall, the teacher

trainees' ability to construct lesson plans integrating the concept of MI was ranked as fair (M = 3.35).

Part B:

The comments and suggestions by the two observers while evaluating the teacher trainees' lesson plans indicated the teacher trainees' ability to choose lively activities that involved higher order thinking skills. The following are some excerpts of such comments:

> *The activities chosen were well related to learners' background knowledge and they triggered learners' attention.*
>
> *The introduction and use of graphic organizer made the activities interesting and challenging.*

Although the mean scores for MI implementation stages were in the 'good ability' range, some comments and suggestions by the observers suggest that the teacher trainees experienced confusion in terms of the stages of MI. Some of the activities chosen by the teacher trainees were unsuitable for certain stages of the MI lesson plan. For example,

> *The activities in stage 4 should be more about transferring the intelligence to the other subject areas or the outside world. Stage 4 should contain activities that allow the learners to reflect on their intelligences and how they could apply their intelligence. The teacher could have the learners talk about the intelligence being focused on, how they felt about it, and how they could apply what they have learnt in their daily lives.*

Apart from the confusion in terms of the stages of MI implementation, the assessment activities in the lesson plans would also benefit from greater effort. The below are examples of remarks regarding MI assessment.

> *The assessment task should contain varieties in order to cater for different intelligences. Instead of just letting the students draw the missing body parts, the teacher could have included activities that allow the learners to label the body*

parts, mime their functions, or let them choose one body part and report to the class how they take good care of it. This will make the assessment task lively.

The assessment activities should support the focused intelligence. Having visual intelligence as one of the objectives of the lesson, the assessment task should contain activities that involve the learners' visual intelligence too.

Research question 3:

To what extent can the teacher trainees apply lesson plans integrated with the concept of multiple intelligences in their micro teaching?

The micro teaching observation (MTO) tool was used to evaluate the teacher trainees' micro teaching sessions to examine their ability in applying MI lesson plans (See Appendix C). The MTO tool was divided into a checklist (part A) and comments (part B). Part A contained statements that described desirable teaching behaviors. These statements focused on behaviors in MI implementation stage, encouragement of thinking skills and assessment. Part B was an open ended session where observers offered their remarks.

Part A:

Nine teachers participated in the micro teaching session of the training. Each individual teacher conducted their teaching practice based on the lesson plans they constructed. The observation was done by two observers, yielding 18 results obtained from MTO tool. A set of nine results was randomly chosen to be analyzed after calculating the correlation coefficients between the results obtained from the two observers. Table 5 shows the scores and mean scores obtained.

TABLE 5 SCORES AND MEAN SCORES FROM MICRO TEACHING

MTO Tool	T1	T2	T3	T4	T5	T6	T7	T8	T9	Mean	Levels
Part 1	4	3.6	3.2	3.2	3.5	3.2	3.25	2.5	3	3.27	F
Part 2	3.4	2.4	2.4	3.2	1.6	2.4	2.25	2.4	2.2	2.47	NF
Part 3	3	2.6	2.6	2.6	3	2.3	2.3	2	2	2.48	NF
Total	3.53	2.92	2.76	3.07	2.71	2.69	2.63	2.33	2.41	2.78	F

Remark: * Part 1 = Teacher's behaviors in the MI implementation stages, Part 2 = Teacher's behaviors in thinking skills encouragement, Part 3 = Teacher's behaviors in assessing the learners, T = teacher, NF= need more effort, F= fair, MTO tool = Micro Teaching Observation tool

The mean scores obtained in part 1 (M = 3.27) illustrate the fair ability of the teacher trainees to apply MI lesson plans in terms of MI implementation stages. The mean scores obtained in parts 2 and 3 (M = 2.47, M = 2.48) reveal the teachers' need for more effort in applying the lesson plans in terms of encouraging thinking skills and assessing the learners respectively. The teacher trainees' overall ability to apply MI lesson plans in micro teaching was fair (M = 2.77).

Part B

In addition to the quantitative analysis yielded above, comments and suggestions by the two observers indicated *need for more effort* by the teacher trainees to guide the learners to reflect on their intelligences and in involve them in higher-order thinking. The following excerpts indicate the nature of the comments.

> *It would be useful to let the learners reflect on the intelligences focused in the lesson, for example, talking about how they feel about the activities, and how useful are the activities.*
>
> *The lesson would be more interesting if it could provide a link to life outside the class at the end, for example, asking the students how they can use music to assist their learning process.*

Moreover, it was noticed that they needed to make more flexible responses and check the learners' understanding through questions.

> *A flexible response can help to motivate learners, for example, instead of saying 'good' to a group that has composed a nice song, the teacher could analyze such performance with the rest of the students about why it was a good song and the quality it demonstrated.*
>
> *As MI assessment is a continual process, the teacher could use questions from time to time to ensure learners' understanding. It would be more useful to ask questions after each activity to ensure that the learners have understood the content.*

These comments complement the quantitative findings calculated in the first part of this chapter. A discussion and analysis of these findings is presented in chapter five.

CHAPTER V

CONCLUSION AND DISCUSSION

This research aimed to measure the degree to which the training kit effectively enhanced the teacher trainees' knowledge of the concept of MI and how well it enabled them to integrate MI in their lesson plans and teaching process.

Research questions

The research questions in this study were:

1. Can the training kit enhance the teacher trainees' knowledge of the concept of multiple intelligences theory?
2. Can the training kit provide necessary skills for the teacher trainees to construct lesson plans integrating the concept of multiple intelligences in English language lessons?
3. To what extent can the teacher trainees apply lesson plans integrated with the concept of multiple intelligences in their micro teaching?

Population and sample

The population in this study was in-service English language teachers who teach English as a foreign language (under the basic education core curriculum of Thailand) to primary and secondary level students. Twelve in-service and experienced English language teachers were purposively selected from Satit Bangna School to represent the population of the study. The teachers in the sample group consisted of foreign teachers and Thai teachers who taught English to students of various grade levels from both regular and English programs.

Research instruments

The instruments used in this research were:

1. The training plans
2. Test on the concept of MI theory
3. Observation tools
    3.1 Lesson Plan Inventory (LPI)
    3.2 Micro Teaching Observation (MTO) Tool

Research methodology

In order to measure the effectiveness of the training kit, literature regarding the concept of MI as well as its classroom implementation and training course were reviewed.

The training plans consisting of theoretical and practicum sessions were constructed (See Appendix A). The plans were revised by three experts and pilot tested with a different group of EFL teachers.

Based on a test specification, multiple choice items were constructed and revised by three experts for its content validity check. In order to conduct item analysis and establish its reliability, the test items were selected and tested with a pilot group of EFL teachers with varying levels of knowledge regarding the concept of MI. A set of 26 multiple choice items were selected to be used as pre-test and post-test which carried a verified reliability of 0.863 (See Appendix B).

The observation tools consisting of lesson plan inventory (LPI) and micro teaching observation (MTO) tool were constructed to evaluate the teacher trainees' ability to integrate the concept of MI in their English classrooms (See Appendix C). The observation tools were revised by three experts to ensure the content validity. In order to estimate the tools' reliability, LPI and MTO were used to evaluate lesson plans and

observe the teachers' teaching practices in the pilot group. Pearson product moment correlation statistic was employed to calculate the correlation coefficients between the results obtained from the two observers (The r values obtained for LPI and MTO tool were 0.934 and 0.956 respectively which indicates high correlation between the results from the two observers).

The effectiveness of the training kit was measured through the following steps:

1. The teacher trainees' knowledge of the concept of MI theory was pre-tested prior to the training.

2. The training plans were employed to train the teacher trainees.

3. The teacher trainees' lesson plans were evaluated using LPI and their ability to apply them was observed and evaluated using MTO tool.

4. The teacher trainees' knowledge of the concept of MI theory was post-tested after the training.

Data analysis

1. Mann Whitney U-test statistic was employed to compare the teacher trainees' knowledge of the concept of MI before and after the training.

2. Spearman rank correlation statistic was used to calculate correlation coefficients between results obtained from the two observers for LPI and MTO tool.

3. The results were randomly selected from LPI as well as MTO tool and the mean scores were calculated and analyzed.

4. Comments and suggestions from the two observers while evaluating the lesson plans and observing the teaching practices were summarized and reported.

Findings

1. Due to the insignificant difference between the pre-test and post-test, it could not be confirmed that the training kit could successfully enhance the teacher trainees' knowledge regarding the concept of MI.

2. The training kit was shown to moderately provide necessary skills for the teacher trainees to construct lesson plans integrating the concept of MI in their English language lessons.

3. The teacher trainees showed a fair level of ability in applying MI lesson plans in their micro teaching.

Discussion

This study measured the effectiveness of the training kit in two main aspects; the teacher trainees' knowledge of the concept of MI theory and their ability to construct and apply MI lesson plans. Therefore, discussion regarding the above findings focuses on the teacher trainees' knowledge and ability.

The Teacher Trainees' knowledge of the concept of MI

Although the result revealed no significant difference between the pre-test and post-test, it was found that there were slight gains in the post-test and they were proportional to the teacher trainees' performance on the pre-test. Furthermore, teachers who performed well in the pre-test had more teaching experience than the teachers who did not performed well in the pre-test. This indicates that the teachers' teaching experience played significant role in understanding the concept of MI theory. According to Armstrong (2000), the theory of MI involves what good teachers always do in their teaching. MI encompasses raising awareness of what teachers do in class. However, the lack of significant improvement may include the fact that the multiple choice items in

evaluation were based on situations that require thorough understanding of the concept of MI. According to Malderez and Bodóczky (1999), time is the most important factor in acquiring any skill. Thus, the teacher trainees probably needed more time and effort to understand the concept of MI. This can be confirmed by the teacher trainees' comments that they would like to have more time to learn more about MI theory and its implementation.

Regardless of the teacher trainees' minor improvement in the knowledge of the concept of MI theory, they are now more aware of different intelligences and have learned more about implementation of MI. As mentioned by most of the teachers that they were more aware of different intelligences that operate among learners and have learned new ways to organize their lessons interestingly.

Another factor contributing to the insignificant difference between the pre-test and post-test was the teacher trainees' varying motivation level. Among many extrinsic factors that can block learner's motivation is when trainees are made to attend courses which may lead to negative feelings (Baldwin & Williams, 1988). This training was conducted as part of the personnel development program at Satit Bangna School. The trainer/researcher approached the trainees prior to the training and found that participants expressed varying degrees of interest in the theory of MI. This may be because MI has not been widespread and some teachers might not have realized the importance of integrating it in their classrooms. According to Malderez and Bodóczky (1999), it is crucial for short courses to emphasize the need to know more. Learning takes place effectively when learners feel the need to learn in order to improve performance (Nadler & Nadler, 1994).

Another important point that affected the teacher trainees' motivation was the timing of the course. This training was conducted between the end of August and the

beginning of September during normal school days when the teachers still had to conduct their daily teaching. The days of the training were chosen according to the availability of the teacher trainees and it was scheduled in the evenings after regular school hours. The hours of the training were accumulated until it completed fifteen hours. This resulted in weak continuity of the training sessions. The teacher trainees reported being tired from their daily teaching work. In a similar study, Songsiengchai (2001) studied training that was conducted on a continuous three days basis. The trainees had sufficient time to sequence the input and enjoyed continuity of the training which enhanced their knowledge, understanding and ability. In retrospect, it would have been better for this training to take place during school holidays when teachers would not be overwhelmed by their daily teaching load.

The teacher trainees' ability to construct and apply MI lesson plans

The teacher trainees showed 'fair' ability to construct and apply MI lesson plans. Their satisfactory abilities were supported by varied training techniques and activities used in the training. The teacher trainees reported that they enjoyed the activities in the training and did not feel bored. This shows that they felt effectively involved. Woodward (1992) explains that experiential learning helps reduce the gap between theory and practice. The techniques used in this training consisted of demonstration, brainstorming, group discussion, pair work and reflection. All of these empowered the teacher trainees to learn from experience and link theory to practice. Chanapun (2005), Songsiengchai (2001), and Thongprayoon (2008) have all conducted studies based on training that encouraged experiential learning such as brainstorming, discussion, reflection, group work and demonstration. These techniques were also shown to contribute to the success of those training programs.

The supportive relationship between the trainer and trainees also made major contribution to the teacher trainees' satisfactory abilities in the practicum session. Some trainees reported that the trainer was calm and approachable. As stated by Malderez & Bodóczky (1999) that a mentor must form a helpful relationship and possess a range of interpersonal skills, the trainer/researcher approached the trainees prior to the training sessions to share and discuss about their beliefs, background knowledge, interests and teaching experience. This meeting helped build good rapport with the teacher trainees. During the training, the trainer/research shared and discussed ideas with the trainees and listened to their opinions to establish a firmer understanding of their situations.

From a different perspective, factors that blocked the teacher trainees from reaching 'excellent' or 'good' ability include the fact that they needed more time and practice to put the theory into practice. This training guided them to develop their own understanding of MI by integrating it into their background knowledge and teaching experience. Teachers who participated in this training had prior teaching experience. According to Murduch (1990), teachers with some teaching experience have established patterns of behaviors in the classroom and these may cause resistance when they receive fresh input during training. Baldwin and Williams (1988), add that time is required for reflections, self-appraisal and opportunities to explore different alternatives. In this training, the teachers had only a single chance to construct and perform teaching practice. The results suggest that most of the teachers did not involve their learners in effective reflection in stage four of MI lesson. This indicates that the teacher trainees needed more time and practice in integrating MI in their English lessons. Thus, in order to develop optimum teaching behaviors, the teacher trainees needed more time to reflect on their teaching.

As reflection plays a crucial part in this training course and it is one of the most important features of MI lessons, the teacher trainees were involved in reflection twice. The first reflection was done through guided questions. In the second reflection, the teacher trainees were allowed to reflect freely based on any positive points, minus points and interesting things (PMI) they have come across in their teaching practice session. They reflected well through the guided questions. However, the teacher trainees seemed to lose track in the second reflection. Instead of reflecting on their learning process, the training course was evaluated based on its positive, negative and interesting points. Clearly, the teacher trainees needed more time and guidance to practice their reflection skill which will help them in involving their learners in effective reflections as part of MI lessons. Thus, it is advisable for training courses regarding MI to include reflection sessions in order to provide opportunities for teachers to strengthen their reflection skills.

In addition to reflection skill, the teacher trainees needed more time to promote strength based learning and student's higher-order thinking skills which can not be accomplished within short period of time. The teachers participated in the practicum session under limited resources and time. They were required to create and apply lesson plans which were different and required more effort than what they usually do. Therefore, more time and practice would support the teacher trainees' effort in using MI to promote students' thinking skills and strength based learning.

Another reason for the teacher trainees' fair abilities includes the teachers' varied learning styles. Although the training techniques and activities used in this training focused on experiential learning and did not rely on lectures, some participants would have preferred lectures because they loved to be told. According to Kallenbach and Viens (2004), for some learners, a traditional teaching approach is still a good fit based on the lack of exposure to other ways of learning. This preference may have

resulted from negative learning experiences which incorrectly assume that learning cannot be enjoyable or fun. Some teacher trainees might be familiar with training that relied heavily on lecture. Due to time constraints, trainings based on lectures provided few opportunities for the trainees to reflect or analyze the concepts they were learning. This may have caused some difficulties in adjusting to the participative techniques and activities used in this training.

Limitations of the Study

1. The training was conducted after school which might have affected the trainees' level of motivation.

2. It was difficult to arrange for authentic classroom situations for the practicum session of the training. As a result, micro-teaching was scheduled.

Implications of the Study

The training kit based on an integration of the concept of MI in English language classrooms can be used to train other groups of teachers who teach EFL to Thai students in order to raise their awareness of different intelligences. It can also help teachers plan their lessons in a way that takes individual differences into consideration and prepare their students for real world experiences.

Suggestions for Further Studies

Recommendations for further studies are presented as follows:

1. It is recommended for further studies to measure the affective sides of the training where the trainees express their attitude toward the application of MI.

2. In order to be more specific regarding the integration of MI, a training kit

should be constructed for use at specific levels of education.

2. It is suggested for further studies to consider *time* (training schedule) as important factor when designing MI based training programs.

4. It is suggested for further studies to provide authentic classroom situations for the practicum session where the application of MI can be evaluated in real classroom context.

The findings and discussion of this research concluded this investigation. This research adds to the insufficient body regarding MI training among English language teachers and helps fill the gap in studies related to MI. The references and appendixes that follow provide background to the study.

BIBLIOGRAPHY

BIBLIOGRAPHY

Abdallah, M. M. S. (2008). Multiple ways to be smart: Gardner's theory of multiple intelligences and its educational implications in English teaching and oral communication. Retrieved from http:// www.eric.ed.gov/PDFS/ED502634.pdf.

Abdallah, M. M. S. (2010). Multiple intelligences, oral communication and language learning. Saarbrücken: VDM Verlag Dr. Müller.

Altan, M. Z. (2002). Assessment for multiple intelligences: Different ways of approaching testing. *MET, 11*(3), 56-60.

Armstrong, T. (1998). *Awakening genius in the classroom.* Alexandria, VA: Association for Supervision and Curriculum Development.

Armstrong, T. (2000). *Multiple intelligences in the classroom*. (2nd ed.). Alexandria, VA: Association for Supervision and Curriculum Development.

Baldwin, J., & Williams, H. (1988). *Active learning: A trainer's guide*. Oxford: Basil Blackwell.

Bellanca, J., Chapman, C., & Swartz, E. (2001). *Multiple Assessments for multiple intelligences*. (C. Pibulchol, Trans.). Bangkok: Pearson Education Indochina. (Original work published 1997).

Berman, M. (2000). Multiple intelligences revisited. Retrieved from http://www.developingteachers.com/articles_tchtraining/multintell2_michael.htm.

Caine, R.N., & Caine, G. (1991). *Making Connections: Teaching and the human brain.* Alexandria, VA: Association for Supervision and Curriculum Development.

Campbell, L., & Campbell, B. (1999). *Multiple intelligences and student achievement: Success stories from six schools*. Alexandria, VA: Association for Supervision and Curriculum Development.

Campbell, L., Campbell, B., & Dickinson, D. (1999). *Teaching and learning through multiple intelligences*. (2nd ed.). Needham Heights: Allyn & Bacon.

Chapman, C. (2001). *If the shoe fits.…: How to develop multiple intelligences in the Classroom.* (M. Pongprit, Trans.). Bangkok: Pearson Education Indochina. (Original work published 1993).

Chanapun, V. (2005). *A study on effectiveness of the teacher training program on teaching English speaking skill through oral communication activities for English teachers of Wat Papai School.* Master Project (Teaching English as a Foreign Language). Bangkok: Srinakharinwirot University. (Thai version)

Christison, M. A. (1996). Teaching and learning through multiple intelligences. *TESOL Journal, 46*(9), 10-14.

Christison, M.A. (1998). Applying multiple intelligences theory in preservice and inservice TEFL education programs. *English Teaching Forum, 36*(2), 2-13.

Christison, M. A. (2005). *Multiple intelligences and language learning: A guidebook of theory, activities, inventories, and resources*. Burlingame: Alta Book Center.

Chang, R.Y. (1995). *Creating high-impact training: A practical guide to success training outcomes*. London: Kogan Page.

Conroy, M., Marchand, T., & Webster, M. (2009). *Motivating primary students to write using writer's workshop.* Action research project (Graduate Faculty of School of Education). Illinois: Saint Xavier University.

Denig, S. J. (2004). Multiple Intelligences and Learning Styles: Two complementary Dimensions. *Teacher College Record, 106*(1), 96-111.

Dolasinski, M. J. (2004). *Training the trainer: Performance-based training for today's workplace* A. G. William, & K. J. Hall, (Eds.). New Jersey: Pearson Education.

Essinki, M. (2009). Mixed ability or mixed blessing?. *English Teaching Professional*, *60*,12-14.

Fogarthy, R., & Stoehr, J. (1995). *Integrating curricula with multiple intelligences*: *Teams, themes, and threads.* Arlington Heights: IRI/SkyLight Training and Publishing.

Freeman, D., Cornwell, S., & Richards, J. C. (Eds.). (1993). *New ways in teacher education: Innovative classroom techniques*. Alexandria, VA: Teachers of English to Speakers of Other Languages, Inc.

Garner, H. (1983). *Frames of mind: The theory of multiple intelligences.* New York: Basic Books.

Gardner, H. (1993). *Multiple intelligences: The theory in practice*. New York: Basic Books.

Gardner, H. (1999). *Intelligence reframed: Multiple intelligences for the 21st century*. New York: Basic Books.

Gardner, H. (1999). *Intelligence reframed*. New York: Basic Books.

Gardner, H., & Hatch, T. (1989). Multiple intelligences go to school: Educational implications of the theory of multiple intelligences. *Educational Researcher*, *18*(8), 4-10.

Green, C., & Tanner, R. (2005). Multiple intelligences and online teacher education. *ELT Journal, 59*(4), 312-321.

Greenhawk, J. (1997). Multiple intelligences meet standards. *Educational Leadership, 55*(1), 62-64.

Haley, M. H. (2001). Understanding learner-center instruction from the perspective of multiple intelligences. *Foreign Language Annual, 34*(4), 355-367.

Hickey, M. G. (2004). “Can I Pick More Than One Project?” Case Studies of Five Teachers Who Use MI-Based Instructional Planning. *Teacher College Record, 106*(1), 77-86.

Horre, T. R. (1992). How our school applied multiple intelligences theory. *Educational Leadership, 50*(2), 67-68.

Horre, T. R. (1994). How the new city school applied the MI. *Educational Leadership, 52*(3), 29-33.

Hoerr, T. R. (2000). *Becoming a multiple intelligences school*. Alexandria, VA: Association for Supervision and Curriculum Development.

Horre, T. R. (2004). How MI informs teaching at new city school. *Teachers College Record, 106*(1), 40-48.

Johnson, M. (2007). *An extended literature review: The effect of multiple intelligences on elementary student performance*, California: Schools of Education Dominican University of California.

Kallenbach, S., & Viens, J. (2004). Open to interpretation: Multiple intelligences theory in adult literacy education. *Teacher College Record, 106*(1), 58-66.

Krashen, S. D., & Terrell, T. D. (1983). *The natural approach.* Oxford: Pergamon Press.

Kroehnert, G. (2005). *101 more training games*. Australia: McGraw-Hill.

Lawson, K. (1998). *The trainer’s handbook*. San Francisco: Jossey-Bass/Pfeiffer.

Lazear, D. (1999). *Eight ways of teaching: The artistry of teaching with multiple intelligences.* (3rd ed.). Arlington Heights: SkyLight Training and Publishing.

Ministry of Education in Thailand. (2008). *The basic education core curriculum B.E. 2551*. Bangkok: Agricultural Co- operative Federation of Thailand, Ltd. Publishing.

Malderez, A., & Bodóczky, C. (1999). *Mentor courses: A resource book for trainer-trainers.* Cambridge: Cambridge University Press.

Murdoch, G.S. (1990). Practicing what we preach - A trainees-centered approach to in-service training. In T. Kral (Ed.), *Teacher development making the right moves* (49-56). Washington: English Program Division United States Information Agency.

Nadler, L., & Nadler, Z. (1994). *Designing training programs: The critical events model*. (2nd ed.). United States of America: Gulf Publishing.

Pandum, S. (2008). *A study on pattern of relationship between multiple intelligences and adversity quotient of secondary school III students in educational area I, Ratchaburi provience.* Thesis (Educational Research and Statistics). Bangkok: Srinakharinwirot University. (Thai version)

Race, P. (Ed.). (2001). *2000 tips for trainers & staff developers*. London: Kogan Page.

Richard, J. C. (1998). *Beyond training: Perspectives on language teacher education*. New York: Cambridge University Press.

Richard, J. C. (2001). *Curriculum development in language learning*. New York: Cambridge University Press.

Rothwell, W. J. (1996). *Beyond training and development: State of the art strategies for enhancing human performance.* New York: American Management Association.

Silberman, M. (1998). *Active training: A handbook of techniques, designs, cases, examples, and tips*. (2nd ed.). California: Jossey-Bass Pfeiffer.

Simister, C. J. (2007). *How to teach thinking and learning skills: A practical programme for the whole school*. London: Paul Chapman Publishing.

Shearer, C. B. (2004). Using a Multiple Intelligence Assessment to Promote Teacher Development and Student Achievement. *Teacher College Record, 106*(1), 147-162.

Songsiengchai, S. (2001). *A study of the effectiveness of the teacher training program of listening-speaking skills through activities and language games of Assumption Suksa English teachers.* Master Project (Teaching English as a Foreign Language). Bangkok: Srinakharinwirot University. (Thai version)

Sutsin, W. (2007). *Young children's problem solving ability obtained through activities applying the multiple intelligences model for learning.* Thesis (Early Childhood Education). Bangkok: Srinakharinwirot University. (Thai version)

Taba, H. (1962). *Curriculum development: Theory and practice.* New York: Hercourt Brace and World.

Thinking skills: A cross-curricular approach. (2006). Balcatta: R.I.C. Publications.

Thongprayoon, T. (2008). *The development of an in-service training program on teaching integrated skills in English language communication for lower secondary school teachers of English in extended education schools under the Bangkok metropolitan administration.* Thesis (Teaching English as a Foreign Language). Bangkok: Srinakharinwirot University. (Thai version)

Thaveerat, P. (2000). *Research in behavioral and social science*. (8 th ed.). Bangkok: Srinakharinwirot University. (Thai version)

U-pahard, P. (2007). Early childhood children's reasoning ability obtained through the multiple intelligences model for learning . Thesis (Early Childhood Education). Bangkok: Srinakharinwirot University. (Thai version)

Vella, J. (1994). *Learning to listen learning to teach: The power of dialogues n educating adults.* California: Jossey-Bass.

Woodward, T. (1992). *Ways of training: Recipes for teacher training*. Singapore: Longman.

APPENDICES

APPENDIX A

The training plan

Training Plan 1

Topic: Introduction to the theory of Multiple Intelligences

Time duration: 1 hour and 30 minutes

Aims: This plan aims at introducing the teacher trainees the theory of multiple intelligences which serves as background knowledge for the following sessions.

Sessions:

1. Individualism among the teacher trainees
2. Self discovery
3. MI in the classroom context

Justification of content:

This session provides participants with the background knowledge of MI theory which will lead them to the application of MI in the classroom in the following sessions. During the sessions in this plan, the teacher trainees will discover the intelligences that operate among them, their own intelligences and the intelligences in the classrooms. By doing this, the teacher trainees can apply their learning experiences to their students and come to the conclusion that an individual inherits at least eight intelligences.

Justification of approach:

The approaches used here focus on the inductive way of learning where teacher trainees learn through experiences which can help them to transform their learning experiences into meaningful learning experiences for their students. The approaches used are:

1. Find someone who…

This activity is used to raise the awareness regarding the different intelligences that operates among the teacher trainees and the awareness that each individual is unique.

2. MI inventory

After the discovery of eight intelligences among the teacher trainees, it is useful for the teacher trainees to connect their own life experiences with the ideas in an MI profile with the use of the MI inventory. The idea of using MI inventory is not to judge their strong and weak intelligences but to allow the trainees to recognize that the activities they choose reflect their intelligence profiles which in turn affect the students' intelligence profile.

4. Case study and discussion

This activity opens the opportunities for the teacher trainees to experience intelligences in the schools and classroom context. It will allow them to reflect on their own classrooms as well as share their classroom experiences with each other.

Handout:

1. Find someone who..
2. MI testing exercise
3. MI important features envelops
4. MI inventory
5. Case study

Training procedure

Session	Objectives	Procedure	Assessment
Individualism among the trainees (60 minutes)	To allow the teacher trainees to discover different intelligences that operates among them.	- Ask the trainees to mingle around with the "find someone who.." sheet (handout 1) in order to obtain signatures from the trainees who are capable of doing the activities listed on the sheet. - Allow 5 minutes time to let the trainees reflect on the intelligences that operate among them by providing explanation regarding the idea of individualism.	- Observe the trainees during the interactive process.
	To present the eight intelligences.	- Present the eight intelligences through power point presentation.	- Allow the teacher trainees to do exercises in the handout 3 which consists of true/false exercises in order to check their understandings of the eight intelligences.
	To check the trainees' understandings of the eight intelligences.	- Place 5 envelops on different corners of the room. Each envelop contains the same set of MI features strips. - Divide the teacher trainees into groups of three and start arranging the strips on different corners of the room. - After 30 second, ask the trainees to stop and change the corner (they should not work with the same people) - Repeat the procedure for 3-4 times. The group that has finished can go back to their seats.	

Session	Objectives	Procedure	Assessment
		- Reveal the arrangement pattern on the slide.	
Self-discovery	To allow the trainees to connect their real life experiences to MI profile.	- Allow the trainees to complete the MI inventory (handout 5). - Allow the trainees to reflect on their intelligences profile.	- Elicit the purpose of MI inventory from the trainees.
Intelligences in school and classroom	To open the opportunity for the trainees to experience MI in the classroom context.	- Let the teacher trainees read different cases and share the case they read with their partners. - After the discussion, let the teacher trainees count 1 and 2. Let all the number 1s stand in a circle. And all the number 2s form another circle surrounding the inner circle. - Ask the outer circle people to talk about the strong students in their class based on their strong intelligences and how they perform in other classes for 20 seconds. The inner circle people should listen only. The outer circle should stop and move to their right after hearing an animal sound. - Now the inner people should talk about the weak students in their class based on the things they lack. The outer circle people should listen only and they should stop and move to their right after hearing an animal sound. - Repeat for 2 to 3 times.	- Let the trainees write a conclusion regarding individual intelligences with their partners.

Handouts for training plan 1

Find someone who can do each of the activities listed below. When you find someone who can do the activity, get him/her to sign your paper. A person can only sign your paper twice.

Find someone who …….

likes to write articles and have them published. ……

can tell if someone is singing off-key. ……..

can calculate numbers easily in his/her head. ……

likes to read books with many pictures. ……

likes to dance. ……

likes doing puzzles and mazes. ……

regularly spends time meditating. ……

can list three things that help him/her learn. ……

can draw picture of his/her favorite food. ……

has a good joke to tell. ……..

will sing part of a favorite song. ……

sings in the shower. ……...

can easily identify at least 10 different kinds of flowers. ……

finds it hard to sit for long periods of time. ……..

frequently creates new activities and materials for his/her classes. ……..

is often involved in social activities at night. ……

loves to teach people new skills. ……..

Christison, M. A. (2005). *Multiple intelligences and language learning: A guidebook of theory, activities, inventories, and resources*. Burlingame, California: Alta Book Center Publisher-San Francisco.

MI Testing Exercises

Read the following statements and put a check mark in the true or false box.

The eight intelligences and supportive teaching activities	True	False
1. Intelligence can only be measured by IQ.		
2. Each normal individual inherits at least eight intelligences.		
3. Intelligences work together in a complex way.		
4. Some students are smarter than the others.		
5. In order to support logical intelligence among students, teachers should provide clear objectives of a lesson.		
6. One of the ways to develop students' visual intelligence is to provide them opportunities to practice their imagination.		
7. Teachers can use pair work in order to develop students' intrapersonal intelligence.		
8. The development of intrapersonal often conflicts with interpersonal development.		
9. The students with strong bodily intelligence can sit in the library for a long time.		
10. Teachers can use journal keeping in order to support students' interpersonal intelligence.		

MI important features envelops

These are to be cut and put in envelops

Howard Gardner's categories of intelligences

……

Verbal/Linguistic Intelligence

……

Logical/ Mathematic Intelligence

……

Musical Intelligence

……

Bodily/Kinesthetic Intelligence

……

Visual/Spatial Intelligence

……

Interpersonal Intelligence

……

Intrapersonal Intelligence

……

Naturalist Intelligence

……

Key points for educators

……

Each person possesses all eight intelligences

……

Prepare varieties of activities

……

Intelligences can be developed

……

Intelligences work together in complex ways

……

There are many ways to be intelligent

……

Steps for implementing MI

……

Awaken the intelligences

……

Amplify the intelligences

……

Teach with or for the intelligences

……

Transfer the intelligences

……

Steps for integrating MI in lesson plan

…….....

Identify the activities we often use in class

.....

Track what we are doing in our classes with multiple intelligences

Teacher's role in MI

……
Work with students
……
Learn what students learn
……
Do not rely on test scores
……
Do not let students sit and learn quietly in class
……

MI Inventory

Make a check mark for the statements that apply to you.

Verbal/ Linguistic Intelligence

……. Books are very important to me.
……. I hear words in my head before I read, speak, or write them down.
……. I am good at word games, like scrabble or passwords.
……. I enjoy entertaining others or myself with tongue twisters, rhymes, or puns.
……. English, social studies, and histories are easier for me than maths and science.
……. I have recently written something that I am especially proud of.

Total =……..

Logical/ Mathematic Intelligence

……. I can easily compute numbers in my head.
……. Math and science are among my favorite subjects in school.
……. I enjoy brainteasers or games that require logical thinking.
……. My mind searches for patterns and regularities in things.
……. I am interested in new developments in science.
……. I believe that almost everything has a logical explanation.

Total =…….

Visual/ Spatial Intelligence

……. I often see clear visual images when I close my eyes.
……. I am sensitive to colors.
……. I enjoy doing jigsaw puzzles.
……. I like to draw or doodle.
……. I can easily imagine how something looks like from a bird's eye view.
……. I prefer looking at reading material with lots of illustrations.

Total =……..

Bodily/ Kinesthetic Intelligence

……. I participate in at least one sport or physical activity on a regular basis.
……. I like working with my hands on concrete activities.
……. I like to spend my free time outdoors.
……. I enjoy amusement rides and other thrilling experiences.
……. I would describe myself as well coordinated.
……. I need to practice a new skill, not just read about it or see a video about it.

Total =……

Musical/ Rhythmic Intelligence

……. I have a pleasant singing voice.
……. I play a musical instrument.
……. My life would not be so great without music.
……. I can easily keep time to music with a simple percussion instrument.
……. I know the tunes to many different songs and musical pieces.
……. If I hear musical selection a couple of times, I can usually sing it fairly accurately.

Total =……

Interpersonal Intelligence

……. I am the sort of person that others come to for advice.
……. I prefer group sports rather than individual sports.
……. I like group games like monopoly better than individual entertainments.
……. I enjoy the challenge of teaching others how to do something.

……. I consider myself a leader, and others call me a leader.
……. I like to get involved in social activities at my school, church, or community.

Total =……..

Intrapersonal Intelligence

……. I regularly spend time alone, reflecting or thinking about important questions.
……. I have options to set me apart from the crowd.
……. I have a special hobby or interest that I like to do alone.
……. I have some important goals for my life that I regularly think about.
……. I consider myself to be independent minded or strong willed.
……. I keep a personal diary or journal to write down my thoughts or feelings about life.

Total =……..

Naturalist Intelligence

……. I have a garden and like to work outdoors.
……. I really like to backpacking and hiking.
……. I enjoy having different animals around the house.
……. I have a hobby that involves nature.
……. I like to visit zoos, nature centers, or places with displays about the nature world.
……. It's easy for me to tell the difference between different kinds of plants and animals.

Total =…….....

Armstrong, T. (2000). *Multiple intelligences in the classroom*. (2nd ed.). Alexandria, VA: Association for Supervision and Curriculum Development.

Case study: read the case below and share with your partner (Partner 1)

My interest in the theory of multiple intelligences comes from a number of experiences, one of them was my first experience with my youngest daughter's fifth grade teacher. Naomi was having difficulties in a number of subjects, mostly those in understanding the relationships of ideas, events, and people were important (history, social studies, literature, and the like). In a parent-teacher meeting the teacher explained that Naomi simply did not have the capacity for grasping complex relationship and intricacy of detail and that she probably needed to be placed in a lower class.

Almost the same breath the teacher pointed to a piece of Naomi's artwork on the wall. It was near Valentine's day and she had created a multilayered, three-dimensional heart from construction paper that had heart within hearts all forming an intricate maze of pathways to a central heart chamber where, in raised, multicolored letters, made from hundreds of miniature hearts (much like the flower petals on floats in the Rose Parade), she had created the message Be mine, Valentine! I was stunned, especially in light of the fact that I had just been told that my daughter did not have the capacity for dealing with complex relationships and intricate details!

Almost immediately I said to the teacher, as I pointed to the Valentine on the wall, "If she could learn her history, social studies, and literature this way, she'd get it!" To which the teacher replied, "Mr. Lazear, art is art and history is history. History is not art. History involves learning facts, dates, people, and events and how they are all related. Your daughter isn't learning these things.

While I did not know then what I know now about multiple intelligences, I know this teacher was wrong about the separateness of the disciplines. I, perhaps instinctively, knew that somehow Naomi's highly developed visual/spatial capacities could be tapped to help her with her studies.

Read the case below and share with your partner (Partner 2)

My second source of interest in multiple intelligences theory comes from the experience with my eldest daughter. Esther. Esther is very much a bodily/kinesthetic knower and learner. In fact, over the years many teachers have called me with what was supposed to be alarming news-that she was hyperactive. In any event, when she was in junior high school, she came home from school one day with a list of twenty vocabulary words to learn for a test the next day. I sent her to her room to memorize the words and to come back to me when she had learned them.

After a period of time she came to me and said, "Okay Daddy, I'm ready. Test me." I proceeded to do just that. She got less than fifty percent of words right. So I said to her, "Esther, you're an intelligent girl. You're just not thinking. Back to your room and write each word and definition five times, and this time pay attention to what you are doing!" Reluctantly she wandered off to her room. After a reasonable amount of time, she brought her work to me and I'm sure she would have them this time; after all, *I would have if it had been me!* I tested her again, and to my dismay, she had improved very little. Finally, totally exasperated, she said to me, "Daddy, I can't learn this way. I've got to be moving around. I've got to learn with my body!"

Well for the next twenty to thirty minutes very strange and wonderful things inspired in my study. We proceeded to "embody" the meaning of words-that is, learn them with our bodies. I would say the words and its definition and she would create body movements and physical gestures that somehow communicated the meaning of the word to her. We were crawling on the floor, leaping in the air, jumping off furniture, doing all manner of strange and bizarre things. But at the end of this time, to my amazement, she had the list down perfectly with her body! I would say the word, the word would remind

her of the body movement, which she would then perform, and, the body movement help trigger the verbal definition.

Lazear, D. (1999). *Eight ways of teaching: The artistry of teaching with multiple intelligences.* (3rd ed.). Arlington Heights IL: SkyLight Training and Publishing Inc.

APPENDIX B

Test on the Concept of MI Theory

Test on the Concept of MI Theory

Choose the best answer

1. In the MI context, what is NOT true regarding an individual's intelligence?

    a. Intelligences can be developed.

    b. Intelligence depends on the context.

    c. Intelligence can only be measured by IQ test.

    d. Intelligences work together in a complex way.

(Introduction to MI theory, IOC = 1)

2. Which is NOT the likely benefit of MI-based instruction?

    a. Students can improve their EQ.

    b. Students can solve real life problems.

    c. Students and teachers can be more creative.

    d. Students can concentrate on their strong intelligences.

(Introduction to MI theory, IOC = 1)

3. Which is true regarding the implementation of MI?

    a. The implementation of MI is very flexible.

    b. The implementation of MI requires a revolutionary effort.

    c. The implementation of MI has definite guidelines to be followed.

    d. The implementation of MI can be done only in specific academic areas.

(Introduction to MI, IOC = 1)

Questions 4-5 are based on the situation below.

Maria wanted to integrate MI in her English lesson. She made a copy of MI inventory which consisted of lists of behaviors corresponding to each intelligence. She then made a check mark for the statement that resembled her own behaviors and counted the number of check marks in each category.

4. How would she benefit from using the MI inventory?

    a. She can measure her IQ.

    b. She can test her intelligence.

    c. She can change her behaviors.

    d. She can be aware of an individual's intelligences.

(Introduction to MI theory, IOC = 1)

5. What kind of activities you should NOT suggest Maria to use when she is trying to awake her students' intelligences as the first step of MI implementation?

    a. Activities that are related to students' background knowledge.

    b. Activities that are challenging and require problem solving skills.

    c. Activities that are related to students' five senses or meta-cognition.

    d. Activities that allow the students to transfer their intelligences to the other subject areas.

(MI teaching strategy, IOC = 1)

Questions 6-7 are based on the situation below.

Sam did not talk much. He did not have many friends and did not perform well during group activities. However, his individual assignments were excellent. He loved to work alone.

6. What can be inferred about Sam?

    a. Sam was very intelligent.

    b. Sam was intelligent in his own way.

    c. Sam was more intelligent than his friends.

    d. Sam had strong logical and linguistic intelligences.

(Introduction to MI theory, IOC = 1)

7. Which of the following would put Sam in an uncomfortable situation?

    a. Letting him write a personal journal.

    b. Assigning him an individual project.

    c. Maximizing his participation in group activities.

    d. Balancing between group and individual activities.

(MI teaching strategy, IOC = 0.6)

Questions 8-10 are based on the situation below.

Alicia was usually complained by her teacher for being a hyperactive girl. Most of the time, it seemed difficult for her to recall the details of the lesson, but she was excellent in basketball and devoted a lot of time practicing it. She was also interested in animals and loved to play with her pet dog.

8. Based on the information above, which intelligence Alicia probably needed more practice?

    a. Bodily intelligence

    b. Naturalist intelligence

    c. Linguistic intelligence

    d. Interpersonal intelligence

(Introduction to MI theory, IOC = 0.6)

9. Apart from a basketball player, which occupation below would suit Alicia's personality?

    a. A singer

    b. A manager

    c. A naturalist

    d. A computer programmer

(Introduction to MI theory, IOC = 1)

10. Which of the following activities would be the best alternative in helping Alicia to recall the details of the lesson?

a. Miming the content of the lesson

b. Making a concept map of the lesson

c. Writing a summary of each lesson learnt

d. Memorizing the important points of the lesson

(MI teaching strategy, IOC = 1)

Questions 11-14 are based on the situation below.

Emmy was in grade nine. She performed very well in English as well as in Mathematic class. She was the leader of the class and could sing very well but many friends did not like her. Whereas Emmy's close friend, Jenny, was just totally the opposite. Jenny almost failed in academic subjects. But she was in school's volleyball team and had a lot of friends. Jenny's teachers and parents were worried about her behavior and wanted her to improve her academic performance.

11. What can be inferred about Emmy?

a. She was more intelligent than Jenny.

b. She had strong as well as weak intelligences.

c. She was more intelligent than the other friends.

d. She would be a very successful person in the future.

(Introduction to MI theory, IOC = 0.6)

12. Which of the following learning activity would help Emmy best in getting along with her friends?

a. Peer coaching

b. Journal keeping

c. Individual project

d. All of the above

(MI teaching strategy, IOC = 1)

13. How would you help Jenny through group work activities?

a. Allow Jenny to work with both the weak students and strong students in the class.

b. Allow Jenny to work with the weak students only so that she would not be under pressure.

c. Separate Jenny and Emmy because they were close friends and they would talk during class.

d. Allow Jenny and Emmy to be in the same group all the time because they were close friends and they would work best together.

(MI teaching strategy, IOC = 1)

Questions 14-16 are based on the situation below.

In your MI English language class, you designed the group activities to teach punctuation. The students played game in groups and they used nature symbols to represent different punctuation marks. Then they composed and sang songs about the punctuation marks and tried to find punctuation mistakes in the text with their partners. Finally, they used Venn diagram to compare two punctuation marks for their individual assignment.

14. What intelligences are involved in their individual assignment?

a. Logical and visual intelligences

b. Logical and linguistic intelligences

c. Logical and intrapersonal intelligences

d. All of the above

(MI teaching strategy, IOC = 0.6)

15. After the group activity, you asked the students to write a reflection on their learning. What intelligences are involved in this task?

a. Linguistic and spatial intelligences

b. Linguistic and bodily intelligences

c. Linguistic and interpersonal intelligences

d. Linguistic and intrapersonal intelligences

(MI teaching strategy, IOC = 1)

16. What is NOT the purpose of the task in number 15?

a. The students would be aware of their intelligences

b. The students would recognize their positions in the class.

c. The students could use their intelligences in the other areas.

d. The students would be aware of their strengths and weaknesses.

(MI teaching strategy, IOC = 0.6)

17. Which is the characteristic of MI assessment?

a. It is performance-based.

b. It is a uniform kind of test.

c. It focuses on “the right answers”.

d. It places students in artificial learning environment.

(MI assessment, IOC = 1)

. 18. Which is NOT the characteristic of MI assessment?

a. It included higher-order thinking.

b. It encourages cooperative learning.

c. It treats each student as a unique human being.

d. It regards testing and instruction as separate activities.

(MI assessment, IOC = 1)

19. What is the difference between standardized tests and MI assessments?

a. Standardized tests focus on active learning tasks while MI assessments do not.
b. Standardized tests focus on authentic assessment while MI assessments do not.
c. Standardized tests focus on all students' intelligences while MI assessments do not.
d. Standardized tests focus only on students' linguistic and logical intelligences while MI assessments do not.

(MI assessment, IOC = O.6)

20. You assigned the students a group project which required them to interview any one in their community about his/her occupation, search information about that particular job and then write a report. What language skill(s) could you assess your students from their projects?

a. Grammar skill
b. Reading and writing skills
c. Listening and speaking skills
d. All of the above

(MI assessment, IOC = 0.6)

21. After reading the story, you wanted to assess your students' understandings of the story through their logical intelligence. Which of these would be the best task?

a. After reading the story, the students role play the story.
b. After reading the story, the students draw cartoons based on the story.
c. After reading the story, the students write their own response to the story.
d. After reading the story, the students use a graphic organizer to summarize the story.

(MI assessment, IOC = 1)

22. Which of the following tasks would directly encourage the students to self-reflect?

a. Taking a quiz

b. Keeping a learning log

c. Doing a project on a particular topic

d. Role playing the content of the lesson

(MI teaching strategy, IOC = 1)

23. You asked grade 1 students to speak about the activities they like in the class. Which of the intelligences below is being assessed in this case?

a. Musical intelligence

b. Naturalist intelligence

c. Intrapersonal intelligence

d. All of the above

(MI assessment, IOC = 0.6)

24. After reading the text about the bird's habitat, the teacher assigned the students to develop their own hypothesis regarding bird's migration for which they must gather information from various sources to confirm their hypothesis. Which intelligence is being assessed in this situation?

a. Visual intelligence

b. Bodily intelligence

c. Logical intelligence

d. Interpersonal Intelligence

(MI assessment, IOC = 1)

25. Which of the following assessment techniques would allow the teachers to assess students' various intelligences at a time?

a. Quiz

b. Project

c. Student journals

d. Open ended questions

(MI assessment, IOC = 1)

26. A teacher wanted to focus her lesson on naturalist intelligence, but the situation made it impossible for her to take her students out of the class and she could not afford to bring anything from nature into the classroom. So she let her students visualize things beyond the classroom's window. What intelligence was being used to support naturalist intelligence?

a. Bodily intelligence

b. Spatial intelligence

c. Interpersonal intelligence

d. Intrapersonal intelligence

(MI teaching strategy, IOC = 1)

Remark: * IOC refers to the item objective congruence value

APPENDIX C

Observation Tools

1. **Lesson Plan Inventory (LPI)**
2. **Micro Teaching Observation (MOT) Tool**

Lesson Plan Inventory

Group members: 1. …….

2. …….

3. …….

Topic of the lesson: …….

Level: …….

Put a check mark to evaluate the MI lesson plan.

5 = Excellent, 4 = Good, 3 = Fair, 2 = Needs more effort, 1 = Weak

Activities in the MI lesson plan	**5**	**4**	**3**	**2**	**1**
Part 1: Activities in MI Implementation Stages					
1. The activities support the focused intelligence. (IOC = 1)					
2. The activities support the content and objectives of the lesson. (IOC = 0.6)					
3. The activities are related to learners' background knowledge, five senses, or meta-cognition. (IOC = 1)					
4. The activity provides the opportunities for the learners to practice with the awaken intelligence. (IOC = 1)					
5. The activities allow the use of the awaken intelligence in the learning process. (IOC = 1)					
6. The activities allow the learners to reflect on their intelligences. (IOC = 1)					
7. The activities involve more than one intelligences. (IOC = 1)					
Part 2: Activities that Encourage Thinking Skills					
8. The activities are challenging and involve higher-order thinking skills. (IOC = 0.6)					
9. The activities involve various thinking skills. (IOC = 1)					
10. The activities involve the use of learning tools such as graphic organizers. (IOC = 0.6)					

Activities in the MI lesson plan	5	4	3	2	1
11. The activities allow the learners to transfer their intelligences to the areas outside the class. (IOC = 0.6)					
Part 3: Activities in MI Assessment					
12. The assessment is performance based. (IOC = 1)					
13. The assessment complies with the objectives of the lesson. (IOC = 1)					
14. The assessment task involves various activities. (IOC = 1)					
15. The assessment task is exciting, active, and lively. (IOC = 0.6)					
16. The assessment task involves more than one intelligence. (IOC = 1)					

Comments and suggestions …….

……

……

……

Remark: * IOC refers to the item objective congruence value

Micro Teaching Observation Tool

Topic: ……

Name: ……

Level: …….

Put a check mark in order to evaluate the teacher's teaching behaviors during the micro teaching.

5 = Excellent, 4 = Good, 3 = Fair, 2 = Needs more effort, 1 = weak

Teacher's behaviors in micro teaching	5	4	3	2	1
Part 1: Teacher's Behaviors in the Stages of MI Implementation					
1. The four stages of MI lesson o The teacher successfully conveys the objectives of the lesson. (IOC = 1) o The teacher successfully uses the activities to introduce the content of the lesson. (IOC = 0.6) o The teacher successfully introduces and demonstrates the use intelligence. (IOC = 0.6) o The teacher provides opportunities for the learners to practice with the awaken intelligences. (IOC = 1) o The teacher encourages the learners to use the awaken intelligences in a learning process. (IOC = 1) o The teacher uses guided questions or other tools to allow reflection on intelligences. (IOC = 1)					
2. The teacher explains the task or activity clearly. (IOC = 1)					
3. The teacher put emphasis on the learners' strengths; tells what the learners can do. (IOC = 1)					
Part 2: Teacher's Behaviors in Thinking Skills Encouragement					
4. The teacher uses questions that stimulate thinking skill such as why?, How?, etc. (IOC = 0.6)					
5. The teacher encourages the learners to ask Questions. (IOC = 0.6)					
6. The teacher encourages the learners to be creative. (IOC = 1)					

Teacher's behaviors in micro teaching	5	4	3	2	1
7. The support of learning and life skills. o The teacher introduces and demonstrates the use of learning tool such as graphic organizer. (IOC = 0.6) o The teacher encourages the transfer of the intelligences and content learned to the areas outside the class. (IOC = 1)					
Part 3: Teacher's Behavior in Assessing the Learners					
8. The teacher regularly asks questions during the activities to check students' understandings. (IOC = 1)					
9. The teacher provides valuable feedback by giving flexible responses to students' performances. (IOC = 1)					
10. The teacher observes the students to ensure the development of the focused intelligence. (IOC = 1)					

Comments and suggestions: …….....

……

……

……

Remark: * IOC refers to the item objective congruence value

APPENDIX D

Mann Whitney U-test Statistic

Mann Whitney U-test

TABLE 6 RANKS FOR ALL INDIVIDUAL MARKS FROM THE PRE-TEST AND POST-TEST

Marks	Rank
7	1 ½
7	1 ½
10	3
11	4
13	5
14	6 ½
14	6 ½
17	10
17	10
17	10
17	10
17	10
18	13 ½
18	13 ½
19	16
19	16
19	16
20	19
20	19
20	19
21	21
22	22
24	23 ½
24	23 ½

TABLE 7 RANKS IN THE PRE-TEST AND POST-TEST CATEGORIES

Pre-test	Rank	Post-test	Rank
7	1 ½	7	1 ½
10	3	11	4
13	5	17	10
14	6 ½	17	10
14	6 ½	17	10
17	10	18	13 ½
17	10	19	16
18	13 ½	19	16
19	16	20	19
20	19	21	21
20	19	24	23 ½
22	22	24	23 ½
N 1 = 12	R 1 = 132	N 2 = 12	R 2 = 168

U value = 54

Remark: * N 1 = Number of participants in the pre-test, N 2 = Number of participants in the post-test, R 1 = Sum of all the ranks in the pre-test, R 2 = Sum of the ranks in the post-test
The u value obtained was more than the critical value in the U table (p> .05). This indicates an insignificant difference between the pre-test and post-test.

VITAE

VITAE

Name: Miss Rajini Srikuruwal

Date of Birth: June 24, 1978

Place of Birth: Bangkok, Thailand

Address: 594/115-116 Soi Mahawoungnua Asoke Dindaeng Road Dindaeng Bangkok 10400

Educational Background:

1995	Senior High School (G.C.E. O' Level) Thai Sikh International School (TSIS)
2000	Bachelor of Arts in Business Administration (Majored in Marketing) Mahidol University International College
2011	Master of Arts in Teaching English as a Foreign Language Srinakharinwirot University