

DO RE MI? YES! USING MUSIC AND VISUAL ARTS TO PROMOTE THAI
CHILDREN'S ENGLISH VOCABULARY DEVELOPMENT

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This research examines the efficacy, if any, of the Music and Visual Arts (MVA) program in improving the English vocabulary development of first grade Thai students. The researcher developed the Vocabulary Recognition Assessment (VRA) as a measure of English vocabulary development. It employs the accuracy and rapidity method of word recognition as a measurement of English language development in Thai children. Forty first grade Thai students in a Bangkok elementary school participated in the study. Participants were divided equally between an experimental group and a control group. During a nine-week period, students in the experimental group were instructed with the MVA strategy, while students in the control group were taught with the Visual Arts (VA) strategy. Paired sample t-test, ANOVA, and ANCOVA were used to analyze data from the VRA, to compare the pre-test and the post-test in terms of accuracy scores and rapidity scores of the control group and the experimental group. Data revealed that students instructed with the MVA strategy improved their English vocabulary development in terms of accuracy of word recognition significantly more than students taught English using the VA strategy. No significant difference was found between the MVA strategy and the VA strategy in terms of rapidity of word recognition. The MVA strategy could be a useful strategy for Thai early childhood teachers to use in helping Thai children learn English vocabulary.

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TABLE OF CONTENTS

	Page
ACKNOWLEDGEMENTS.....	iii
LIST OF TABLES.....	iv
DO RE MI? YES! USING MUSIC AND VISUAL ARTS	
Introduction.....	1
Method.....	11
Results.....	29
Discussion.....	47
References.....	59
Appendices	
A. EXTENDED LITERATURE REVIEW.....	71
B. DETAILED METHODOLOGY.....	93
C. COMPLETE/UNABRIDGED RESULTS.....	98
D. OTHER ADDITIONAL MATERIALS.....	103
COMPREHENSIVE REFERENCE LIST.....	122

LIST OF TABLES

1.	The Ordinary National Educational Test Score (O-NET) of Sixth Grade and Ninth Grade Students in 2010.....	9
2	The Number of English Vocabulary Words in Each Category and the Number of Groups of English Vocabulary Words within Each Category.....	15
3	Number and Percent of Participants Divided by Their English Language Ability in the MVA Group and the VA Group.....	33
4	Mean Scores and Standard Deviation of Participants in the MVA Group and the VA Group.....	34
5	Paired Sample T-test Results of Accuracy and Rapidity Development of the Participants in the Music and Visual Arts group.....	36
6	Paired Sample T-test Results of Accuracy and Rapidity Development of the Participants with Different English Language Ability in the Music and Visual Arts Group.....	37
7	ANOVA Results of Accuracy Development of Participants Who Had Different English Language Ability in the Music and Visual Arts Group.....	38
8	ANOVA Results of Rapidity Development of Participants Who Had Different English Language Ability in the Music and Visual Arts Group.....	38

9	Paired Sample T-test Results of Accuracy and Rapidity Development of the Participants in the Visual Arts group.....	41
10	Paired Sample T-test Results of Accuracy and Rapidity Development of the Participants who had different English Language Ability in the Visual Arts Group.....	42
11	ANOVA Results of Accuracy Development of Participants Who Had Different English Language Ability in the Visual Arts Group.....	43
12	ANOVA Results of Rapidity Development of Participants Who Had Different English Language Ability in the Visual Arts Group.....	43
13	ANCOVA Results of Comparing Accuracy Development between the Music and Visual Arts (MVA) Strategy and the Visual Arts (VA) Strategy.....	45
14	ANCOVA Results of Comparison of Rapidity Development between the Music and Visual Arts (MVA) Strategy and the Visual Arts (VA) Strategy.....	46

DO RE MI? YES! USING MUSIC AND VISUAL ARTS TO PROMOTE THAI CHILDREN'S ENGLISH VOCABULARY DEVELOPMENT

Introduction

By numbers of native speakers alone, English is the third most spoken language in the world (Siva 2010). Different sources place the numbers of native speakers of these three languages differently. One source places the numbers at approximately 955 million for Mandarin, 405 million for Spanish and 400 million for English (Nationalencyklopedin, 2010). Another places the number of native speakers of English at about 400 million, second to Mandarin's 850 million, and Spanish in the third place with 390 million speakers (Paul, Simon, & Fennig, 2014).

Unlike Mandarin and Spanish, however, English has developed a special status as a global language. According to Crystal (2003), a language cannot become a global language only because of its number of native speakers *per se*; it must be adopted by other countries in which the language in question is not used as a mother tongue. Such adoption could be made in one of two major ways: by designating it as a second language (such as in Ghana, Singapore and India) or as a foreign language (such as in Japan, China and Thailand). Currently, the latest estimates place the number of speakers of English as a second language and as a foreign language at approximately 400 million per category (Ethnologue, 2014). In total, therefore, English is estimated to have as many as 1.2 billion speakers worldwide.

With the rise of English as a global language, the relationship between English proficiency and economic growth is apparent. Recent empirical research reveals a greater likelihood for economic development in countries with higher levels of English

proficiency (Euromonitor International, 2010; Marcelo, 2010; Laviolette, 2012; Lee, 2012). The importance of English proficiency for economic development is being recognized not only in Asia and Europe but also in Africa. In Rwanda, for example, the government, responding to the increasing demand for English proficiency in East Africa, is allocating 21 percent of its total public expenditures to comprehensively improve English language skills by 2020 (Laviolette, 2012; Euromonitor International, 2010). Rwanda places main emphasis on using English in everyday life for communication, business, and research. Thus, English competency is now considered a crucial component in developing the economy of the nation (Laviolette, 2012; Ministry of Education, Rwanda, 2006). In other countries, such as Cameroon, Nigeria, Bangladesh, and Pakistan, governments have encouraged citizens to improve their English as a tool for them to trade products more efficiently in the global market (Euromonitor International, 2010). Not surprisingly, people with high English proficiency in foreign countries are more likely to be hired than those with weaker English communication skills (Marcelo, 2010).

The invention and proliferation of the Internet as a means of global communication has also increased the interest in and importance of English-language proficiency. Internet World Stats (2014) revealed that English is the most common language used on the Internet today. Not only is English used for communication among Anglophones, but it is also adopted by non-native English speakers speaking different languages, as a medium of everyday interaction and communication. Many studies have affirmed that speakers of English as a Second Language (ESL) often struggle to communicate with native English speakers and sometimes receive negative

emotional responses, suffer from service failure, or miss critical information (Warden, Liu, Lee, & Huang, 2003; Mattila, 2009).

Concerning education, foreign students who possess high levels of English proficiency usually have an advantage over others for several reasons. First, various kinds of education-related information, e.g., reports, news, commentaries, are communicated on-line in English (Internet World Stats, 2014; Naved, 2012). Second, English is the language in which academic research, scientific publications, and other types of technical information are written and published (Crystal, 2003; Lee, 2012). Third, English proficiency is a major requirement for students planning to study abroad, especially in countries where English is the official language; in addition to acceptable GPAs, such students have to achieve TOEFL or IELTS scores as required by their programs or universities (Cho & Bridgeman, 2012).

Due to the increasing impact of English on people's lives around the world, educators are experimenting with methods for improving English proficiency. Literacy educators (e.g., Wattes-Taffe, Fisher, & Blachowic, 2009) claim that significantly improved vocabulary is vital to schoolchildren's achievement of higher literacy levels. In addition, Chung's research (2012) has shown that vocabulary acquisition plays one of the most important roles in the development of English Language Learners (ELLs). To achieve independent reading comprehension, English Language Learners should know approximately 98% of the English words they read (Laufer & Ravenhorst-Kalovski, 2010). However, a significant difference between students speaking English natively and students speaking English as a second language has been noted (Carlo et al., 2008). Whereas the former know an average of 5,000 to 10,000 words before

beginning school instruction, the latter know only about 3,000 to 6,000 words (Blachowicz, Fisher, Ogle, & Watts-Taffe, 2006; Carlo et al., 2008). In addition, Gass and Selinker (2008) found that second language learners of English made three times more vocabulary errors than grammar errors. These studies confirm that insufficient English vocabulary is one of the main causes of delayed proficiency among English Language Learners.

Over the past years various vocabulary-enhancing methods have been proposed, especially for young children. Many researchers agree that music is one of the more successful strategies to help young children improve their language ability and proficiency (Bolduc, 2008; Darling-Kuria 2010; Harris, 2008; Hayes, 2009; Seeman, 2008; Sousa, 2006). Neurological research has proven that music has a significant influence on the brain because it helps trigger memories, promotes socialization, and can calm children down to moods that are more receptive to learning (Darling-Kuria, 2010). In one study (Sousa, 2006), when children received formal music instruction, the higher-functioning area in the frontal lobe—one of the four main lobes in cerebral cortex located under the forehead, accountable for mathematics and logic—was stimulated. Sousa's study was supported by a subsequent study, which focused on the difference in mathematical scores between music-enriched Montessori instruction and traditional Montessori instruction. The findings showed that students who received music-enriched Montessori instruction achieved higher mathematical scores than the students in the other group (Harris, 2008).

Music has also been found to enhance literacy skills in children (Bolduc, 2008; Seeman, 2008). Seeman (2008) conducted a study which examined the effects of

music on the receptive language skills of children in early childhood programs, aged between three and five, who had language delays. This study revealed a 34.7 percent increase in phonemic awareness and 21.2 percent increase in receptive language skills (Seeman, 2008). Similarly, Bolduc's (2008) review of 13 research papers published between 1988 and 2008 led to a conclusion that music instruction contributed significantly to kindergarten students' improvement of emergent literacy. Finally, researchers have found that music can also boost memory and recall in children. For instance, musical mnemonics has been shown to improve the memory of K-5 mildly handicapped or learning-disabled students (Hayes, 2009).

In addition to music, visual arts have also been found capable of improving children's learning (Cornett, 2006; Darling-Kuria, 2010; Jensen, 2008; McCarty, 2007). According to Darling-Kuria (2010), people usually remember better if they have a chance to touch and manipulate visuals. It is currently understood that the human eye and brain have the ability to receive about 36,000 visual messages per hour, as the retina has access to 40 percent of all nerve fibers connected to the brain; also, people process nearly 90 percent of all sensory information visually (Jensen, 2008). Thus, it is essential that teachers employ visual arts as one of the preferred methods to enhance language learning (McCarty, 2007). Howard Gardner, the author of "Nine Types of Intelligence" (2006), found that visual arts could help children enhance their spatial intelligence, one of nine essential dimensions of intelligence. He was in agreement with other scholars who emphasized that to improve students' visual imagination and reading comprehension skills, teachers should employ visual arts, as pictures could

enable children to form concepts in their mind more easily (Cornett, 2006; McCarty, 2007).

History of English Language Learning in Thailand

The arrival of Europeans, namely, the Spanish, Portuguese, Dutch, French, and English, in Thailand began in the 16th century, mostly for exploration and trade purposes. Yet in this period, English did not spread as rapidly as the other European languages, for example, Portuguese and Dutch (History of Thai Education, 2007). It became more prominent in the Rattanakosin era, when Dan Beach Bradley, an American physician and missionary, established the first newspaper in Thailand in 1844 (Graves, 2007). Also, aware of the need to cope with the expanding imperialism, King Mongkut (King Rama IV of Thailand's Chakri Dynasty), realized the importance of learning foreign languages, especially English, for diplomatic purposes. In 1862, he hired an English teacher Anna Leonowens to teach the princes and princesses in his palace (History of Education in Siam, 2012; Baker, 2012).

King Monkut's successor, King Chulalongkorn (also known as King Rama V, or the fifth monarch of the Chakri dynasty) believed the royal family and Thai people should learn foreign languages, particularly English, because knowledge from the Western world, especially in medicine, printing, education, and technology, was mostly in English (Toh, 2000; History of Thai Education, 2007; Sukamolson, 1998). More importantly, the king wanted to save Thailand, or Siam as it was called at that time, from becoming a Western colony (History of education in Siam, 2012; History of Thai Education, 2007). Part of his effort to promote foreign-language learning in Thailand

included sending his son to study in Europe and granting scholarships to Thai scholars to study overseas. He also established a school in his palace in Bangkok, for the main purpose of English-language teaching (History of education in Siam, 2012; History of Thai Education, 2007; Hunchareon, 2002). Following the king's initiative, many wealthy Thai families began sending their children to study at Western universities and to master the English language (Hunchareon, 2002).

In Thailand today, Thai Ministry of Education requires the teaching of English in the public schools starting in the first grade and continuing through the university level (Nagi, 2012; Internet World Stats, 2014; The Ministry of Education, Thailand, 2008). Although some Thais, in an effort to protect Thai culture from Western interference, resist the teaching of English, the government and most educators believe English-language learning is necessary due to its significance in the global community (Nagi, 2012). Well-to-do people in urban areas also seek to enroll their children in international schools so that they can become more proficient in English (International Schools Association of Thailand, 2014).

Although the original purpose of international schools was to serve the needs of foreign students whose parents were diplomats or working in Thailand, the demand by Thai families has continued to rise. To respond to such domestic demand, and because of the increasing numbers of foreigners living in Thailand, many new international schools have been established in the past ten years. By 1987, Thailand had only five international schools, but by 2010 the number of international schools had increased to 120 (Kolsurut, 2011). On the one hand, such growth is providing a greater opportunity

for Thais seeking international school experience for their children; on the other, few can afford such schools' very high tuition fees (Diskul, 2010).

In addition to educational advancement, professional advantages, and survival in the global economy, Thais' need to excel in English to keep pace with political and international developments. The Association of Southeast Asian Nations (ASEAN), which consists of ten countries: Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Vietnam, officially started its full economic and diplomatic integration at the beginning of 2015. Article 24 of the ASEAN Charter declares: "The working language of ASEAN shall be English (p.29)." Consequently, the Thai government has started many programs to help its workforce become competent members of the new regional community (Wilang & Teo, 2012).

Research shows that Thai people currently possess low English competency compared with those of other ASEAN countries (English First, 2012; Punyathanakun, 2012). Thai people showed the lowest percentage of English communication proficiency compared with Singaporeans, Philippines, Bruneians, and Malaysians (Punyathanakun, 2012). To remedy this drawback, the Thai government has created new programs to help citizens improve their English skills, such as the English Camps initiative in 2003 and the English Speaking Development project in 2012 (Harris & Rugasken, 2009; Sinwongsuwat & Wilang, 2012). In addition, the Thai government has encouraged every school to provide English instruction starting in the first grade, in order to give Thai students more opportunities to use English to communicate in various situations, acquire knowledge, and pursue further education at higher levels (The ministry of Education, Thailand, 2008).

Problems of Learning English in Thailand

According to the National Institute of Educational Testing Service, which provides the Ordinary National Educational Test (O-NET) in Thailand, Thai students still cannot use English proficiently despite their exposure to English in the public school system for more than ten years (Surarinth, 2010). As shown in Table 1 below, the average English scores achieved by Thai sixth-graders and ninth-graders in 2010 were lowest (21/100 and 16.2/100, respectively), compared with their scores in other areas of basic education (Bangkok Metropolitan Administration, 2011).

Table 1

The Ordinary National Educational Test Score (O-NET) of Sixth Grade and Ninth Grade Thai Students in 2010

Grade	Thai	Math	Science	Social	English	Health	Art	Career
Sixth	31.2	34.9	41.6	47.1	21.0	54.3	41.1	52.5
Ninth	42.8	24.2	29.1	40.9	16.2	71.9	28.5	47.1

Bangkok Metropolitan Administration, 2011.

One of the causes of these low English scores is insufficient vocabulary. Compared with those in other Southeast Asian countries, Thais possess relatively poor English vocabulary skills (Vitiprod, 2009). While a Singaporean first-grader knows averagely 1,500 English words and a Malaysian first-grader about 600 words, the average Thai sixth-grader knows fewer than 1,000 English words (Vitiprod, 2009). In addition, although vocabulary is a fundamental key to learning every language, Thai students know far less vocabulary than they are expected to possess in order to succeed in the curriculum (Chandrakasem, 2012; Vitiprod, 2009). On average, Thai students know less than 50 percent of the vocabulary expected by educators (Vitiprod,

2009). Furthermore, it has been reported that many Thai students tend to have difficulty remembering English words and to forget them very soon (Chandrakasem, 2012).

Researchers in Thailand have identified several reasons for Thai students' tendency toward poor English skills. First, teachers of English graduated with different degrees and therefore may not be qualified to teach English (Paje, 2015). Second, many of these did not receive appropriate teacher training to help them teach English effectively (Paje, 2015). Third, much of the instruction is focused on grammar and is not applied to conversational English, which students can use in daily life, and little time is provided for students to practice English in the classroom (Kakkar, n.d.). Many instructors in Thailand are teaching English in the order of writing, reading, speaking, and listening, instead of in the natural sequence beginning with listening, speaking, reading, and writing (Surarinth, 2010). Fourth, as observed by Fox (2010), Thai children are typically shy to communicate in English; they usually refrain from communicating with foreigners because they do not understand what the foreigners are saying or are afraid that they might use incorrect grammar or pronunciation. Finally, the lack of materials and resources, especially in rural areas, makes it more difficult for Thai students to achieve higher levels of English language skills (Toh, 2000). As a result, the average Thai student's struggle with English proficiency is a problem that should be addressed immediately in the public school system, especially in response to the implementation of the ASEAN Integration Treaty, whose principal objective is to promote international economic cooperation.

Using Music and Visual Aids to Increase Vocabulary Competency

In order to close the English proficiency gap between Thai students and students of other ASEAN nations, Thai educators need to find better teaching strategies appropriate for children at each age group (British Council Thailand, 2011; Harris, 2008). British Council (2011) recommends that the best age for children to start learning a foreign language is six years old. Children who start at this age will likely receive the greatest benefit in learning a foreign language. Strategies that have proven effective with young children in learning languages include the use of music or visual arts (Bolduc, 2008; Darling-Kulia, 2010; Harris, 2008; Seeman, 2008). However, there is currently a lack of research to determine the benefit of combining music and visual arts to enhance non-English-speaking learners' learning and retention of English vocabulary. It is therefore the purpose of this study to investigate the efficacy of the integrated use of music and visual arts to enhance Thai first-graders' acquisition of English vocabulary, as this is the entry level where English is required by the Thai Ministry of Education as a core subject in the public schools.

Methods

In this study, the efficacy of music and visual arts to promote vocabulary development was examined using an experimental design. An experimental research study involves manipulation of an independent variable (stimulus) so that it causes changes in a dependent variable (response), allowing the researcher to make cause-and-effect inferences (Sprinthall, 2011).

In this study, the independent variable was the teaching strategy, a combination of music and visual arts, used by the researcher to increase the English vocabulary recall of a selected group of first grade students. As the review of past studies has shown, music and visual arts are effective strategies that help young children improve their mathematical skill and literacy skill, respectively (Harris, 2008; Seeman, 2008). Children can also memorize better if they use pictures as prompts (McCarty, 2007; Jensen, 2008). The strategy used in this study, that is, the combined use of music and visual arts, was administered to the experimental group, while the control group was given only visual arts. The two groups were then compared in terms of their English vocabulary enhancement.

The dependent variables in the study were the accuracy and rapidity of the subjects' recognition of a set of English vocabulary words. The researcher used 70 English vocabulary words that the first-grade students attending the school where the experiment was conducted (i.e., participating school) are required to know by the end of the second semester (see Appendix A). To assess the subjects' performance, the researcher developed a pre-test and a post-test based on the school's curriculum. To analyze the data and answer the researcher questions, the researcher used paired sample *t*-test, ANOVA, and ANCOVA.

Pilot Study

This section describes the procedures the researcher used to develop songs, lesson plans, flash cards, a demographic questionnaire, and the Vocabulary Recognition Assessment (VRA) tool for this study.

To develop the songs, lesson plans, flash cards, a demographic questionnaire, and the VRA, the researcher consulted with a panel of three experts. Two were former faculty members at the University of North Texas, one from the College of Music and the other from the College of Education. The third expert was a veteran teacher with more than ten years of teaching experience in elementary schools. The first expert, from the College of Music, provided consultation on how to choose appropriate songs for young children and how to compose lyrics that would match the melody of each song. The second and the third experts, that is, the former Education College member and the veteran Thai teacher, advised the researcher on how to create lesson plans and choose photos appropriate for the participants. They also checked the relevance between the photos and the English vocabulary.

Songs

The songs were composed by the researcher, reviewed by the panel of experts, and contained the English vocabulary words that the first-grade students were required to know by the time they finished the second semester. To obtain the required English vocabulary, the researcher consulted the Basic Education Core Curriculum B.E. 2551(Thai year) (2008), in which one of the requirements stated that students are supposed to know approximately 300 to 450 words of a foreign language, especially English by the end of the third grade. The core curriculum further stated that students should be able to tell the meanings of words related to various topics, such as themselves, their families, their schools, the environment, foods, and beverages (The Ministry of Education Thailand, 2008). The participating school's compilation of the lists

of words related to these topics was based on the ten English workbooks recommended by the Department of Curriculum and Instruction Development as guidelines for choosing English vocabulary words for first-grade students (Wat Yangsuttharam School, 2010). In total, 150 English vocabulary words are covered throughout the entire school year; of these, 70 are required for the second semester.

The researcher separated all the 70 English vocabulary words into seven categories: (1) things in a school, (2) animals, (3) fruits and vegetables, (4) food and beverages, (5) numbers, (6) vehicles, and (7) colors. Each category had a different number of English vocabulary words (see appendix D). For example, there were twelve words in the animal category, but only seven in the fruits and vegetables category. The researcher planned to teach five to seven English vocabulary words at a time. For any category with more than seven words, the words were separated into groups of five or six. For instance, as there were 20 English vocabulary words in the number category, they were separated into four groups of five. This system, therefore, resulted in 13 groups of English vocabulary words to be taught. Table 2 shows the number of English vocabulary words in each category and the number of English vocabulary word groups within those categories.

Table 2

The Number of English Vocabulary Words in Each Category and the Number of Groups of English Vocabulary Words within Each Category

Category	Numbers of English vocabulary words in the category	Numbers of English vocabulary word groups in the category
Things in a school	10	2
Animals	12	2
Fruits and vegetables	7	1
Food and beverages	6	1
Numbers	20	4
Vehicles	5	1
Colors	10	2
Total	70	13

The researcher then composed 13 songs for use in the instruction. The lyrics of each song contained the words from each word group in each category. In this study, the researcher used melodies with which Thai children are familiar, such as "Twinkle Twinkle Little Star," "Are You Sleeping," "Good Morning to All," "Skip to My Lou," "London Bridge Is Falling Down," "This Old Man," and "We Wish You a Merry Christmas." Only one melody was used for one English word category. If any English word category had more than one English word group, all of the English word groups in that category used the same melody. As a result, seven songs were used for the 13 English word groups in this study (see appendix D). All of these melodies were in the public domain and did not require copyright permission for use.

The vocals of each song recorded for this study featured American English accent, and the songs were approved by Dr. Hagen, one of the committee members. A panel of three experts had been invited to examine and approve the songs before the songs were used. Two of the experts were formerly from the College of Music and the College of Education of the University of North Texas. The third expert was a former teacher with more than ten years of teaching experience in elementary schools. In this study, these songs were used only in the experimental group.

Lesson Plans

The control group and the experimental group were each given 14 lesson plans (hence 28 in total) which had identical contents. These lessons were developed for a seven-week English vocabulary teaching session. Of these 14 lessons, lessons 1 to 13 contained the 70 English vocabulary words first-grade students were required to know before finishing the second semester, while lesson 14 was developed for both groups' participants to review all of the 70 English vocabulary words learned. Before being administered, these 14 pairs of lesson plans were examined and approved by the same three experts mentioned above.

Although the lessons for both the control group and the experimental group were the same, the strategies to teach the vocabulary words were different. The Visual Arts (VA) strategy was used to improve the English vocabulary development of the participants in the control group, while the Music and Visual Arts (MVA) strategy was used in the experimental group.

Flash Cards

Seventy English vocabulary flash cards with real photos were made, each containing one word accompanied by only one picture. The children in both the experimental group and the control group were taught all the 70 required English vocabulary words from the same set of flash cards. All pictures on the flash cards were exactly the same as those used for the Vocabulary Recognition Assessment (VRA).

Demographic Questionnaire

For the purpose of understanding each participant's family background, which might have an influence on the study, a 12-item demographic questionnaire was developed. Questions 1 to 5 were multiple-choice questions asking for general information, namely, the respondent's gender, age, parent's education background, and family's income. Questions 6 to 12 were a mix of multiple-choice and open-ended questions, with questions 6 to 10 focusing on by whom and how the respondent was educated at home, and questions 11 and 12 asking about music activities and types of songs that the respondent liked. To verify the validity and reliability of the demographic questionnaire, the same three experts mentioned previously were invited to examine and advice on any problems they saw.

After review and approval, the questionnaire was translated into Thai and tested with three first-grade students' parents whose children were not participating in the study. The researcher used this approach so that language- or translation-related problems could be identified and corrected before the questionnaire was administered to the participants.

The Vocabulary Recognition Assessment (VRA)

The researcher developed a Vocabulary Recognition Assessment tool (VRA) by using all the 70 English vocabulary words required by the participating school. These vocabulary words were recommended by the Basic Education Core Curriculum B.E. 2551 (A.D. 2008) to be used in conjunction with ten English workbooks suggested by the Department of Curriculum and Instruction Development for first-grade students (Wat Yangsuttharam School, 2010).

Although 150 English words were required for first-graders in the entire school year, only 70, which were required for the second semester, were used for this study. The 70 selected English vocabulary words were separated into seven categories: animals, fruits and vegetables, food and beverages, numbers, vehicles, and colors. The researcher then developed two sets of the VRA for a pre-test and a post-test, respectively, both based on the 70 English vocabulary words, but in difference orders. Both sets of the VRA were developed to examine the outcome of using the VA strategy and the MVA strategy to enhance the English vocabulary development of the first-grade students in terms of accuracy and rapidity of word recognition.

For validity and reliability verification, the VRA tools were examined by the same three experts who verified the songs, lesson plans, flash cards, and demographic questionnaire. After improving the VRA tools according to the experts' suggestions, the researcher tested the VRA tools with three first-grade Karuna Elementary School students, none of whom was a participant in the study. Any problems that occurred with the tools were addressed prior to beginning the study.

Participants

As previously mentioned, English is required by the Thai Ministry of Education to be taught in the public schools starting in the first grade (The Ministry of Education Thailand, 2008). For this reason, this research was focused on Thai first-grade students. The participants in this study were recruited based on the following criteria.

Participating School

A participating school was chosen using four criteria. First, the participating school is located in Bangkok, Thailand. It was chosen by the researcher because of the diversity of its students' backgrounds. Currently, a large number of Thai people have migrated from other provinces to this metropolis, resulting in increased diversity of student backgrounds, both rural and urban, in most schools in the area. A recent estimate shows that the population of Bangkok is 46 times larger than the population of Chang Mai, the second largest city in Thailand (Tungchonlatip, 2007).

The second criterion was that the participating school has students from families of low to medium socioeconomic backgrounds. The majority of the students were not taught English at the preschool or kindergarten level.

Third, at the time of the study, the participating school had more than 40 first-grade students, who were studying all their subjects, except English, in Thai. Although the school has an English Program (EP), none of the EP students was included in the study because these students' English ability was superior to that of the students in other classrooms.

Forth, the school was willing to give the researcher permission to gather data and conduct the study on its students.

At the time of the study, there are 436 schools under the Bangkok Metropolitan Administration. To choose a participating school from this group, the researcher first contacted the Department of Education under the Bangkok Metropolitan Administration to identify schools that met the researcher's criteria. The Deputy Director of the Department of Education under the Bangkok Metropolitan Administration suggested six schools that met all of the researcher's criteria. After contacting the six schools' principals, the researcher was permitted to conduct this research at Karuna Elementary School (pseudonym).

Participant Details

Forty Thai first-grade students participated in this research. All of the participants were from the same school; however, the students enrolled in the English Program were excluded. To recruit participants, the researcher sent a letter to the parents of each of the first-graders to introduce and explain the study. If they were interested in letting their child participate in the study, the parents signed a consent form to allow the researcher to conduct the study with their children. If more than forty students wished to participate in the study, the researcher would use a simple random sampling method to select the participants.

The following process was used to divide the participants into an experimental group and a control group. First, the researcher asked the teacher of English at the school for each participant's first-semester English-language raw score. Secondly, the

researcher separated the participants into three groups based on these scores. The first group contained the participants whose raw scores were at percentile 33 and lower, the second contained those whose raw scores were between percentile 34 to percentile 66, and the last contained those whose raw scores were at percentile 67 and higher. The researcher balanced the participants according to their scores, so that the experimental group and the control group each had a total of 20 equally mixed low, average, and high level students. The participants in the experimental group were taught by using the Music and Visual Arts (MVA) strategy, while the participants in the control group were taught by using only the Visual Arts (VA) strategy.

Setting

The Bangkok Metropolitan Administration, established in 1977, oversees the residential and administrative affairs of Bangkok. Currently, Bangkok is Thailand's only province whose local government comprehensively provides infrastructural, healthcare, social, economic, and educational services; all the other provinces receive these services from the federal government (Bangkok Metropolitan Administration, 2008). The Department of Education, which is one of the organizations under the local Bangkok Metropolitan Administration, is concerned with the educational management of all the Bangkok metropolitan area. The Department of Education provides free education for students residing in Bangkok, from preschool to the twelfth grade (Department of Education Bangkok Metropolitan Administration, 2003).

A school under the Bangkok Metropolitan Administration that met all of the criteria for this study was Karuna Elementary School. Established in 1954 in

Bangkoknoi district, this school was initially operated by the Ministry of Education of the federal government, before being transferred to be under the Bangkok Metropolitan Administration in 1963.

The majority of the students in this school come from lower socio-economic backgrounds. According to the National Information Center (2014), “poor” people are defined as those whose income is not enough to pay for food and other basic necessities. The Bangkoknoi area, where Karuna Elementary School is located, is identified by Punjakun (2014), based on the NIC criteria, as a poor area of Bangkok. Some of the children in this area do not live with their parents, while others are not properly taken care of by their guardians. According to a report by Wat Yangsuttharam School (2011), the lack of family’s support was a reason for these students’ underperformance in learning.

Karuna Elementary School is open to children from preschool to the sixth grade, with a total of over 600 students. It places its approximately 100 first-grade students in three classrooms (Department of Education Bangkok Metropolitan Administration, 2011). The number of classrooms at each grade level depends on the number of students at that grade level. On average, approximately 25-30 students are placed in each classroom. The school also provides an English Program (EP). However, the English Program students were excluded from the study because they had much higher English ability than first-graders in other classrooms.

According to the Bureau of Education Innovation, Ministry of Education (2003), there are two types of English Programs in Thailand. One type is the Mini English Program (MEP), which teaches at least two of the daily nine core subjects in English, or

8 to 14 hours per week in English. The other type is the regular English Program (EP), which offers at least four of the nine daily core subjects in English. Thai language classes and social studies subjects related to Thai culture are always taught in Thai. The English Program at Karuna Elementary School is of the EP type. The other three classrooms of Karuna Elementary School are regular classes where all subjects are taught in Thai.

Procedures

The researcher first contacted the Deputy Director General of the Department of Education in the Bangkok Metropolitan Administration. The researcher proposed this project and discussed potential schools where the researcher might conduct the study. After reviewing the project, the researcher was offered a list of six recommended schools.

Then, the researcher made telephone contact with these six schools. The school that met the criteria and welcomed the research project was Karuna Elementary School. The researcher made an appointment to pay an informal visit to the school. On the visit, the principal gave the researcher an opportunity to explain the project in detail. The principal then gave the researcher the first-grade English curriculum and asked Ms. Juntra (pseudonym), the English teacher for the first grade, to further explain the curriculum. Ms. Juntra and the researcher together reviewed the first-grade English curriculum, whereby the researcher was given the required English vocabulary. To fully prepare for the project, the researcher made subsequent contact with Ms. Juntra by

phone and email, and paid additional visits to the school to gather more information and resources.

The researcher composed songs, developed lesson plans for the control and the experimental groups, made flash cards to use in teaching the required English vocabulary words, developed the demographic questionnaire, and created the Vocabulary Recognition Assessment (VRA).

To obtain permission to collect data and perform the experiment, the researcher sent a formal request to Karuna Elementary School and was granted permission. Next, the study proposal was reviewed and approved by the University of North Texas Institutional Review Board (IRB) to assure the protection of all participants. Before conducting the study, the researcher sent a letter to every first-grade student's parents (excluding those in the English Program) to explain the study and ask for their permission to let their child participate in the study. The parents who allowed their children to participate in the study would be asked to sign a consent form. In case more than 40 students wished to join the study, a simple random sampling method would be used to select the participants. Lastly, the researcher placed the participants into the experimental group and the control group based on their first-semester English-language raw scores. (See the *Participant Details* section on page 20 for the detail of this process.)

The research was conducted in nine weeks. In the first week, all of the participants were given a pre-test. From the second to the eighth weeks, the participants in the control group were taught the English vocabulary words using the VA strategy, while the students in the experimental group were taught the English

vocabulary words using the MVA strategy. During the instruction, both the experimental group and the control group were taught the same English vocabulary words and presented with the same pictures on the flash cards. Finally, in the ninth week, all of the participants were given a post-test.

The teaching of the English vocabulary words to the control and the experimental groups proceeded as follows. The Visual Arts (VA) strategy was used to teach the English vocabulary words to control group's members. First, the researcher showed the pictures of all of the English vocabulary words for that day on the board and explained the pictures to all the students. Secondly, the researcher pointed to a picture and played the tape where each word was pronounced with an American accent. In this step, the participants also had a chance to pronounce each English word. The researcher let the participants practice each English word with the tape until they could say the word correctly. Thirdly, the researcher reviewed the English vocabulary by asking each participant to pronounce the word that corresponded to the photo to which the researcher pointed.

The members of the experimental group, on the other hand, were taught the English vocabulary words with a lesson based on the Music and Visual Arts (MVA) strategy. The experimental group's lesson started by the researcher showing on a white board pictures of all of the English vocabulary words for that day. The researcher then explained the pictures to all the students. Next, the researcher pointed to the pictures that represented the English vocabulary words and let the participants listen to a song (in an American accent) on tape at the same time. After that, the researcher taught the participants to sing that song until they could sing the whole song. The researcher

pointed at the pictures while the participants were singing. In the last step, the researcher reviewed the English vocabulary by asking each participant to sing some part of the song in conjunction with the pictures to which the researcher pointed.

Measures

The researcher used two instruments to gather data. One instrument was the demographic questionnaire (see appendix D). The other instrument was the Vocabulary Recognition Assessment (VRA) tool, which consisted of two sets (see the sample in appendix D).

Demographic Questionnaire

The demographic questionnaire was developed to obtain a better understanding of the participants' family backgrounds and their parents' role in improving their learning ability. The researcher also consulted the information from the questionnaire to help analyze the result. The data from the demographic questionnaire was used to support the results obtained from the Vocabulary Recognition Assessment (VRA) tool. The questionnaire was translated into Thai before giving it to the parents at the end of seventh week and was collected back during the eighth week.

The Vocabulary Recognition Assessment (VRA) Tool

The Vocabulary Recognition Assessment tool (VRA), developed in accordance with the school curriculum, consisted of two sets: the pre-test set and the post-test set. Both sets of the VRA contained the same English vocabulary words (i.e., the 70 English

vocabulary words required for the first-grade students in the second semester), but they were arranged in different order. (The procedure to develop the VRA tool was described in the pilot study section.)

This assessment tool was used as a pre-test in the first week and as a post-test in the ninth week of the study. The VRA tool was used with the 70 picture vocabulary flash cards. When a participating student saw a picture, the researcher checked the accuracy and recorded the amount of time that elapsed between the student's seeing the picture and pronouncing the English word. As suggested by Leslie and Caldwell (2011), the proper speed of primary students' recall should be ten to fifty-two correct words per minute. For Thai students who have just started learning English, however, the researcher's goal was pronunciation of 10 correct words within 1 minute of seeing the pictures. If a participating student could not say the English word correctly within six seconds, the researcher assumed that the student did not know the word. The researcher proceeded in this fashion until all the pictures had been displayed to the student.

To record the accuracy of the English word recognition, the researcher checked whether the participants could say an English word correctly within six seconds. If the participant could do it, the researcher checked ✓ in the accuracy column next to the picture representing the correctly stated English word. For any picture for which the participant failed to pronounce the correctly matching word within six seconds, the researcher left the space blank.

The rapidity of the English word recognition was recorded using the following procedure. During the pre-test and the post-test, the participants' performance was videotaped. After the pre-test and the post-test, the researcher viewed each of the recorded sessions to check the participants' accuracy and rapidity of English word recognition.

To record the participants' rapidity of English word recognition, the researcher wrote down how many seconds the participant took to say an English word after seeing a picture. The range of the rapidity in the rapidity column was between one and six seconds. The researcher left a blank space if the participant could not say an English word within six seconds after seeing a picture. The results from the VRA instrument, measured according to the accuracy and rapidity of English word recognition, were used by the researcher to determine which teaching strategy was more effective in enhancing Thai first-graders' English vocabulary development.

Data Analysis

After collecting the data, the researcher reviewed the data analysis process with a statistics professor. The data obtained from the demographic questionnaire and the Vocabulary Recognition Assessment (VRA) tool were analyzed using the Statistical Package for the Social Sciences (SPSS). The demographic data, which was intended to create a better understanding of each participant's family background, were analyzed in terms of its frequency and percentage. The overall performance of the participants in both the experimental and control groups were analyzed using descriptive statistics.

The data obtained from the VRA were compared to find out the efficacy of the VA and MVA teaching strategies in helping each group's participants to improve their English vocabulary. The statistical methods used to analyze the VRA-obtained data consisted of a paired sample *t*-test, ANOVA, and ANCOVA. By means of a paired sample *t*-test, the pre-test and post-test scores of the experimental and control groups' members who had different levels of English-language ability were compared in terms of their English word recognition accuracy and rapidity. Then, word recognition accuracy and rapidity scores of each group's members with different levels of English-language ability were analyzed in relation to the teaching strategies, using ANOVA. Finally, ANCOVA was used to analyze the English vocabulary learning progress between the experimental group and the control group, based on their word recognition accuracy and rapidity.

Results

Introduction

This section presents the outcomes of using the Music and Visual Arts strategy to promote English vocabulary development in Thai first-grade students. IBM SPSS statistics version 21 was used to analyze data from both demographic questionnaire and the Vocabulary Recognition Assessment (VRA). To obtain a better understanding of the participants' family backgrounds, descriptive statistics were used to analyze the data from the demographic questionnaire. Paired samples *t*-test, ANOVA, and ANCOVA were used to analyze the data from the Vocabulary Recognition Assessment. Statistical significance value was set at the alpha level of 0.05.

Descriptive Statistics

Description of the Sample

The parents of each of the forty students participating in the experimental group as MVA recipients and in the control group as VA recipients were sent a copy of the demographic questionnaire. When the completed questionnaire copies were re-collected, descriptive statistics analysis was conducted separately for the participants in the experimental group and the control group. The demographic data were examined in terms of frequency and percentage.

The experimental group, whose twenty participants were instructed using the MVA strategy, had a male-female ratio of 55/45 percent. Seventy percent of the participants were seven years old and the other 30% were six years old. All of the participants' mothers and nearly all of the participants' fathers (100% and 90% respectively) had high school education or lower. Nearly half (45%) of the participants' families earned between THB 9,000-15,000 per month (about US\$ 300-500), and 35% earned lower than THB 9,000 per month (less than US\$ 300).

Thirty-five percent of the experimental group participants received educational support from their grandparents, 30% from their mothers (30%), and only 25% from both parents. The activities most frequently performed by the parents to support their children's education were homework reviewing (85%), talking about what was going on at school (75 %), and participating in school events (55%). Forty-five percent of the participants' parents or guardians helped their children review the English vocabulary taught during this study, and 40% did not help their children do such review but reminded them to review by themselves; however, 15% of the participants in the

experimental group did not review the English vocabulary taught during this study and were not reminded by their parents to practice any lesson. Among the participants who reviewed the English vocabulary with their parents or by themselves during the study, 30% always reviewed it two to three times a week, 25% did it once a week, and 20% did it depending on their mood. In addition, 30% of these participants spent five to ten minutes to review the English vocabulary each time, 25% spent 10-30 minutes, and 15% spent time depending on their mood. The participants' favorite musical activities were listening to songs (70%), singing (60%), and dancing (55%), with their favorite types of songs being children's songs (55%), country songs (50%), and Thai popular songs (25%). (Please see Table C1 in Appendix C for complete information.)

In the control group, twenty participants were taught by using the VA strategy, 65% of the participants were male and 35% were female. Seventy percent of the participants were seven years old, 25% were six years old, and only 5% were eight years old. Most of the participants' mothers (85%) and all of the participants' fathers (100%) possessed high school education or lower. Only 10% of the participants' mothers held bachelor's degrees. A little over half of the participants (55%) were from families earning less than THB 9,000 per month (less than US\$ 300), 35% from families earning between THB 9,000-15,000 per month (about US\$ 300-500) and about 10% from families earning THB 15,000-25,000 per month (approximately US\$ 500-800).

Concerning educational support, forty percent of the control group participants were supported by their grandparents, 35% only by their mothers, only 15% by both parents. The activities most frequently performed by the parents to support their children's education were homework reviewing (100%), talking about what was going on

at school (85%), and participating in the school events (80%), similar to those observed in the experimental group. Over half of the parents or the guardians (55%) did not help their children review the English vocabulary taught during the study, but they reminded their children to practice by themselves. Only 30% helped their children review the English vocabulary, while fifteen percent did not give any help and never reminded their children to review any English vocabulary lesson. Among the participants who reviewed the English vocabulary with their parents or by themselves during the study, 30% reviewed depending on their mood and 25% reviewed one to three times a week. In addition, 30% of these participants spent five to ten minutes reviewing the English vocabulary each time, and 20% practiced less than five minutes or depending on their mood. The musical activities that the participants in this group enjoyed included dancing (60%), singing (55%), and listening to songs (55%). The types of songs that the participants liked were country songs (45%), children songs (40%), and Thai popular songs (30%). However, there were ten percent of the participants who did not like any musical activity. (Please see Table C2 in Appendix C for complete information.)

Statistical Analyses

After obtaining permission from their parents, the forty participants were equally divided into an experimental group and a control group. Each group consisted of participants who had three different levels of English language ability. The details of the participants' performance in each group are presented in Table 3.

Table 3

Number and Percent of Participants Divided by Their English Language Ability in the MVA Group and the VA Group

English Language Ability	MVA		VA	
	Number of Participants	Percent	Number of Participants	Percent
Low	6	30	7	35
Average	7	35	7	35
High	7	35	6	30
Total	20	100	20	100

Note. MVA=the Music and Visual Arts group. VA=the Visual Arts group.

In the first week of the study, the participants in each group were given a pre-test to evaluate their English vocabulary skill in terms of accuracy and rapidity before using the MVA strategy or the VA strategy. After the 7-week English vocabulary lesson applying the MVA or the VA strategy, the participants were given a post-test. The total mean score and standard deviation of the participants in the MVA and the VA group, including the mean score and standard deviation of participants based on their different levels of English language ability, are shown in Table 4.

Table 4

Mean Scores and Standard Deviation of Participants in the MVA Group and the VA Group

Group	English Language Ability	Statistic	Accuracy		Rapidity	
			Pre-test	Post-test	Pre-test	Post-test
MVA	Low	Mean	2.000	41.333	3.100	1.813
		S.D.	1.897	8.824	0.735	0.306
	Average	Mean	9.000	54.571	2.751	1.830
		S.D.	2.768	8.638	0.694	0.721
	High	Mean	14.286	62.571	2.614	1.474
		S.D.	4.152	3.552	0.400	0.223
VA	Total	Mean	8.750	53.400	2.776	1.767
		S.D.	5.874	11.203	0.598	0.533
	Low	Mean	2.143	37.571	2.817	1.932
		S.D.	1.574	12.739	0.331	0.232
	Average	Mean	8.571	43.857	3.058	1.684
		S.D.	2.637	8.858	0.564	0.385
	High	Mean	14.000	54.833	2.787	1.535
		S.D.	3.578	6.765	0.196	0.209
	Total	Mean	7.950	44.950	2.896	1.717
		S.D.	5.520	11.808	0.404	0.312

Note. MVA=Music and Visual Arts group. VA=Visual Arts group. S.D.=Standard Deviation

Results for Research Question 1: To what extent, if any, does the MVA strategy enhance Thai children's English vocabulary development in terms of word recognition accuracy and the rapidity with which they can recognize a set of English vocabulary words?

The first research question focused on whether the Music and Visual Arts (MVA) strategy could significantly contribute to first-grade students' improvement of their accuracy and rapidity for recognizing the selected English vocabulary words. To answer this question, paired sample t-test analysis was applied to the data obtained

from the experimental group, with the alpha level of 0.05 set to indicate statistical significance.

The participants introduced to the MVA strategy displayed mean pre-test and post-test scores of 8.75 (SD=5.87) and 53.40 (SD=11.20) for accuracy, and mean pre-test and post-test scores of 2.78 (SD =0.60) and 1.77 (SD=0.53) for rapidity, respectively. When paired sample *t*-test was applied to identify any statistically significant differences between the pre-test and post-test scores, the results are as follows. First, a significant vocabulary development difference was found in terms of both the accuracy ($p=0.000$) and rapidity ($p=0.000$) of the participants' recognition of the English vocabulary words. Second, the mean post-test accuracy score (53.40) was higher than its pre-test counterpart (8.75), meaning that the MVA participants showed greater word recognition accuracy after the experiment. Next, the mean post-test rapidity score (1.77) was lower than its pre-test counterpart (2.78), indicating that after the participants in this group had been taught English vocabulary using the MVA strategy, they used less time to say the English words after seeing the pictures. It can be concluded that the Music and Visual Art (MVA) strategy significant ($p=0.000$) helped the participants improve their English vocabulary in terms of both word recognition accuracy and the rapidity of their word recognition. (Full statistical information, i.e., mean, *t*-value, degree of freedom, standard deviation, and *p*-value, is presented in Table 5.)

Table 5

Paired Sample T-test Results of Accuracy and Rapidity Development of the Participants in the Music and Visual Arts group

Vocabulary Skills	Pre-test		Post-test		Mean of Differences	t-value	df	p-value
	Mean	S.D.	Mean	S.D.				
Accuracy	8.750	5.874	53.400	11.203	44.650	28.625	19	0.000
Rapidity	2.776	0.598	1.767	0.533	-1.088	-7.122	17	0.000

Note. S.D.=Standard Deviation. df=Degree of Freedom.

The next aspect of the MVA strategy analysis concerned the participants having different levels of English language ability. To make accuracy and rapidity comparisons, the pre-test and post-test scores of the participants with the same level of English language ability were analyzed using paired sample *t*-test.

In terms of accuracy, a significant difference ($p=0.000$) was found among the participants in all three English ability level groups (low, average, and high). The participants with a low level of English language ability showed a mean post-test score of 41.33, which was higher than their mean pre-test score of 2.00. Similarly, the participants who had average English ability had a mean post-test score of 54.57, as opposed to their pre-test mean score of 9.00. Finally, the participants who had a high level of English language ability displayed a mean post-test score of 62.57, compared with their mean pre-test score of 14.29. These results indicated that the Music and Visual Arts (MVA) strategy significantly helped participants in all the three English language ability levels to improve their English vocabulary recognition accuracy.

In terms of rapidity, significant differences were found among the participants with an average level ($p=0.008$) and high level ($p=0.001$) of English language ability. The average English ability participants' mean post-test score for rapidity was 1.83,

lower than their mean pre-test score of 2.75. Similarly, the high English ability participants' mean post-test score for rapidity was 1.47, which was lower than their mean pre-test score of 2.61. These data indicated that after the participants in these two groups were taught with the MVA strategy, they spent less time saying the English words after seeing the pictures. However, no significant difference was found among the participants with low English language ability ($p=0.080$). The findings show that the MVA strategy worked better with the participants who had average and high English language ability to improve their English vocabulary in terms of vocabulary recognition rapidity. (Full statistical information, i.e., mean, t-value, degree of freedom, standard deviation, and p-value, is presented in Table 6.)

Table 6

Paired Sample T-test Results of Accuracy and Rapidity Development of the Participants with Different English Language Ability in the Music and Visual Arts Group

Vocabulary Skills	English Language Ability	Pre-test		Post-test		Mean of Differences	t-value	Df	p-value
		Mean	S.D.	Mean	S.D.				
Accuracy	Low	2.000	1.897	41.333	8.824	39.333	11.397	5	0.000
	Average	9.000	2.768	54.571	8.638	45.571	19.834	6	0.000
	High	14.286	4.152	62.571	3.552	48.286	35.563	6	0.000
Rapidity	Low	3.100	0.735	1.813	0.306	-1.288	-2.610	3	0.080
	Average	2.751	0.694	1.830	0.721	-0.921	-3.863	6	0.008
	High	2.614	0.400	1.474	0.223	-1.140	-6.124	6	0.001

Note. S.D.=Standard Deviation. df=Degree of freedom.

To compare the efficacy of the Music and Visual Arts (MVA) strategy among the participants with low, average, and high English ability in terms of accuracy development, ANOVA was used to analyze the data. No significant difference, was found among the participants who had different levels of English language ability ($p=0.054$), as illustrated in Table 7.

Table 7

ANOVA Results of Accuracy Development of Participants Who Had Different English Language Ability in the Music and Visual Arts Group

	Sum of Squares	Degree of Freedom	Mean Square	F	p-value
Between Groups	268.074	2	134.037	3.471	0.054
Within Groups	656.476	17	38.616		
Total	924.550	19			

To compare the efficacy of the Music and Visual Arts (MVA) strategy among the participants with low, average, and high English ability in terms of rapidity development, ANOVA was also used. As in the accuracy category, no significant difference was found among the participants with different levels of English language ability ($p=0.669$), as illustrated in Table 8.

Table 8

ANOVA Results of Rapidity Development of Participants Who Had Different English Language Ability in the Music and Visual Arts Group

	Sum of Squares	Degree of Freedom	Mean Square	F	p-value
Between Groups	0.372	2	0.186	0.413	0.669
Within Groups	6.766	15	0.451		
Total	7.138	17			

In summary, the research on the selected set of English vocabulary words showed that the Music and Visual Arts (MVA) strategy helped participants improve their English vocabulary development in terms of both accuracy and rapidity of word recognition. The MVA strategy was found to help the participants who had average and high English language ability improve their word recognition rapidity, although it did not show significant contribution to the low English ability participants' improvement of their word recognition rapidity.

The MVA strategy also helped the participants in all English language ability levels enhance their English vocabulary development in terms of accuracy. However, a comparison of word recognition accuracy and rapidity, observed among the participants who had different English ability levels (i.e., low, average, high), showed that the participants in all the three ability groups performed both accuracy and rapidity skills with the same degree of proficiency.

Results for Research Question 2: To what extent, if any, does the VA strategy enhance Thai children's English vocabulary development in terms of word recognition accuracy and the rapidity with which they can recognize a set of English vocabulary words?

The second research question focused on whether the Visual Arts (VA) strategy could significantly contribute to first-grade students' improvement of their word recognition accuracy and the rapidity for recognizing selected English vocabulary words. To answer this question, paired sample t-test analysis was applied to the data obtained from the control group, with the alpha level of 0.05 set to indicate statistical significance.

The participants introduced to the VA strategy displayed mean pre-test and post-test scores of 7.95 (SD=5.52) and 44.95 (SD=11.81) for accuracy, and mean pre-test and post-test scores of 2.90 (SD =0.40) and 1.71 (SD=0.31) for rapidity, respectively. With paired sample *t*-test applied, the following statistically significant differences between the VA participants' pre-test and post-test scores were identified. First, a significant vocabulary development difference was found in terms of both the accuracy ($p=0.000$) and rapidity ($p=0.000$) of the participants' recognition of the English vocabulary words. Second, the mean post-test accuracy score (44.95) was higher than its pre-test counterpart (9.75), meaning that the VA participants showed improved word recognition accuracy after the experiment. Next, the mean post-test rapidity score (1.71) was lower than its pre-test counterpart (2.90), indicating that after the participants in this group had been taught English vocabulary using the VA strategy, they used less time to say the English words after seeing the pictures. It can be concluded that the Visual Art (VA) strategy effectively helped the participants to improve their English vocabulary in terms of both accuracy and rapidity of word recognition. (Full statistical information (mean, *t*-value, degree of freedom, standard deviation, and *p*-value) is presented in Table 9.)

Table 9

Paired Sample T-test Results of Accuracy and Rapidity Development of the Participants in the Visual Arts group

Vocabulary Skills	Pre-test		Post-test		Mean of Differences	t-value	df	p-value
	Mean	S.D.	Mean	S.D.				
Accuracy	7.950	5.520	44.950	11.808	37.000	19.792	19	0.000
Rapidity	2.896	0.404	1.717	0.312	-1.182	-11.721	18	0.000

Note. S.D.=Standard Deviation. df=Degree of Freedom.

The next aspect of the VA strategy analysis involved the participants having different English language ability levels. To make accuracy and rapidity comparisons, the pre-test and post-test scores of the participants with the same level of English language ability were analyzed using paired sample *t*-test.

In terms of accuracy, a significant difference ($p=0.000$) was found among the participants in all the three English ability level groups (low, average, and high). The participants with a low level of English language ability showed a mean post-test score of 37.57, higher than their mean pre-test score of 2.14. Similarly, the participants having average English ability showed a mean post-test score of 43.86, as opposed to their pre-test mean score of 8.57. Finally, the participants with a high level of English language ability displayed a mean post-test score of 54.83, compared with their mean pre-test score of 14.00. Based on these results, it can be concluded that the Visual Arts (VA) strategy effectively helped the participants in all the three English language ability levels to improve their English vocabulary recognition accuracy.

In terms of rapidity, significant differences were found among the participants with low ($p=0.002$), average ($p=0.000$), and high ($p=0.000$) levels of English language ability. The participants in all these ability groups (low, average, and high) showed

lower mean post-test scores for rapidity than their mean pre-test scores, at 1.93 vs 2.82, 1.68 vs 3.06, and 1.54 vs 2.77, respectively. Based on these data, the participants in all these three English ability groups, after being instructed with the VA strategy, spent less time saying the English words after seeing the pictures. It can be concluded that the VA strategy effectively helped participants having low, average, and high English language ability to improve their English vocabulary in terms of word recognition rapidity. (Full statistical information (mean, t-value, degree of freedom, standard deviation, and p-value) is presented in Table 10.)

Table 10

Paired Sample T-test Results of Accuracy and Rapidity Development of the Participants who had different English Language Ability in the Visual Arts Group

Vocabulary Skills	English Language Ability	Pre-test		Post-test		Mean of Differences	t-value	Df	p-value
		Mean	S.D.	Mean	S.D.				
Accuracy	Low	2.143	1.574	37.571	12.739	35.429	8.212	6	0.000
	Average	8.571	2.635	43.857	8.858	35.286	12.755	6	0.000
	High	14.000	3.578	54.833	6.765	40.333	22.497	5	0.000
Rapidity	Low	2.817	0.331	1.932	0.232	-0.885	-5.691	5	0.002
	Average	3.058	0.564	1.684	0.385	-1.374	-7.038	6	0.000
	High	2.787	0.196	1.535	0.209	-1.252	-11.969	5	0.000

Note. S.D.=Standard Deviation. df=Degree of freedom.

To compare the efficacy of the Visual Arts (VA) strategy among the participants with low, average, and high English ability in terms of accuracy development, ANOVA was used to analyze the data. The results showed no significant difference ($p=0.428$) among the participants having different levels of English language ability, as illustrated in Table 11.

Table 11

ANOVA Results of Accuracy Development of Participants Who Had Different English Language Ability in the Visual Arts Group

	Sum of Squares	Degree of Freedom	Mean Square	F	p-value
Between Groups	126.024	2	63.012	0.891	0.428
Within Groups	1201.976	17	70.704		
Total	1328.000	19			

ANOVA was also used to compare the efficacy of the Visual Arts (VA) strategy among the participants with low, average, and high English ability in terms of rapidity development. Similar to the accuracy category, the results did not indicate any significant difference ($p=0.117$) among the participants with different levels of English language ability, as illustrated in Table 12.

Table 12

ANOVA Results of Rapidity Development of Participants Who Had Different English Language Ability in the Visual Arts Group

	Sum of Squares	Degree of Freedom	Mean Square	F	p-value
Between Groups	0.817	2	0.409	2.462	0.117
Within Groups	2.655	16	0.166		
Total	3.472	18			

Overall, the experiment on the selected set of English vocabulary words showed that the Visual Arts (VA) strategy helped the participants at all levels of English ability to improve their English vocabulary development in terms of both accuracy and rapidity of word recognition. That is to say, the participants in all the three English ability groups

exhibited a similar degree of proficiency in word recognition accuracy and rapidity after having been taught with the Visual Arts (VA) strategy.

Results for Research Question 3: To what extent, if any, is the VA strategy or the MVA strategy more effective in improving the accuracy with which Thai children can recognize a set of English vocabulary words?

The third research question focused on whether the Music and Visual Arts (MVA) strategy or the Visual Arts (VA) strategy was more effective in improving the participants' accuracy in recognizing the English words. To answer this question, ANCOVA was applied to the data obtained from both the experimental and control groups, with the alpha level of 0.05 set to indicate statistical significance. The principal findings are as follows.

In general, the results showed a significant difference ($p=0.002$) between the outcomes of the MVA strategy and those of the VA strategy. A comparison of the efficacy degrees of the MVA and the VA strategies administered to the low, average and high English ability participants revealed a significant difference among the participants in average and high English ability groups. The MVA-strategy participants with average English ability obtained a mean post-test accuracy score of 54.57, as opposed to 43.86 obtained by their VA counterparts; so did the MVA-strategy participants with high English ability, who obtained a mean post-test accuracy score of 62.57, as opposed to their VA counterparts' 54.83. Nonetheless, no significant difference between the MVA and the VA strategies was found among the participants with low English language ability in the experimental and control groups. The results

revealed that the MVA strategy is more efficacious than the VA strategy in helping children with average and high English language ability improve their accuracy of English vocabulary recognition. However, the MVA and the VA strategies provided insignificant help for children with low English ability to improve accuracy of English vocabulary recognition. See Table 13.

Table 13

ANCOVA Results of Comparing Accuracy Development between the Music and Visual Arts (MVA) Strategy and the Visual Arts (VA) Strategy

Vocabulary Skills	English Language Ability	MVA		VA		F	p-value
		Post-test Mean	S.D.	Post-test Mean	S.D.		
Accuracy	Low	41.333	8.824	37.571	12.739	0.669	0.423
	Average	54.571	8.638	43.857	8.858	11.425	0.006
	High	62.571	3.552	54.833	6.765	10.390	0.009
	Total	53.400	11.203	44.950	11.808	10.64	0.002

Note. S.D. = Standard Deviation

Results for Research Question 4: To what extent, if any, is the VA strategy or the MVA strategy more effective in increasing terms of the rapidity with which the children can recognize a set of English vocabulary words?

The fourth research question concentrated on whether the Music and Visual Arts (MVA) strategy or the Visual Arts (VA) strategy was more effective in improving the participants' rapidity in recognizing the English words. To answer this question, ANCOVA was applied to the data obtained from both the experimental and control groups, with the alpha level of 0.05 set to indicate statistical significance. The main finding is as follows.

A *p*-value of 0.742 was scored by the participants with low English ability, 0.305 by those with average English language ability, and 0.610 by those with high English ability, resulting in a three-group total of 0.985. Based on this result, no significant difference was found between the MVA strategy and the VA strategy participants having different levels of English language ability. See Table 14.

Table 14

ANCOVA Results of Comparison of Rapidity Development between the Music and Visual Arts (MVA) Strategy and the Visual Arts (VA) Strategy

Vocabulary Skills	English Language Ability	MVA		VA		F	<i>p</i> -value
		Mean	S.D.	Mean	S.D.		
Rapidity	Low	1.813	0.306	1.932	0.232	0.117	0.742
	Average	1.830	0.721	1.684	0.385	1.157	0.305
	High	1.474	0.223	1.535	0.209	0.278	0.610
	Total	1.767	0.533	1.717	0.312	0.000	0.985

Note. S.D. = Standard Deviation

Overall, the Music and Visual Arts (MVA) strategy and the Visual Arts (VA) strategy were equally effective in helping participants in general improve their English vocabulary development in terms of word recognition accuracy and rapidity. When the MVA and the VA strategies were compared in terms of their efficacy in developing accuracy and rapidity of word recognition, the MVA strategy was found to be more efficacious than the VA strategy in helping the participants improve their word recognition accuracy. However, both strategies sowed a similar degree of efficacy in improving the participants' word recognition rapidity.

Discussion

The need for Thais in general and Thai children in particular to improve their English communication ability is obvious, especially with the ASEAN Economic Community (AEC) accord officially implemented. In spite of this, English learners in Thailand, where English is taught as a foreign language, still encounter many obstacles to mastering English. One such obstacle is a lack of vocabulary, which according to Rohde & Tiefenthal (2000) and Ellis & Heimbach (1997) is an essential factor in overcoming comprehension difficulty.

Of the various English vocabulary building methods, music and pictures are commonly applied in the teaching of young learners. This research compared the efficacy of a Visual Arts program alone (VA) and that of a program combining Music and Visual Arts (MVA) in enhancing Thai first-graders' word recognition accuracy and the rapidity of word recognition. The major outcomes discussed in this chapter may have significant implications for the improvement of teaching English vocabulary to young Thai learners.

This research found that the Music and Visual Arts strategy significantly improved the experimental groups' overall accuracy and rapidity (both by $p = 0.000$). Further, a comparison between the participants with low, average and high levels of English ability in the MVA groups revealed that the MVA strategy significantly increased English vocabulary accuracy development in all the three levels.

These findings are supported by earlier research studies that found music to be an effective method of children's working memory, a process responsible for the brain's data storage and organization (Daneman & Carpenter, 1989; Krashen, 2004; Hayes,

2009; Cooper, 2010 Smolinski, 2011; George & Coch, 2011). The music structure, the rhythm, and the melodic language pattern, help boost the development of children's brains, enabling them to more easily and quickly remember the lyrics and the vocabulary contained therein. In addition, songs can strengthen children's focus on the content in the lyrics. Once they can sing a given song, they relate its melody to its lyrics, and hence its content (Hayes. 2009). Music contributes to the development of both hemispheres of the brain. As text recognition is encoded in the left temporal lobe and melody recognition in the right, songs, which are composed of both text and melody, stimulate both of the temporal lobes and increase information recall ability (Samson & Zatorre, 1991), leading to greater accuracy and better vocabulary memory in children.

In terms of the overall performance by the participants, the MVA strategy was effective in improving vocabulary recognition rapidity. However, a comparison between the three English ability groups showed that the MVA strategy enhanced rapidity development only among the high and average English proficient participants ($p = 0.0001$ and $p = 0.008$, respectively).

These results conform Krashen's (2004) assertion that music and songs speed up learners' information recall, which in turn accelerates their response to the words they encounter. However, the MVA strategy was observed to make no significant contribution ($p = 0.080$) to the low English ability participants. One possible explanation is that the participants' parents do not have time to help their children review English vocabulary at home. As shown by the MVA participant data obtained from the demographic questionnaire, less than half of the participants' parents helped their

children review English vocabulary at home. In fact, in 15% of the participants and their parents, no vocabulary review took place at home. Furthermore, 40% of the parents did not provide any help, but let their children review vocabulary by themselves. Such absence of parental support could result in the participants' hesitation and lack of confidence to say English words while seeing the pictures, as they were afraid to say the English words incorrectly. This hesitation might have affected the speed at which they said the English words during the post-test. One plausible reason why most of the participants' parents did not help their children to review English vocabulary at home could have been their level of education. The demographic data showed that 100% of the mothers and 90% of the fathers of the participants in the MVA group possessed high school education or lower. For this reason, they might have had limited English ability to teach their children. In addition, the parents might have been subjected to certain financial commitments that could have hindered them from sparing time to review the English vocabulary with their children. In Thailand, the minimum daily wage is 300 Baht (\$10). From the demographic questionnaire, 45% of the participants in the MVA group were from families earning an average monthly income of 9,000 – 15,000 Baht (\$30 - \$50), and 35% from families making 9,000 Baht (\$30) or less per month. As this limited income is insufficient to support all members of a household, many parents are compelled to work overtime to make ends meet, a condition resulting in a lack of time for homework or lesson discussion—English vocabulary review included—with their children.

In addition, the participants in the low English ability group may be in the pre-operational stage in Piaget's theory of cognitive development. According to this theory,

children in this stage can focus on one object at a time, and they transit from this stage to the concrete operational stage at varying speeds. With their cognitive development still in the pre-operational stage, some of the low English ability participants, when taught with the MVA method, became confused when they had to simultaneously focus on pictures and remember all the elements of a song, namely, the pitch, the rhythm and the lyrics (Greata, 2006). These children, therefore, needed more time to process information and respond to word-representing pictures than those with average and high English ability, whose cognitive development was already in the concrete operational stage.

Another possible explanation relates to the songs used in this study. Although all of the children were familiar with the melodies of the chosen children songs, the original Thai lyrics were replaced with English words that the children had to learn in their lesson. In this respect, Greata (2006) asserted that naturally when children sing a song, they tend to sing it the way they heard it for the first time, both in terms of the melody and the lyrics. For this reason, although the familiar tunes were maintained, the low English ability children were likely confused between the new and the old lyrics. Such confusion could have affected their recognition speed of and response to the vocabulary they were learning.

Because music is widely used to teach language to young children, it is essential that the following issues be considered by the teacher. First, the teacher and the learners are supposed to sing alternately, and the teacher has to maintain the correct rhythm of the song. This is to ensure the children sing the song correctly. Second, it is important that the teacher sings the song in its correct style and use good voice quality.

Third, the teacher is supposed to use good posture, with the body in a correct sitting or standing position. Fourth, the teacher needs to reflect the mood of the song and clearly convey the concept the song communicates, by using gestures, tone of voice, and facial expression. As Campbell and Scott-Kassner (1995) put it, teachers have to make clear concepts, skills, and vocabulary they are teaching for the learners.

When the Visual Arts (VA) strategy alone was used in teaching English vocabulary, it contributed to the development of both accuracy and rapidity, both by $p = 0.000$, in the majority of the participants. A comparison between the low, average and high English ability groups showed that the VA strategy effectively improved the accuracy and rapidity in the participants in every English ability group. This finding revealed that images helped boost the participants' memory of vocabulary items. The more words the participants could accurately remember, the higher accuracy score they achieved, and the faster their response was to pictures.

In fact, the use of pictures to stimulate vocabulary acquisition began at the beginning of the 20th century, based on the understanding that a picture represents a reality, is self-communicative, and conveys a concept more clearly than a word does (Nelson, 1979; Paivio, 1983; Beheydt, 1987). Several other studies point to the same conclusion that a learner of a foreign language acquires new words more efficiently through pictures, or a combination of pictures and their translations, than in a text-only manner (Omaggio, 1979; Chun & Plass, 1996). Pictures, moreover, not only contribute to normal children's learning, but also play a vital part in teaching deaf or hearing-impaired learners. In Trussell and Easterbrooks' (2014) experiment, storybooks with scripted questions and picture prompts were applied to building vocabulary

development skills among hearing-impaired children. This technique was found to effectively improve vocabulary acquisition in hard-of-hearing children.

Although pictures may stimulate memory in children or adults, the type of picture used with children has potential impact on their memory. One study was conducted on university students' memory of four types of pictures: colored photographs, black-and-white photographs, elaborated line drawings, and unelaborated line drawings. The study showed that the participants' memory of colored photographs lasted longer than that of the other types (Homa & Viera, 1987). In addition, pictures used with young learners should be simple. One study compared the picture recognition memory of children aged 7 and 9, young adults, and elderly people aged 68 or older. The participants were shown high-complexity and low-complexity pictures. The study revealed that pictures presented in a simple form helped the participants in all of the age groups to have better picture recognition memory than those presented in a complex form (Pezdek, 1987).

Pictures used with children should be directly relevant to the lesson being taught and not contain distracting details. For example, if the word "window" is being taught, the picture must depict only a window; a picture containing a window as well as trees, flowers, and the sky is likely to confuse young learners, who tend to load all pictorial information into their brains (Vogel *et al.*, 2005). The final factor the teacher has to take into account is the learners' working memory or short-term recall. In young children, this type of memory is naturally less developed than in older children. For this reason, the younger the learner, the fewer pictures are to be used (Cowan *et al.*, 2011).

An efficacy comparison between the Music and Visual Arts (MVA) strategy and the Visual Arts (VA) strategy revealed that in terms of vocabulary accuracy development, the MVA strategy (post-test mean = 53.400) was, overall, more effective than the VA strategy (post-test mean = 44.950). Also, after the average and high English ability participants had been introduced to the MVA and VA strategies, the MVA strategy was found to improve their vocabulary accuracy more effectively than the VA strategy.

A comparison of the post-test mean scores of the three English ability groups (after being taught with the MVA and VA strategies) showed the following. First, the average English ability group achieved a post-test mean score of 43.857 after learning via the VA strategy and 54.571 after learning via the MVA strategy. Second, the high English ability group achieved a post-test mean score of 54.833 after learning via the VA strategy and 62.571 after learning via the MVA strategy.

These findings confirm that the MVA strategy is a suitable approach for developing vocabulary accuracy in learners with average to high English ability. The results also show the MVA and VA strategies' contribution to low English ability learners' accuracy development, although no statistically significant difference ($p = 0.423$) was detected. As a consequence, it is possible for the teacher to choose either the MVA or the VA strategy as a tool to improve the low English ability learners' vocabulary accuracy.

There are a number of reasons why the MVA strategy is more effective than the VA strategy in boosting vocabulary accuracy development. First, the MVA strategy involves music as a means of building children's memory. Music or a song stimulates

the working memory, improving the brain's general function, data storage, and organization (Daneman & Carpenter, 1980; Cowan & Alloway, 2009; Cowan *et al.*, 2010). Second, the music in the MVA strategy may help develop young children emotionally. Although young learners possess less working memory capacity than grown up children or adults do, it can be improved by means of attention focusing (Cowan *et al.*, 2010). One of the factors that may determine the amount of learning in a young learner is the emotion, which can affect the learner's attention. If a child suffers from stress, his/her brain's absorption of sensory input is blocked, preventing data from being transmitted to the long-term memory (Willis, 2008).

Therefore, to enhance a child's emotional development, music is often used to help the child relax and attract his/her attention to experiential objects. Music, adopted for emotional rehabilitation and remedies in war veterans since World War II, is currently widely used for educational purposes, especially to help young learners, in whom emotional change usually occurs unnoticed (Sousa, 2007), to focus their attention and develop their memory (Sacks, 2007; Sousa, 2007). The role of music in reducing stress and enhancing young children's learning process has been confirmed by many studies. Herman (1996) experimented on using music therapy to treat a 9-year-old child suffering from such a severe trauma-induced depression that he became too aggressive to study in a school. After the therapy, the boy's stress was reduced and his attention span became longer; as a result, he was allowed to return to school.

In addition, Sack (2007) discovered that music or songs alleviated aphasia, amnesia, strokes, depression, and other psychological disorders, helping the patients in their emotional development, lyric recall ability, and stress management. Several other

studies revealed that music played a significant part in short-term and long-term memory improvement (Karimer, 1984; Sibthorp & Knapp, 1998; Menard & Belleville, 2009; Cooper, 2010; George & Coch, 2011; Costa-Giomi, 2015). These findings have confirmed the fact that teaching methods that incorporate the MVA strategy, whose core element is music, improve high and average learners' vocabulary accuracy more effectively than those that adopt only the VA strategy.

However, a comparison between the MVA and the VA strategies in terms of their impact on vocabulary recognition rapidity development revealed no statistically significant differences, whether measured according to the participants' overall achievement or according to the English ability groups' performance. That is, the MVA and the VA strategies showed an overall rapidity development efficacy p -value of 0.985. When measured according to the English ability groups, the efficacy levels of the two strategies were 0.610 among the high ability participants, 0.305 among the average ability participants, and 0.742 among the low ability participants. It can be concluded based on these values, that there was no significant difference between the MVA and the VA strategies in terms of development of vocabulary recognition rapidity. A possible explanation is that because the pictures in the MVA strategy and those in the VA strategy were arranged in the same order. The participants in both groups, therefore, learned the words in the same order. Besides, where any word in a song in the MVA strategy was repeated, the same word in the VA strategy was repeated too. It was possible, therefore, for the participants in both groups to remember the words based on their order of appearance, a factor leading to the absence of significant difference in rapidity development between the MVA and the VA groups. In light of the above

findings, a teacher promoting vocabulary recognition rapidity among young learners may consider the MVA strategy, the VA strategy or a combination of both.

Conclusions and Recommendations

Data from this research reveals that the MVA strategy is more effective than the VA strategy in developing young Thai children's vocabulary recognition accuracy. In addition, both the MVA and the VA strategies were found to be effective in developing young Thai children's vocabulary recognition rapidity. An analysis of the learning efficacy power of each strategy (according to objectives 1 and 2) revealed that the VA strategy was capable of improving vocabulary recognition rapidity in the participants of all the three English ability groups, while the MVA strategy was effective only for the high and average English ability groups.

Therefore, to help learners at all these levels of English ability enhance both accuracy and rapidity of their vocabulary recognition to the best possible extent, teachers and other professionals may start with the VA strategy to help learners remember the words rapidly, and then adopt the MVA strategy to enhance the learners' memory of the words learned. When the main objective of the lesson is to improve accuracy, it is suggested that the MVA strategy be chosen. On the contrary, if the main objective is rapidity development, either the MVA or the VA strategy can be employed.

Although this study was conducted on first-grade students at a school under the Bangkok Metropolitan Administration, most of whom were from a financially difficult background and hence possessed little musical foundation, several recent studies (e.g., Franklin *et al.*, 2008; George & Coch, 2011; Costa-Giomi, 2015) point to the same

conclusion; music training has a positive impact on children's learning process. Further research could focus on applying these two strategies to other groups of both public and private elementary school students, many of whom are from well-to-do families and have been introduced to music since their kindergarten educations. Also, these two strategies could be tested on students at other levels, such as kindergarten or second to twelfth grades.

In this research, the participants were divided into two main strategy groups: the MVA strategy group and the VA strategy group. To more clearly define the efficacy degrees of these two strategies, it is recommended that further research include a third group of students, those who will be taught in the conventional way and will participate in NEITHER of these two strategies.

As this research focused on two aspects of vocabulary development, namely, accuracy and rapidity, later studies may investigate other aspects of vocabulary development. One potential research area is to compare pronunciation quality between those taught with the MVA strategy and those taught with the VA strategy. While the VA strategy requires the learners to see pictures and listen to the recorded corresponding words spoken by a native English speaker, the MVA strategy, despite using pictures and songs sung by the same native English speaker, could yield a different outcome based on the different pitch levels assigned to the words of each song (Greata 2006). For example, children learning vocabulary through songs may say English words at the same pitch as when they sing a song. Thus, it is suggested that further studies be conducted on the impact of the MVA strategy on EFL learners' English pronunciation development.

In conclusion, this research demonstrates that the MVA is an effective means of promoting Thai children's English vocabulary development. In keeping with the internationally growing importance of global cooperation and the recently adopted Association of Southeast Asia Nations (ASEAN), the Thai Ministry of Education might want to consider whether or not the MVA strategy could be employed in the educational system as one approach to enhance Thai children's learning of the English language.

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APPENDIX A
EXTENDED LITERATURE REVIEW

Vocabulary

Vocabulary is one of the major factors in language acquisition. For both native speakers and learners of English (Carlo et al., 2004) vocabulary is the most important indicator of verbal ability. In addition, it contributes to young children's phonemic awareness and word recognition (Goswami, 2001; Nagy, 2005). Scarborough (1998) also confirms that vocabulary in kindergarten and first-grade students serves as a predictor of reading comprehension ability in secondary-level education and has a strong influence on the readability of a text (Chall & Dale, 1995).

Children naturally start acquiring a language right after birth. Kuhl (1994) explains that a newborn's neurons are ready for every language in the world, but a baby will no longer recognize the sounds of a language that s/he heard before six months of age. Therefore, it is important that children be supported when they are young, so that they can build good experience serving as a language and literacy development foundation.

To prepare excellent activities to enhance children's vocabulary, it is crucial that young children's vocabulary development process be understood. Babies can utter the first word when they are about twelve months old. The first word usually occurs when babies clearly understand its meaning and can produce its sounds as closely as adults do, such as "mama." For babies, the first words are always meaningful and often represent entire phrases (Hollich et al., 2000; Masataka, 2003). For example, babies utter the word "milk" to mean "I want some milk" or "I am hungry." Typically, almost all first words are nouns and verbs (Bloom, 1990). After babies spurt out the first words, their vocabulary increases rapidly, for instance, from 50 to 400 words during 16 to 24

months of age (Nazzi & Bertoncini, 2003). When young children are two to three years old, they can understand up to 2,000 to 3,000 words (Bloom, 1990). However, they can understand and use only 1,000 to 1,200 words by the end of age three (Bloom, 1990; Greata, 2006).

Generally, children develop their vocabulary- and sentence-building skills most enormously during three to four years of age, when they can understand basic syntactic structures (Seefeldt & Barbour, 1986, Feldman, 2007). After that, they can understand and use at least 2,500 to 2,800 words when they are five to six years old (Feldman, 2007). At this age, child can understand syntactic complexity and speak very much like adults, but still do not have the same extent of vocabulary as adults do (Seefeldt & Barbour, 1986; Morrow, 2005). Graves (2006) has found that children learn about 3,000 to 4,000 words during a typical 180-day school year. Thus, they can recognize approximately 50,000 words by the time that they graduate from high school.

However, second-language learners may not develop as much vocabulary as native speakers do (Graves, 2006). Lenters (2004) explains that the unique challenges that the English learners have to face include the dissimilarity of sound-symbol relationships between English and one's native language, the limitation of background knowledge, oral vocabulary constraints, and difficulty of text structures. As shown in California Legislative Analyst's Report (2004), even if learners of English could rapidly gain listening and speaking abilities, their reading and writing proficiency would still be slower than that of native English speakers, because of the process of acquiring basic vocabulary, phonological awareness of the sound system of English, and grammar. As a result, language that contains too many unknown vocabulary words and is too

grammatically complex is not appropriate for learners of English as a second or foreign language (Young & Hadaway, 2006).

In the past, foreign-language teaching focused mainly on grammar. However, its focus has recently shifted onto vocabulary development (Folse, 2004; Long & Richards, 2001). Many researchers have found that a lack of English vocabulary is one of the crucial problems impeding English learners' success in learning English (Folse, 2004; Garcia, 1991; Long & Richards, 2001). Garcia (1991) states that "unfamiliar English vocabulary was the major linguistic factor that adversely affected the Latina/o students reading test performance" (P.822). In addition, Cummins (2003) suggests that English learners need a vocabulary much larger than 2,000 words after leaving school, in addition to advanced academic English vocabulary.

Biemiller (2004) and Nagy (2005) recommend a guideline for vocabulary instruction as follows. First, the teachers give the children definitions of the words being taught and let them work with the words in a context. Second, the teachers engage the children to understand word meaning. Activities that may help the children to consider the words' meanings include (i) letting the children give the definition of a new word in their own words, (ii) encouraging the children to use the new words, and (iii) comparing the similarities and differences between the new words and words that the children already know. Third, the teachers provide the children with multiple exposures to the words, for example, by defining the words, making sentences, or playing games involving the words. Fourth, the teachers let the children review and recognize the new words over time and in a variety of contexts. Fifth, the teachers encourage the children to discuss the word meanings. When the children hear and use the words in various

contexts with their friends, they will be able to learn from one another. The last technique is spending more time on the words. The more time children spend on the words, the deeper the children's understanding of the words.

For English learners, Graves (2006) suggests that teaching individual words is one of the helpful methods both for linguistically disadvantaged children who enter school with a small vocabulary and for English-language learners. He also explains that teachers who wish to teach children to read words should start by letting the children see and hear the words simultaneously, before helping them to rehearse the words by means of sight-and-sound association over a period of time.

Dalton and Grisham (2011) advise teachers to also use electronic technology, such as visual displays, online vocabulary field trips, online vocabulary games, audio books, or other media, to draw children's attention to learn vocabulary. Cooke (2014) also recommends tips to enlarge children's vocabulary, including frequent but gradual learning of new vocabulary (little but often), making connection between old and new words, and using visual images as mnemonics help them to memorize words. Songs, in addition, are another effective strategy to improve foreign language learners' vocabulary. Millington (2011) stresses that songs help English language learners to improve their listening, pronunciation, vocabulary, and sentence structure skills. He further explains that songs' lyrics provide a context that helps learners to understand the meanings of words. Some songs help learners improve their vocabulary acquisition through frequent repetition of some words (Millington, 2011).

Music

History of Use of Music in Early Childhood Education

Over the past few centuries, many scholars have shared opinions on the place of music in the early childhood education. Johann Amos Comenius, a Czech educator in the seventeenth century, believed that children were supposed to start receiving formal schooling at age six or seven, after they were educated from birth by their mothers (Monroe, 1990; Greata, 2006). In his guidebook called *The School of Infancy*, Comenius presented a method of training mothers to raise their children during the first few years after birth (Monroe, 1990). This guidebook mentioned that “music is instinctive and natural to the children” and the children’s first lesson in music involves their vocalizations (Monroe, 1900, p. 119). Believing that learning music helped to improve cognitive development, Comenius suggested that mothers expose their infants to music (Greata, 2006). Comenius further stated that children could develop their language through the melodies and rhythms of songs and nursery rhymes; for this reason, encouraging children to sing simple songs and to explore sounds in their environment was vital to young children’s cognitive development (Greata, 2006).

In the eighteenth century, Jean Jacques Rousseau, a French philosopher, suggested that music for young children should be simple and within a range of notes that children can sing without straining their voices (Rousseau, 1762/1928). He proposed principles for early childhood music education, explaining that children should have a chance to sing simple songs that reflected their interests (Greata, 2006). He also advised teaching children to listen and reproduce music before teaching them to read music notes, and added that dance was also appropriate for young children (Essa,

2003; Henniger, 2002; Rousseau, 1762/1928). Although Rousseau considered music as a tool to boost children's enjoyment, he did not focus on formal learning of music (Rousseau, 1762/1928).

Johann Pestalozzi, a Swiss scholar recognized as the first childhood educator, believed that music was an important element for young children's growth (Schwickerath, 1999), stressing the importance of mothers' singing lullabies to their babies (Walch, 1952, p. 138). Pestalozzi believed that music should be taught when children had a mood to sing, so that singing would become a natural and enjoyable activity (Barlow, 1977; Essa, 2003), as well as a means of improving young children's morals (Walch, 1952). In many educators' view (Barlow, 1977; Efland, 1983; Greata, 2006; Walch, 1952), present-day early music education is still influenced by Pestalozzi's following principles. First, music input should begin when a child is born. Second, singing should be fun and begin with simple songs. Third, children should learn to listen to and reproduce music before learning how to read music symbols; in addition, children should have a chance to compose their own songs.

Friedrich Wilhelm Froebel, the Father of the Kindergarten, also who paid serious attention to using music for young children (Lascarides & Hinitz, 2000). Froebel believed that children's education should begin at birth because the foundation for intellectual and moral growth developed from infancy (Lascarides & Hinitz, 2000). After visiting Pestalozzi's school at Yverdun (Brosterman, 1997), Froebel became inspired to use music as a crucial part of his kindergarten. When children learned lessons about nature and occupations during a group time, singing and dancing were used in Froebel's kindergarten games (Wiebe, 1923). Froebel wrote the book "*Mutter-und*

Kose-Lieder” (“*Mother-Play and Nursery Songs*”), which was published in 1843 in dedication to his wife (Lascarides & Hinitz, 2000, p. 104). The book consisted of fifty songs and games based on traditional German tunes. Each song and game was to promote children’s physical exercise; also, the book included illustrations, mottos for the mothers’ guidance, and verses for mothers to sing to their children (Brosterman, 1997; Lascarides & Hinitz, 2000).

Some songs in his book became the foundation for songs in preschools and kindergarten today, such as “If You’re Happy” and “Ring-Around-the Rosies” (Brosterman, 1997). Froebel also suggested that in teaching songs to young children, teachers were supposed to sing simple songs with soft sounds or cheerful voices (Wiebe, 1923). Teachers might choose short songs with repetitions or let children echo two or three notes after their teachers (Greata, 2006). However, teachers should sing to children first, before letting them sing by themselves (Wiebe, 1923).

Maria Montessori, Italy’s first female doctor and inventor of the Montessori approach, focused on an integrated curriculum of active learning, individualized instruction, independence, appropriate assessment, and development of appropriate practice (Morrison, 2007). Montessori realized the importance of music, so she and her colleague, Maria Maccheroni, wrote 35 booklets on the subject of music education (Robin, 1983). As explained by McDonald (1983), the principles of Montessori music focuses on teaching children to listen and reproduce music before teaching them to read music symbols. In addition, children should be allowed to explore sounds through voice and musical instruments, and teachers should teach them to move rhythmically.

Howard Gardner, a developmental psychologist and neuropsychologist who introduced the multiple intelligence theory to the world (Andress, 1998; Greata, 2006), identified eight major intelligences, namely, (i) musical/rhythmic, (ii) verbal/linguistic, (iii) logical/mathematical, (iv) visual/spatial, (v) bodily/kinesthetic, (vi) interpersonal, (vii) intrapersonal, and (viii) naturalistic (Morrison, 2007). Gardner (1983) states that among the original seven intelligences, with the exception of naturalistic intelligence, musical intelligence is the first to develop. He further explains that musical intelligence might start to develop at four or five months after conception (Gardner, 1983). Children are likely to reach their full potential if all of their intelligences are stimulated from the time they are born (1983); on the other hand, their intelligences might diminish if not properly nurtured (Gardner, 1983). Of all these intelligences, according to Gardner's theory, it is the musical intelligence that associates the other intelligences, such as logical/mathematical, linguistic, and bodily/kinesthetic intelligences, to improve children in many aspects (Gardner, 1983; Imberty, 1996; Turner, 2004). For example, children will develop their spatial and bodily/kinesthetic intelligences when they play musical instruments, such as a drum, a piano, or a guitar; in addition, children will also improve their linguistic intelligence by memorizing lyrics that help them to build vocabulary and by composing songs that help them to use expressive language (Turner, 2004).

Ages and Stages of Musical Development of Young Children

Brain research has concluded that children learn everything around them through their five senses, viz, sight, hearing, taste, smell, and touch. When brain cells or neurons are stimulated through the senses, they pass the information to nearby

neurons (Public Broadcasting Service, 2004). Baney (2002) explains that the more stimuli the children receive, the pathways or the connection between brain cells become stronger and develop more networks; on the contrary, neurons and pathways in unstimulated areas tend to undergo gradual atrophy. In addition, in children not receiving musical stimuli, the neurons originally designed for music development will support other developmental areas, such as visual or language (Gorden, 1995; Public Broadcasting Service, 2004). Therefore, it is advisable that children be given a chance to engage themselves in musical activities appropriate for their ages as earliest as possible.

Many researchers (Tomatis, 1991; Whitwell, 2003) agree that hearing is the first sense to develop after the fourth or fifth month of pregnancy. In fact, fetuses are found to start responding to music as early as the sixteenth week, by changing their movement or heart rates (Chamberlain, 1994; Hepper, 1991; Verny & Kelly, 1981). To support the development of fetuses in this period, parents may talk, sing, play musical instruments to their children, or join a prenatal music program (Baby Center Medical Advisory Board, 2013; Greata, 2006; Logan, 2003). Prenatal music nurturing not only enhances the development of a fetus but also forms good attachment between a mother and her child (Whitwell, 2003).

When babies are born, they can recognize their mother's voice within the first month and can respond to music by moving parts of their bodies, such as kicking, extending their arms, or turning their heads toward the source of the sound (De Gast, 2004; Turner, 2004). Infants begin cooing and babbling to entertain themselves during the fifth through the eighth months (Essa, 2003). Cooing is believed by some music

educators to be an infant's first music lesson. When an infant is cooing and his/her family members respond back to him/her, s/he will repeat this behavior time and again, a behavior that Zimmerman (1984) explains will develop an infant's singing voice.

During infancy, infants also like to imitate sounds around them and reproduce interesting events (Essa, 2003). For example, some parents observe that their babies strike bells again and again to reproduce or vocalize the sounds, and mimic the pitch, rhythms, and accents that they hear (Moomaw, 2002, Ostwald, 1973). Through parents' and caregivers' assistance, infants' musical development can be enhanced through exposure to good music, which stimulates them to explore and respond to sounds and musical tones in their environment, to talk and vocally play with their parents, and to move some parts of their bodies in response to music (Andress, 1998; Greata, 2006; Turner, 2004). Parents and caregivers are usually advised to sing to infants because singing has been proved capable of building trust and securing relationship between infants and caregivers, as well as pacifying children when they are upset (Honig, 2001). Thus, daily musical activities, such as singing, chanting, listening, and making bodily movement, are important factors in infants' mental and intellectual development.

By the age of two, children are beginning to classify different kinds of sounds around them, such as loud, soft, high-pitched, and low-pitched sounds (Berk, 2001). At this age, toddlers can recognize their favorite songs and may show various moods, such as excitement, relaxedness, and fear, in response to music (Kenney, 2008; Turner, 2004). In addition, toddlers learn music through singing and moving parts of their bodies, and may enjoy musical games or musical finger play songs, such as

“Where Is Thumbkin?”, with parents or caregivers (Levinowitz, 1998, Turner, 2004). Despite toddlers’ rapid increase in vocabulary and speech skills by the age of three, they do not usually sing in tune; rather, they tend to sing with random notes and keep repeating the same familiar song fragments (Greata, 2006). To help toddlers develop their singing voice, suggests McDonald (1989), adults should sing “to them, with them, and for them” as much as possible (p.89); besides, songs that are appropriate for children at this age should be simple, short, repetitive, and narrow in pitch range. Aronoff (1969) and Feierabend (1996) note that such songs should be sung in the same range as the range of young children’s voice.

Using music with toddlers, therefore, involves not only parents’ or caregivers’ preparation of a variety of sound sources and good music in a comfortable environment, but also selection of songs, chants, rhymes, or finger plays that are appropriate for toddlers, as well as singing to them (Andress, 1998; Greata, 2006). In toddlers’ rooms, teachers are advised to provide a sound corner with various kinds of sound materials. Teachers should also prepare at least two items of each type of sound material on the shelves because young children at this age tend to play individually. In addition, due to the toddlers’ noise, the sound corner should be placed at a considerable distance from quiet activity areas (Gordon & Browne, 2004; Greata, 2006).

In preschool through kindergarten, most children have moved from parallel play to cooperative play (Godeli, Santana, Souza, & Marquetti, 1996). During this age, preschoolers gather knowledge through symbols, which might be words they are adding to their vocabulary (Berk, 2001). Children can understand at least 2,500 to 2,800 words and speak sentences of 5 to 8 words when they are in a kindergarten (Berk 2001;

Feldman, 2007; Greata, 2006). In Zimmermann's (1984) explanation, children during this age begin developing one musical concept after another, regarding the volume (e.g., loud vs soft), tempo (e.g., fast vs slow), duration (e.g., long vs short), pitch (e.g., high vs low), and harmony (i.e., a mixture of two or more voices). For example, when learning a new song, children tend to first learn the rhythm (i.e., the tempo), and then the melody (i.e., the harmony) (Davidson, McKernon, & Gardner, 1981). Only after they have learned each of these musical concepts can they start combining two or more concepts (Zimmerman, 1984).

At three years old, children can enjoy making musical sounds and singing songs without concern about quality, so they do not focus on the accuracy of pitch or tempo (Turner, 2004). They can start controlling their voice and managing melodies with greater accuracy and musical expression after age four or five (Scott-Kassner, 1993). Meanwhile, preschoolers and kindergarteners usually develop their musical memory through musical activities, so children should be active participants in music rather than passive listeners (Sergeant & Rocher, 1973). During these children's musical development, slower-tempo music is more appropriate; children usually find it easier to synchronize their movement with music whose tempo resembles their walking tempo (Rainbow & Owen, 1979; Scott-Kassner, 1993). Like in the previous age range, preschoolers and kindergarteners still need a sound center in their classrooms, with the sound materials and instruments regularly rotated to keep the children's interest (Greata, 2006). It is further suggested that rhythmic chants, echo songs, and folk songs be introduced to children at this age (Greata, 2006), and that teachers, parents, or

caregivers give the children an opportunity to move along with music (Andress, 1998; Greata, 2006; Turner, 2004).

When children enter elementary school, their thinking becomes more logical and their ability to solve problems increases (Berk, 2001). For example, they show a better ability to recognize the differences between reality and imagination. Children at this age can also use their language to express their feelings and show empathy with others. Besides, they often learn to use music to express their feelings and their own cultures (Campbell & Scott-Kassner, 1995). Musical development of school-age children, as Turner (2004) explains, usually starts at the age of six to eight, when the children begins expressing an interest in playing various kinds of musical instruments and responding to rhythm with their entire bodies. Due to the fact that primary-grade children start to gradually divide themselves into gender-related groups, they begin to develop a sense of belonging of a group, and their peers usually become increasingly important. Thus, Berk (2001), Greata (2006), and Turner (2004) agree that this is an ideal age level for children to be introduced to symphony orchestras' music, different kinds of music ensembles, or round songs.

During such development, singing is still considered important for children at this age, as it not only functions as their transitional aid, but also helps them to relax and socialize. Singing activities can be performed at any time during the day, by individuals, in small groups, or in a large group (Greata, 2006). Primary children's vocal range gradually becomes broader than that of preschoolers and kindergarteners. Campbell and Scott-Kassner (1995) note that first graders are usually able to sing in tune within the vocal range of D, which is located next to middle C, up to B in the same octave;

second graders, on the other hand, can sing in tune with the vocal range of middle C up to C, which is one octave higher. However, not all the children in an age group may be able to sing the complete range, so teachers are usually advised against songs with the highest and/or the lowest notes of the vocal range (Campbell & Scott-Kassner, 1995). Because children at this age still need ear training, teachers should provide various kinds of musical instruments for their children and should often change or rotate the materials in the classroom to maintain the children's interest (Greata, 2006). If children approach music at school and at home with similar regularity, they tend to live a life of good physical and mental health (Turner, 2004).

Strategies to Teach Young Children to Sing a Song

Before teaching young children how to sing a song, it is important that teachers and caregivers know how to choose songs for their children. Moomaw (2002) suggested the following criteria for selecting songs for young children. First, the length of each song should be suitable for the age of the children. Songs for toddlers, for instance, should be only one-line long, whereas those for kindergarteners or first-graders may be up to six to eight lines in length. In general, a song for young children should be short and simple; otherwise, they may quickly lose their attention and interest (Moomaw, 2002; Nye, 1983). Second, young children love songs containing repeated words and melodies, because such songs are easy for them to remember and sing. Third, the content of a song should be relevant to the lives of young children, or pertain to a topic with which children are familiar, such as families, animals, and their communities. Moomaw (2002) offers an important precaution regarding songs'

contents; that is, teachers are not supposed to choose songs that reinforce stereotypes, racial discrimination, or gender bias. Fourth, each song for young children should contain a note range suitable for the age of the children. According to Turner's (2004) findings, it is easy for young children to sing in a pentatonic scale, which consists of five notes in a major scale between C to A or "do to la" (p.33). Some young children's vocal range may be from middle C (do) all the way to G (sol), while their classmates' may be from D (re) to A (la) (Greata, 2006). Although young children's natural singing range is somewhat narrow, teachers can help them to widen it by means of voice training (Rosborough, 1972). Moreover, Moomaw (2002) remarks that it is easier for young children to sing songs that contain consecutive notes (e.g., do - re - me, respectively) or small skips between notes (e.g., do - me - sol, respectively) than those with large skips (e.g., do - sol). For this reason, if teachers want to compose songs by themselves, the most practical way is to choose melodies with which children are already familiar, and then change the lyrics (Moomaw, 2002).

In addition to selecting suitable songs, teachers need to have some techniques to help children learn to sing such songs. Andress (1998) suggests that the teacher first introduce the children to the beginning pitch. This could be done by humming or using a musical instrument, such as a piano or a xylophone. The next technique that could be used is the whole-song method, whereby the teacher sings and lets the children listen to an entire song several times. This whole-song strategy is appropriate for young children because it can maintain the children's focus and attention; if a song is divided into individual lines, young children tend to quickly fail to grasp its continuity and

meaning, and eventually they may lose interest (Andress, 1998; Greata, 2006; Moomaw, 2002).

To help the students improve their singing voice quality, the teacher may divide the whole class into small groups and ask those in each group to sing on their own (Pugh & Pugh, 1998). A recommended singing posture is kneeling or standing, which does not cause the diaphragm to be contorted and thus enables the children to breathe deeply (Pugh & Pugh, 1998). Furthermore, the teacher is advised to teach the children to sing with head voice rather than with chest voice, in order to avoid vocal damage in young children (Ball, 1995). Similarly, Cave (1998) points out that the voice of young children is light and airy, so teachers are strongly advised against using shouting songs, which strain children's voice and prevent them from finding their most natural singing voice.

Another essential factor in children's development of singing voice quality is an opportunity to sing with other people. It has been observed that children can best improve their singing with a live singer. This is because when adults—such as teachers or caregivers—sing along, they can adjust the song's speed and voice range to fit the children. In Turner's (2004) view, a teacher who does not have a beautiful voice and hesitates to sing with the children may invite a musical friend or a local musician to the class, or may sing along with recorded songs. Teachers skilled in musical instruments may use them to solve this problem. However, some scholars (Moomaw, 2002; Pugh & Pugh, 1998) note that a guitar or an autoharp is preferred over a piano or a keyboard, as the latter creates a physical barrier and weakens the intimate relationship between the teacher and the children. Another effective method to help children to improve their

singing skill is to provide time and space for children to sing alone and listen to themselves (Cave, 1998), so that the more the children sing, the more beautiful voice they could have.

Visual Art

Visual art, according to Jewell's (2002) classification, covers many forms of art, such as photography, drawings, paintings, printmaking, sculptures, crafts, architecture, computer arts, and videos. Diket (2003) mentions in the book "No Child Left Behind" the importance of art to children's education, emphasizing art as a core subject in the curriculum for children in elementary and secondary school. Visual art, therefore, is considered one of the best strategies promoting young children's learning and success in many other academic domains (Epstein, 2006).

For emergent readers, such as young children and second-language learners, visual art functions as a universal language that helps them to improve their reading ability and overcome their language barriers (Linderman, 2004; McCarty, 2007). Visual art can also enable children to understand key concepts and gain basic knowledge before they read a story. Manning (2004) supports this argument, explaining that illustrations are particularly effective for children with oral or written language difficulty. By means of illustrations, such children can envision the meaning of a story in their mind before recognizing the written text. The research conducted by Free (2004) has confirmed this finding. According to the study, African-American students with reading disabilities improved their reading comprehension skill more efficiently when they read with illustrations than when they read without illustrations. It has also been reported

(Soundy, Guha, & Qiu, 2007) that visual art contributes to literacy development among children who use pictures to inform teachers about their understanding of certain concepts. Besides reading comprehension and literacy, visual art has been found to help children to overcome pronunciation difficulty, particularly regarding correct mouth shapes (Cohen & Slone, 2007).

Visual art also increases memory capacity. The process of memorizing information, as understood by brain researchers (Darling-Kuria, 2010; Sousa, 2006), starts when information passes through a sensory register and the neurological filter indicates whether the information deserves attention. If the information is worth an interest, the information will be transferred to the working memory. At this stage, the brain will consider whether the information is useful. If considered useful, the information will be moved to the short-term memory, where the information will not be memorized any longer if it is considered unnecessary for any further purpose. By contrast, the information considered important will be transferred to the long-term memory, from where it can be retrieved at any time, now or hereafter. Cohen and Slone (2007) indicates that visual art can enable young children or autistic children to distinguish pieces of information, perceive those that are useful, and store them for future use. In addition, Geyer (2008) states that visual art can boost students' attention and retention of information. For this reason, teachers and parents can use photos, flash cards, color highlights, checklist pictures, charts, tables, or graphic organizers to draw their children's attention and activate their memory (Cohen & Slone, 2007).

Visual art also contributes to emotional regulation. Many researchers have found that emotional and mental health influences academic achievement (Durlak, Weissberg,

Dymnicki, Taylor, & Schellinger, 2011; Zins, Weissberg, Wang, & Walberg, 2004; Wood, 2006). In one study, children who received socio-emotional support were found to perform better academically in schools and succeed more in their private lives (Zins, Weissberg, Wang, & Walberg, 2004). Drake (2015) notes that emotional regulation can be supported through art, such as drawing, which she explains can improve children's mood by distracting them from disappointing events and giving them an opportunity to release their stress. When children are in a positive mood, their academic proficiency is likely to increase as a consequence (Drake, 2015; Dalebroux, Goldstein, & Winner, 2008). Emotional impacts of visual art are evident not only in normal children but also in children with emotional difficulties. Visual art, through such tools as emotional charts, photos, video models, or comic strip conversations, can be used as a tool to improve autistics' self-regulation, empathy, and conflict management ability (Cohen & Sloan, 2007).

Although visual art provides many benefits for children, choosing good visual supports must be taken into serious consideration. Several criteria have been proposed for visual art selection for children (Cohen and Sloan, 2007; Ingram, 2015). First, the type of visual art should be suitable for children's age and abilities. Real objects or small objects representing actual items, for example, are excellent for young children and children with a disability, such as autism. However, teachers and parents must pay very close attention to children playing with small items, and may need to replace small items with larger objects that cannot be swallowed. If real items are not available, real pictures or photographs are better than drawings. Also, large, colorful, and less-detailed pictures are good for children at an early age. Second, the durability of

materials is another essential consideration. Teachers and parents are advised to choose materials that are flexible, pliable, and shockproof, for example, laminated photographs or rubber-coated objects. Third, the portability of objects needs to be considered in relation to the children's physical conditions. Children who are very young or have slow motor control development should be provided with larger visual aids, such as big toys, instead of smaller objects. For travel convenience, however, small, lightweight portable objects, or visual aids that can be carried in a suitcase, may be necessary, but they must be used with additional care. The last thing that teachers and parents should consider before choosing visual art items is clarity. They should keep in mind that for a visual support to be "salient enough for the child to respond in the manner expected" (Cohen & Sloan, 2007), it should be large enough for all the children to see over a great distance without straining their eyes. Similarly, if a given lesson focuses on a single concept, each of the chosen visual art objects must depict only that concept. The more appropriate the visual art supports, the more benefits the children receive.

In summary, one of the major factors that help children succeed in learning English is vocabulary. Although there are many strategies to help children improve their English vocabulary development, music and visual arts are appropriate methods to use with young children. Both music and visual arts help teachers develop a relax and enjoyable atmosphere that can trigger learning of young children. In addition, children can memorize better if they use these strategies. However, teachers should know how to use music and visual arts that are appropriate for their students. The more teachers

understand about music and visual arts, the more their students improve their learning ability.

APPENDIX B
DETAILED METHODOLOGY

Purpose of the Study

The purpose of this study was to examine the efficacy, if any, of the Music and Visual Arts (MVA) strategy in improving the English vocabulary development of first grade Thai students.

Definitions of Terms

The definition of the following terms is provided in order to ensure a correct understanding of the issues discussed in this study.

Accuracy

The term refers to the ability to “recognize words automatically with little effort or attention” (Johns, & Berglund, 2006, p.3). In this study, ‘accuracy’ refers to Thai first-grade children’s ability to automatically and effortlessly utter English vocabulary words after seeing pictures. However, to make certain the accent used in this study was one with which young Thai participants were generally familiar, an American accent with slight modifications was chosen.

Rapidity

The term refers to the speed taken to utter an English word after seeing a picture. Johns and Berglund (2006) defined speed as one component of fluency, explaining that “speed is usually determined in words per minute (WPM) or words correct per minute (WCPM)” (Johns, & Berglund, 2006, p.3).

Word Recognition

The term refers to the reader's ability to recognize words correctly and somewhat effortlessly. In this study, it refers to a student's ability to utter a correct English vocabulary word within six seconds after seeing a picture.

Songs

In this study, this term was used to refer to children's songs that had rhythms and melodies with which young children were familiar. The researcher kept the traditional rhythms and melodies but rewrote the lyrics in English so that they contained the words that the first-grade children were expected to know.

Visual Arts

The term refers to photographs and pictures that matched the English vocabulary items the first-grade children were expected to know.

The Visual Art (VA) Strategy

The term "VA strategy" refers to an English vocabulary development teaching method whereby a teacher lets the students see a picture and say the English word for that picture.

The Music and Visual Arts (MVA) Strategy

The term “MVA strategy” refers to an English vocabulary development teaching method whereby a teacher lets the students see a picture or pictures while singing a song. Each English word in the song matches the meaning of each image to which the teacher is pointing. Alternatively, students may try to understand the meaning of each English word by simultaneously singing a song and seeing a picture to which the teacher is pointing.

Vocabulary

In this research, the term “vocabulary” was used to refer to 70 English words that the English teacher at the participating school, which was under Bangkok Metropolitan Administration, had allowed the researcher to use to collect data from teaching the first-grade students in the second semester.

Research Questions

The researcher used these research questions to develop research methodology and undertake research analysis.

Question 1

To what extent, if any, does the MVA strategy enhance Thai children's English vocabulary development in terms of word recognition accuracy and the rapidity with which they can recognize a set of English vocabulary words?

Question 2

To what extent, if any, does the VA strategy enhance Thai children's English vocabulary development in terms of word recognition accuracy and the rapidity with which they can recognize a set of English vocabulary words?

Question 3

To what extent, if any, is the VA strategy or the MVA strategy more effective in improving the accuracy with which Thai children can recognize a set of English vocabulary words?

Question 4

To what extent, if any, is the VA strategy or the MVA strategy more effective in increasing the rapidity with which Thai children can recognize a set of English vocabulary words?

APPENDIX C
COMPLETE/UNABRIDGED RESULTS

Table C1

Results of Demographic Questionnaire for the Participants in the Experimental Group (N=20)

Characteristic	Frequency	Percentage (%)
Gender		
Male	11	55.0
Female	9	45.0
Children's age		
6 years old	6	30.0
7 years old	14	70.0
Mother's level of education		
High school or lower	20	100.0
Bachelor's degree	0	0
Master's degree	0	0
Doctoral degree	0	0
Father's level of education		
High school or lower	18	90.0
Bachelor's degree	2	10.0
Master's degree	0	0
Doctoral degree	0	0
Family's income (Baht/month)		
Under 9,000	7	35.0
9,000 – 15,000	9	45.0
15,000 – 25,000	3	15.0
25,000 – 35,000	1	5.0
35,000 – 45,000	0	0
Over 45,000	0	0
Person playing major role of children's education		
Father	2	10.0
Mother	6	30.0
Grandparent	7	35.0
Sibling	0	0
Both parents	5	25.0
Activities doing with children		
Talk about what's going on at school	15	75.0
Homework review	17	85.0
Provide material to support children's education	5	25.0
Encourage children to be involved in educational activities that parents or guardians provide	0	0
Put children in extra tutorial class	0	0
Participate in school events	11	55.0
Do not involve in any activity	3	15.0

Table C1 (continued)

Characteristic	Frequency	Percentage (%)
Parents or guardians involvement to help children reviewing English vocabulary at home		
Nobody involve and children do not review English vocabulary at home	3	15.0
Nobody involve but remind children to review English vocabulary by themselves	8	40.0
Parents or guardians help children to review English vocabulary at home	9	45.0
Frequency of reviewing English vocabulary of the participants		
Everyday	2	10.0
2 – 3 times/week	6	30.0
Once a week	5	25.0
Depending on children's emotion	4	20.0
Time that the children spend to review English vocabulary		
Less than 5 minutes	2	10.0
5 – 10 minutes	6	30.0
10 – 30 minutes	5	25.0
More than 30 minutes	1	5.0
Depending on children's emotion	3	15.0
Musical activities that the children like		
Listen to songs	14	70.0
Sing a song	12	60.0
Play a musical instrument	3	15.0
Dance	11	55.0
Take musical class	0	0
Does not like any musical activity	1	5.0
Types of songs that the children like		
Children song	11	55.0
Country song	10	50.0
Thai popular song	5	25.0
English popular song	1	5.0

Note: US\$1 = 30 Baht (currency in 2015)

Table C2

Results of Demographic Questionnaire for the Participants in the Control Group (N=20)

Characteristic	Frequency	Percentage (%)
Gender		
Male	13	65.0
Female	7	35.0
Children's age		
6 years old	5	25.0
7 years old	14	70.0
8 years old	1	5.0
Mother's level of education		
High school or lower	17	85.0
Bachelor's degree	2	10.0
Master's degree	0	0
Doctoral degree	0	0
Do not know	1	5.0
Father's level of education		
High school or lower	20	100.0
Bachelor's degree	0	0
Master's degree	0	0
Doctoral degree	0	0
Family's income (Baht/month)		
Under 9,000	11	55.0
9,000 – 15,000	7	35.0
15,000 – 25,000	2	10.0
25,000 – 35,000	0	0
35,000 – 45,000	0	0
Over 45,000	0	0
Person playing major role of children's education		
Father	2	10.0
Mother	7	35.0
Grandparent	8	40.0
Sibling	0	0
Both parents	3	25.0
Activities doing with children		
Talk about what's going on at school	17	85.0
Homework review	20	100.0
Provide material to support children's education	3	15.0
Encourage children to be involved in educational activities that parents or guardians provide	0	0
Put children in extra tutorial class	0	0
Participate in school events	16	80.0
Do not involve in any activity	1	5.0

Table C2 (continued)

Characteristic	Frequency	Percentage (%)
Parents or guardians involvement to help children reviewing English vocabulary at home		
Nobody involve and children do not review English vocabulary at home	3	15.0
Nobody involve but remind children to review English vocabulary by themselves	11	55.0
Parents or guardians help children to review English vocabulary at home	6	30.0
Frequency of reviewing English vocabulary of the participants		
Everyday	1	5.0
2 – 3 times/week	5	25.0
Once a week	5	25.0
Depending on children's emotion	6	30.0
Time that the children spend to review English vocabulary		
Less than 5 minutes	4	20.0
5 – 10 minutes	6	30.0
10 – 30 minutes	2	10.0
More than 30 minutes	1	5.0
Depending on children's emotion	4	20.0
Musical activities that the children like		
Listen to songs	11	55.0
Sing a song	11	55.0
Play a musical instrument	1	5.0
Dance	12	60.0
Take musical class	0	0
Does not like any musical activity	2	10.0
Types of songs that the children like		
Children song	8	40.0
Country song	9	45.0
Thai popular song	6	30.0
English popular song	2	10.0

Note: US\$1 = 30 Baht (currency in 2015)

EXPENDIX D
OTHER ADDITIONAL MATERIALS

70 Required English Words for the First Grade Students in the Second Semester of
Karuna Elementary School

Category 1: Things in a School (10 words)

Group 1: blackboard, chair, table, bell, and door

Group 2: window, telephone, fan, TV, and radio

Category 2: Animals (12 words)

Group 1: chicken, ant, rat, rabbit, bear, and monkey

Group 2: giraffe, ox, panda, snake, cat, and zebra

Category 3: Fruits and Vegetables (7 words)

Group 1: strawberry, pineapple, papaya, watermelon, grape, cherry, and bean

Category 4: Food and Beverages (6 words)

Group 1: ice, tea, coffee, milk, noodles, and cookies

Category 5: Numbers (20 words)

Group 1: one, two, three, four, and five

Group 2: six, seven, eight, nine, and ten

Group 3: eleven, twelve, thirteen, fourteen, and fifteen

Group 4: sixteen, seventeen, eighteen, nineteen, and twenty

Category 6: Vehicles (5 words)

Group 1: plane, tuk-tuk, train, boat, and car

Category 7: Colors (10 words)

Group 1: white, black, red, yellow, and blue

Group 2: pink, green, orange, purple, and brown

Songs

Category 1: Things in a School (Melody of “We Wish You a Merry Christmas”)

Song group 1:

Blackboard chair table bell door

Blackboard chair table bell door

Blackboard chair table bell door

Blackboard chair table bell door

Song group 2:

Telephone fan TV radio window

Telephone fan TV radio window

Telephone fan TV radio window

Telephone fan TV radio window

Category 2: Animals (Melody of “Twinkle Twinkle Little Star”)

Song group 1:

Chicken ant rat rabbit

Bear monkey chicken ant

Rat rabbit bear monkey

Chicken ant rat rabbit

Bear monkey chicken ant

Rat rabbit bear monkey

Song group 2:

Giraffe ox panda snake

Cat zebra giraffe ox

Panda snake cat zebra

Giraffe ox panda snake

Cat zebra giraffe ox

Panda snake cat zebra

Category 3: Fruits and Vegetables (Melody of “London Bridge Is Falling Down”)

Song group 1:

Pineapple grape papaya

Strawberry watermelon

Bean cherry grape pineapple

Watermelon

Category 4: Food and Beverages (Melody of “Are You Sleeping?”)

Song group 1:

Noodles cookies ice tea coffee

Milk noodles milk noodles

Cookies ice tea coffee

Cookies ice tea coffee

Milk noodles milk noodles

Category 5: Numbers (Melody of "This Old Man")

Song group 1:

One two three four five one

Two three four five one two three

Four five one two three four five one two three four

Five one two three four five one

Song group 2:

Six seven eight nine and ten

Six seven eight nine and ten

Six seven eight nine ten six seven eight nine

Ten six seven eight nine ten

Song group 3:

Eleven twelve thirteen

Fourteen fifteen eleven

Twelve thirteen fourteen fifteen eleven

Twelve thirteen fourteen fifteen

Song group 4:

Sixteen seventeen eighteen nineteen

Twenty sixteen seventeen

Eighteen nineteen twenty sixteen seventeen

Eighteen nineteen and twenty

Category 6: Vehicles (Melody of "Good Morning to All")

Song group 1:

Plane tuk-tuk train boat car

Plane tuk-tuk train boat car

Plane tuk-tuk train boat and car

Plane tuk-tuk train boat car

Category 7: Colors (Melody of “Skip to My Lou”)

Song group 1:

White black red yellow blue

White black red yellow blue

White black red yellow blue

White black yellow red and blue

Song group 2:

Pink green orange purple brown

Pink green orange purple brown

Pink green orange purple brown

Pink green orange purple brown

Demographic Questionnaire

1. Child's gender: ☐ Male ☐ Female
2. Child's ages: Years: ____ Months: ____
3. Mother's level of education
☐ High school or lower ☐ Bachelor's degree
☐ Master's degree ☐ Doctoral degree
☐ Other (Please specify)
4. Father's level of education
☐ High school or lower ☐ Bachelor's degree
☐ Master's degree ☐ Doctoral degree
☐ Other (Please specify)
5. Family's income (Baht per month)
☐ Under 9,000 ☐ 9,000 – 15,000 ☐ 15,000 – 25,000
☐ 25,000 – 35,000 ☐ 35,000 – 45,000 ☐ Over 45,000
6. Who plays the major role in your child's education?
☐ Father ☐ Mother ☐ Grandparent
☐ Sibling ☐ Other (Please specify)
7. Please prioritize number 1-3 to state the top 3 activities that you are always involved in your child's education.
☐ Talking about what's going on at school
☐ Reviewing homework with your child
☐ Providing material to support child's education, such as books, educational toys, games, educational software, or children's programs on TV

- () Encouraging and being involved in educational activities that you provide for your child
- () Putting children in extra tutorial class
- () Participating in school events
- () Other (Please specify
.....)
8. Do you help your child review English vocabulary words that he/she learns from school?
- () Nobody is involved in this activity and the child never reviews them at home.
- () Nobody is involved in this activity but I tell my child to review them by himself/herself at home.
- () I help my child review them at home.
9. How often do you help your child review English vocabulary or tell him/her to do it by himself/herself?
- () Every day () 2-3 times a week () once a week
- () Never () Other (Please specify.....)
10. How long does your child spend reviewing English vocabulary for each time?
- () Less than 5 minutes () 5 – 10 minutes
- () 10 – 30 minutes () more than 30 minutes
- () Other (Please specify.....)

11. What music activities does your child like?











- ☐ Listening to songs ☐ Singing songs
- ☐ Playing a musical instrument ☐ Dancing
- ☐ Taking music classes ☐ Not liking any musical activity
- ☐ Other (Please specify.....)

12. What types of songs does your child like?





- ☐ Children's songs ☐ Country songs
- ☐ Thai popular songs ☐ English popular songs
- ☐ Other (Please specify.....)

The Vocabulary Recognition Assessment Tool








Things in a school

Pictures	Accuracy	Rapidity (second)
         		

Animals

Pictures	Accuracy	Rapidity (second)
           		

Fruits and Vegetables

Pictures	Accuracy	Rapidity (second)
      		






Food and Beverages

Pictures	Accuracy	Rapidity (second)
		
		
		
		
		
		

Numbers

Pictures	Accuracy	Rapidity (second)
3		
7		
12		
15		
8		
2		
11		
5		
1		
14		
17		
20		
19		
4		
13		
18		
16		
6		
9		
10		

Vehicles

Pictures	Accuracy	Rapidity (second)
    		

Colors

Pictures	Accuracy	Rapidity (second)
         		

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