

The Development of Multimedia CALL English Reading Instruction by Using Metacognitive Techniques on the Topic about Morality and Buddha's Life for the First Year TNI Students

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ABSTRACT

Bundit Anuyahong (2011). The Development of Multimedia CALL English Reading Instruction by Using Metacognitive Techniques on the Topic about Morality and Buddha's Life for the First Year TNI Students

The purposes of this research were 1) to develop and test efficiency of multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life for the first year TNI students, Thai-Nichi Institute of Technology, Bangkok, 2) to compare the students' English reading achievement before and after using Multimedia CALL English Reading Instruction by using metacognitive techniques on the topic about morality and Buddha's life for the first year TNI students and 3) to survey the students' satisfaction towards Multimedia CALL English Reading Instruction in 8 units.

The subject consisted of 81 first year students of Thai-Nichi Institute of Technology, Bangkok, during second semester of 2010 academic year. The instruments used for this experiment were 8 units of multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life, the English reading achievement test, and a questionnaire was used for surveying the subjects' satisfaction on the constructed material.

The experimental process and data collection were conducted as follows. The subjects were given a 30 item English reading achievement pretest. Then, the 8 units of multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life were used for 16 class sessions in 16 weeks. After the completion of each unit, the English reading formative test was administered to measure the subjects' English reading achievement and a questionnaire was used for surveying the subjects' satisfaction on English reading instruction.

The t-test was used to compare the subjects' English reading achievement before and after using multimedia CALL English reading instruction by using metacognitive technique on the topic about morality and Buddha's life. The average of the eight English reading formative test scores was compared with the posttest scores in order to determine the efficiency of the constructed materials. The mean and standard deviation of the questionnaire scores were used to measure the students' satisfaction towards the constructed materials.

The results of the study were as follows:

1. The efficiency of the material was 86.83 for the English reading formative tests and 82.79 for the posttest. Therefore, multimedia CALL English reading lessons constructed were highly effective.

2. The students' English reading achievement after using the eight English reading lessons was significantly higher than that before using the eight English reading lessons constructed at 0.05 level.

3. The students' satisfaction towards the eight English reading lessons was highly positive.

Keywords: Multimedia CALL English Reading Instruction, Metacognitive Techniques, Morality and Buddha's Life

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INSTITUTE

Bundit Anuyahong

November 30, 2011

fufagy Dedicated To my parents

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CHAPTER ONE

INTRODUCTION

In the recent time, Instructional curriculum of foreign language is based on National Education Act of B.E.2542 section 22 as it stipulated that Education shall be based on the principle that all learners are capable of learning and self-development, and are regarded as being most important. The teaching-learning process shall aim at enabling the learners to develop themselves at their own pace and to the best of their potentiality. Moreover, section 23 as it stipulated that "Education through formal, non-formal, and informal approaches shall give emphases to knowledge, morality, learning process, and integration of the following, depending on the appropriateness of each level of education". Therefore, the students should have knowledge about oneself and the relationship between oneself and society, namely: family, community, nation, and world community (Ministry of Education 1999: 14).

Thai-Nichi Institute of Technology has been operated under the philosophy of "disseminating knowledge and building economic base". One of the TNI objectives is to generate human resources who have abilities in technological advancement and industrial management. Moreover, TNI concept of program administration is to focus on the students' language skills- the students will be able to communicate in Japanese and English. In order to achieve in the TNI objectives, TNI has provided English for Communication course which are divided into 3 core courses for students from all faculties as well as provided elective courses for students from each faculty to enroll (TNI Student Handbook: 2010: 24).

Reading plays a crucial role in our lives. It is so much a part of everyday living that one can hardly imagine life without it. Reading is also uniquely individual and flexible. In the age of the Internet and information revolution, reading retains its importance as an essential skill for learners of any language. For most of them, it is the most important skill to master in order to ensure success in learning (Alderson, 1984). Furthermore, Reading is an important part of the four necessary language skills for acquiring knowledge and gathering information for those learning English as a second or foreign language (ESL/EFL), for academic success, and for professional development (Wei,2005). The main objective of English language education at primary and secondary school levels is to teach students to read English books and to encourage them to keep up with global development, especially in the area of information technology (IT). Students at the university level need to understand textbooks, articles, or magazines written in English to acquire knowledge and gather information for both their careers and their academic studies (Wei, 2005). For these reasons, the ability to read and understand English effectively is regarded as the most important skill for ESL/EFL students at all levels. Reading plays an important role in language learning, but ESL/EFL educators have found that most students cannot read English texts effectively (Aebersold & Field, 1997). The problems impeding students' reading success come from the inappropriateness of the reading materials, the misunderstanding of grammatical structures, difficulties with vocabulary, and the lack of background knowledge from the readers' part (Aebersold & Field, 1997; Dagostina & Carrifio, 1994; Nuttall, 2000).

Metacognitive strategies are regarded as a part of the effective strategies that enhance learners' reading ability (Cohen, 1998). To be able to read effectively and intelligently, students need to refine their reading ability by integrating their prior knowledge, language proficiency, and metacognitive strategies with the understanding of words and sentences in a text (Hammadou, 1991). Metacognitive strategies involve thinking about what one is doing while reading, checking the outcome of problem solving techniques, planning how to use an effective strategy, controlling the effectiveness of an action plan, testing, revising, and evaluating one's learning strategy (Block, 1992; Salataci & Akyel, 2002). These strategies should play their roles in reading tasks as they can help learners plan, organize or control, and evaluate or remediate the reading process (Chumpavan, 2000; Cohen, 1998; Li & Munby,1996; Urquhart & Weir,1998).

Many of today's more popular Computer-Assisted Language Learning programs, such as Rosetta Stone, Tell Me More, and Learn English Now! are generally designed using the Behaviorist or Constructivist models. Those programs that are designed according to the Behaviorist model do not consider the background of the learner and are usually just another medium for learners to memorize information. A majority of CALL programs use the Behaviorist model as a foundation (Chapelle, Carol A., 1998). The programs designed according to the Constructivist model attempt to build upon the existing language skills of the learner (Levy & Stockwell, 2006). In the area of second language acquisition, Krashen (1982) formulated the Input Hypothesis based on the principles of the Constructivist model. The Input Hypothesis stated that language learners acquire language best when a skill being taught is one level beyond the learner's existing level. Krashen defined this formula as i + 1, where i represents a learner's current level of language competence and 1 is the new knowledge that is one level higher than i. The progression of lessons in a CALL program built on the Constructivist model usually follows this pattern (Levy & Stockwell, 2006). Neither model, as it is applied to the design of CALL programs, take cultural characteristics of the language learner into consideration. Teaching-learning English language of TNI students has problem in reading and they also lack of motivation in reading because instructional contents are not interesting. The contents are not suitable to culture and to be used in daily life of TNI students. Wanida Duanglit (2001:2-3) advocated that problem in teaching reading was instructional contents because difficulty of content and it was not suitable to recent situation and the learners were not interested and did not understand culture of language. Thus, instructional management must depend on learner's interesting and ability that make motivation in reading of the learner.

In conclusion, the researcher created multimedia CALL English reading instruction based on metacognitive reading the topic about morality and the Buddha's life which passed checking from experts for study improvement in reading of TNI students in second semester, academic year 2010 and the results derived from research will be applied as a guideline in order to improve and develop instruction and instructional materials for next occasions

Research Purposes:

1) To develop and find effectiveness of multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life for the first year TNI students, Thai-Nichi Institute of Technology, Bangkok.

2) To compare the ability in English reading of the students before and after using multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life for the first year TNI students, Thai-Nichi Institute of Technology, Bangkok. 3) To study satisfaction in multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life for the first year TNI students, Thai-Nichi Institute of Technology, Bangkok.

Research Questions:

1) Does English reading instruction on multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life for the first year TNI students have efficiency in the provided criteria?

2) Is the ability in English reading of first year TNI students after using English reading instruction on multimedia CALL English reading instruction by using metacognitive techniques higher than the ability in English reading before using English reading instruction on multimedia CALL English reading instruction by using metacognitive techniques?

3) How do the first year TNI students have satisfaction with English reading instruction on multimedia CALL English reading instruction by using metacognitive techniques which researcher creates?

Research hypothesis:

1) English reading instruction on multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life for the first year TNI students which the researcher created has the efficiency in the provided criteria.

2) The ability in English reading of first year TNI students after using English reading instruction on multimedia CALL English reading instruction by using metacognitive techniques is higher than the ability in English reading before using English reading instruction on multimedia CALL English reading instruction by using metacognitive techniques.

3) The first year TNI students have high level of satisfaction with English reading instruction on multimedia CALL English reading instruction by using metacognitive techniques which the researcher creates.

Scope of the study

Research Population and Samplings:

1. Population and Samplings

1.1 Population was 780 first year TNI students, Thai-Nichi Institute of Technology, Bangkok in the second semester of 2010 academic year from 3 faculties; faculty of Engineering, faculty of Business Administration, and faculty of Information Technology.

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1.2 Sampling was 81 first year TNI students in the second semester in2010 academic year derived from stratified random sampling technique.

2. Variables in Research Study

Variables in this study were as follows:

2.1 The ability in English reading of the first year TNI students before and after using multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life.

2.2 The Satisfaction of the first year TNI students towards multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life.

Definition of Terms

For this study the following terms were defined:

1. English reading instruction on morality and Buddha's life -Instruction that researcher created consisted of contents about morality and Buddha's life about 8 units.

2. English reading ability test- English reading test consisted of multiple choices 30 items which had vocabulary, contents, and story about morality and Buddha's life for evaluation the level of English reading ability for TNI students before and after using English reading instruction that the researcher created by using the time about 60 minutes. Moreover, the test passed checking content validity and construct validity including reliability from the 5 experts and 1 native teacher.

3. English reading ability- The scores of TNI students derived from English reading ability test before and after instruction.

4. Students- Thai-Nichi Institute of Technology students who learned English reading instruction on morality and Buddha's life in second semester,2010 academic year.

5. Proficiency of English reading instruction on morality and Buddha's life - Criteria used in determination proficiency English reading instruction.

6. **Satisfaction questionnaire**- Rating scale questionnaire created by researcher consisted of satisfaction in instruction design, contents, teaching-learning activities, and instructors.

CHAPTER TWO

LITERATURE REVIEW

This chapter provides the relevant literature consisting of 7 major domains: 1) Theory about Metacognitive Reading 2) Metacognitive Instruction in Reading Comprehension 3) Metacognitive Strategies in an ESL/EFL Reading Class 4) Research on Metacognitive Strategies in Reading 5) The Implementation of Metacognitive Strategies in a Reading Class 6) Essential Metacognitive Strategies Used in EFL Teaching 7) Theory about Technology and CALL

Theory about Metacognitive Reading

Background of Studies in Metacognition

Metacognition is a critical component of reading, particularly for ESL learners (Mokhtari & Sheorey, 2008; O'Malley, & Chamot, 1990). In order to understand what metacognition is, how it applies to the reading process, and what impact it has for reading among ESL learners, a historical background of metacognition is presented; this is followed by a description of the nature of metacognition and discussion of the role of metacognitive strategies in reading.

The concept of thinking about thinking dated back to Plato and Aristotle (Brown, 1987). Yet the term "metacognition" has been used to describe self-regulatory utilization of thought processes since the late 1800s (James, 1890), and the concept of thinking about or controlling one's own thinking and learning processes was not introduced until 1976 by Flavell. Flavell and Wellman (1977) proposed a theory of metamemory for explaining children's development and application of recall strategies. They hypothesized that young children fail to apply strategies for recalling information because of their lack of awareness of metamemory. Brown (1980) applied metacognitive theory to reading and differentiated between cognitive and metacognitive processes. She identified metacognitive process as reader-controlled strategies including selecting and studying the most important part of text, selecting retrieval cues as estimating readiness for tests.

Moreover, early educators, such as John Dewey (1910), Edmund Burke Huey (1908), and Edward Lee Thorndike (1917), already discussed the role of awareness of cognitive processes in their early works (Baker & Beall, 2009; Baker & Brown, 1984; Brown, Armbruster, & Baker, 1986). However, the term metacognition was not introduced until the work of Flavell in 1976. Metacognition is related to Piaget's and Vygotsky's cognitive theory and gestalt theory which were developed in Germany (Ormrod, 2008). Jean Piaget and Lev Semynovich Vygotsky studied children's cognitive processing, and their studies became important in the fields of psychology and education (Byrnes, 2008; Flavell, Miller, & Miller, 2002; Woolfolk, 2008).

Piaget's theory holds that children's thinking processes can change from time to time as children grow and continuously try to make sense of the world and construct knowledge (Tracey & Morrow, 2006). Piaget (1955) formed the theory of cognitive development with four stages: the sensorimotor stage (0-2 years), the preoperational stage (2-7 years), the concrete operational phase (7-11 years), and the formal operational stage (11 years - adult). While Piaget focused on maturation as an indispensable condition for learning with cognitive development occurring before learning, Vygotsky stated that learning from interactions with others can guide this development (Blanck, 1990; Slavin, 1997). Vygotsky emphasized human cognitive development and learning in the social and cultural contexts (Kozulin, Gindis, Ageyev, & Miller, 2003; Moll, 1990).

Furthermore, cognitive theory as promoted by Vygotsky embraces information processing theory, which focuses on attention, memory, and learning strategies (Ormrod, 2008). Information-processing theorists pay more attention to how people store and retrieve knowledge in their minds. In other words, unlike Piaget's theory which stresses human developmental stages, the information-processing theorists are interested in cognitive changes in one's processing (Flavell, Miller, & Miller, 2002). Schema theory is strongly related to the information-processing theory.

As to the concept of metacognition, Schwartz and Perfect (2002) stated that Hart's (1965) and Flavell's (1979) work had significant basis in the research of metacognition. Hart (1965, 1967) focused on how accurately people can judge their "feeling-of-knowing" experiences. On the other hand, Flavell was more interested in people's abilities to reflect on cognitive processing (Schwartz & Perfect, 2002). Influenced by Piaget, Flavell developed a concept of metacognition around the early 1970s (Flavell, 1971).

The Nature of Metacognition

Examining the nature of metacognition can help understand how learners gain new knowledge and skills. Definitions of metacognition are presented to guide this understanding. Fiavell's model of cognitive monitoring is next presented followed by key elements of metacognition.

Definitions of Metacognition

Metacognition is an emerging construction, influenced by the contributions of many disciplines (e.g., psychology, social sciences, education). In general, metacognition is thinking about one's own thinking or controlling one's own learning. Most researchers agree that metacognition includes knowledge and self-regulation components; however, motivation is often added as a third component (Borkowski, 1992; Johnston & Winograd, 1985; Swanson, 1989).

According to Baker and Brown (1984), metacognition is knowledge of and monitoring of one's thinking and learning processes. The term metacognition was first introduced by Flavell (Schmitt, 1993). Flavell (1979) defines metacognition as "one's knowledge concerning one's own cognitive processes and products or anything related to them." Metacognition is "the active monitoring and consequent regulation and orchestration of these processes in relation to the cognitive objects or data on which they bear, usually in the service of some concrete goal or objective" (Flavell, 1979). Flavell (1979) also described metacognition basically as "knowledge and cognition about cognitive phenomena" (p. 906). This cognitive phenomenon is associated self-regulation with cognitive monitoring (Griffith & Ruan, 2005).

Elements of metacognition

Flavell (1979) proposed a model of cognitive monitoring, in which there were four subdivisions: metacognitive knowledge, metacognitive experiences, goals (or tasks), and actions (or strategies). Humans use and interact with these four categories' enterprises in metacognitive processes. Furthermore, based upon Flavell's (1977) model, researchers identified knowledge of cognition and regulation of cognition as the two dimensions of

metacognition (Baker & Brown, 1984). These dimensions became a focus among scholars (Paris & Winograd, 1990) and provide a useful base upon which to understand how metacognition influences learning. The first dimension of metacognition, knowledge of cognition, involves declarative knowledge, procedural knowledge, and conditional knowledge (Jacobs & Paris, 1987; Paris, Lipson, & Wixson, 1983). Declarative knowledge is the knowledge people have about themselves and about learning strategies which influence cognitive process (McCormick, 2003). Declarative knowledge in reading means simply knowing strategies, such as skimming, summarizing, and inferring (Carrell, Gajdusek, & Wise, 1998). Procedural knowledge is one's awareness of thinking process (Jacobs & Paris, 1987). Procedural knowledge refers to knowing or reflecting on how to actually perform the reading strategies (Winograd & Hare, 1988). Conditional knowledge is learners' abilities to select and employ specific reading strategies appropriately in various contexts and to evaluate the effectiveness of the strategies (Carrell, Gajdusek, & Wise, 1998; Jacobs & Paris, 1987; Winograd & Hare, 1988). In order to have conditional knowledge, learners need to know when and where to apply declarative and procedural knowledge (Schreiber, 2005).

The second dimension of metacognition, regulation of cognition, is the ability to monitor and regulate cognitive and metacognitive processes. Summarizing arguments of various scholars, regulation of cognition is concerned with planning before activities or tasks (e.g., reading), checking and monitoring learning process during the activities, and reflecting on the effectiveness of learners' approaches after the activities (Baker & Brown,

1984; Carrell, Gajdusek, & Wise, 1998; Flavell, Miller, & Miller, 2002; Hacker, 1998; Hudson, 2007; Israel, Block, Bauserman, & Kinnucan-Welsch, 2005). Metacognitive theories and processes can help to illuminate not only the process of learning, but also the learner's awareness of those processes. By examining the nature of metacognition and the evolution of metacognitive theories, an investigation of how these theories and their underlying elements and dimension impact the development of reading skills can be undertaken. The impact of metacognition on reading English both as a first and second language are presented in the following section.

Metacognitive Instruction in Reading Comprehension

Metacognitive instruction usually occurs in the context of narrative and expository passages and depends on students' ability and prior knowledge, text type, task demands, and cognitive strategies. Suggestions for metacognitive instruction in this study include providing guided practice, reciprocal teaching, and modeling thinking aloud. Reciprocal teaching is a multiple-strategy approach with asking questions, summarizing, clarifying and predicting in the text for teaching comprehension skills to students. Gradually teachers transfer their role to the students themselves by groups or by pairs. Wingenbach (1984) reported that twenty gifted readers in grades 4 through 7 explored the comprehension process to identify the metacognitive strategies they employed as they read the Towa Test of Basic Skills. She found that subjects could use a variety of reading strategies to comprehend the text and to answer the questions through concurrent verbal reports. The strategies included using content clues, rereading, inferring, personal identification with the text, and imagery. Alvemann & Ratekin (1982) conducted a study with 98 "average" seventh-grade and eight-grade subjects. The results of an analysis of the verbal protocols revealed those 55 subjects reported using only one reading strategy, while 30 reported using two or more. Thirteen subjects were unable to recall any specific strategy.

Yang (2002) administered a study on the think-aloud protocols procedure with college freshmen at national Yun-lin University of Technology in Taiwan. The findings revealed that proficient readers displayed more competencies in monitoring their ongoing thinking processes since they tended to monitor their reading process all the time in order to compensate for words that had not been previously decoded. Baker (1996) supposed that proficient readers employed higher levels of comprehension internal and external monitoring including consistency. Teachers' intervention benefits less-proficient readers' the development of comprehension monitoring by providing them with basic language knowledge as a resource for comprehension monitoring and integrating sporadic information. Instruction of basic language knowledge should come before that of comprehension monitoring. Salataci and Akyel (2002) investigated the reading strategies of EFL students in reading in Turkish and English. The data came from think-aloud protocols, observation, a background questionnaire, a semi-structured interview, and the reading components of the PET (the Preliminary English Test). The results indicated that strategy instruction had a positive effect on both Turkish and English reading strategies and reading comprehension in English.

Feng (1998) conducted a study on examining the strategies used by 20 native speakers of Chinese by means of think-aloud reports. The results of the study showed that the subjects could use a variety of reading strategies while reading English and Chinese. Reading strategies were used more frequently in English than in Chinese and more frequently for difficult texts than for easy texts. Good readers were more aware of the strategies they use than poor readers and also tended to invoke strategies more flexibly, adjusted strategy use to text type and purpose for reading (Olshavsky, 1977; Olson, Duffy & Mack, 1984). Good readers are able to successfully detect and correct

inconsistencies encountered while reading (Garner, 1982) and are more careful at monitoring their comprehension process (Block, 1992; Wade, 1990). It appears that the process of thinking aloud while reading increases one's awareness of oneself as a reader and of how one interacts with text information. Knowing how to use the reading strategies while reading can positively influence the reading comprehension of L1 and L2 readers (Cohen, 1996).

Davey's (1983) think-aloud modeling approach combines cognitive strategies (predicting, picturing, and using prior knowledge) and metacognitive strategies (monitoring and adjustment). It also incorporates the interactive reading model and schema theory in the five-step cycles with the advantage of demonstrating the teacher's detailed mental processes during reading comprehension. The five steps of Davey's think-aloud reading strategy are predicting, picturing, inferring, identifying problems, and using fix-up strategies (Kuo, 2002).

The Metacognitive Strategies in an ESL/EFL Reading Class

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Metacognitive instruction often adopts cognitive strategies that emphasize the development of thinking skills and process to enhance learning simultaneously. The objective of cognitive strategy instruction is to develop all students to be more strategic, self-reliant, flexible, and productive in their learning endeavors (Scheid, 1993). In a summary of research on metacognition from the Center for the Study of Reading at the University of Illinois, Armbruster (1983) presents reading to learn from a metacognitive perspective as it relates to four variables: texts, tasks, strategies, and learners' characteristics. Text refers to the textual features of learning materials that influence comprehension and memory. Factors such as arrangement of ideas in texts, vocabulary, and syntax, clarity of author's intentions, and reader's interest and familiarity with a text all have an effect on students' learning. Knowledge of text structure is critical for reading to learn. The text structures used most frequently in informational or expository materials found in content area textbooks. Three strategies designed to help students read and comprehend informational texts: hierarchical summaries, conceptual maps, and thematic organizers designed to raise students' awareness of structure of text (Harris, 1990; DiGisi & Larry, 1992).

Metacognitive and cognitive strategies may overlap in the same strategy, such as questioning, which can be regarded as either a cognitive or a metacognitive strategy depending on what the purpose for using that strategy may be. For example, one may use a self-question strategy for obtaining knowledge (cognitive) or as a way of monitoring what one has read (metacognitive). Livingston (1996) distinguished the differences between a cognitive and a metacognitive strategy: Cognitive strategies are used to help an individual achieve a particular goal (e.g., understanding a text) while metacognitive strategies are used to ensure that the goal has been reached (e.g., quizzing oneself to evaluate one's understanding of the text). Roberts and Erdos (1993) indicated that metacognitive experiences usually preceded or followed a cognitive activity. They often occurred when cognition failed such as the recognition that one did not understand what one last read. It is very important for college English reading instructors to cultivate college students into strategic readers by teaching them how and what strategies to use before, during, and after reading. There are different reading strategies used at different stages of the reading process. Robb (1995) advocated that strategies used before reading activated readers background knowledge. Strategies are employed while reading emphasizes understanding and recalling information. Post-reading strategies stress inferences to the text information, concepts combination, vocabulary enlargement, question to learn

more, and meaning and comprehension construction. She listed some integrated effective reading strategies including metacognitive strategies used before reading, while reading, and after reading.

Research on Metacognitive Strategies in Reading

With understanding different types of metacognitive strategies in reading, a description of the impact of this concept on reading development in particular way should be explored. There is a growing body of studies on metacognitive strategies in reading for native and non-native English speaking learners. While significant studies on metacognitive strategies in reading for native English speakers have been reported, there are a smaller number of studies focusing on metacognition in reading for non-native English speakers. This section focuses on previous studies on the effectiveness of metacognitive strategies in reading with native English speakers followed by studies with non-native English speakers.

Studies on native English speaking learners

Winograd and Hare (1988) presented a review of the literature summarizing several studies conduced to investigate the effectiveness of students' metacognitive strategies through teachers' explicit instruction on reading comprehension skills. The studies included in the meta-analysis were examined based upon three metacognitive dimensions of declarative, procedural, and conditional knowledge. In some studies examined, learners in middle and high schools benefited from learning different reading strategies (declarative knowledge), how to use the strategies (procedural knowledge), and when and where to employ the strategies (conditional knowledge) (Adams, Gamine & Gersten, 1982; Baumann, 1984; Garner, Hare, Alexander, Haynes, & Winograd, 1984; Hare & Borchardt, 1984). Other studies showed that teaching only declarative and procedural knowledge was even effective for students' reading development (Hansen & Pearson, 1983; Patching, Kameenui, Carnine, Gersten, & Colvin, 1983). In addition, studies conducted by Adams, Camine and Gersten (1982) and by Hare and Borchardt (1984) illustrated the advantages of teaching the importance of evaluating reading performance to the students, which is another part of conditional knowledge.

Hare and Borchardt (1984) showed that learners who were systematically trained utilizing different metacognitive reading strategies developed reading comprehension. Further, they found that all studies focusing on explicit teaching of metacognitive strategies positively impacted the students' reading comprehension skills. Similar to the findings of all studies above, Boulware-Gooden, Carreker, Thornhill, and Joshi (2007) demonstrated the effectiveness of teaching metacognitive reading strategies to third graders in the United States. In their study, strategies such as selfquestioning, summarizing, clarification, identifying main ideas, and inferring, were taught. After the five-week intervention, the results of a post-test illustrated that students who received an explicit instruction showed a forty percent increase in vocabulary over students in the comparison group. In addition, the reading comprehension achievement among the participants in the intervention group indicated a twenty-percent gain in reading comprehension compared to another control group. These findings are supported by other researchers who show the positive relationship between teaching metacognitive reading strategies and students' reading proficiency (Anderson, 2008; Cummins, Stewart, & Block, 2005; Lubliner & Smetana, 2005; Pressley, 2002; Pressley & Gaskins, 2006).

Still other studies examined how learners would use metacognitive strategies differently for two specific types of reading: reading for study versus reading for entertainment (Lorch, Lorch, & Klusewitz, 1993; Mokhtari & Reichard, 2008; Narvaez, Van den Broek, & Ruiz, 1999; Van den Broek, Lorch, Linderholm, & Gustafson, 2001). Studies conducted by both Lorch, Lorch, and Klusewitz (1993) and by Narvaez, Van den Broek, and Ruiz (1999) concluded that students used more metacognitive strategies during reading for academic purposes, such as examinations and assignments, than reading for fun or entertainment. In the study of Lorch, Lorch, and Klusewitz (1993), post-secondary students read for academic reading more slowly and less enjoyably than non-academic reading. The participants were more engaged in various reading strategies, including re-reading, thinking, and focusing on key information during reading school materials than during reading non-school related materials. More frequent use of metacognitive strategies was also found in academic reading than in non-academic reading in the study of Narvaez, van den Broek, and Ruiz (1999).

Mokhtari and Reichard (2008) used the Metacognitive Awareness of Reading Strategies Inventory (MARSI) to see any differences between reading for study and for fun among 11th -grade students. The results of study conducted by Mokhtari and Reichard (2008) were similar to the findings of Lorch, Lorch, and Klusewitz (1993) and of Narvaez, van den Broek, and Ruiz (1999). The students reported using metacognitive strategies more frequently in academic reading than in entertainment reading. More specifically, the participants used Global Reading Strategies (GLOB), such as setting goals for reading, and Support Strategies (SUP), such as reading text aloud, for academic purposes more frequently than for entertainment purposes. However, there was no significant difference between academic and nonacademic reading with the Problem Solving Strategies (PROB), including inferring vocabulary.

Furthermore, gender or students' reading levels did not relate to the use of metacognitive strategies for different reading purposes. This work is significant in that it examines the types of reading strategies employed, giving more information about the strategies employed and when. Unlike the results of previous studies which examined relationships between academic reading and strategy use as compared to non-academic reading and strategy use, van den Broek, Lorch, Linderholm, and Gustafson (2001) analyzed the data using more variables including metacognitive strategies (e.g., inferences, associations, and monitor) and memory (e.g., text recall). For example, they found college students who read for fun demonstrated a higher frequency in monitoring than did the students who read for academic goals. Moreover, the students who read for enjoyment indicated more connection to personal lives than did the participants who read for study. Yet, it should be noted that van den Broek, Lorch, Linderholm, and Gustafson (2001) found that the students who read for academic reasons used explanatory and predictive inferences more often than did the students who read for non-academic reasons (as did Lorch, Lorch, and Klusewitz). Students reading for academic purposes also engaged in paraphrasing and repetition in order to understand the content of the passage and the intention of the author more often than did those reading for enjoyment. The study of van den Broek, Lorch, Linderholm, and Gustafson (2001) also revealed that the readers with a study purpose had a better memory for the content of the expository text.

All four studies in previous sections focused on the use of metacognitive reading strategies with different purposes (academic and non-academic reading). The studies can be associated with the statement of Rosenblatt (1978) who was an advocator of aesthetic and efferent reading stances. Rosenblatt argued that various goals of reading influence participants' reading engagements (Alexander & Fox, 2004), and the studies described in this part demonstrated the impact of certain goals on readers' strategy use.

In addition to researching purpose for reading as a key factor of reading metacognition as described above, the concept of self-regulation has been examined (Hacker, 1998; Pintrich, Wolters, & Baxter, 2000; Schreiber, 2005; Wolters, 2003). Pintrich defines self-regulation as "active, goal-directed self-control of behavior, motivation, and cognition for academic tasks by an individual student" (1995, p.5). Self-regulated learning is monitoring one's comprehension and evaluating abilities on his/her own. Students who use self-regulated strategies are most likely to succeed in academic performance (Pintrich & Zusho, 2002). Hartman (1994) implied that self-regulation of comprehension was strongly related to the interpretation of text, which was later supported by the studies of Schreiber (2005) and of Zimmerman and Schunk (2003). In Hartmen's study, 8 reading-proficient high school students read five passages silently, reported back with a think-aloud task, and answered 23 reading comprehension questions.

The results indicated that these participants monitored, controlled, and evaluated the process of reading (Hacker, 2004). Moreover, Isaacson and Fujita (2006) conducted a study to see relationships between metacognitive knowledge monitoring and self regulated learning among 84 undergraduate students in the United States. The study revealed that academically successful students were able to identify abilities in academic performance and demonstrated metacognitive awareness and strategies more than were less successful students. The study implied that more metacognitive awareness and use of the strategies lead to academic achievement. Westby (2004) stated that expert readers tend to use various metacognitive strategies in reading, such as guessing, identifying main ideas, and focusing on text structures, than do novice readers.

With debating the developmental differences in metacognitive strategies, Piaget (1955) pointed out that age relates to children's cognitive

developmental stages. Many scholars argue that the older learners are and the more proficient readers are, the more essential metacognitive strategies are for reading comprehension (Baker, 2005,2008a, 2008b; Baker & Brown, 1984; Garner, 1982; Israel, 2007; McCormick, 2003; Mokhtari, Reichard, & Sheorey, 2008; Oakhill & Cain, 2006; Peverly, Brobst, & Morris, 2002; Pressley & Afflerbach, 1995; Pressley & Gaskins, 2006). For example, Myers and Paris (1978) asked questions about metacognitive awareness, tasks, purposes, and strategies in reading to 2nd and 6th grade students. They found that older students were able to identify reading strategies and also to use multiple strategies, including using a dictionary and rereading. On the other hand, younger students were not aware of reading strategies and focused on more local or bottom-up strategies, such as decoding, rather than global or top-down strategies. Block and Israel (2004) agreed with the findings of Myers and Paris, showing that struggling readers use less metacognitive strategies.

Studies on non-native English speaking learners.

With a general understanding of the impact of metacognitive strategies in reading for native English speakers, a review of the literature shows a shift to similar research focusing on metacognitive strategies for nonnative English speaking students. Researchers seek to understand metacognitive awareness and use of reading strategies among non-native English speaking readers as compared to native English speaking learners (Block, 1992; Garcia, Jimenez, & Pearson, 1998; Jimenez, Garcia, & Pearson, 1995, 1996; Mokhtari & Reichard, 2004; Pardon & Waxman, 1988; Sheorey & Mokhtari, 2008b). Studies show that both native and nonnative English speaking readers demonstrated metacognitive awareness and used a variety of reading strategies (Garcia, Jimenez, & Pearson, 1998; Jimenez, Garcia, & Pearson, 1995, 1996; Mokhtari & Reichard, 2004; Sheorey & Mokhtari, 2008b). Further, they show that readers, whether in a first language or a second/foreign language, employ different reading strategies and are aware of those reading techniques. A more in-depth examination, however, shows some differences between the two groups in specific reading strategies.

In Sheorey and Mokhtari's (2008b) study, there were 150 native English-speaking students and 152 English as Second Language (ESL) students. The participants completed the earlier version of the Survey of Reading Strategies (SORS) inventory developed by Sheorey and Mokhtari (2001) which includes 28 items about perceived academic reading strategy use and metacognitive awareness. Both groups of native English speakers and of ESL students reported relatively similar frequency of use of Global Reading Strategies (GLOB) and Problem Solving Strategies (PROB). However, use of Support Reading Strategies (SUP) was significantly different between the two groups. The ESL readers depended on the Support Reading Strategies more frequently than did the native English readers.

Mokhtari and Reichard (2004) examined metacognitive awareness and engagement of reading strategies while reading in English for school-related materials. The study involved 141 native English-speaking college students in the United States and 209 non-native English learning college students in Morocco. All students were considered as proficient readers in English. The Metacognitive Awareness of Reading Strategies Inventory (MARSI) was used to compare significances between the two groups. The study revealed that both groups showed a moderate to high level of strategy use and metacognitive awareness while reading in English for academic purposes.

Additionally, the Moroccan students' mean scores of the total, Global Reading Strategies (GLOB), Problem Solving Strategies (PROB), and Support Reading Strategies (SUP) on the MARSI were higher than the US students' mean scores of all four categories. The finding indicated that Moroccan students tended to be engaged in reading strategies more frequently than did the native English speakers when reading in English.

In 1998, Garcia, Jimenez, and Pearson summarized two studies they previously conducted (Jimenez, Garcia, & Pearson, 1995, 1996). In the studies, Jimenez, Garcia, and Pearson compared proficient bilingual Spanish and English students to successful monolingual English students. All students read one fiction and two non-fiction English passages. Additionally, bilingual students read two fiction and two non-fiction passages in Spanish. Thinkaloud, interviews, background knowledge assessment, and passage retellings were used to understand the students' reading experiences and metacognitive awareness while reading. The study illustrated that readers in both groups of monolingual and bilingual students used Global Reading Strategies (GLOB), such as using prior knowledge and inferring from contexts, and Support Reading Strategies (SUP), such as drawing conclusions. However, from the analysis of the overall performance, the Spanish-English speakers monitored for reading comprehension more often than did the native English speakers.

Furthermore, Sheorey and Mokhtari (2008b) and Jimenez, Garcia, and Pearson (1995, 1996) examined metacognitive awareness and use of reading strategies based upon students' English proficiencies. Higher proficient readers in both groups of native English speaking and of ESL students were aware of and deployed metacognitive reading strategies, including Global Reading Strategies (GLOB), Problem Solving Strategies (PROB), and Support Reading Strategies (SUP), while lower proficient readers in both groups appeared not to be aware of or use the different reading strategies (Sheorey & Mokhtari, 2008b).

Jimenez, Garcia, and Pearson (1995, 1996) also compared successful bilingual Spanish and English students to struggling bilingual learners.

Similar to the findings of Sheorey and Mokhtari (2008b), Jimenez, Garcia, and Pearson (1995, 1996) found that the struggling bilingual students did not use different metacognitive strategies that were used by the successful bilingual students. While successful bilingual readers used strategies such as monitoring comprehension, using background knowledge, asking questions, using context clues, inferring from contexts to understand the messages of a text, and translating across languages, struggling bilingual readers did not use these strategies.

In addition, upon encountering difficulty in understanding the content or unknown vocabulary in English during reading, low-performing bilingual readers did not try to change the previous interpretation even when they knew the interpretation was not appropriate (Jimenez, Garcia, & Pearson, 1996). This was also found in the study of Block (1992). The findings imply that the struggling learners could identity problems, such as monitoring, but they were unable to solve the problems because of the unfamiliarity of what to do with the problems. This implication coincides with Baker's (2005) argument in that evaluation and regulation for comprehension are different processes (Hudson, 2007). In other words, successful readers can identify and apply different useful strategies (Mohamed, Chew, & Kabilan, 2006), whereas less successful readers are struggling in utilizing effective strategies (Jimenez, 2000; Riches & Genesee, 2006).

Other studies (Upton, 1997; Zhang, 2001) supported the argument that expert readers tend to use more reading strategies than do novice readers. This is similar to the findings of Jimenez, Garcia, and Pearson (1995,1996) and of Sheorey and Mokhtari (2008b). Upton (1997) focused on the differences of English reading processes and perspectives between less advanced and advanced Japanese learners from ages 20 to 36 years old who were learning English in the United States. From the analysis of the think

aloud protocol and the interview, the findings illustrated that less advanced students used fewer metacognitive strategies than did the advanced learners. Similarly, Zhang (2001) conducted a study to explore metacognitive knowledge and use of reading strategies among higher and lower reading proficiencies of Chinese college students learning English in China. Among 312 participants, 5 high and 5 low reading proficient students were selected for interviews. After the interviews, Zhang (2001) found that the advanced readers used different reading strategies more often than did the less advanced readers. Not only did the studies demonstrate more frequent use of reading strategies among successful readers than among struggling readers, the studies also showed different characteristics of reading strategies among the two groups (Upton, 1997; Zhang, 2001). The higher proficient readers depended on global or top-down strategies. For example, the successful readers captured the whole picture of the passage, made inferences from prior knowledge and from contexts, monitored for comprehension, and skimmed for main ideas. By contrast, the lower proficient readers were more likely to use the local or bottom-up strategies. The readers focused on lexical resources (e.g., dictionary) and grammatical structure, and performed less monitoring for comprehension, less inferences from context, and less skimming for main ideas. English reading involves two languages for non-native English speaking students. Scholars examined how such learners with different levels of English proficient learners used English and a native language. From the examination of reading experiences and awareness of struggling bilingual students, Jimenez, Garcia, and Pearson (1995, 1996) found that the struggling students did not effectively use the first language, Spanish, as a means to help reading understanding in the second language, English, and possessed less prior knowledge from literacy experiences in the first language. On the other hand, more proficient bilingual readers viewed the Spanish language as a useful resource for better understanding English passages.

The Implication of Metacognitive Strategies in a Reading Class

The English learning environment has a great difference between L1 and L2. In the aspect of linguistic knowledge, L2 readers are apparently more deficient than L1 readers; even in the cultural background knowledge, they are also obviously more insufficient than L1 readers. Many studies have shown that effective reading strategies instruction benefits reading comprehension, and L1 reading strategies can also be transferred to L2 reading comprehension (Robb, 1995; Anderson, 1999). Training students to use effective English reading strategies is an aid of developing their strategic reading skills. Scheid (1993) suggested six directions for helping students develop metacognitive reading skills: activating prior knowledge to help comprehend the text, constructing mental images to help remember the text material, asking and answering questions about the text, summarizing the content to help remember the text, evaluating the adequacy of their reading efforts, understanding the form and organizational patterns of various literacy genres to help anticipate the contents and aid comprehension.

Blakey and Spence (1990) proposed the basic metacognitive strategies for connecting new information to former knowledge: selecting thinking strategies deliberately, planning, monitoring, and evaluating the thinking process. Sheid (1993) suggested six strategies for directive instruction of metacognition which might be helpful to solve problems successfully through life and to increase learning achievements in all academic fields : (1) Identifying "What you know" and "What you don't know". As students see the topic, they will verify, clarify, and expand, or replace with more accurate information (background knowledge about the text), each of their initial
statements. (2) Talking about thinking. Teachers' thinking aloud helps students establish thinking process. Modeling and discussion develop the vocabulary students need for thinking and talking about their own thinking. Labeling thinking processes is also important for students to recognize their thinking skills. Paired problem-solving strategy is useful for thinking aloud. A student talks about his/her thinking process and problem-solving process. His partner listens and asks questions to help clarify thinking. (3) Keeping a thinking journal. Students reflect their thinking in a diary, make notes of their awareness of ambiguities and inconsistencies and comment on how they have dealt with difficulties. (4) Planning and self-regulation. Planning, estimating time requirements, organizing materials, and scheduling procedures necessary to complete an activity, set up criteria for evaluation of thinking and asking questions. (5) Debriefing the thinking process.

A three-step method is useful: a) First, the teacher guides students to review the activity and gather data on thinking processes and feelings. b) The group classified related ideas, identifying thinking strategies used. c) Finally, they evaluate their success, discarding inappropriate strategies, identifying those valuable for future use, and seeking promising alternative approaches. (6) Self-evaluation. Guided self-evaluation experiences can be introduced through individual conferences and checklists focusing on thinking processes. As students recognize that learning activities in different disciplines are similar, they will begin to transfer learning strategies to new situation. Each new problem situation is in some ways unique, requiring creative application of strategies for posing, solving, and resolving the problem at hand. In particular, to emphasize the awareness of one's own problem-solving strategies, often called metacognition, that is, metacognition is to be aware of and to understand one's self as a thinker, metacognitive awareness is uniquely developed in students. In reading, even college students are unaware of how they can approach texts and plan their studying or work through problems that have stumped them (Ormrod, 2000). Teachers can provide them with strategies of thinking with metacognitive activities to cultivate their metacognitive skills or to improve their learning abilities in the classroom. The more students know about effective learning strategies, the greater their metacognitive awareness and the higher their academic performance will be. Creating the metacognitive environment for learning metacognitive strategies, teacher-modeling instruction, monitoring, and applying their knowledge is important to assist students in making sense of their own thinking. Metacognitive strategies are essential for the twenty-first century because students need to cope with the changing and challenging environment, or new situations. Metacognitive strategies and environment can cultivate successful problem-solvers and lifelong learners (Blakey and Spence, 1990).

Hopkins (1993) described how to incorporate Schmitt and comprehension strategies into basal reading instruction to promote metacognition before, during, and after reading. Metacognitive strategies can be used at three stages of reading classes: (1) Pre-reading phase-- Previewing the text along with a class discussion will help to activate prior knowledge. Steps for previewing: a) Think about what one already knows about the topic; b) Read the introductory sentence or paragraph; c) Look at all the pictures, graphs, and charts. Read the captions; d) Read all headings and sub-headings; e) Read the chapter review or summary as well as the review questions; f) Use prior knowledge to predict and ask questions about what is to be read; g) Clarify the purpose for reading and select effective reading strategies; 2) While-reading phase--Monitor the reading comprehension, construct mental map, image about important information, pose and attempt to answer questions, revise predictions, assess one's attitude toward the task, make adjustment to increase understanding; 3) Post-reading phase--Trigger reflection on the reading material. If reflection shows problems, fix-up strategies may be selected for comprehension such as rereading, guess, words in context, recall of key ideas, and details to summarize the text.

Tei and Stewart (1985) divide metacognitive strategies into two categories: fix-up strategies to resolve comprehension failures and studying strategies to enhance storage and retrieval when comprehension failure is not necessarily an issue. Students guide their learning by monitoring their learning and employing appropriate "fix-up" strategies such as forming a mental rereading, adjusting the rate of reading, searching the text to identify unknown words, and predicting meaning that lies ahead. For reading comprehension, for example, when ESL/EFL readers encounter unfamiliar words, they may use word analysis, prefix, suffix, and root words. If the strategy can not work, they may transfer to the strategy of guessing words from the context or the strategy of synonym or antonym. Readers should evaluate strategy use during the reading process at any time according to the structure, syntax, logic, and background knowledge of a text. Learners attempt to identify, evaluate, and elect learning goals and strategies. Common studying strategies include underlining, outlining, note-taking, summarizing, thinking aloud, and self-questioning for forming reading metacognition. Many of these strategies are complex and best handled by older and more experienced readers (Gertz, 1994; Langer & Neal, 1987).

Anderson (2002) indicated that according to a child's cognitive development, the frontal lobes of the brain are most heavily involved with the reasoning and logic used in metacognitive activity. These areas of the brain are not fully developed until the early twenties. Carefully scaffolded metacognitive activities--teacher-modeling activities—can improve thinking and learning of the younger learner earlier than twenty years. Because college students have already possessed reasoning and logic abilities, they can

develop their metacognitive skills by teacher-modeling activities accordingly. Recent studies of the brain focus on memory and recall. The more pathways are created by students who encounter new situations, the easier they are to access the memory. Anderson (2002) proposed five primary components in the model of metacognition: (1) Preparing and planning for learning; (2) Selecting and using learning strategies; (3) Monitoring strategy use; (4) Orchestrating various strategies; (5) Evaluating strategy use and learning. The clearer the goal is, the easier it is for the readers to measure their progress. Metacognitive instruction provides students with a variety of reading strategies according to students' differences and different situations. Good readers can dominate effective reading strategies as well as coordinate, organize, and combine the various strategies available. Strong metacognitive skills empower ESL/EFL readers (Anderson, 2002). Automatic grasp of basic skills and effective metacognitive skills enable self-directed learning. Metacognitive training can unlock the students' potential and empower them to be successful readers in all subjects and disciplines and in a variety of reading tasks and situations.

Essential Metacognitive Strategies Used in EFL Teaching

Metacognition plays a vital role in reading comprehension (Brown, A. L. et al., 1986). According to Baker and Brown (1984), the learners' inefficiencies of reading comprehension could be caused by the lack of knowledge and strategy use. These deficiencies could be compensated for and improved through proper metacognitive strategy instruction. Thus, through metacognitive strategies training and/or instruction, learners' prior knowledge and creative thinking can be activated and organized. Metacognitive strategies can also help learners with predicting, skimming, asking questions, problem-solving, and monitoring their self-regulation. They are mainly

aiming to foster and promote learners' long-term positive learning. There are several comprehension strategies in metacognition like prediction/prior knowledge, think-alouds. summarization, text structure. questions/questioning, semantic mapping, and visual image strategies. In this study, the researcher introduces three strategies: think-alouds, text structure, and summarization, which Taiwanese students have seldom put to use in their instructional background. The researcher also explores whether the three strategies can enhance students' improvement in reading comprehension. If students learn to develop metacognitive strategies tacitly, they can respond to and participate in instruction constructively, rather than just sitting there, not fully understanding the activities provided in the classroom setting (Oxford& Rebecca L., 1990).

1. Think-Alouds

Think-Alouds have been utilized as a means of studying the cognitive processes that readers and writers use to grasp meanings (Olshavsky, 1977). It has been recognized as one of the best models to help students stay focused and comprehend meaning easily while they are reading. For example, when reading one sentence or one paragraph, the teacher might stop and take a few minutes to articulate the details to the class and ask questions when students encounter difficult or confusing content. Davey (1983) proposes five aspects of skilled readers' thinking that poor readers frequently fail to adapt to a meaning comprehension. These aspects are making predictions about the text, visualizing the information image that is described in text, linking new information to their prior knowledge, monitoring their confusion over a difficult text, and self-correcting a difficult section through rereading and see if the information that comes next will clarify their confusion.

2. Text Structure

The text structure strategy is designed to help students recognize either narrative type or expository text structures to better understand the content of basal reading and literature anthologies, and recall the informational-type texts (Nuttall, 1996). It has been viewed as a valuable reading strategy to perceive the organization of text materials (Nuttall, 1996). For example, knowing how to form a logical structure in a text can help students get key concepts bound together to understand and remember the material better than just seeing the text as a series of isolated ideas. A number of research studies have provided empirical evidence that readers' background knowledge and experience with textual organization can affect reading comprehension (Carrell, 1985). Students with knowledgeable text structure have an advantage in reading comprehension over readers who are not aware of the text organization. There are two types of text structures: (1) narrative, or story-type, (2) expository, or information-type. The narrative type texts consistently contain structure like setting, initiating event, internal response, attempt, consequence, and reaction. The expository type texts contain a variety of structures (Nuttall, 1996). According to Meyer and Rice (1982), there are five different types of expository text structures: (1) description, (2) collection, (3) causation, (4) problem/solution, and (5) comparison. In this study, the researcher introduces three types of expository structures that mostly encountered by students in school: causation, problem/solution, and comparison.

3. Summarization

Summarization is one among many effective comprehension strategies in reading to enhance students' comprehension and memory of the most important part of information from the content material. According to Kern (1989), a summary is needed to capture the meaning of a piece of information as well as reduce the amount of unimportant material.

Baumann (1984) investigated the effectiveness of a direct instruction model for teaching students to identify main ideas both explicitly and implicitly stated in paragraphs and in short passages. The study includes 66 sixth-grade students with high, middle, and low achievement levels, who were randomly recruited to participate in the study. Both experimental groups and the control group received eight lessons of 30 minutes each. The strategy group content lessons consisted of hierarchical main idea skills enabling students to find explicit (topic sentences) and implicit (no topic sentences, but a dominant relationship can be inferred from subordinate topics) main ideas in paragraphs and in short passages. The basal group received more traditional instruction in main idea comprehension in order to compare the performance with the strategy group. The control group received lessons with vocabulary meaning development only. The results indicated that the treatment effect favored the strategy group over both the basal and control groups. In addition, the strategy group taught through direct instruction principles significantly outperformed the basal group students on the dependent measures.

Summary

Metacognitive strategies in a reading context have played a prominent role in successful learning. It refers to a person's awareness of cognitive processes and states such as memory, attention, knowledge, guessing and illusion (Block, 1992; Garcia, Jimenez, & Pearson, 1998; Jimenez, Garcia, & Pearson, 1995, 1996; Mokhtari & Reichard, 2004; Pardon & Waxman, 1988; Sheorey & Mokhtari, 2008b). There are several important comprehension strategies in metacognition. The researcher introduces three of these strategies: think-alouds, text structure, and summarization, which are the critical strategies that Taiwanese students have seldom used in their instructional background, and explores if the three strategies can enhance Taiwanese students' improvement in reading comprehension. In the literature review. the researcher articulates some significant researches for implementing metacognitive strategies in ESL/EFL learning. Carrell (1985) conducted, over a period of one-week, five one-hour training sessions using the text structure to explore if a particular pedagogical practice can yield a positive outcome on expository texts reading comprehension. Salataci & Akyel (2002) used think-aloud protocols to evaluate Turkish EFL students' reading instruction. Baumann (1984) investigated the effectiveness of a direct instruction model for teaching students to identify main ideas in the paragraphs and the short passages. The results for these researches all showed that strategy training on either ESL or EFL had a positive outcome on students' reading comprehension performance (Anderson, 2002).

Metacognitive strategies play an important role in students' successful learning in both the first language and ESL/EFL learning. However, the research literature the researcher has been reviewing and the research questions posted in these studies have not been satisfactory, especially for EFL learning. Thus, there was a need for the researcher to conduct a study to explore the questions whether the metacognitive strategies can affect Taiwanese students' achievement in English reading comprehension. With the aim of evaluating metacognitive strategies can increase students' reading abilities.

Theory about Technology and CALL = OF

A Background of CALL

The origin of using computers for L2 learning was initially represented by the addition to work done in audiovisual language labs. Hence, Adams, Morrison, and Reedy (1968) stated that CAI has the potential in its capability both to supervise student performance and to monitor, record, analyze, and summarize data about that performance.

Early CAI programs were delivered through central computer systems such as PLATO (Programmed Logic for Automatic Teaching Operations). The activities utilized on this program were stereotypical of the time period, for example, the program would provide the students with a question, which the student would answer and the computer would provide feedback or help until the student could correctly answer the question (Curtin, C., Clayton, D., & Finch, C., 1972). CAI and CALL share many of the same negative factors. In research published by Olsen (1980) a series of issues were identified that explicitly noted why some academic departments would be discouraged from integrating CAI into their curriculum. These issues included: the high cost of technology, the lack of technological support both for students and teachers, and the negative attitude of many teachers toward the use of CAI in the L2 curriculum (Olsen, S., 1980). This dissatisfaction with CAI programs is what created the need for further advancement and research. This lead researchers to look for alternatives and hence the development of what is now CALL was created. One of the greatest needs of CALL was the development of intelligent computer language programs. Intelligent CALL requires the computer to mimic the highly contextualized feedback that can be provided by humans. These CALL programs are different than other CALL programs because they use a Natural Language Processor (Salaberry, R., 2000). This processor has the ability to analyze student responses and compare them to target language aspects and identify areas of need within the student. These programs are very much like what a language teacher would do, but ultimately the computer can only attempt to imitate a human response. New technologies, such as radio, television, VCR, DVD, and computers have

dramatically changed the context of human interactions (Salaberry, R., 2000). People no longer must rely on direct communicational exchanges with other people; rather, they now have the ability to access sound files, movies, blogs, and websites at their convenience. In this new context, communication can be defined as an exchange of information with the assistance of a technological medium. What is not clear about this change is the effectiveness of this form of communication as it pertains to the pedagogical aspects of second language learning, as well as learning itself. Many researchers advocate using technology within the education system and one such researcher is Lindenau. Lindenau (1984) advocated that a blackboard and textbook system of education in the age of microelectronics will inevitably promote detrimental and far-reaching consequences. This recommendation of taking advantage of new technological tools for pedagogical pursuits is a concept that has been a much discussed educational topic for some time. Research pertaining to the advantages of audio-related technology for the purpose of language learning began as early as the 1930s. An important early study was conducted by Bolinger (1934). Bolinger studied the delivery of instruction through distance learning, and specifically the use of Spanish on the radio in the Mid-Western United States. His study showed the benefits for students located in rural towns to be assisted in language learning via the radio.

A definite benefit of the radio for second language learning was the ability to provide a classroom with a wealth of knowledge from around the world (Garfinkel, 1972). Broadcasts from different countries' media were able to be used, which allowed students to report orally or write portions of the newscasts for classroom work (Salaberry, 2000). Wipf (1984) argued for the positives of shortwave broadcasts for pedagogical uses. He provided a list of 13 major benefits of these broadcasts. The benefits included, "access to an extended range of L2 expressions and a variety of dialects, contextualized

teaching of grammar, listening to the target language spoken at normal speed, increased motivation by listening to original broadcasts, and development of an international perspective on topics selected for classroom discussion, as well as increased levels of independent learning" (p. 9-11).

Significant research has been conducted in the area of video related technology, the classroom, and second language learning as well. Video allows for an inexpensive and resourceful educational tool. An example of this would be the research conducted by Swaffar and Vlatten (1997). Swaffar and Vlatten suggested the execution of video-based activities in a series of stages. These stages can be summarized by initially allowing the students to silently view the video to not only identify the storyline, but also cultural aspects. After this, the students should be encouraged to verbalize what they saw and heard in comparison with other students to check for differences in meaning. The final stage recommended is to allow the students to role play and provide in-depth conversation about topics identified in the video (Swaffer, J. & Vlatten, A., 1997).

Lee (2000) further mentioned numerous reasons why computer technology should be used in second language instruction. CALL can (a) provide students with experiential learning practice, (b) motivate students to learn, (c) potentially increase student academic achievement, (d) increase available authentic materials, (e) encourage interaction between instructors and students and students and peers, (f) place emphasis on individual goals, (g) allow students to use multiple sources for information, and (h) create a sense of global understanding. Traditional higher education language learning has involved the use of lectures, during which language concepts are explained to students by the instructor. Additionally, seminars or study sessions are provided to handle issues and questions from the lecture as well as provide an additional outlet for students to discuss language topics under the guidance of a seminar tutor. A major disadvantage of this style of classes is that it can be considered a passive approach to learn (O'Donaill& MacCoinnigh, 2006). This approach is regarded as learning which does not actively engage the learner. Lectures and seminars often encourage a passive approach to learning because students can potentially opt out of the course even though they may still be attending. In contrast to this, technology based learning theories often suggest that learning is an active process by which the learner builds new knowledge based on personal judgments and selforganized input (Baumgartner, Lee, Birden, & Flowers, 2003; Walker, 2003).

In separate research conducted by Ellis (1995) and Sternberg (1987) acknowledgment was given in the ability of second language learners to initially learn a few thousand lexical items based on their high rate of incidence in the language and the student's constant interaction with these words. This is a positive statement for those students who are able to interact on a frequent basis with the second language. In contrast, what happens to those second language students who are unable to have this regular interaction? Technology is one way to help bridge the resource gap. Students of modern Indo-European languages and other popular Asiatic languages have as their advantage the option to choose from readily available materials. These materials in part consist of private and public classes offered in higher educational settings, as well as textbooks, audio tapes, videos, and computer programs. In O'Donaill and MacCoinnigh (2006) the use of CALL in helping students learn Irish was researched. Their research incorporated the use of CALL because of the lack of availability of natural and incidental acquisition of Irish in everyday life. On account of Irish's low frequency in everyday language, incorporating the use of CALL seemed a probable option. According to the study, the results of incorporating CALL into the learning of a less readily available language were that by presenting the information in an

audiovisual manner, not only was the initial encounter more memorable but students were also provided with an instant pronunciation guide. This interactive aspect of learning allowed the students to concentrate on early learning of new words and phrases. The blended approach of using traditional vocabulary language learning in the classroom, as well as CALL, has been shown to be not only desirable but also highly effective, as is the case in O'Donaill and MacCoinnigh (2006). An explanation of this can be deduced from the concept that students need to engage in the language in a written form in order to help assist in the long term use and retention. Advantages and Disadvantages of CALL As with many educational tools, researchers are able to find advantages and disadvantages with CALL. Research findings have shown that the use of CALL has positive effects on the achievement levels of ESL students. At the same time, CALL still has noteworthy limits and disadvantages, such as financial aspects, participant isolation, and technology knowledge requirements (Lai, C., & Kritsonis, W. A., 2006). A considerable disadvantage of CALL is the initial cost. Computers, various programs, accessories such as microphones, and copy rights can place a financial burden on educational facilities. But, once these initial costs have been incurred, computer technology is considerably lower than traditional classroom instruction. Additionally, when CALL is used a scaffolding technique, students are able to work independently. This creates an opportunity for the students to play interactive learning games, repeat lessons as often as necessary, and potentially relieve the stress and anxiety of learning a second language. The classroom instructor is therefore allowed more time to concentrate on the areas of second languages which are still difficult to learn by the use of a computer. These areas generally include oral aspects such as spoken dialogue or formal presentation practice (Lai, C., & Kritsonis, W. A., 2006).

Occasionally, even the most obvious disadvantages are overlooked in adult education. Things that are as fundamental as basic literacy are often a priority in adult education. A great concern for many adult educators is that in order to use CALL in the classrooms, students must have a literacy level that will allow them to take advantage of the technology. Many public access and other important websites are written at a literacy level that some adult students will be unable to understand. The "Digital Divide" report released by the Children's Partnership in 2000 estimated that some 44 million American adults lack functional literacy skills (Children's Partnership, 2000). Additionally, many websites do not offer translations into other languages or any other potential form of assistance to non-English speakers. Both of these can create an unexpected negative downside to using technology to teach a second language. Instructors therefore need to be aware of the students they are teaching and address issues, such as illiteracy, as needed (Terrill, L., 2000).

A further look into the disadvantages of CALL reveals the distinct need for not only students, but also instructors to have a basic ability with computers. In order for instructors to be able to fully assist their students, they must have a thorough knowledge not only of the programs the students will use, but also how the computer itself will interact with these programs. Instructors need to be able to clarify, assist, and aid in technical problems that can occur. This disadvantage will require schools to provide educational training to their instructors (Terrill, L., 2000). Therefore, according to Roblyer (2003), the benefits of CALL are nonexistent for those students who are not familiar with computers. An additional disadvantage of CALL is the lack of sufficient language learning software programs. Many of these computer programs are still imperfect; the majority dealing primarily only with reading, listening, and writing. These are welcomed supplementary tools for language learning, but most language learners usually learn a language in hopes of being able to speak the language. Oral aspects of CALL have been increasing in the recent past, but many programs lack the ability to evaluate the appropriateness of a user's spoken input. According to Warschauer (1996) a program should ideally be able to, "diagnose a student's problems with pronunciation, syntax, or usage and then intelligently decide among a range of options." Not all students enjoy using CALL to learn a language. In Murday. et al, (2008) participants in their study specifically noted how aggravating this aspect of CALL was, especially for those students who had difficultly simply typing in the correct accent marks. Some participants even went as far as to complain about their disappointment over having to spend time resolving these technical issues rather than concentrating on learning the language. This created a sense of frustration and anger among the students. Ultimately, this means that since many students find CALL programs easy to initially use, if they are unhappy with certain CALL programs, the blame cannot be placed on technological difficulties. The blame must be placed rather on design aspects of the program itself that are insufficient and unhelpful. Imperfect language programs lead to the final major disadvantage of CALL: the lack of ability technology has to deal with unexpected and surprising situations. Anyone who has studied a second language would be able to share the endless variety of situations that can transpire when learning a language. The ability to have a living instructor in the classroom to assist with this is a clear and distinct advantage of traditional instruction. In part because of the limitations of computer's artificial intelligence, computer technology is unable to cope with various unplanned learning problems and questions that can arise from language learners. Since humans and computers still process information differently, this may continue to be a disadvantage for some time (Lai, C., & Kritsonis, W. A., 2006; Felix, U., 2005). SteppGreany (2002) found that most students considered the presence of their instructors to be an important aspect of the learning process. Additionally, these students agreed that the instructors help to facilitate instruction in CALL environments where the cultural knowledge, communication skills, and confidence in learning could be enhanced by having the instructors present. One of the main advantages of CALL programs is that they create the opportunity for autonomous learning. Students are able to learn when and how they want, as well as control the speed at which they are learning (Lasagabaster, D. & Sierra, J.M., 2003). Online communication allows for the chance at interaction with other human beings to be increased because there are no time or place conflicts, in contrast to the normal face-to face communication (Salaberry, R., 2000). Some experts claim that students may get easily discouraged when using CALL. Using unfamiliar or inadequate technology can foster situations of impatience. But, according to researcher Griesshaber (1998), not even in the situation of repeated mistakes are students discouraged when using CALL. In a survey conducted by Lasagabaster and Sierra (2003) students were asked questions concerning their computer usage in regards to four specific CALL programs (Tell Me More, English Express, CD English Tutor, and Interactive course in Acoustic Phonetics). Specifically, the questions related to how often they used computers, which of the programs they used, and why they choose these programs. The students also expressed their opinions about their level of satisfaction with each of the CALL programs and the activities elicited in each program. A significant finding revealed that most of the students were using CALL programs for listening, grammar, and vocabulary. In contrast to listening, grammar, and vocabulary, which are skills that do not require the learner to be engaged past selecting the correct response or fill-in-the-blank, speaking and pronunciation were used the least amount. Approximately 87% of the respondents listed

listening as an activity they did the most while using the software, while only 31% listed speaking (Lasagabaster, D. & Sierra, J.M., 2003). Possible conclusions to be drawn from this data include that either (1) students feel more comfortable using less engaging learning skills when using CALL, (2) CALL programs focus more on certain aspects than others, or (3) that speaking and pronunciation are two areas where CALL programs need to be greatly improved. Student attitude is another aspect to consider when using CALL in the classroom. Although evidence provided from studies can be limited and not always applicable to every situation, a study conducted by Church (1986) revealed that, "although we have no statistically reliable evidence that computer exercises necessarily result in higher grades, students nevertheless clearly believe that the exercises help improve their work" (p. 251). Many times this evidence is less than creditable due to problems with data collection, scoring, and analysis. As well as lack of control groups, difficulty in long-term studies and the lack of systematic analysis of empirical research questions can create validity issues with studies (Salaberry, R., 2000). But in general, there is substantial data that reveals overall student perceptions of CALL are positive (Felix, U., 2005; Son, J., 2007). There are many reasons why adult students specifically use CALL. According to research conducted by Rosen (1996) adult students use CALL for a wide range of purposes: "for learning (e.g. to improve reading and writing skills, or take a course); to access a wide variety of information (e.g. information about the weather, health, travel, other cultures, American news, and - in the case of ESL students – news from their native countries); for classes at school; for shopping; to communicate with friends, family members, other students, or key pals; for entertainment; for virtual travel; and for the sense of control and power one can feel when using a computer and the Internet." CALL helps to teach students valuable skills other than just language. Using technology can

also help facilitate literacy and general employability skills. One advantage of using the Internet in the classroom, is that it "levels the playing field" for nonnative English speakers. When students are able to access information online, resources are more equitable than they may find in the real world. Information about education, program assistance, and other needed topics are readily available online. Accessing websites uses language skills such as skimming and scanning for information, narrative reading, and understanding charts/graphs. By understanding technology, students will also have the ability to access specific (ESL, company, etc.) content based websites and use technology based writing skills like emails or memos. In addition, employability skills, such as analyzing and evaluating information, decision making, problem solving, and being able to correctly use technology, are also taught. Finally, using technology can help teach students' important literacy skills like understanding the importance of questioning, classifying, and analyzing what they read (Silc, K. F., 1998). While completing a survey of past computer based tracking research in CALL, Fischer (2007) noted that researchers have found that many students use software in unexpected ways. The consequences of these results show the need for learner autonomy within the CALL field. Learner autonomy can be defined in the context of this paper as the participant's need to control when and what they are learning. Yet, past findings have revealed that inexperienced and low ability students often make poor decisions when choosing what to learn (Fischer, R., 2007). Oxford (1995) created a list of five stages of language acquisition that can be used as an indication for when students are ready to obtain the highest level of return from their autonomous learning. These stages are: (a) novice, (b) advanced beginner, (c) competent, (d) proficient, and (e) expert. According to Oxford, only in the third stage (competent) can students make good, individualized decisions about their language learning. But, even at this level students can

still benefit from explicit teaching practices. Therefore, according to Oxford's levels, asking lower level students to successfully engage in autonomous learning may exceed their ability.

In short, the arguments for incorporating technology into ESL learning are significant. Technology allows the user to extend their learning beyond the classroom and provide for autonomous learning. Additionally, CALL allows the user to access new and pertinent information, which can assist in diminishing the division between English and non-English speaking populations.

Summary

While the origins of CALL may date back to the last century, computer assisted language learning has truly become mainstream in recent decades. When comparing CALL and traditional higher education classes, a clear distinction between the two is the style of learning students are engaged in. Traditional classes often only utilize a passive approach to learning, whereas CALL provides students the opportunity for direct, active learning. CALL has enabled language students to be self-directed in their learning, with the freedom to choose when, how, and what they study. Many of the opportunities provided to students, demonstrate genuine context, language based activities and materials in communicative and academic environments. Overall, while some students may not enjoy using technology to help them learn a language, there is substantial evidence that reveals student perceptions of CALL are positive (Felix, U. 2005; Son, J. 2007).

CHAPTER THREE

METHODOLOGY

Introduction

Chapter 3 begins with a description of the research design, research questions, and the justification for the design. The researcher outlines the research design, the population and sample, the sample size, and the study participants. The methodology section describes the instrumentation and materials.

This chapter presents the research method that was used to investigate the effectiveness of the multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life for the first year TNI students. This study measured comprehension achievement scores of TNI students compared to the students' English reading achievement before and after using the multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life for first year students, Thai-Nichi Institute of Technology, Bangkok and to survey the students' satisfaction toward the English Reading Instruction in 8 units.

Research Design

This study was to develop and experiment the multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life for the first year TNI students, Thai-Nichi Institute of Technology, Bangkok. It was quantitative research which had the steps of research processing as follows.

Research Population and Samplings

1. Population and samplings

1.1 Population was 780 first year TNI students, Thai-Nichi Institute of Technology, Bangkok in the second semester of 2010 academic year from 3 faculties; faculty of Engineering, faculty of Business Administration, and faculty of Information Technology.

1.2 Sampling was 81 first year TNI students in the second semester in 2010 academic year derived from stratified random sampling technique.

2. Variables

Variables in this study were as follows:

2.1 The ability in English reading of the first year TNI students before and after using multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life.

2.2 The Satisfaction of the first year TNI students towards multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life.

3. Research Instruments

3.1 Eight lessons of multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life for the first year TNI students, Thai-Nichi Institute of Technology, Bangkok.

3.2 An ability test to measure the reading ability of the subjects before and after using the multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life (30 items: 30 scores). The duration of the test was 1 hour.

3.3 Questionnaires constructed by researcher to measure for satisfaction on multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life for the first year TNI students, Thai-Nichi Institute of Technology, Bangkok.

4. Construction and Development of Research Instruments

The researcher developed multimedia CALL English reading instruction and then constructed the ability test in English reading before and after learning multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life as following principles.

Firstly, the researcher studied the objectives of multimedia CALL English reading instruction focused on English reading skill and strategies, especially in reading for main idea, reading for topic sentences, reading for pronoun reference, reading for fact and opinion, reading for sequencing events, reading for author's purposes, reading for inference, and reading for metacognitive reading. Secondly, the researcher derived eight topics from the survey of needs questionnaire and interview the participants about required topics from the first year TNI students. The topics are demonstrated as follows: Table 1: table of needs in required topics of TNI students

Rank	Торіс			Mean	S.D	Meaning
1	Five precepts			4.43	0.45	high needs
2	Buddha's birth			4.41	0.51	high needs
3	Buddha's enlighten	ment		4.31	0.56	high needs
4	Passing away of the	e Buddha		4.25	0.80	high needs
5	The four noble truth	18		4.22	0.59	high needs
6	Functions of parent	s a	ł	4.19	0.61	high needs
7	Functions of childre	en		4.12	0.79	high needs
8	The noble eightfold	l path		4.09	0.85	high needs

Thirdly, these eight topics were modified to suit with first year TNI students by giving the students vocabulary guidelines and meaning, simplifying structures of language, finding pictures, and applying the contents with English reading instruction. Then, table of content specification was designed by determining the objectives, contents, topics about morality and Buddha's life, reading skill, reading activities, and evaluation.

Lastly, the constructed table was examined to test IOC by experts and write the scripts of lesson plans for all 8 lessons. Each lesson plan was composed of learning objectives, topic and contents, reading activities consisted of Pre-reading activity, While-reading activity and Post-reading activity.

Pre-reading activity emphasized on presenting picture and answering the questions in order to lead the students to lessons and matching vocabulary with pictures. While-reading was categorized into 5 groups: True/False; Yes/No Question; Information gap; Matching; and Sequencing events.

Post- reading activity was divided into 4 types which were Semantic map, Spider map, Charts, and Information table.

Lesson test consisted of multiple choice tests, sequencing event, information gap and question answering.

Proficiency test

Proficiency test was used before and after multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life. The test was the same set which consisted of 30 items (30 scores). Time duration for the test was 60 minutes. The researcher determined the approach of the test as 1) to study the way of constructing proficiency test on multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life based on textbook, journal and related research as an outline to create the test, 2) to create table of test specification included the contents of reading skills to achieve the goals in each lesson, 3) to create one set of proficiency test in English reading followed the table of test specification. The researcher selected difficulty and discrimination of test (P-R value) derived from standard criteria which consisted of 30 items. Five experts examined corrected and improved accuracy, validity and reliability of language and contents of the test, 4) to select the test that had the difficulty between 0.20-0.80 and rank of discrimination at 0.20 or over. The calculation of the test reliability was used K-R 20 by Kuder-Richardson (Cited Boonriang Khajonsil 2000: 165). Then, proficiency test was used to sampling of the research.

The Satisfaction Questionnaire

The researcher created satisfaction questionnaire in order to investigate satisfaction towards multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life from sampling students as 1) to study the outline of constructing questionnaire both closed-end and opened-end based on Best (1981: 168-183). The questionnaire was separated into five rating scales as demonstrated by Likert (cited Best 1981: 181). The rating scales in questionnaire were

5	refers to	strongly agree
4	refers to	agree
3	refers to	moderate
2	refers to	disagree
1	refers to	strongly disagree

There were four components of satisfaction in multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life which were content, instructional design, teaching-learning activities and instructor. The data from the experts was applied with formula as follows.





The result of the scores under 0.5 from the experts had to be considered and improved. The data obtained from small group experiment was analyzed to find reliability by using α -Coefficient formula stated by Cronbach (1974: 161). Coefficient of reliability was 0.83

Data Collection

The process of try out

There were three phases of the data collection process on multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life for the first year TNI students, Thai-Nichi Institute of Technology, Bangkok.

Phase 1

To apply with one TNI student who was not included in sample in second semester, academic year 2010. The student had to study multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life and did the 30 multiple choice test items after that. In this phase, the researcher enabled to investigate behavior, listen to the student's point of view as well as question about the problems during tryout both 8 units and the ability test. The effectiveness of lessons was presented as following table.

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No.		I		ofea					total	%	Post test scores	%
	1	2	3	4	5	6	7	8				
Total	10	10	10	10	10	10	10	10	80	100	30	100
score				1	U	ī.	a a					
1	10	8	9	8	9	8	7	9	68	85	25	83.33
Percent	100	80	90	80	90	80	70	90	Ň			

Table 2: Table of scores from 8 lesson tests and ability posttest in one student

The result found that the student who involved in tryout process of multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life for the first year TNI students, Thai-Nichi Institute of Technology, Bangkok got 68 scores out of 80 from 8 lesson tests which was equal to 85%. For the posttest, the student got 25 scores out of 30 which equal to 83.33%. Hence, the effectiveness of multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life for the first year TNI students was equivalent to 85.00/83.33. The highest scores were from lesson 1 (100%). On the other hand, the lowest scores were from lesson 7 (70 %).

Phase 2

To apply with a small group of 9 students, the students had to study multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life and did the 30 multiple choice test items after that. In this phase, the researcher recorded the problems and suggestions in order to improve lessons to be more effective. The students had to do ability posttest which was the same set of ability pretest. The scores derived from each lesson and scores from ability posttest were calculated as 79.16/83.70. The result was considered as good level presented in the following table.

Table 3: Table of scores from 8 lesson tests and ability posttest in a small group

			- /							1 1 6		
No.	<i>u</i> ,									%	Posttest scores	%
			Score	es of e	each le	esson			total			
	1	2	3	4	-5	6	7 -	8 -				
1	9	10	8	9	10	9	8	10	73	73	28	93.33
2	8	9	8	7	7	7	8	9	63	63	25	83.33
3	6	8	8	7	6	7	7	8	57	57	26	86.66
4	8	8	8	8	7	5	6	8	58	58	25	83.33
5	9	8	8	9	8	7	9	7	65	65	25	83.33
6	10	8	8	9	8	10	10	25	72	72	27	90.00
7	9	9	8	7	9	8	9	8	67	67	23	76.66
8	6	9	7	7	8	6	7	8	58	58	26	86.66
9	10	9	9	8	10	8	9	10	73	73	27	90.00
Total	75	78	72	71	73	67	73	77	586		232	
Percent	83.33	86.66	80.00	78.88	81.11	74.44	81.11	85.55		81.38		85.92

It was found that these nine students were able to get 586 scores out of 720 (81.38 %) from lesson tests. For the posttest, the students got 232 scores out of 270 which equal to 85.92%. Hence, the effectiveness of multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life for the first year TNI students was equivalent to 81.38 /85.92. The highest scores were from lesson 2 (86.66%). On the other hand, the lowest scores were from lesson 6 (74.44 %).

Phase 3

To apply with sampling of 81 students, the students had to study multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life and did the 30 multiple choice test items after that. In this phase, the students had to do ability posttest which was the same set of ability pretest. The time duration was 60 minutes. The researcher, then, analyzed the scores to find out the lesson effectiveness.

The scores derived from each lesson and scores from ability posttest were calculated as 83.26/83.22. It was found that these 95 students were able to get 6,328 scores out of 7,600 (83.26 %) from lesson tests. For the posttest, the students got 2,372 scores out of 2,850 which equal to 83.22%. Hence, the effectiveness of multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life for the first year TNI students was equivalent to 83.26/83.22. The highest scores were from lesson 2 (81.00%). On the other hand, the lowest scores were from lesson 6 (70 %).

Statistic Used in Data Analysis

1. Analysis to find out lesson effectiveness by using E1/E2 formula followed 75/75 criteria.

2. Comparison the ability in English reading of sampling students between pretest and posttest by using t-test which was conveyed by SPSS/PC for window XP.

3. Data analysis from questionnaire both single item and whole questionnaire which presented a form of rating scale. These rating scales were calculated to find out mean and standard deviation and then translated based on criteria developed by Best (1981) as follows.

 $1.00 \le \bar{x} < 1.50$ refers students had the lowest satisfaction

 $1.50 \le \bar{x} < 2.50$ refers students had low satisfaction

 $2.50 \le \bar{x} < 3.50$ refers students had moderate satisfaction

 $3.50 \le \bar{x} < 4.50$ refers students had high satisfaction

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 $4.50 \le \bar{x} \le 5.00$ refers students had the highest satisfaction

CHAPTER FOUR

RESULTS OF THE DATA ANALYSIS

This chapter presented the results of the study on multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life for first year students, Thai-Nichi Institute of Technology, Bangkok and was divided into three phases as follows.

Phase 1: The result of data analysis for finding efficiency of multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life in order to determined criteria by experiment with 81 samplings. The processes of this phase were as follows:

1. The 30 samplings made lesson tests after learning of each unit in 8 units. Then, statistic used in data analysis consisted of mean (\bar{x}) , standard deviation (S.D), percentage and rank order of scores in each unit. The results presented as below table.

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Unit	Lesson name	Total	Mean	S.D.	%	Rank
		score	(x)			
1	Five precepts	10	8.40	0.81	84.07	7
2	Buddha's birth	10	8.66	0.64	86.66	4
3	Buddha's enlightenment	10	8.91	0.73	89.13	2
4	Passing away of the Buddha	10	8.61	0.63	86.17	6
5	The four noble truths	10	8.82	0.74	88.27	3
6	Functions of parents	10	8.33	0.84	83.33	8
7	Functions of children	10	8.64	0.79	86.41	5
8	The noble eightfold path	10	9.06	0.97	90.61	1

Table 4: The table of mean (\bar{x}) , standard deviation (S.D), percentage and rank order of scores in each unit

The 81 samplings made lesson tests after learning of each unit in 8 units. Then, statistics used in data analysis consisted of mean (\bar{x}), standard deviation (S.D), percentage and rank order of scores in each unit. The results found out that lesson tests of multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life used with the 81 samplings got a high mean score which was over 75% in each unit. The highest score came from unit 8, *the noble eightfold path* (90.61%). However, unit 6, *Functions of parents* (83.33%), got the lowest score.

2. The result of data analysis to find out efficiency of multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life for first year students was derived from the percentage of scores from each unit and the percentage of scores from posttest of the 81 samplings as described in following table.

				a	0 1	• /			T 1	D	<u> </u>
No. /		-		Scores o			-		Total	Posttest	%
	1	2	3	4	5	6	7	8	score	scores	
	10	10	10	10	10	10	10	10	of	(30)	
	10	10	10	10	10	10	10	10	each		
\$core									unit		
/									(80)	1.0	10.00
1	8	7	9	9	8	7	8	8	64	19	63.33
2	9	7	9	9	9	8	9	9	69	28	93.33
3	8	8	9	9	8	7	8	8	65	19	63.33
4	9	9	9	9	8	8	9	9	70	18	60
5	6	10	10	6	7	8	7	8	62	28	93.33
6	8	9	9	9	8	8	9	9	69	26	86.66
7	10	9	9	9	9	9	8	9	72	19	63.33
8	7	10	10	8	8	8	8	9	68	19	63.33
9	8	10	9	9	8	8	8	9	69	18	60
10	9	8	9	8	9	7	8	8	66	18	60
11	10	6	9	9	9	9	8	10	70	22	73.33
12	8	8	8	9	9	7	8	9	66	28	93.33
13	7	8	9	10	9	7	8	8	66	19	63.33
14	8	8	9	10	9	7	8	8	67	18	60
15	7	8	9	8	9	7	8	8	64	18	60
16	9	8	8	8	8	10	10	9	70	29	96.66
17	7	10	8	8	9	6	7	8	63	19	63.33
18	7	9	9	9	8	7	7	8	64	25	83.33
19	9	9	9	9	9	9	8	10	72	22	73.33
20	7	9	6	7	8	7	8	8	60	17	56.66
21	8	8	9	8	9	7	8	8	65	20	66.66
22	9	10	10	9	9	9	9	9	74	21	70
23	9	9	9	9	9	9	8	10	72	22	73.33
24	7	8	9	9	9	8	9	8	67	18	60
25	8	8	9	8	9	7	8	8	65	18	60
26	6	7	7	6	9	5	8	8	56	16	53.33
27	5	6	8	9	7	6	6	9	56	19	63.33
28	9	10	10	9	8	9	9	10	74	29	96.66
29	9	10	10	9	10	10	10	8	76	29	96.66
30	7	8	8	8	9	10	10	9	69	29	96.66
31	7	8	10	8	10	10	9	10	72	29	96.66
32	10	10	10	10	10	10	10	10	80	28	93.33
33	8	10	10	9	8	9	9	10	73	27	90
34	7	8	9	6	7	9	10	9	65	25	83.33
35	10	10	10	9	10	10	10	10	79	29	96.66
36	10	8	10	8	9	10	8	10	73	30	100
37	9	8	9	8	8	8	9	9	68	29	96.66
38	8	9	9	9	9	9	9	9	71	28	93.33
39	7	7	8	8	8	10	9	10	67	27	90
40	8	8	9	10	9	7	8	8	67	27	90
41	8	10	10	10	10	10	9	10	77	29	96.66
42	10	10	10	10	10	9	10	10	79	29	96.66
43	10	10	10	10	10	9	10	10	79	28	93.33
44	8	10	10	10	10	9	9	9	75	28	93.33

Table 5: Table of the percentage of scores from each unit and the percentage of scores from posttest of the 81 samplings

No. /				Scores o	f each u	nit			Total	Posttest	%
	1	2	3	4	5	6	7	8	score	scores	
					_	-	-	_	of	(30)	
	10	10	10	10	10	10	10	10	each		
\$ core									unit		
/									(80)		
45	10	10	10	10	10	10	10	10	80	29	96.66
46	7	8	9	10	9	8	8	8	67	29	96.66
47	8	9	8	10	10	9	9	10	73	27	90
48	10	8	10	10	8	10	9	10	75	30	100
49	9	7	8	7	8	6	9	10	64	20	66.66
50	9	7	8	7	8	6	9	10	64	17	56.66
51	9	9	8	7	8	6	9	10	66	17	56.66
52	8	7	8	7	8	6	9	10	63	16	53.33
53	9	9	8	7	8	6	9	10	66	16	53.33
54	8	8	10	10	9	10	9	10	74	29	96.66
55	8	8	9	7	8	9	10	9	68	28	93.33
56	9	10	9	9	9	10	9	10	75	24	80
57	9	9	8	9	9	10	8	9	71	29	96.66
58	10	9	8	7	8 –	9	9	8	68	23	76.66
59	8	8	8	9	9	7	8	9	66	28	93.33
60	8	10	8	8	10	9	8	8	69	30	100
61	10	8	10	9	9	10	9	10	75	24	80
62	8	8	9	9	9	9	8	9	69	30	100
63	9	8	9	9	9	8	9	9	70	30	100
64	9	9	10	9	9	8	9	8	71	27	90
65	8	9	7	8	9	8	7	8	64	27	90
66	10	8	10	7	9	10	8	9	71	28	93.33
67	8	9	8	9	9	8	8	10	69	25	83.33
68	9	9	10	9	9	8	9	8	71	29	96.66
69	8	10	10	10	10	10	8	10	76	27	90
70	7	8	8	7	8	7	7	9	61	26	86.66
71	9	9	8	9	10	7	9	9	70	29	96.66
72	8	9	8	9	9	7	9	9	68	28	93.33
73	9	9	10	10	10	10	10	9	77	30	100
74	9	9	10	9	9	8	9	8	71	26	86.66
75	10	9	8	7	8	9	9	8	68	26	86.66
76	8	7	8	8	9	9	8	10	67	28	93.33
77	10	9	8	7	8	9	9	8	68	26	86.66
78	9	9	8	9	9	8	8	10	70	29	96.66
79	8	10	9	10	10	10	10	10	77	27	90
80	8	10	8	9	9	8	9	9	70	29	96.66
81	10	10	10	10	10	10	10	10	80	26	86.66
Total Percentage	681 84.07	702 86.66	722	698 86.17	715 88.27	675 83.33	700	734 90.61	5627 86.83	2012 82.79	
rercentage	64.07	80.00	89.13	86.17	00.27	03.33	86.41	90.01	00.03	02.19	

According to the table, it indicated that total score of each unit from multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life used with the 81 samplings was 5,627 (**86.83**%)(out of 6,480) and the total score of posttest was 2,012 (**82.79**%)(out of 2,430). Therefore, the efficiency of multimedia

CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life in this experiment was **86.83/82.79** which was higher than determined criteria (75/75). It was demonstrated that multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life for the first year students, Thai-Nichi Institute of Technology, Bangkok presented very high effectiveness-that followed hypothesis 1.

Phase 2: The result of data analysis for comparison the ability in reading English of the 81 samplings before and after learning multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life.

The 81 samplings had to make the ability test before and after learning multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life. These two tests were the same set which consisted of 30 items (30 scores). Then, the difference of score from posttest and pretest was calculated in order to compare the 81 samplings' ability in multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life. The results presented as below table.

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Table 6: The table of score fro	om ability	tests (pretest	and posttest)	and its
difference				

No.	Scol	e (30)		No.	Scol		
	Pretest	Posttest	(D)		Pretest	Posttest	(D)
1	11	19	8	42	14	29	15
2	8	28	20	43	15	28	13
3	11	19	8	44	18	28	10
4	11	18	7	45	10	29	19
5	10	28	8	46	13	29	16
6	12	26	14	47	12	27	15
7	6	19	13	48	7	30	23*
8	8	19	11	49	10	20	10
9	7	18	11	50	11	17	6
10	12	18	6	51	10	17	7
11	11	22	11	52	8	16	8
12	17	28	11	53	8	16	8
13	11	19	8	54	11	29	18
14	_ 11	18	7	55	13	28	15
15	13	18	5	56	13	24	11
16	13	29	16	57	9	29	20
17	7	19	12	58	13	23	10
18	10	25	15	59	10	28	18
19	17	22	5	60	15	30	15
20	13	17	4*	61	10	24	14
21	12	20	12	62	10	30	20
22	9	21	12	63	10	30	20
23	15	22	7	64	12	27	15
24	12	18	6	65	12	27	15
25	12	18	6	66	16	28	12
26	5	16	11	67	9	25	16
27	12	19	7	68	12	29	17
28	10	29	19	69	12	27	15
29	18	29	11	70	13	26	13
30	10	29	19	71	10	29	19
31	9	29	20	72	- 11	28	17
32	11	28	C-17	73	13	30	17
33	9	27	18	74	12	26	14
34	14	25	11	75	10	26	16
35	12	29	17	76	15	28	13
36	13	30	17	77	10	26	16
37	11	29	18	78	12	29	17
38	12	28	16	79	10	27	17
39	10	27	17	80	15	29	14
40	13 12	27 29	14 17	81	11	26	15
This table illustrated that there was a higher ability in English reading of each sampling after learning multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life. The highest difference of pretest and posttest scores was 23 and the lowest difference scores was 4 out of 30.

Table 7: table of score comparison between pretest and posttest, standard deviation, difference and t-test of the 81 samplings

Test	Number	Total	(x)	S.D	(D)	t	Sig
	of	score					
\sim	samplings						
Pretest	81	30	11.41	2.59		Ü	
π					13.43	44.418*	0.000
					13.13	11.110	0.000
Posttest	81	30	24.84	2.09			

* Statistical significance at 0.05 level

This table highlighted that the posttest scores were higher than pretest scores at Statistical significance at 0.05 level (Sig = 0.000 < 0.05). The mean score of posttest equaled to 24.84 which was higher than pretest score (11.41 out of 30). The difference score between pretest and posttest was 13.43 and t-test was 44.418. It indicated that the ability in English reading after learning multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life was more effective than before learning which followed hypothesis 2.

Phase 3: The result of data analysis for satisfaction level of the 81 samplings from questionnaire to multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life.

The 81 samplings made questionnaire after learning multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life in each unit. Then, mean (\bar{x}) and standard deviation (S.D) were applied in translating data analysis as shown in the following table.



 Table 8: Descriptive statistics of satisfaction scores in learning multimedia CALL English reading instruction by using

 Metacognitive techniques on the topic about morality and Buddha's life in aspects and in total

No.	Statement	mean	Unit 1 2 3 4 5 6 7 8						Total of mean	Rank order		
	In instructional design							·				
1	There are varieties of lesson activities	(x)	4.35	4.33	4.25	4.35	4.6	4.48	4.35	4.33	4.44	3
	There are varieties of lesson activities	(S.D)	0.58	0.69	0.67	0.58	0.5	0.63	0.58	0.69	0.61	
2		(x)	4.7	4.52	4.45	4.4	4.61	4.5	4.7	4.52	4.56	1
	Font size and letters are easy to read	(S.D)	0.46	0.67	0.67	0.63	0.45	0.72	0.46	0.67	0.57	
3		(x)	4.39	4.43	4.45	4.43	4.59	4.43	4.39	4.43	4.50	2
	The pictures are relevant to the lesson content		0.5	0.71	0.6	0.64	0.6	0.68	0.5	0.71	0.59	
		(x)	4.58	4.59	4.48	4.42	4.38	4.39	4.60	4.47	4.49	III
Total mean score of instructional design		(S.D)	0.59	0.50	0.51	0.69	0.64	0.62	0.51	0.68	0.59	
	In content G						5					
4	The instructions are clear and understandable.	(x)	4.43	4.49	4.6	4.45	4.35	4.55	4.5	4.4	4.47	2
		(S.D)	0.55	0.58	0.64	0.68	0.71	0.54	0.55	0.59	0.60	
5	The difficulty of contents is suitable for the	(x)	4.52	4.59	4.53	4.44	4.45	4.51	4.62	4.33	4.49	1
	learners	(S.D)	0.51	0.51	0.55	0.66	0.77	0.71	0.5	0.66	0.60	
6	The sequence of content and exercises in each	(x)	4.62	4.63	4.7	4.35	4.25	4.38	4.4	4.4	4.46	3
	unit are appropriate.	(S.D)	0.6 7	0.49	0.46	0.77	0.74	0.67	0.63	0.67	0.63	
	Total mean score of content	(x)	4.5 <mark>2</mark>	4.5 7	4.61	4.41	4.35	4.48	4.50	4.38	4.48	IV
		(S.D)	0.57	0.52	0.55	0.70	0.74	0.64	0.56	0.64	0.62	
	In teaching- learning activity											
7	Pre-reading activity helps students to understand	(x)	4.56	4.72	4.63	4.49	4.48	4.45	4.57	4.61	4.56	2
	vocabulary and structures.	(S.D)	0.53	0.37	0.6	0.59	0.64	0.68	0.6	0.64	0.58	
8	While-reading activity enables students to reach	(x)	4.52	4.63	4.62	4.47	4.51	4.59	4.67	4.48	4.56	2
	the objective reading.	(S.D)	0.6	0.48	0.55	0.59	0.61	0.63	0.49	0.66	0.57	
9	Post-reading activity supports students to revise	(x)	4.73	4.83	4.8	4.43	4.45	4.5	4.53	4.38	4.58	1
	the knowledge of reading skill and be able to apply the skill.	(S.D)	0.45	0.38	0.41	0.68	0.68	0.64	0.55	0.7	0.56	

Tet	Total mean score of teaching- learning activity		4.60	4.73	4.68	4.46	4.48	4.51	4.59	4.49	4.57	II
10			0.52	0.41	0.52	0.62	0.64	0.65	0.54	0.66	0.57	
	In Multimedia CALL material											
10	The multimedia CALL is easy to use and make	(x)	4.6	4.6	4.75	4.58	4.43	4.58	4.63	4.48	4.58	2
	me understand reading strategies.		0.59	0.59	0.44	0.59	0.64	0.59	0.49	0.68	0.57	
11	The multimedia CALL is suitable to use with	(x)	4.48	4.7	4.7	4.53	4.42	4.48	4.53	4.58	4.45	3
	TNI students' environment.		0.55	0.46	0.46	0.72	0.52	0.61	0.55	0.68	0.56	
12	The learners need to learn in other contents	(x)	4.65	4.58	4.49	4.72	4.65	4.61	4.68	4.52	4.61	1
	through multimedia CALL.		0.5	0.53	0.44	0.64	0.64	0.64	0.53	0.68	0.58	
Tot	al maan agang of Multimodia CALL motorial	(x)	4.58	4.62	4.64	4.61	4.50	4.55	4.61	4.52	4.58	Ι
100	Total mean score of Multimedia CALL material		0.54	0.52	0.44	0.65	0.60	0.61	0.52	0.68	0.57	
Tatal of all mean approx		(x)	4.57	4.62	4.60	4.4	4.42	4.48	4.57	4.46	4.53	
	Total of all mean scores		0.55	0.48	0.50	0.66	0.65	0.63	0.53	0.66	0.58	
	Rank of mean scores		4	1	2	<u>7</u>	8	5	3	6		



According to the last table, it showed that the mean scores of all eight units was 4.53 (S.D. =0.58). Consequently, it was summarized that the highest mean score was on unit 2 ($\bar{x} = 4.62$, S.D. =0.48). The second highest mean score was on unit 3 ($\bar{x} = 4.60$, S.D. =0.50). The lowest mean score was on unit 5 ($\bar{x} = 4.42$, S.D. =0.65). Further, the study of samplings' point of view towards multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life in four aspects: in **instructional design**; **in content**; **in teaching- learning activity**; and **in Multimedia CALL material** could be concluded as

1. in instructional design

Overall, it presented a high satisfaction toward instructional design (\bar{x} = 4.49, S.D. =0.59). The highest statement was *Font size and letters are easy to read* (\bar{x} = 4.56, S.D. =0.57) and the lowest one was on the statement of *There are varieties of lesson activities* (\bar{x} = 4.44, S.D. =0.61).

2. in content

The overall of this aspect was ranked as a high satisfaction ($\bar{x} = 4.48$, S.D. =0.62). The statement of *The difficulty of contents is suitable for the learners* was ranked as the highest one ($\bar{x} = 4.49$, S.D. =0.60) and the lowest statement was on *The sequence of content and exercises in each unit are appropriate* ($\bar{x} = 4.46$, S.D. =0.63)

3. in teaching-learning activity TUTE OF

The overall of this aspect was excellent ($\bar{x} = 4.57$, S.D. =0.57). The highest mean score was on the statement of *Post-reading activity supports* students to revise the knowledge of reading skill and be able to apply the skill ($\bar{x} = 4.58$, S.D. =0.56) and the lowest mean score were on the statements of

While-reading activity enables students to reach the objective reading (\bar{x} = 4.56, S.D. =0.57) and Pre-reading activity helps students to understand vocabulary and structures (\bar{x} = 4.56, S.D. =0.58).

4. In Multimedia CALL material

The overall of the last aspect was also ranked excellent (\bar{x} = 4.58, S.D. =0.57). The highest mean score was on the statement of *the learners need to learn in other contents through multimedia CALL* (\bar{x} = 4.61, S.D. =0.58) and the lowest mean score was on the statement of *the multimedia CALL is suitable to use with TNI students' environment* (\bar{x} = 4.45, S.D. =0.56).

In conclusion, the overall mean score of eight units was 4.53 (S.D.= 0.58). It meant that the point of view of the samplings towards multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life was ranked as a high satisfaction which followed hypothesis 3.



CHAPTER FIVE

CONCLUSION, DISCUSSION AND RECOMMENDATION

The purposes of this study were to develop and investigate the efficiency of multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life for the first year TNI students. The aims of this study, moreover, were to compare the ability in reading English before and after learning English reading instruction as well as to study the opinions and satisfactions of the 81 samplings to 8 lesson units in second semester, academic year 2010 derived from randomly sampling.

The instruments used in this study

1. The multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life was checked by experts and proficiency of the instruction at **86.83/82.79**. This was concluded that English reading instruction had been conducted at a very high level.

2. The ability test consisted of 30 items and multiple choices conducted for measuring for English reading ability before and after learning multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life. The difficulty of the test was during 0.20-0.80 and the ability of the discrimination of the test was over 0.20. 3. The satisfaction questionnaire was used for investigating the opinion of the 81 samplings towards multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life in 4 aspects: in instructional design; in content; in teaching-learning activity; and in multimedia CALL material. The 12 items of questionnaire consisted of 5 rating scales which were composed of strongly agree, agree, moderate, disagree and strongly disagree. In this part, the reliability of questionnaire was at 0.83.

Conclusions

According to the study and data analysis, the results of this study were concluded as follows.

1. The proficiency of multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life in this experiment was **86.83/82.79** which was higher than determined criteria (75/75). It was demonstrated that multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life for the first year students, Thai-Nichi Institute of Technology, Bangkok presented very high effectiveness-that followed hypothesis 1.

2. The ability in English reading after learning multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life was more effective than before learning at statistical significance at 0.05 level which followed hypothesis 2.

3. The point of view of the samplings towards multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life was ranked as a high satisfaction which followed hypothesis 3.

Discussions

According to the study and data analysis, the results of this study could be discussed as follows.

1. The result of hypothesis 1 presented the efficiency of multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life was higher than the determined criteria. In this way, it might concern with reasons as follows.

1.1 The contents of multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life in 8 units consisted of contents about morality and Buddha's life which the TNI students was able to analyze the metacognitive view of knowledge and morality including its background knowledge to understand the contents. This is moreover advocated by Cohen (1998) who stated that Metacognitive views of knowledge are necessary to enhance learners' reading ability. In addition, the TNI students were familiar with morality and Buddha's life because they had background knowledge about it which might cause them to be easy to understand (Goodman, 1994).

1.2 The teaching-learning activity in each unit constructed according to English reading theory from the view of the experts such as, Williams (1994); Harris and Sipay (1979); Freebody and Luke (2000) who anticipated that teaching-learning activity consisted of opening the chance of the learners to study from easy activity to difficult activity in pre-reading activity and asking the question in while- reading activity to checking understanding of the learners. Furthermore, in post- reading stage, the researcher created semantic maps and information chart to help the learners in filling information in the correct way. Moreover, the learners used

metacognitive techniques in reading to analyze the morality and Buddha's life. In this stage, the learners, therefore, were able to practice to analyze the text critically. The TNI students used metacognitive techniques in teaching-learning activity to plan, monitor, and evaluate their reading comprehension because metacognition in reading refers to the learner-performed actions such as planning, monitoring, or evaluating the success of a particular learning task (O'Malley and Chamot, 1994). Metacognitive awareness, therefore, also involves the awareness of whether or not comprehension is occurring, and the conscious application of one or more strategies to correct comprehension (Baumann, Jones, and Seifert-Kessel, 1993).

1.3 Instructional design and development of multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life conducted in order to experts' views by determined objective learning and pre-reading, while-reading and postreading activity and the contents about morality and Buddha's life. The learners were able to use a metacognitive reading strategy in learning because the students' reading capacity and strategy use while reading are related (Sheorey and Mokhtari, 2002). Furthermore, learning style in instructional design based on morality and Buddha's life surroundings influence the ways in which a person thinks and learns (Matsumoto, 2000; Vygotsky, 1987)

2. The result of hypothesis 2 presented the ability in English reading after learning multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life was more effective than before learning at statistical significance at 0.05 level which might concern with satisfaction of the learners in learning about interesting topics and required contents. Multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life integrated teaching English reading with morality and Buddha's life which supported the learners to apply both morality knowledge and metacognitive reading skill in their daily life. Moreover, recent research comparing the effectiveness of cognitive and metacognitive strategy training shows that explicit instruction on cognitive strategies yields small, short-term improvements in reading performance, whereas training on metacognitive strategies results in more stable, long-term comprehension gains (Koda, 2005; Carrell, 1998; Cohen, 2003; Tang and Moore, 1992).

3. The point of view of the first year TNI students towards multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life was ranked as a high satisfaction which followed hypothesis 3. The samplings had a high satisfaction towards English reading instruction because they understood how to use reading strategies. This was also caused a high reading ability in learning English reading instruction which related with the statement of the educational theorist, Honsefeld (1977), who reported that a high reading ability tended to keep the meaning of the passage in mind, read in broad phrases, skip words, and posses a positive self-concept. Moreover, positive thinking created more proficient readers to use a greater variety and often a greater number of reading strategies (Anderson, 2002, 2003; Green and Oxfrod, 1995; O'Malley & Chamot, 1990; Wharton, 2000).

Recommendations

1. For classroom research, the content about ethics or religions should be created in English reading instruction through CALL.

2. For further research, the researcher should study about comparison Computer Assisted Language Learning (CALL) and learning by instructor's teaching.

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APPENDIX: A

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Contents of multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life



Table 9: Contents of multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life

Unit	Objectives	Unit name
1	- Read five precepts to identify the details,	Five precepts
	then describe it	
	- Skim or scan-read in order to get the main	
	idea and details	
	- Sequence the events about five precepts	
	- Be able to recount the stage of five precepts	
2	- Read Buddha's birth to identify the details,	Buddha's
	then describe it	birth
	- Skim or scan-read in order to get main idea	
	and details	
	- Sequence the events about the Buddha's	
	birth	
	- Be able to recount the history of the Buddha	
3	- Read Buddha's enlightenment to identify the	Buddha's
	details, then describe it	enlightenment
	- Read the passage to identify word meanings	21
	from context clues and pronoun reference	
	- Skim or scan-read in order to get main idea	
	and details	5
	- Be able to recount the history of the Buddha	
4	- Read Passing away of the Buddha to	Passing away
	identify the details, then describe it	of the Buddha
	- Skim or scan-read in order to get main idea	
	and details	$\widehat{\mathbf{G}}$
	- Sequence the events about Passing away of the Buddha	
	- Be able to recount the history of the Buddha	
5	- Read the four noble truths to identify the	The four
5	details, then describe it	noble truths
	- Skim or Scan-read in order to get main idea	nobic ti utils
	and details	
	- Read the passage to identify word meanings	
	from context clues	
	- Be able to recount stage of the four noble	
	truths	
1		

Unit	Objectives	Unit name
6	- Read Functions of parents to identify the	Functions of
	details, then describe it	parents
	- Skim or Scan-read in order to get main idea	
	and details	
	- Sequence the events about functions of	
	parents	
	- Be able to recount functions of parents	
7	- Read Functions of children to identify the	Functions of
	details, then describe it	children
	- Read the passage to identify word meanings	
	from context clues	
	- Skim or scan-read in order to get main idea	
	and details	
	- Be able to recount functions of children	
8	- Read the noble eightfold path to identify the	The noble
	details, then describe it	eightfold path
	- Sequence the events about the noble	S
	eightfold path	
	- Skim or scan-read in order to get main idea	21
	and details	
	- Be able to recount the stage of the noble	
	eightfold path	E



APPENDIX: B

IOC of Content Structure for multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life



Table 10: IOC of Content Structure for multimedia CALL English reading instruction by using metacognitive techniques on the topic about morality and Buddha's life from evaluation of 5 experts

Contents	Contents Scores of Experts						
(Unit)	1	2	3	4	5		
1	1	1	1	1	1	5	1
2	1	1	1	1	1	5	1
3	1	1	1	1	1	5	1
4	1	1	1	1	1	5	1
5	1	1	1	1	1	5	1
6	1	1	1	1	1	5	1
7	1	1	1	1	1	5	1
8	1	1	U 1 a	1	1	5	1



APPENDICE: C

6

Table of Test Specification

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Reading skill	Mode	Type of Text	Cog. Level	Item type	Total No. of item	Weight %	Scori ng	Time s Mns
Sequence - Sequence of events	R	Passage	Tr.	M/C	3	10	1-0	6
Detail -Identifying the details	R	Passage	Com	M/C	9	30	1-0	16
Main idea -Identifying the main idea	R	Passage	Com	M/C	5	16.66	1-0	10
Topic -Identifying topic	R	Passage	Com	M/C	4	13.33	1-0	8
sentence		a \	u i	<u>a</u> 8	17			
Words meaning -identifying	R	Passage	Tr.	M/C	2	6.66	1-0	4
the meaning of words in context							21.	
Reference -Identifying the pronoun reference in	R	Passage	Tr.	M/C	3	10	1-0	6
contexts	D	Deserves	C	M	2		1.0	6
Facts and opinion -identifying facts and opinion	R	Passage	Cr.	M/C	2	6.66		6
Author's purpose - identifying the author's purpose	R	Pa <mark>ssa</mark> ge	Com	M/C	2	6.66	1-0	4
Total		Ner		- 0	30	100		60

Table 11: table of Test Specification

APPENICE: D

English Reading Proficiency Test



English Reading Proficiency Test

Part 1: Item 1-8

Directions: Read the following passage and choose the best alternative for each question below.

A long time ago in India, there lived a king named Suddhodana and a queen named Maha Maya. They were both good and kind people. One full moon night, the Queen dreamt of four devas. They carried her to a lake, to rest on a soft bed. A white elephant carrying a lotus flower went round her three times and disappeared into her. Wise men explained that the queen was going to give birth to a prince.

When the time came for the baby to be born, Queen Maha Maya left the palace with the attendants to go back to her parents' home to give birth to the baby. On the way, they passed by a beautiful park called Lumbini Garden. Queen Maha Maya took a rest in the garden. While she was standing up and holding on to a tree, she gave birth to the baby. Immediately the baby walked seven steps.

At each step he walked, a lotus flower appeared. The birth took place on the sixth month of Vesakha, on a full moon day in 632 BC. We called it Vesak Day. Queen Maha Maya then returned to the palace with her baby prince. King Suddhodana was very happy and celebrated the birth of the baby with his people all over the country.

1. The topic of this passage is about		
A. The dream of queen	B. A white	elephant
C. Queen Maha Maya	D. The birth	h of the baby
2. What is the main idea of the passage?		
A. A white elephant carrying a lotus flower		C L
B. Queen Maha Maya left the palace		0
C. Queen Maha May <mark>a g</mark> ave birth to the baby		
D. King Suddhadhana celebrated the birth of	the baby	
3. What day did the prince's birth take place on?		
A. Makha Day	B. Asanha l	Day
C. Atthami Day	D. Visak Da	ay
4. The writer's main purpose in writing this passag	e is to	
A. inform the readers about a white elephant		
B. explain the history of the Buddha		
C. entertain the readers with the dream of the	e queen	
D. declare the miracle of the Buddha		

5. Where was the prince born?

A. Ramaninat Park

C. Suan Luang Park

B. Lumbini Park D. Oueen's Park

6. "The king and the queen were both good and kind people. One full moon night, the Queen dreamt of four devas. *They* carried her to a lake, to rest on a soft bed."

The pronoun "they" refers to

A. People

C. Devas

7. Who was carrying the lotus flower?

A. a wild horse

C. a white cat

B. a white monkey

B. The king and the queen

D. a white elephant

D. Elephants

8. Number these events from the story in the correct order

- 1. Queen Maha Maya left the palace
- 2. The Queen dreamt of devas
- 3. King Suddhadhana celebrated the birth of the baby
- 4. The queen gave birth to the baby
 - A. 3-2-4-1
 - C. 2-1-4-3

B. 4-2-3-1 D. 1-2-3-4

Part 2: Items 9-12

Directions: Read the following passage and choose the best alternative for each question below.

Five days after the birth of the Prince, many wise men were invited to the palace for the Naming Ceremony. They looked at the marks on the child's body. Seven wise men raised two fingers and said that the Prince would either become a great king or a Buddha. The youngest, Kondanna, raised only one finger and said that the prince would become a Buddha. The prince was then given the name "Siddhattha" by the wise men, which meant "Wish-fulfilled". Seven days after the birth of her child, queen Maha Maya passed away. Pajapathi Gotami, her younger sister, who was also married to King Suddhodana, brought up the prince as her own son.

Prince Siddhattha lived a very good life. His father, King Suddhodana built him three palaces to make him happy, one for the winter, one for the summer and one for the rainy season. The king also wanted to give him a wife so that he would not leave the palace to become a monk. All the beautiful girls in the country came to the palace for the prince to choose. He gave each of them a gift, but to the princess named Yasodhara, the prince gave a ring from his finger. The king was very happy that the prince married Princess Yasodhara.
- 9. The word "Siddhattha" means
 - A. full- happiness

B. wise-fulfilled

C. successful

- D. wish-fulfilled
- 10. What happened five days after the birth of the prince?
 - A. The naming ceremony
- B. The prince got married

C. Queen Maha Maya died

D. The birth of the prince

11. King Suddhodana built three palaces for the prince because......

- A. he wanted to live
- B. he didn't want the prince to become a monk
- C. he wanted to make his son happy
- D. he wanted the prince to get married
- 12. Number these events from the story in correct order.
 - 1. Queen Maha Maya passed away
 - 2. Kondanna said the prince would become a Buddha
 - 3. The naming Ceremony
 - 4. The king was very happy that the prince married Princess Yasodhara

A. 1-2-3-4	B. 3-2-1-4
C. 2-3-1-4	D. 4-3-2-1
0.2314	D.1521

Part 3 : Item 13-14

Directions: Read the following passage and choose the best alternative for each question below.

After some time, the prince was not happy living in the palace. He wanted to go out to see how other people lived. He went out with his horseman, Channa. They left the palace four times.

On the first trip, the prince saw an old man. He came to know that everyone had to grow old. On the second trip, the prince saw a sick man. He came to know that everyone could get sick any time. On the third trip, he saw a dead body. He knew that everyone would have to die one day. On the fourth trip, the prince saw a monk who was happy and calm. He made up his mind to leave home so that he could help people to find peace and happiness. Then he heard the news of the birth of his son. So he named his son "Rahula". Its meaning is "Fetter or Bond".

13. The passage is mainly about.....

- A. The prince leaving the palace four times
- B. The prince saw an old man
- C. The prince saw a sick man
- D. The prince saw a monk

14. When did the prince see a dead body?

A. on the first trip B. on the second trip

C. on the third trip

D. on the fourth trip

Part 4 : Items 15-18

Directions: Read the following passage and choose the best alternative for each question below.

Soon Ascetic Gotama was joined by his five good friends, they served him and followed his example. For six long years, Ascetic Gotama tortured his body until he became very thin. He almost died. Yet, he could not find a way out of suffering.

He came to know this was not the correct way. He decided to take some food. When his friends saw him taking food, they left him. One morning, a lady named Sujata offered some food to him. After taking the meal, Ascetic Gotama sat under the Boghi tree. He made a strong wish not to get up until he gained Enlightenment.

While meditating under the Bodhi tree, Mara, the evil one asked Ascetic Gotama to give up his struggle for Enlightenment. He watched his mind and finally freed himself from all bad thoughts.

He became calm and peaceful. He was in deep meditation. In the first part of the night, he saw his past lives. In the second part of the night, he saw the past lives of other beings. Finally, in the third part of the night, he came to understand the truth of all sufferings. He became The Buddha, The Buddha means a fully Enlightened One.

- 15. What is the topic of the first paragraph?
 - A. Leaving the palace
 - C. Enlightenment
- 16. What is the topic of the third paragraph?
 - A. Leaving the palace
 - C. Enlightenment
- 17. The word "Buddha" means..
 - A. Enlightenment
 - C. wish-fulfilled

- B. <mark>Sea</mark>rching for truth D. Passing away
- B. Searching for truth
- D. Passing away

B. peace and happiness

D. a fully Enlightened One

18. Which statement is a fact?

A. The evil one asked Ascetic to continue for Enlightenment.

B. The ascetic saw the past lives of other beings.

C. The ascetic tortured his body by eating food.

D. The ascetic sat under Mujjalinda tree.

Part 5: Item 19-20

Directions: Read the following passage and choose the best alternative for each question below.

In the first week after Enlightenment, the Buddha did not take food for seven weeks. For the whole of the first week, he sat under the Bodhi tree in meditation and enjoying the freedom of peace and happiness.

In the second week after Enlightenment, the Buddha fixed his eyes on the Bodhi tree. This was to show gratitude to the Bodhi tree that gave him shelter during his struggle for Enlightenment.

In the third week after Enlightenment, the Buddha created a jeweled bridge with his special power. He walked up and down on the bridge. It was called walking meditation.

In the fourth week after Enlightenment, the Buddha meditated on a jeweled seat on the Higher Teaching of the Dhamma. His mind and body were so pure that six rays of colors came out from his body, namely blue, yellow, red, white, orange, and a mixture of all the five colors.

In the fifth week after Enlightenment, the Buddha meditated under the Ajapala Banyan tree; three daughters of Mara came to disturb him. However, the Buddha continued with his meditation. Soon they felt tired and left him.

In the sixth week after Enlightenment, the Buddha meditated under the Mucalinda tree. At that time, heavy rain began to fall. A king cobra named Muccalinda coiled round the Buddha seven times. It protected the Buddha from rain and wind. After the rain, the cobra became a young man and paid his respects to the Buddha.

In the seventh week after Enlightenment, the Buddha meditated under the Rajayatana tree, enjoying the real peace and happiness of Enlightenment.

19. The main idea of the passage is

A. After enlightenment

B. Bodhi tree

C. A jeweled bridge

D. Muccalinda tree

20. In what week did the Buddha enjoy the real peace and happiness of Enlightenment?

VSTITUTE O

A. Fourth week C. Sixth week B. Fifth weekD. Seventh week

Part 6: Item 21-23

Directions: Read the following passage and choose the best alternative for each question below.

After gaining Enlightenment, the Buddha decided to preach The Dhamma to his five friends who had taken care of him during his six years of struggle for Enlightenment. The Buddha walked slowly to the Deer Park in Isipatana near Benares where they were staying. His five friends were Kondhanna, Vappa, Bhaddiya, Mahanama, and Assaji. When they saw the Buddha, they refused to welcome him. They were thinking that he was enjoying a happy life. However, as the Buddha walked closer to them, they were attracted by his calm look. They finally agreed to sit down and listen to the Buddha.

The Dhammacakkappavattana Sutta (The First Discourse) was preached by the Buddha at the Deer Park in Isipatana near Benares to his five friends. Dhammacakkappavattana Sutta means "The Turning of the Wheel of Truth". In this discourse, the Buddha preached the Four Noble Truths. Many devas and gods were also presented to listen to the Buddha. At the end of the discourse, his five friends attained peace and happiness. They became the first disciples of the Buddha.

- 21. The main idea of the passage is
 - A. Peace and happiness
 - B. Deer Park in Isipatana
 - C. The first discourse
 - D. The four noble truths

22. "Many devas and gods were also presented to listen to the Buddha. At the end of the discourse, his five friends attained peace and happiness. *They* became the first disciples of the Buddha."

The pronoun "They" refers to

- A. Many devas
- B. Many gods
- C. Five friends
- D. Disciples

23. Number these events from the story in correct order

- 1. The five friends attained peace and happiness
- 2. The Buddha preached The Four Noble Truths
- 3. Dhammacakkappavattan Sutta was preached by the Buddha
- 4. The Buddha walked to The Deer Park in Isinpatana
 - A. 4-1-2-3
 - B. 1-4-2-3
 - C. 1-2-3-4
 - D. 4-3-2-1

Part 7: Item 24-28

Directions: Read the following passage and choose the best alternative for each question below.

Sariputta asked Venerable Assaja who his teacher was, and what his teaching was. The ascetic told Sariputta "I am still young in the order of the monks. I am not able to explain the teaching in full. He said briefly that "There is a cause for everything, The Buddha has said it. He also knows the end of its cause, this is what he teaches."

Sariputta was clever and understood the meaning of the whole sentence. He realized the Truth. He remembered the promise he made to his friend, Moggallana. He quickly went back to share the good news with his friend.

Looking at the clear and shining face of Sariputta, Moggallana knew that his good friend had found the truth. Sariputta spoke the same verse to his friend, Moggallana. After listening to it, he also realized the truth. The two good friends went to see the Buddha. In a short while, they were made the chief disciples of the Buddha.

24. What is the topic of the passage?

- A. Chief disciples of the Buddha
- B. Venerable Assaji D. Sariputta
- 25. What is the main idea of the passage?
 - A. The teaching of the chief disciples of the Buddha
 - B. Venerable Assaji spread the teaching of the Buddha
 - C. Sariputta shared the good news
 - D. Moggallana realized the truth
- 26. Which statement is a fact?

C. Mogallana

- A. Sariputta was a chief disciple of the Buddha
- B. Moggallana shared the good news with Sariputta
- C. Sariputta realized the truth before Venerable Assaji
- D. Assaji was a chief disciple of the Buddha

27. "The ascetic told Sariputta "I am still young in the order of the monks. I am not able to explain the teaching in full. <u>He</u> said briefly that "There is a cause for everything, The Buddha has said it. He also knows the end of its cause, This is what he teaches."

Pronoun "He" refers to

- A. Sariputta
- B. Moggallana
- C. The Buddha
- D. The ascetic

28. Sariputta quickly went back to share the good news with his friend because

A. He wanted to show his knowledge

B. He was clever and quickly understood

C. He might forget those words

D. They made the promise together

Part 8: Item 29-30

Directions: Read the following passage and choose the best alternative for each question below.

The Buddha preached the Dhamma for forty-five years for the good and happiness of all beings. In front of all the monks, the Buddha spoke these words: "I have taught the Dhamma to you. Study and practice them well so that this holy life may last long for the good and happiness of the many." He then gave his last words: "Nothing lasts forever. Continue to work hard. At the end of three months from now the Buddha will pass away".

In the three months before the great passing away, the Buddha continued to preach the Dhamma for the good of the many. While at Pava, Cunda made the Buddha's last meal. After taking the food, the Buddha became very weak. Though feeling very sick, the Buddha decided to walk to Kusinara for His Great Passing Away.

At that time, an ascetic named Subhadda was living in Kusinara. He heard that the Buddha would soon pass away, so he went to see the Buddha. The Buddha preached to him the Dhamma and he became his last disciple. The Buddha reminded Venerable Ananda not to feel sad when he passed away, he should take the Dhamma and the Vinaya rules as his teacher.

29. The Buddha had taught people to study and practice Dhamma because

A. Nothing lasts forever

.

- B. The holy life may last long for good and happiness
- C. Dhamma made people happy
- D. Studying and Practicing Dhamma was good
- 30. The writer's main purpose in writing this passage is to
 - A. inform the readers about the last disciple
 - B. explain the buddha's passing away
 - C. entertain the reader about Dhamma
 - D. explain the Buddha's enlightenment

APPENDICE: E

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IOC of Validity of Contents of English Reading Proficiency Test from evaluation of 5 experts



Item	Sco	res of Exp	erts 👔			$\Sigma \mathbf{x}$	IOC
	1	2	3	4	5		
1	1	1	1	1	1	5	1
2	1	1	1	1	1	5	1
3	1	1	1	1	1	5	1
4	1	1	1	1	1	5	1
5	1	1	1	1	1	5	1
6	1	1	1	1	1	5 5	1
7	1	1	1	1	1	5 5	1
8	1	1	1	1	1		1
9	1	1	1	1	1	5	1
10	1	1	- 1 1	1	1	5	1
11	1	10	1	Ъ С	1	5	1
12	1	1	1	1	1	5	1
13	1	1	1	1	10	5	1
14		1	1	1	1	5	1
15	1	0	0	1	1	23	0.60
16	~ 1	0	0	1	1	3	0.60
17	1	1	1	1	1		1
18	1	1	-1	1	1	3	0.60
19	1	1	-1	1	1	3	0.60
20 0	1	1	1	1	1	5 0	1
21	1	1	1	1	1	5	1
22	1	1	1	1	1	5	1
23	1	1	1	1	1	5	1
24	y 1	1	1	1	1	5	1
25	1	1	-1	1	1	3	0.60
26	1	1	-1	1	1	$\bigcirc 3 <$	0.60
27	1	1	1	1	1.	5	1
28	1	y 1	1	1		5	1
29	1	<u>`</u> 1∕∖o	- 1	- hF	1	5	1
30	1	1		۲ ۲	1	5	1
31	1	1	-1	- 1	1	5	1
32	1	1	1	1	1	5	1
33	1	1	1	1	1	5 5	1
34	1	1	1	1	1		1
35	1	1	1	1	1	5	1
36	1	1	1	1	1	5	1

Table12:Values of IOC of Validity of Contents of English Reading
Proficiency Test from evaluation of 5 experts



37	1	1	1	1	1	5	1
38	1	1	1	1	1	5	1
39	1	1	1	1	1	5	1
40	1	1	1	1	1	5	1
41	1	1	1	1	1	5	1
42	1	1	1	1	1	5	1
43	1	1	1	1	1	5	1
44	1	1	1	1	1	5	1
45	1	1	-1	1	1	3	0.60
46	1	0	1	1	1	4	0.80
47	1	1	1	1	1	5	1
48	1	1	1	1	1	5	1
49	1	1	1	1	1	5	1
50	1	1	1	1	1	5	1
51	1	1	5 J T	1	1	5	1
52	1	16	1	G 18	1	5	1
53	1	1	-1	1	1	3	0.60
54		1	-1	1	1	3	0.60
55	1	0	1	1	1	4	0.80
56	~ 1	1	1	1	1	5	1
57	~ 1	1	1	1	1	5	1
58	1	1	1	1	1	5	1
59	1	1	1	1	1	5	1
60	1	-1	1	1	1	3	0.60

APPENDICE: F

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p-r Value of English Reading Proficiency Test



Item	р	r	Item	р	r
1	0.73	0.67	16	0.47	0.4
2	0.33	0.27	17	0.6	0.67
3	0.73	0.67	18	0.73	0.37
4	0.53	0.8	19	0.33	0.71
5	0.8	0.4	20	0.67	0.4
6	0.47	0.8	21	0.53	0.23
7	0.2	0.4	22	0.73	0.67
8	0.47	0.67	23	0.53	0.8
9	0.47	0.67	a 247 7	0.8	0.4
10	0.47	0.67	25	0.47	0.8
11	0.6	0.67	26	0.2	0.4
12	0.73	0.67	27	0.73	0.4
13	0.33	0.27	28	0.27	0.27
14	0.73	0.67	29	0.53	0.53
15	0.53	0.8	30	0.4	0.8
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Table 13:p-r Value of English Reading Proficiency Test

APPENDICE: G

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Satisfaction Questionnaire

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Satisfaction Questionnaire for TNI students

Directions: Please mark the symbol \checkmark in the box \Box in real situation and real information

5	=	strongly agree
4	=	agree
3	=	neither agree nor disagree
2	=	disagree
1	ן ה ה	strongly disagree

No.	Statement		Lev	el of Ne	eeds	
	5	5	4	3	2	1
	In instructional design			Ċ		
1	There are varieties of lesson activities				5	
2	Font size and letters are easy to read				2	
3	The pictures are relevant to the lesson content				•	
	In content				7	
4	The instructions are clear and understandable.				00	
5	The difficulty of contents is suitable for the learners			, ⁷ 0		
6	The sequence of content and exercises in each unit are appropriate.	OF	TEC			
	In teaching- learning activity					
7	Pre-reading activity helps students to understand vocabulary and structures.					
8	While-reading activity enables students to reach the objective reading.					

No.	Statement	Level of Needs						
110.	Sutchient	5	4	3	2	1		
9	Post-reading activity supports students to revise the knowledge of reading skill and be able to apply the skill.							
	In Multimedia CALL material							
10	The multimedia CALL is easy to use and make me understand reading strategies.							
11	The multimedia CALL is suitable to use with TNI students' environment.							
12	The learners need to learn in other contents through multimedia CALL.	7						

Suggestions

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<u> </u>		
	7	
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	- /	
	NSTI-	

Thank you

APPENDICE: H

IOC Value of Content Appropriateness for Questionnaire in Assessment of 5 Experts



Table 14: IOC Value of Content Appropriateness for Questionnaire in Assessment of 5 Experts

Statement		Scor	es of Exp	erts		Σx	IOC
	1	2	3	4	5		
1	1	1	1	1	1	5	1
2	1	1	1	1	1	5	1
3	1	1	1	1	1	5	1
4	1	1	0	1	1	4	0.80
5	1	1	0	1	1	4	0.80
6	1	1	1	1	1	5	1
7	1	1	1	1	1	5	1
8	1	_ h	0	a g	1	4	0.80
9	1	~ 1	1	1	/1	5	1
10	1	1	1	1	10	5	1
11	1	1	1	1	1	5	1
12	1	1	1	1	1	25	1



APPENDICE: I

Table of Content Specification

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Table 15: table of content specification of multimedia CALL English reading instruction

Unit	Objectives	Text Type	Theme	Language Focus	Reading Skills	Reading Activities	Evaluation
1	 Read five precepts to identify the details, then describe it Skim or scan-read in order to get the main idea and details Sequence the events about five precepts Be able to recount the stage of five precepts 	Passage about five precepts	Five precepts	Vocabulary: - Killing - stealing - sexual misconduct -telling lie -drinking alcohol -five precept avoiding Language focus: Present simple Function: - describe details and identify five precepts	- Skimming and Scanning main idea and details - Sequencing the events about five precepts	Pre-reading - Look at the picture and answer the questions - Match the words with pictures - Study the language focus While-reading - Check the statements True/False - Answer the questions with Yes/No Post-reading - Put the information into the semantic map	10 items M/C 10

Unit	Objectives	Text Type	Theme	Language Focus	Reading Skills	Reading Activities	Evaluation
2	 Objectives Read Buddha's birth to identify the details, then describe it Skim or scan-read in order to get main idea and details Sequence the events about the Buddha's birth Be able to recount the history of the Buddha 	Passage about Buddha's birth	Buddha's birth	Vocabulary: - Pay respect -Lumpini park -seven rays - etc. Language focus: Past simple Function: - describe details of Buddha's birth	Reading Skills - Skimming and Scanning main idea and details - Sequencing the events about Buddha's birth.	Reading ActivitiesPre-reading- Look at the picture and answer the questions- Match the words with pictures- Match the words with pictures- Study the language focusWhile-reading - Check the statementsTrue/False questions with Yes/No - Answer the questionsPost-reading - Put the information into the table	Evaluation 10 items M/C 10

Unit	Objectives	Text Type	Theme	Language Focus	Reading Skills	Reading Activities	Evaluation
Unit 3	Objectives - Read Buddha's enlightenment to identify the details, then describe it - Read the passage to identify word meanings from context clues and pronoun reference - Skim or scan-read in order to get main idea and details - Be able to recount the history of the Buddha	Text Type Passage about Buddha's enlighten ment	Theme Buddha's enlightenment	Language Focus Vocabulary: - enlighten - birth - old - death - Buddhist monk - etc. Language focus: Adjectives Function: - Identifying adjectives	Reading Skills - Skimming and Scanning main idea and details - Sequencing the events about Buddha's enlightenment. - Identifying meaning from pronoun reference - Identifying adjectives	Reading Activities Pre-reading - Look at the picture and answer the questions - Match the words with pictures - Study the language focus While-reading - Answer the questions with Yes/No - Answer the questions Post-reading - Write a postcard and tell about Buddha's enlightenment to your friends	10 items M/C 10

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Unit	Objectives	Text Type	Theme	Language Focus	Reading Skills	Reading Activities	Evaluation
4	- Read Passing away of	Passage	Passing	Vocabulary:	- Skimming	Pre-reading	10 items
	the Buddha to identify	about	away of	- Passing away	and Scanning	- Look at the	M/C 10
	the details, then	passing	the	- Buddha's bone	main idea and	picture and	
	describe it	away of	Buddha	- ceremony	details	answer the	
	- Skim or scan-read in	the		-last teaching	- Sequencing	questions	
	order to get main idea	Buddha		-etc.	the events	- Match the	
	and details			นโลสร	Passing away	words with	
	- Sequence the events			Language	of the Buddha	pictures	
	about Passing away of		<u>}</u>	focus:	- Identifying	- Study the	
	the Buddha	\sim S		pronoun	meaning from	language focus	
	- Be able to recount the			reference	pronoun	While-reading	
	history of the Buddha				reference	- Check the	
		J		Function:	5	statements	
				- Identifying		True/False	
	1			pronoun		- Answer the	
				reference	' >	questions with	
		E			U U	Yes/No	
		1				- Rearrange the	
		1				events about the	
			0.			story	
			INC.	OF TEL		Post-reading	
			, vs1	ITUTE OF		- Put the	
						information into	
						the table	

Unit	Objectives	Text Type	Theme	Language Focus	Reading Skills	Reading Activities	Evaluation
5 - Read t truths to details, t - Skim o order to and deta - Read t identify from co - Be able	he four noble identify the then describe it or Scan-read in get main idea	Passage about the four noble truths	Theme The four noble truths	Language Focus Vocabulary: - suffering - cause of suffering - distinction of suffering - way to distinction of suffering - etc. Language focus: Negative sentence of past simple tense Function: - Identifying Negative sentence of past simple tense	Reading Skills - Skimming and Scanning main idea and details - Sequencing the events about the four noble truths	Reading Activities Pre-reading - Look at the picture and answer the questions - Match the words with pictures - Study the language focus While-reading - Check the statements True/False - Answer the questions with Yes/No - Answer the question Post-reading - Write a postcard and tell content to your	Evaluation 10 items M/C 10

Unit	Objectives	Text Type	Theme	Language Focus	Reading Skills	Reading Activities	Evaluation
6	 Read Functions of parents to identify the details, then describe it Skim or Scan-read in order to get main idea and details Sequence the events about functions of parents Be able to recount functions of parents 	Passage about Functions of parents	Functions of parents	Vocabulary: -find good spouse - support in education -right living - etc. Language focus: Present simple passive voice	- Skimming and Scanning main idea and details - Sequencing the events about Functions of parents.	Pre-reading - Look at the picture and answer the questions - Match the words with pictures - Study the language focus While-reading - Check the statements True/False - Answer the	10 items M/C 10
		THE		Function: - identify Present simple passive voice	ECHTION	 questions with Yes/No Answer the question Post-reading Put the information into the semantic map. 	

Unit	Objectives	Text Type	Theme	Language Focus	Reading Skills	Reading Activities	Evaluation
7	- Read Functions of	Passage	Functions	Vocabulary:	- Skimming	Pre-reading	10 items
	children to identify	about	of	- take care of	and Scanning	- Look at the	M/C 10
	the details, then	Functions	children	parents' treasure	main idea and	picture and answer	
	describe it	of children		- teachable	details	the questions	
	- Read the passage to			-trust	- Sequencing	- Match the words	
	identify word		200	Parents' a 7	the events	with pictures	
	meanings from			teaching	about	- Study the	
	context clues			-etc.	functions of	language focus	
	- Skim or scan-read				children.	While-reading	
	in order to get main	10		Language		- Check the	
	idea and details	τ		focus:	i c i i	statements	
	- Be able to recount			Past Simple		True/False	
	functions of children			Passive Voice		- Answer the	
						questions with	
		7	· · ·	Function:	\hat{c}	Yes/No	
		Y.		- identify Past	ŏ	- Answer the	
				Simple Passive		question	
			1/2	Voice		Post-reading	
						- Put the	
				STITUTE OF		information into	
						the semantic map.	

Unit	Objectives	Text Type	Theme	Language Focus	Reading Skills	Reading Activities	Evaluation
8	 Read the noble eightfold path to identify the details, then describe it Sequence the events about the noble eightfold path Skim or scan-read in order to get main idea and details Be able to recount the stage of the noble eightfold path 	Passage about the noble eightfold	The noble eightfold path		- Skimming and Scanning main idea and details - Sequencing the events about the noble eightfold path.	Pre-reading - Look at the picture and answer the questions - Match the words with pictures	10 items M/C 10

APPENDICE: J

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Example of multimedia CALL English reading instruction



Chapter 3 Search for truth Objectives Pre-reading 🔹 Language Focus - Read the search for truth to identify the details, then describe it - Read the passage to identify word meanings from context clues While-reading - Skim or scan-read in order to get main idea and details 🚸 Search for truth - Be able to tell the history of the Buddha Seeking for Enlightenment Enlightenment G Intensive reading Post-readin 🔶 Test Volume le Main menu 🐟 Exit 10 Figure 2: Example of Pre-reading activity (Warm-up stage)

Figure 1: Example of Chapter 3 Search for truth (Buddha's enlightenment)



Figure 3: Example of Pre-reading activity (Matching vocabulary and pictures)



Figure 4: Example of While-reading with glossary and exercise in each passage

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Figure 5: Example of Post-reading activity (Semantic map)

Figure 6: Example of Language Focus (Usage and Example)

Usage:

Pronouns are words that link, or tie, the writer's ideas together. The reader needs to know which words the pronouns are replacing.

Example:

- The Buddha went to teach Yasa. <u>He</u> was a millionaire's son. <u>He</u> led a luxurious life, but <u>he</u> was not happy
- People were willing to follow the Buddha's Teachings. <u>They</u> included the young, the old, the rich, and the poor. <u>They</u> lived in peace and harmony.





Figure 7: Example of Language Focus (Structure)

1	5	Z			
Structur	e:				
	Subject	Object	Possessive	Possessive Adjective	Reflexive
Singular	I You He She It	Me You Him Her It	Mine Yours His Hers Its	My Your His Her Its	Myself Yourself Himself Herself Itself
Plural	We You They	Us You Them	Ours Yours Theirs	Our Your Their	Ourselves Yourselves Themselve

Figure 8: Example of exercise in Language Focus

Exercise

Instruction: Answer the following questions

The Buddha decided to preach The Dhamma to <u>his</u> five friends who had taken care of <u>him</u> during his six years of struggle for Enlightenment. The Buddha walked slowly to the Deer Park in Isipatana near Benares where <u>they</u> were staying. His five friends were Kondhanna, Vappa, Bhaddiya, Mahanama, and Assaji. When they saw the Buddha, they refused to welcome him. They were thinking that <u>he</u> was enjoying a happy life.

1. From the passage, what does <u>"his"</u> refer to?.....



Figure 9: Example of reading test in each unit



ผลการสอบประจำบทของคุณ

คุณได้ทำการทดสอบทั้งหมด 5 ข้อ รวมข้อผิดทั้งหมดได้ 3 ข้อ รวมข้อถูกทั้งหมดได้ 2 ข้อ คิดเป็นเปอร์เซ็นต์ได้ 40 %

Next

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Bio Data



Bundit Anuyahong is a lecturer and Assistant Director in Academic Affair at College of General Education and Languages, Thai-Nichi Institute of Technology and is also a doctoral student at Silpakorn University in Curriculum and Instruction-Teaching English. He obtained Master of Education in TEFL from Silpakorn University in 2008. He has taught English as a foreign language in TNI for four years. His research interests include CALL, English reading instruction, English for specific purpose, and teaching English as a foreign language.

