

THE EFFECTS OF USING BRAIN- BASED LEARNING (BBL) ACTIVITIES ON
PRATHOMSUKSA 6 STUDENTS' ENGLISH SPEAKING ABILITY



Presented in Partial Fulfillment of the Requirements for the
Master of Art Degree in Teaching English as a Foreign Language
at Srinakharinwirot University

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AN ABSTRACT

BY

PAIWAN JAMPAMOON

Presented in Partial Fulfillment of the Requirements for the
Master of Art Degree in Teaching English as a Foreign Language
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Paiwan Jampamoon. (2012) *The effects of using Brain-Based Learning (BBL) activities on Prathomsuksa 6 Students' English speaking ability*. Thesis. M.A. (Teaching English as a Foreign Language). Bangkok: Graduate School. Srinakharinwirot University. Thesis Advisor: Dr. Anchalee Jansem.

The purposes of this study were to (1) examine the effects of using BBL on Prathomsuksa 6 students' speaking ability (2) study the students' opinion toward studying English at Watsamrongnua School through Brain-Based Learning activities. The participants were 35 Prathomsuksa 6 students gained via simple random sampling. The instruments used for collecting data were lesson plans, a pre-post speaking test, and a questionnaire. The data were statistically analyzed by mean, standard deviation and *t*-test for dependent samples.

The results of this study indicated that the English speaking ability on Prathomsuksa 6 students after learning through Brain-Based Learning activities after the experiment was increased significantly higher at the .01 level. The questionnaires results showed students' positive opinion toward studying English through Brain Based-Learning activities.

Keywords: Brain-Based Learning, English speaking ability

ผลการใช้กิจกรรมการเรียนรู้แบบใช้สมองเป็นฐานที่มีต่อความสามารถด้าน
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การศึกษาครั้งนี้มีจุดมุ่งหมายเพื่อพัฒนาความสามารถด้านการพูดภาษาอังกฤษของนักเรียนชั้น
ประถมศึกษาปีที่ 6 โรงเรียนวัดสำโรงเหนือ จังหวัดสมุทรปราการ โดยใช้กิจกรรมการเรียนรู้แบบใช้สมอง
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ค่าเบี่ยงเบนมาตรฐาน และใช้สถิติ t -test แบบ Dependent samples

ผลการศึกษาพบว่า ความสามารถด้านการพูดภาษาอังกฤษโดยใช้กิจกรรมการเรียนรู้แบบ ใช้สมอง
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CHAPTER ONE

INTRODUCTION

Rationale

English is the international language used for communication in business, education and other careers. The impact of globalization has made listening or receiving and speaking or sending information important skills. These skills can promote understanding, provoke interest in a variety of cultures, as well as create good will and develop better relationships on an international level. The English language also allows learners to discover the customs, cultures and other aspects of the countries where it is spoken as the first language. Learners who have a positive attitude toward studying English continue to use English for both communication and knowledge after they have received their certification (Ministry of Education. (2010).As a result, speaking is considered to be one of the most important skills of the four key skills, which also include listening, reading and writing.

Furthermore, speaking proficiency can reveal background knowledge. When a learner develops one skill, it becomes easier to learn other skills (Lado, 1961; Ur, 1998). For example, effective speaking leads to clear listening and also makes reading and writing easier. Consequently, it is necessary for teachers to promote learning with appropriate classroom activities and using the target language in various real situations is the most important experience for students (Scott, 1981).

Similarly, Jack and Willy (2002) claim that a large percentage of language learners throughout the world learn English to develop their spoken proficiency. However, speaking is a complex skill, and its complexity makes teaching spoken

English challenging. Jack and Willy (2002) also claim that speech is used for many reasons, including initiating social contact, starting relationships or talking to friends.

When we engage in communication with someone our purpose may be to express our opinion, persuade them to do something, or provide information. Moreover, we may use speaking to issue instructions, to describe things, to complain, to make polite requests or to entertain people (Jack & Willy, 2002).

Despite there are many ways in which language teachers can improve both their own learning and their language teaching skills, language teachers still face many difficulties. One problem is that students do not have any opportunities to speak in real life situations. The English curriculum in Thailand is more focused on reading and grammar than speaking (Karnpanich; Pulphol, 1997). Thus, the spoken English of most Thai learners is limited and in need of improvement.

Many students lack the confidence and courage to speak and consequently develop negative attitudes towards speaking English (Ministry of Education, 2002). One of the major problems facing Thai learners is spoken English. One reason why learners cannot speak English effectively is that they are hesitant to speak for fear of making errors and another common reason is shyness. Both of these problems can be considered serious (Brown, 1994; Ur, 1996.)

The Ministry of Education in Thailand (2009) has developed the English curriculum to include English communication for careers. The curriculum also requires that teachers use innovative methods to effectively teach speaking. The curriculum has ranked speaking as a 'focus' skill.

Silver (1982) said that learning process is effective when learners have an opportunity to learn in a relaxing atmosphere and that teachers should manage the

classroom in such a way that learners are encouraged, rather than discouraged to participate in activities. Silver also stressed the importance of learning process and of the practical application of English skills in real life situations. The successful education of students depends on the ability of their teachers.

The experiences which teachers provide for learners should be based on real life experiences and solving realistic problems. Learners should use language as a tool to communicate until they achieve language competency. Jack and Willy (2002, as cited in Green, Christopher and Lam , 2002) examined speaking proficiency in terms of discussion skills. They explored how speaking skills can be developed in the classroom and recommended classroom activities based on common problems experienced by learners. These activities should be based on different aspects of spoken English and feature interactive activities. As both a researcher and an English teacher, my intention is to find a strategy and a learning process to improve the speaking ability of students through Brain-Based Learning (BBL) activities. As Chatkup (2002) concluded from a number of studies, the human brain works most effectively when its potential is activated. An active learning process can promote enthusiasm and stimulate interest. On the other hand, when students are stressed, exhausted, sad or bored in the classroom, their progress can be impaired. Although language learning is an automatic process, students need to be stimulated in order to use their brains at optimum capacity through appropriate language input. The theories and principles of BBL are based on brain function and language teachers should attempt to monitor brain function through classroom management techniques.

This research is concerned with theories of Cain and Cain (1991). They claimed that the management of the brain is the way to increase the potential of

learners. The human brain, regardless of the age, gender, nationality, and cultural background of the individual, is equipped with exceptional features. For example, the brain has ability to detect patterns and to make approximations, the phenomenal capacity for various types of memory, the ability to self-correct and learn from experience by way of the analysis of external data, self-reflection and an inexhaustible capacity to create. Another exceptional feature of the human brain is its virtually unlimited capacity to learn (Cain & Cain, 1991).

Similarly, Hart (1983, as cited in Cain & Cain, 1991) claimed that one essential reason that people have yet to grasp the complicated and elegant way the brain learns, especially when it is functioning properly, is due to its complexity. When we are able to understand both the possibilities and processes of the human brain, we may be able to access its huge potential and improve education. Hart (1983) claimed that education can be either 'brain-agreeable' or 'brain-conflicting'.

Cain and Cain (1991) claimed that although all learning is brain-based in some sense, BBL also acknowledges the structure and function of the brain in terms of organizing teaching strategies that apply knowledge of the brain to educational practice. In education, the influence of BBL can be seen through the development of curriculum introduction and assessment. BBL also shows that the brain works more effectively with learning activities that are designed with brain function in mind. Teachers also need to provide students with appropriate experiences. There are three interactive elements necessary for this process: teachers, educators and students. Teachers must immerse learners in complex, interactive experiences that are both rich and real. An example of this type of experience is immersing students in learning both a second language and about a foreign culture. Educators should take advantage of the

ability of the human brain to parallel process. Students must also find challenges personally meaningful in order to capture their interest. These challenges must also help students to stay alert (Cain & Cain, 1991).

In conclusion, BBL is a flexible process that encourages students to be enthusiastic learners and enjoy participating in the classroom activities. BBL can make lessons clearer and easier to understand. It also makes the classroom atmosphere more relaxing and enhances the learning process.

Consequently, as a researcher, I wanted to implement BBL instruction in an effort to improve the speaking ability of these students. The findings will reveal whether or not BBL instruction and activities can help students to develop their speaking ability.

Purposes of the Study

This study was conducted with two main purposes:

1. To investigate the effectiveness of BBL instruction on the English speaking ability of Prathomsuksa 6 students.
2. To study the opinions of the students toward studying English after learning through BBL.

Research Questions

1. Does Brain-Based Learning activities improve students' English speaking ability?
2. Can BBL activities change the opinions of students toward studying English?

Variables

The variables in this study were as follows:

1. The Independent variable was the Brain-Based Learning (BBL) activities.
2. The dependent variables were:
 - 2.1 The speaking ability of the Prathomsuksa 6 students
 - 2.2 The opinions of the Prathomsuksa 6 students' opinion toward BBL

Significance of the Study

The findings of this study are beneficial to English language teachers and their students. The teaching and learning activities based on the BBL activities in this study provided alternative and innovative teaching practices to improve the speaking ability of students.

Scope of the Study

Population and participants

The population of this study was 70 Prathomsuksa 6 students from two classes. They study the English language in the second semester of the 2011 academic year at Wat Samrongnua School. The participants included 35 students, recruited from two classes via simple random sampling method .

Duration

This study took place 10 weeks from December 2011 to January 2012. The participants studied English for 2 hours a week and were taught using BBL instruction and activities. The pre-test and post test were included in the teaching time.

Contents

This study contains the following BBL activities titles:

1. It's a magic hat: Asking about and talking about prices
2. I had a bad day: Asking about and describing one's day
3. Turn left at the corner: Asking about and giving direction
4. He is going to the mountain: Asking about and describing emotions states
5. World records and great vacations: asking about and describing places using superlatives

Definition of Terms

Terms defined in this study were as follows:

1. Brain-Based Learning (BBL) activities refer to implementation activities based on the 12 principles of the brain (Cain & Cain, 1991). There are different types of activities, games, songs, role play, speaking tasks, pair work and group work.

BBL also requires a relaxed learning atmosphere in terms of classroom management, an enriched classroom environment in terms of learning materials, and an instructor who facilitates activities and is aware of the emotional aspects of learning.

2. English speaking ability refers to the ability to speak English in terms of language structure and through various types of classroom activities according to Montgomery (2011) and the Rcampus, assessment criteria of pronunciation, fluency, vocabulary, comprehension and grammar.



CHAPTER TWO

REVIEW OF THE RELATED LITERATURE

This chapter is a review of the literature related to Brain-Based Learning (BBL) activities and English speaking ability, and related studies.

1. Brain –Based Learning (BBL)

Brain-based learning focus on how the brain learns. BBL includes accepting the rules of brain processing and organizing the teaching according to these rules in the mind for meaningful learning. BBL is students centered learning that utilizes the whole brain and recognizes that not all students learn in the same way. It is also construction their own knowledge in a variety of learning situations and contexts. (Caine and Caine, 1994;1997 Caine, Geoffrey, Renate Cain and Sam Crowell, 1999). It is a concept which tells how fusion of the common sense, human experiences and brain researches produce useful tools and principles for classroom environment. It does not give us a map to follow. But it provides us to think the structure of our brain at the stage of making decision. BBL is to learn with the brain in our mind. (Jensen, 2000). Similarly, LeDoux (1996) states that experiences, thoughts and memories are always embedded in emotions and corresponding physiological and psychological states. The students try to find and give the meaning to the answers themselves. This is the perfection of BBL. In this respect, teachers have to think about the findings of brain-based learning. They should encourage the students to problem solving experiences and let them deep into the meaning.

Neuroscience has disclosed important information about the brain and how it learns. It has uncovered “unprecedented revolution of knowledge about the human

brain, including how it process, interprets and stores information”. (Sousa, 1998). The National Institute for Brain-Based Learning (NIBL)(2005) states that BBL has become increasingly popular in recent years. As the 1990s was called the ‘decade of the brain’ as research during this period confirmed many cognitive theories about how the brain learns. BBL influenced U.S. policy, as the 'No Child Left Behind' clause was added to the national curriculum in the 1990s. This policy reflects the influence of BBL as the idea that every student has the potential to develop their brain. BBL theory is also practiced in American classrooms in terms of classroom management. One reason why BBL became popular in the U.S. may be due to the fact that Americans now face many problems, such as unemployment or high crime rates and BBL offers a way to positively influence students. (Bush, 1990: Online).

Thailand has experienced similar problems to the United States according to reports on Thai students over the last twenty years (NIBL, 2005). Thai students have experienced a decrease in both their general level of intelligence and their emotional intelligence. This may be due to a number of factors, including the influence of family, the educational system and new forms of communication, such as the mass media and social networks. Thai learning styles are still based on traditional patterns and out of step with the modern world.

As a result of these problems, it is necessary to develop and promote brain learning. The human brain is designed for learning, and the appropriate atmosphere learning environment and activities will stimulate learning. BBL uses techniques that are based on the function of the brain and can also be used for classroom management. Jensen (2000) noted that BBL is a learning process based on the nature of brain learning and integrates learning skills that increase the function of the brain. Call

(2003) described BBL as the synthesis of knowledge and theory about the brain that promotes the learning process.

Similarly, Politano and Paquin (2000) emphasized that BBL stimulates learning acquisition and memory retention because its structure is designed to complement the way the brain learns. Cain and Cain (1991) also explained this concept that BBL also has the ability to detect, make approximations and increase the capacity of different types of memory. BBL also includes the ability to self-correct, to learn from experiences by analyzing data, self-reflection and creativity.

Phichitpornchai (2007) claimed that BBL is based on the way the brain and the five senses work in conjunction with each other. Khongnawang (2007) defined BBL as learning based on the structure and function of the brain. Kaewwan (2007) claimed that BBL used the understanding of the function of the human brain to shape teaching methodology.

NIBL (2005) defined BBL as the synthesis of our knowledge of the brain and its functions to the learning process, along with intrapersonal intelligence and interpersonal intelligence. BBL activities are based on emotions and communication skills that are used in real-life social situations. Khotbantao (2005) stated that BBL is based on the following factors: learning atmosphere, holistic learning, deep sleep, goal setting, learning threats, proper nutrition and learner attention.

In conclusion, BBL is a classroom management style based on the function of 12 principles of the human brain. BBL can be utilized by an instructor with facilitating skills for effective classroom management, a relaxed learning atmosphere, an enriched classroom environment and learning materials, emotion-based learning.

1.1 The principles of Brain-Based Learning (BBL)

Originally, the principles of brain-based learning as established by Caine and Caine (1991) (p. 80-87) as follows:

1. The brain is a parallel processor, which means it can perform several activities at once, like tasting and smelling.
2. The body works in tandem with the brain and they are responsible for basic functions like emotional control, exercising, playing and eating.
3. The search for meaning is innate; challenging and learning by asking questions.
4. The search for meaning comes through patterning; learning patterns, understanding and synthesizing patterns and making comparisons with real-life situations.
5. Emotion is critical in patterning and can reveal differences between students and the way they understand patterns.
6. The brain is a parallel processor, so combining the elements of learning with real-life situations is beneficial to students and promotes brain learning.
7. Learning involves both focused attention and peripheral perception, so the environment should be enriched to promote learning.
8. Learning involves both conscious and unconscious processes and students should be encouraged to use analysis.
9. We have two types of memory: spatial and rote.
10. We understand best when facts are embedded in natural, spatial memory, for example, in story-telling or a field trip.

11. Learning is enhanced by challenge and inhibited by threat, so students should be allowed to make their own decisions.

12. Each brain is unique and each student has the ability to choose to improve their weak points.

Cain and Cain (1991) established the three major factors. First, teachers must immerse learners in complex, interactive experiences that are both enriched and based on real-life situations. An example of this would be to immerse students in learning about foreign culture to encourage them to learn a foreign language. Second, educators must teach in a way that utilizes the natural processes of the brain. Last, students need interpersonal challenges to make them more active in the classroom.

Cain... et al (2005) established the three instruction techniques associated with Brain-Based Learning. The first step is orchestrated immersion. The teacher should create a learning environment that promotes immersing students in an educational experience. The second step is relaxed alertness. Teachers should try to eliminate fear in students while still maintaining a challenging environment. The third step is active processing. Teachers should allow the students to combine and internalize information by active processing.

Furthermore, realistic feedback is needed for Brain-Based Learning. In accordance with the twelve principles of BBL, as a researcher I have defined BBL as the processes and activities that motivates students to study, promote intrapersonal intelligence and interpersonal intelligence and activities used by this researcher included relaxed activities, movement activities, learning activities, group work and self reflection.

1.2 Learning and the human brain

At birth, the brain weighs about one pound. During the first year of life it doubles in size and the adult human brain weighs about three pounds. The size of adult male brain weighs more than the size of adult female brain, but size does not affect intelligence. The weight of the brain is only two percent of our total bodyweight, but uses up to 20 to 25 percent of the body's energy. It is composed of loose gelatin, and although the outer layer has been called 'gray matter', its color is actually blend of light pink and brown (Sprenger, 2002) (p.15)

Jensen (1998) explained that the brain is divided into four areas known as lobes. There are occipital, frontal, parietal, and temporal lobes. The area of occipital lobe is in the center and rear of the brain and is responsible for vision. The frontal lobe area is around forehead, and is responsible for judgment, creation, planning, and problem solving. At the rear and center of the brain is the parietal lobe, it is responsible for processing higher sensory and language function. The temporal lobe is located around the ears and is responsible for hearing, memory, meaning and language.

Kamonpan (No date) explained that brain cells consist of three parts, the body, the dendrite and the axon. The brain learns when information has transferred between brain cells by axons and dendrites via the synapses. As the synapses transfer these messages, they become stronger. Each cell body has about 5,000 to 10,000 cells, about 20,000 dendrites and about 50 million synapses. In terms of learning there are two important types of brain cells; neurons and glial cells. The brain is 90 percent glia and 10 percent neurons. Normally, the brain cells make up to about 5 to 10 percent of

the whole brain when an individual is conscious and about 90 percent when unconscious. (See figure 1)

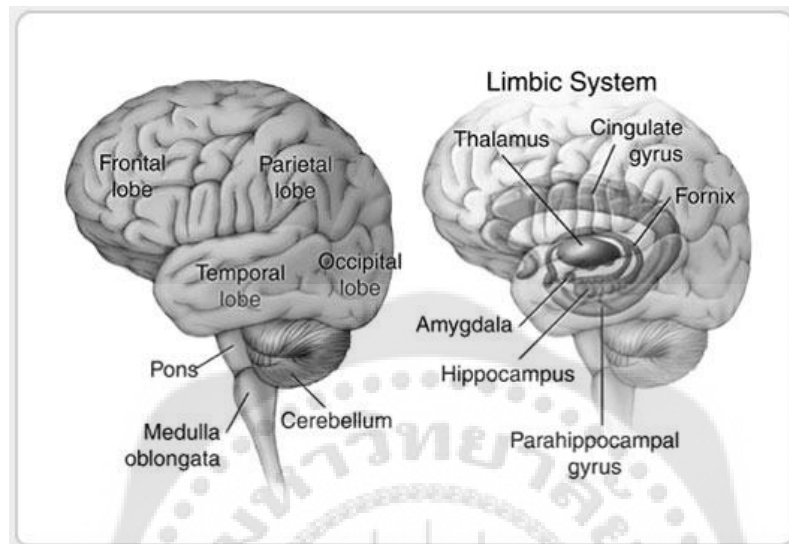


Figure 1; Parts of the Brain

(source: http://www.ahaf.org/assets/images/anatomy_of_brain_border.jpg)

As McClean (1990), the former director of the Laboratory of Brain and Behavior at the United States Institute of Mental Health, stated the triune brain operates three parts of the brain. The three parts of the triune brain work together but they do not control each other. This lowest part of the brain is called the brain-stem and the information enters through this area. Sprenger (2002) explained that the brain stem is called the reptilian brain or R-complex, and it is responsible for basic instinctive responses, for example, breathing, heart rate, metabolism, walking and sleeping. The area above the brain stem is called the limbic system, which regulates emotion and stores memories. The limbic system consists of the hippocampus, the amygdala, the thalamus, the hypothalamus, the pineal gland, the pituitary gland, the mammillary bodies and the cingulated gyrus. The thalamus classifies information that comes into the brain, while the hypothalamus organizes this information. The

hippocampus stores accurate information in the long-term memory when it enters the brain and is important enough. The amygdala stores emotional information. The limbic system is also called the mammalian brain. The cerebrum is the next layer of the brain and it is divided into the right and left cerebral hemispheres. It is referred to as white matter because the white surface of myelin, a fatty substance that covers brain cell connections. The cerebrum controls the connections that send messages from the brain to the body. The right and left hemispheres are connected by a band of fibers called the corpus callosum, which permits communication between both sides of the brain. In some studies, it was claimed that women have a larger corpus callosum than men and therefore can switch back and forth more quickly.

The neocortex corpus covers the cerebrum, with a thickness of about one eighth of an inch. The neocortex, which means 'new bark', is responsible for processes such as thinking, calculating and writing. The left and right hemispheres process different things. The left hemisphere is responsible for speech, logic, sequencing, timing, details, and mathematics (Sprenger, 2002) while the left hemisphere can be described as the language center. (Lorine & Kirs, 1999). The right hemisphere also processes music, art, strong emotional responses, intuition, summarizing and imagery. (See figure. 2)

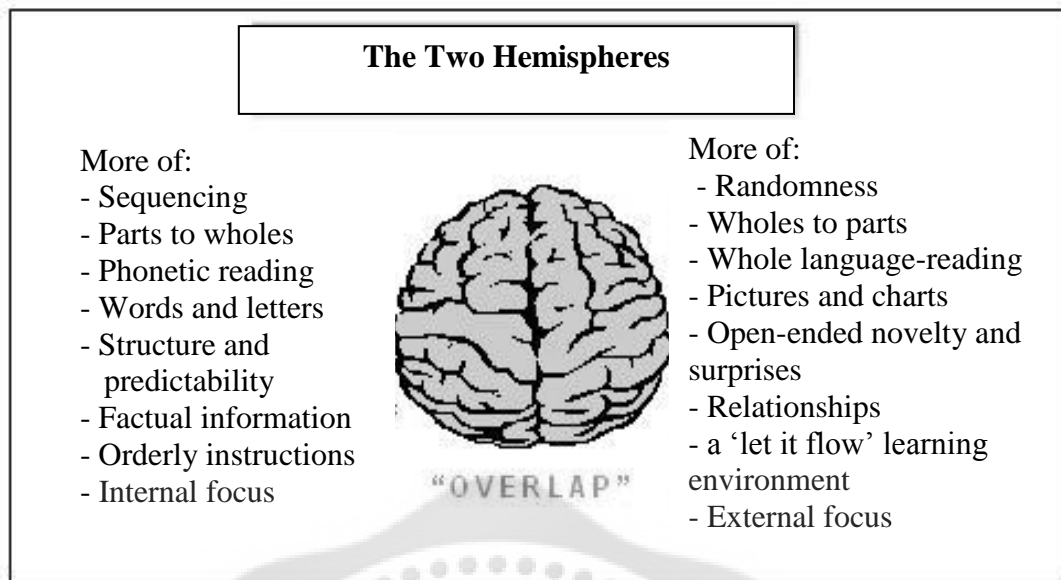


Figure 2; 2 Hemispheres

In the early nineteenth century, the first neurologists who studied the area of the brain where language functions originated were called phrenologists. The most prominent phrenologists were Gall from England, Spurzheim from Germany and Bouilluad from France, who all believed that language ability was located in the frontal lobes (Lorine and Kirs, 1999). (P.27) (See figure 3)

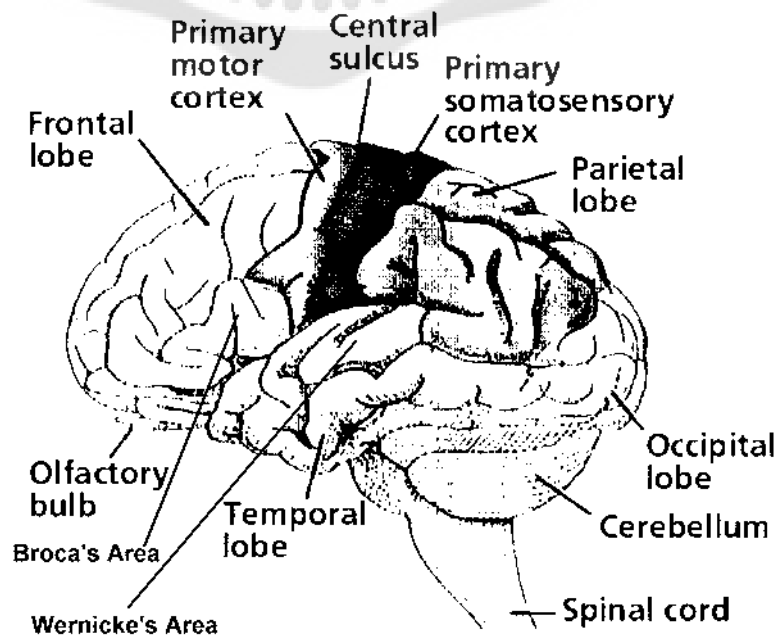


Figure 3: Areas of the Brain by Function

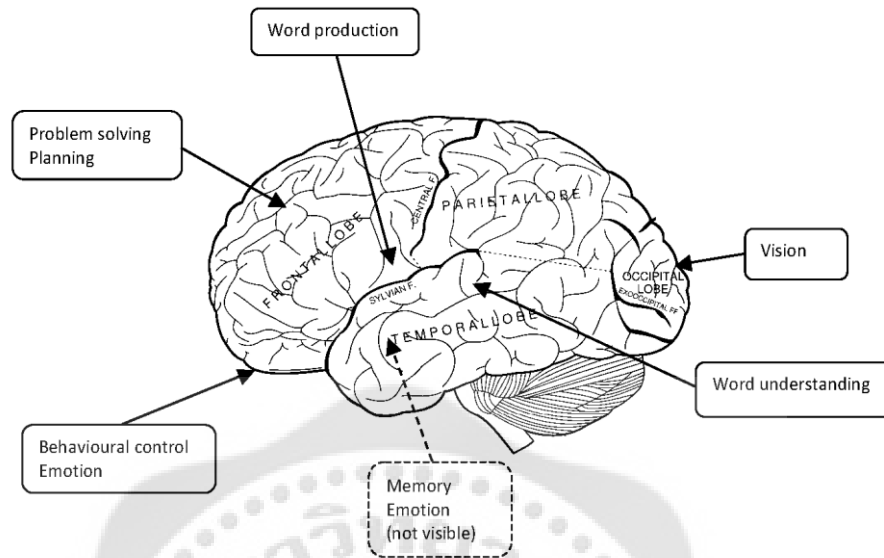


Figure 4: The four lobes of the brain

(source:<http://www.google.co.th/search?hl=th&source=hp&fkt=13704&fsdt=26860&q=lobes+of+brain&meta=&aq=0&oq=lobes&aqi=g6g-s2>)

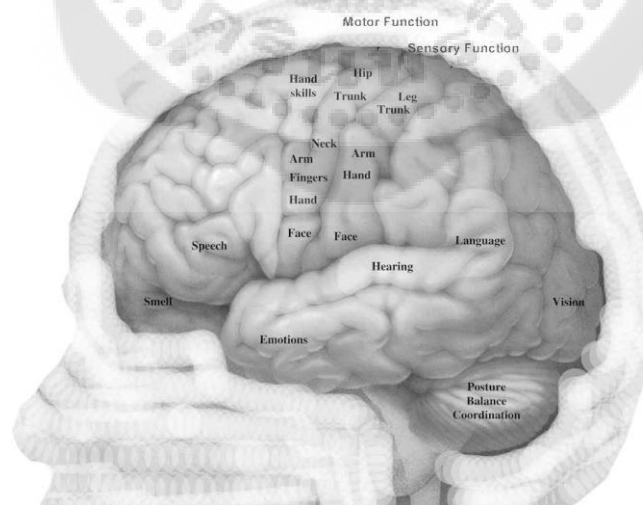


Figure 5: Language Functions in the Brain

(source: <http://www.britannica.com/EBchecked/media/100577/Functional-areas-of-the-human-brain>)

Language is produced in the cerebral cortex in Broca's area. This area also controls the motor functions of speech production, language comprehension and facial neuron control. If people suffer brain damage in Broca's area cannot produce speech or the right form of the words, but they can still understand language. Broca's area is connected to Wernicke's area, which controls language comprehension and processing. It is located in the lower section of the left frontal lobe. Broca's area was named after Pierre Paul Broca (1861) who discovered the area after the death of brain of a patient who suffered from speech problems prior to his death. (See figure 5)

1.3 The Implications for Teaching

Caine and Caine (1991) offered the following implications for teaching based on Brain-Based Learning.

Recent Research Suggests and teaching Suggestions

1. The brain performs many functions simultaneously. Learning is enhanced by a rich environment with a variety of stimuli. Teachers should present content through a variety of teaching strategies, such as physical activities, individual learning times, group interactions, artistic variations, and musical interpretations to help orchestrate student experiences.

2. Learning engages the entire physiology. Physical development, personal comfort, and emotional state affect the ability to learn. Be aware that children mature at different rates; chronological age may not reflect the student's readiness to learn. Incorporate facets of health (stress management, nutrition, exercise) into the learning process.

3. The search for meaning is innate. The mind's natural curiosity can be engaged by complex and meaningful challenges. Strive to present lessons and activities that arouse the mind's search for meaning.

4. The brain is designed to perceive and generate patterns. Present information in context (real life science, thematic instruction) so the learner can identify patterns and connect with previous experiences.

5. Emotions and cognition cannot be separated. Emotions can be crucial to the storage and recall of information. Help build a classroom environment that promotes positive attitudes among students and teachers and about their work.

Encourage students to be aware of their feelings and how the emotional climate affects their learning.

6. The brain simultaneously perceives and creates parts and wholes. Try to avoid isolating information from its context as it makes learning more difficult. Design activities that require full brain interaction and communication.

7. Learning involves both focused attention and peripheral perception. Place materials (posters, art, bulletin boards, music) outside the learner's immediate focus to influence learning. Be aware that the teacher's enthusiasm, modeling, and coaching present important signals about the value of what is being learned.

8. Learning always involves conscious and unconscious processes. Use "hooks" or other motivational techniques to encourage personal connections. Encourage "active processing" through reflection and metacognition to help students consciously review their learning.

9. We have at least two types of memory: spatial, which registers our daily experience, and rote learning, which deals with facts and skills in isolation. Separating information and skills from prior experience forces the learner to depend on rote memory. Try to avoid an emphasis on rote learning; it ignores the learner's personal side and probably interferes with subsequent development of understanding.

10. The brain understands best when facts and skills are embedded in natural spatial memory. Use techniques that create or mimic real world experiences and use varied senses. Examples include demonstrations, projects, metaphor, and integration of content areas that embed ideas in genuine experience.

11. Learning is enhanced by challenge and inhibited by threat. Try to create an atmosphere of "relaxed alertness" that is low in threat and high in challenge.

12. Each brain is unique. The brain's structure is actually changed by learning. Use multifaceted teaching strategies to attract individual interests and let students express their auditory, visual, tactile, or emotional preferences.

The learning process is studied for several reasons, including how to learn more effectively independently and develop problem-solving skills. If teachers are aware of the limitations of human learning, they can anticipate problems and help their students. Teachers should learn how to encourage students to learn independently. In terms of the sixth grade students, it is important to understand how to analyze the results of studying. Teaching strategies that enhance brain-based learning include manipulative, active learning, field trip, guest speakers, and real-life

perfects that allow students to use many learning styles and multiple intelligences. (Caine and Caine, 1994; 1997 Caine, Geoffrey, Renate Cain and Sam Crowell, 1999).

According to Gray E. Myran and Laura Erlauer (2003) these brain based strategies should be used in different levels and content areas in class: using movement, using music, using personal stories, using humor, using metaphors, using colours, using the first 15-20 minutes of the course as an effective teaching time, using brainstorming that is related with knowing, wanting to know, learn and using the learned things, using project presentation. The students should design different tests and distribute them to individuals and groups in long-term learning studies. They should investigate different ways of learning different things and compare the results. (Online: <http://www.sedl.org/scimath/compass/v03n02/5.html>) Khotbantao (2005) stated that according to these reasons the brain can be prepared for learning. In order to help students practice and improve their speaking ability in the language classroom, teachers should create the appropriate activities and the appropriate atmosphere in the classroom environment, the sitting posture of the students, peripheral learning materials, and most importantly, the teacher factor.

In order to create the ideal learning environment, the classroom should have comfortable seats, and the temperature, the color of the room and the lighting should also be conducive to learning. Another aspect of classroom management is the sitting posture of the students. They should sit in a comfortable, relaxed posture rather than a formal, upright position. There should also be peripheral learning materials as posters, diagrams and mottos on the wall or on a board in order to stimulate the curiosity of the students via subconscious learning.

The teacher factor is considered to be the most important aspects of learning. An effective teacher can enhance and encourage students to learn effectively. The teacher also needs facilitating skills in order to control an entire classroom.

Furthermore, teacher should create learning environment and which students must actively participate in and immerse comprehensive experiences. (Bruer, 1999).

Therefore, I decided to do this research in order to improve the speaking ability of my students. I hope that this study will explore whether or not Brain-Based Learning can modify the learning style of my students and enhance their speaking ability.

English Speaking

The English curriculum in Thailand over the last few decades focused on reading and grammar rather than speaking and listening (Kampanich & Pulphol, 1997). The purpose of this study was to encourage students to read and comprehend English text, with less speaking and writing practice. As the result, the students lacked the confidence to speak, and consequently might have had negative attitudes towards speaking English (The Ministry of Education, 2002). One of the biggest problems for learners is speaking English. There are numerous reasons that learners cannot speak English effectively: they do not know how to speak, they are afraid of making mistakes or are too shy to speak (Brown, 1994; Ur, 1996).

Angwatanakul (1994) claimed that speaking is a process of transferring ideas, understanding and feelings to the listener so they can understand the purpose of the speaker. As the result, speaking skills are important for people who communicate in English in their daily lives as part of their job. In terms of the foreign language classroom, speaking skills are necessary because learners who speak well can also

understand well and this can also enhance their speaking, reading and writing skills. However, speaking is a complicated skill and a lot of practice is required. Bartz (1979, as cited in Phupanphet , 2004) claimed that speaking English consists of five components: fluency, comprehensibility, amount of communication, quality of communication and efforts to communicate.

Harris (1969, as cited in Phupanphet, 2004) stated that speaking ability requires five components: pronunciation, grammar, vocabulary, fluency and comprehension. Oller (1979, as cited in Yuanchuen, 2010) claimed that the five components of speech are accent, grammar, vocabulary, fluency and comprehension. Carroll (1953) supplied an organic communication speaking model, which is as follows:

1. Intentional behavior of speaker
2. Encoding behavior of speaker
3. Message
4. Decoding behavior of hearer
5. Interpretive behavior of hearer

Paulston and Howard (1978) argued that English for communication is not the only aspect of speaking the language; speakers also need to understand the cultural and social aspects of the language. Moreover, communication is also a type of non-verbal behavior. Non-verbal communication is one of the important factors in communication.

Srithongroong (1997), Phakamart (1999) and Waitayavanich (2002) claimed that speech uses tone, language and verbal behavior to transfer ideas, experiences and

the purpose of the speaker to the listener for receiving and giving feedback. An effective speaking needs clear understanding;

1. Speaker
2. Content or message
3. Audience
4. Communication channel
5. Purpose

According to the previously mentioned educators, it can be concluded that the basic elements of communication are the speaker, the message and the listener.

Shannon and Weaver (1994) examined the model of speaking which was originally used as the basis of a study of problems with face to face communication and provided many insights into interpersonal communication through speech. The factors that influence speaking ability include the following:

1. Information source
2. Transmitter
3. Signal
4. Noise source
5. Receiving signal
6. Receiver
7. Message
8. Destination

According to the above information, a source sends a message, containing meaning, in a signal transmission. This signal passes through a channel to a receiver which decodes the message for use at its destination.

Wongsothorn (1994) argued that speaking is a social skill and that effective speech is based on language learning and language ability, as well as non-verbal skills. Speaking is unique as it consists of contractions, personal pronouns, questions, concrete words, fewer syllables, restatements, repetitions and interjections. Furthermore, language structure is informal because of the changing nature of speech.

According to this definition of speech, it can be concluded that speech consists of the transfer of ideas, an exchange of information, action and verbal and nonverbal behavior.

3. Related studies

3.1 Research on speaking

Thongmak (2009) used a project-based method as an investigative tool in his research into English speaking and thinking skills. The findings revealed that the English speaking and thinking abilities of his students significantly improved as a result of the project-based approach. Preedawongsakorn (2004) developed information gap activities to improve the English speaking skills of Mattayom Suksa 2 students. She found that after she used information gap activities, the speaking ability of her students dramatically improved. The speaking abilities that showed the most improvement were exchanging information, talking according to the situation and using correct grammar.

Phienchang (2001) compared the knowledge and skills required for teachers to teach speaking through oral communication activities with a pre-experimental and post-experiment test. These tests were designed to gather the opinions of a group of teachers regarding their opinions of the Teacher Training Program, and more specifically teaching English speaking skills through oral communication activities.

She found that 20 teachers at from both the primary and secondary level increased their knowledge and improved their skills in teaching speaking through oral communication activities after attending the Teacher Training Program.

Arumporn (2004) developed English speaking skills through Task-Based Learning. After the experiment she found that the English speaking ability of the Task-Based Learning group was significantly higher. In comparison with the group taught using the 3 P's was significantly higher.

Sinlapasart (2001) developed English speaking abilities through role-play activities. She found that the experimental students significantly improved their speaking ability through role-play in group work, acting out their roles according to the script and completing the task within the time limit.

Thongpubal (2010) investigated communicative English speaking ability through Task-Based Learning and explored the attitudes of the students towards Task-Based Learning. She found that the students in the experimental group had significantly improved in terms of both their communicative English ability and attitude towards studying English.

In conclusion, Phienchang (2001), Sinlapasart (2001), Preedawongsakorn (2004), Arumporn (2004), Thongmak (2009), Thongpubal (2010) used appropriated techniques to improve the speaking skills of their students such as Task-Based Learning, information gap activities, oral communication activities, and role-play activities.

The researcher chose this subject in order to help Prathomsuksa 6 students at Wat Samrongnua School enhance their English speaking abilities based on Brain-based Learning (BBL).

3.2 Related studies about the brain

The majority of research on Brain-Based Learning is concerned with teaching and teacher training. Jantawat (2006) researched the effects of using integrated techniques in teacher training and how this affected his students understanding of Brain-Based Learning. He trained sixty primary school teachers and used an integrated techniques training program and understanding of Brain-Based Learning test. The data was analyzed by a t-test. After the teacher training program, he found that the understanding of brain-based learning had significantly increased after exposure to integrated training. On the understanding of Brain-Based Learning test, there was a significant increase after exposure to the integrated training. In conclusion, he found that the understanding of Brain-Based Learning among primary school teachers in the Pilot Mainstreaming Schools Project was significantly higher among the teachers who had completed the integrated training course.

Duman (2006) compared social studies instruction based on the brain-based instruction and traditional teacher-centered method of the sixth grade students of Türdü 100th year Primary School in Mugla. The control group was carried out in the accordance with traditional teacher-centered method and in the experiment group instruction was done in accordance with brain-based learning and teaching principle. He found that the arithmetic average of academic achievement points of experiment groups is much more than the control group.

Boonsompan (2007) studied the use of BBL to encourage students to increase their knowledge of vocabulary and improve their reading ability. She found that after the Brain-Based Learning activities, students showed an increased knowledge of vocabulary that she described as very good and a level of improvement in their

reading ability that she described as good. In 1988, Diamond (Diamond & Hopson, 1998) researched 2 groups of rats. The first group had toys, while the second group did not. She found that the group of rats with the toys had more a more developed brain stem and larger brain cells than the other group. She discovered that living in a community in an appropriated environment encouraged the growth of brain cells.

In 1996, Kotulux (2005, as cited in Jantawat , 2006) conducted an experiment with a 6-month-old infant. He surrounded the infant with stimuli such as toys, friends, food, and engaged the infant in learning and playing activities. He found that the infant had a higher IQ than other infants at the same developmental stage. The improved brain function of the infant was also examined with a brain scan. Kotulux concluded that IQ can be increased or decreased by more than 20 points based on stimulation and experience. Diamond & Hopson (1998, as cited in Khalsa, (1998) stated that in 1998, Diamond and Hopson discovered that immediately after birth, the IQs of infants are roughly the same, and it is only after the process of 'neural pruning' that they this will start to change.

Greenought et... al (1979, as cited in John D. et... al, 1997) conducted an experiment in which rats were placed in a complex communal environment filled with objects that provided ample opportunities for exploration and play. The objects were changed and rearranged each day, and during the time the objects were changed and rearranged, the rats were placed in another environment with another set of objects. So, like their real-world counterparts in the sewers of New York or the fields of Kansas, these rats have a relatively rich set of experiences from which to draw information. A contrasting group of rats were placed in a more typical laboratory environment, living alone or with one or two others in a barren cage, a poor model of

the authentic habitat of a rat. These two settings can help determine how experience affects the development of the normal brain and normal cognitive structures, and what happens when the brain is deprived of critical experiences. After living in the complex or impoverished environments for a period that lasted from weaning to adolescence, the two groups of rats were subjected to a learning experience. The rats that had grown up in the complex environment made fewer errors at the outset than the other rats; they also learned more quickly not to make any errors at all.

In conclusion, a complex communal environment filled with objects that provide ample opportunities for exploration and play help people to learn and add new connections to the wiring of their brain. Therefore, the researcher has chosen this research in order to help Prathomsuksa 6 students at Wat Samrongnua School enhance their English speaking abilities. Using the applied activities from the 12 principles of the brain. (Canin & Cain, 1991) as the reported above.

CHAPTER THREE

METHODOLOGY

This chapter describes the research methodology, the participants, and the instruments and procedures used for data analysis.

Research Procedures

The study focuses on the speaking abilities of students after learning through Brain-Based Learning (BBL) activities. A group of students were selected as the participants of the study.

Research Design

The researcher design applied in this study is a one-group experimental design. The pre-test and post- test speaking scores were analyzed in order to establish whether or not the speaking ability of the students had improved. Furthermore, the questionnaire was employed to investigate the opinions of the students regarding Brain-Based Learning after being instructed via BBL.

Population

The population of the present study consisted of Prathomsuksa 6 students at Wat Samrongnua School in the second semester of the 2011 academic year 2011. There were 2 classes of 70 students. The school is under the Office of the Basic Education Commission Educational Service Area Office: Samutprakarn Primary School Educational Office Area 1.

Participants

The participants included a class of 35 students recruited from one of two classes via simple random sampling. They studied English twice a week during the second semester of 2011 academic year.

Variables

The variables in this study are as follows:

1. The Independent variable was the Brain-Based Learning (BBL) activities.
2. The dependent variables were:
 - 2.1 The speaking ability of the Prathomsuksa 6 students
 - 2.2 The opinions of the Prathomsuksa 6 students' opinion toward BBL

Research Instruments

The instruments used in this study included 8 lesson plans, the pre-test, the post-test, and the questionnaires.

Lesson plans

1. All 8 lesson plans were designed by the researcher based on BBL activities (Cain, 1991). The procedures to design the lesson plans included the following.

1.1 Reviewing the English curriculum with a focus on speaking activities.

1.2 Identifying the topic or unit to be covered:

- It's a magic hat

Topic: asking about and talking about price

- I had a bad day

Topic: asking about and describing one's day

- Turn left at the corner

Topic: asking for and giving directions

- He is going to the mountain

Topic: asking about and describing emotional states

- World records and great vacations

Topic: asking about and describing places using superlatives

1.3 Constructing 8 lesson plans based on the principles of BBL.

1.4 Having 3 specialists in Samutprakarn Primary School Educational Office

Area 1 evaluated and rated the lesson plan using the Index of Item-

Objective Congruence (IOC) to clarify the test in preparation for completion.

1.5 Revising the lesson plans based on the comments following the discussion and after being checked by 3 specialists and an advisor.

1.6 Trying out the lesson plans

2. English speaking pre-test and post-test

2.1 Identifying the objectives of the curriculum to construct the test.

2.2 Designing the questions for using in student's interview.

2.3 Evaluating and rating by 3 specialists from Samutprakarn Primary School Educational Office Area 1 using the Index of Item-Objective Congruence (IOC) to clarify the test in preparation for completion.

2.4 Revising the questions used in the interview based on comments after the discussion and after being checked by the specialists and the advisor.

2.5 Checking the discrimination and difficulty index for reliability.

The pre-test and post-speaking test took 50 minutes before and after the study. The students were asked to answer ten interview questions, which tests their knowledge of grammar, fluency, vocabulary, pronunciation and comprehension. The scores were rated on each category according to student performance. The results given by the evaluators were used to find the consistency index between the test and the objectives. (Table 1)The pre-test and post-test were included during the 10 weeks experimental session.

The pre-test and post-test consisted of a set of ten interview questions. The total score was twenty points. The speaking evaluation rate adapted from Montgomery (2011) and Rcampus (Online; <http://www.rcampus.com>). The criteria of competence evaluation included grammar, fluency, vocabulary, pronunciation and comprehension. Students were asked ten questions randomly. The researcher had two assistants, they were English teachers. Before and after taking the pre-test and post-test, students were asked to answer the questionnaires to express their opinions towards learning English speaking skills through BBL activities.

The pre-test and post-test has checked and corrected using the following form:

Analytical

The holistic scoring rubric used in this study is adapted from Montgomery (2011) and Rcampus (Online; <http://www.rcampus.com>). The criteria of competence evaluation are applied as follows:

1. Grammar

1 means poor with no subject-verb agreement and no verbs conjugated.

2 means fair, some subjects agreed with verbs and some verbs were correctly conjugated.

3 means good, and the subjects generally agreed with verbs; the verbs used the correct tenses or were conjugated logically.

4 means excellent, and there was consistent subject-verb agreement; consistent and logical conjugation of verbs, including expression of the tenses.

2. Vocabulary

1 means poor, and that few or none of the vocabulary words from the unit were used.

2 means fair, and that vocabulary words were used.

3 means good and that many of the new vocabulary words used.

4 means excellent and that most of listed words were employed and creative expression was demonstrated.

3. Pronunciation

1 means poor, and that their pronunciation was very difficult to understand, and that they looked for words with many starts and stops.

2 means fair, and that their pronunciation difficult to understand, but they clearly made an effort.

3 means good and that their pronunciation is understandable but contains some errors.

4 means excellent and that their pronunciation is understandable, with only a few errors.

4. Fluency

1 means poor, and that the student was unable to express ideas fluently and there were many pauses or breaks in their speech.

2 means fair, and that the student had difficulty expressing ideas fluently.

3 means good, and the student was able to express ideas fluently with only a little difficulty.

4 means excellent, and that the student was able to communicate clearly with no difficulty.

5. Comprehension

1 means poor, and that the attempt to describe the picture showed minimal comprehension.

2 means fair and their description reveals an understanding of the topic and that 3-4 items were described.

3 means good and their speech expresses an understanding of the unit topic and that a few items were described in some way.

4 means excellent, and they could describe amount of the numbered items in the picture, clearly comprehending the setting and task.

3. The questionnaires and open-ended questions

The questionnaires and open-ended questions designed by the researcher were used to gather the information about the improvement made by the students after they had been taught by Brain-Based Learning. There were two parts of the questionnaires. In the first part, students answered 15 questions using five point scales of Likert Scale: 5 = strongly agree, 4 = agree, 3 = neutral, 2 = disagree, and 1 = strongly disagree. The students had to rate each item according to their opinion towards the BBL. The second part was five open-ended questions which asked students to express questions by expressing their opinion on each topic. (see Appendix F). The questionnaires and open-ended questions were adjusted based on comments after the discussion and after being checked by the specialists and the advisor.

Data Collection

The data was collected after the research instruments were constructed, as follows:

1. The researcher held an orientation session with the participants to discuss the research plan before starting the classroom research.
2. Before the study, the participants took an English speaking pre-test, and complete the open-ended questions to express their opinions towards learning to speak English through BBL activities.
3. The researcher taught 20 periods over a period of 10 weeks. The activities were based on the applied of the 12 principles of BBL, as established by Cain and Cain (1991) as follows:

Week 1 Orientation

Week 2

1.1 The brain is a parallel processor

- Ice breaking; tasting and smelling
- asking about and talking about prices

1.2 Learning engages the whole physiology

- game: big basket
- I like and I don't like

Week 3

1.3 The search for meaning is innate

- song "If you're happy"
- asking about and describing one's day

1.4 The search for meaning comes through patterning

- role-play: "What happened?"
- I had a bad day! What happened?

Week 4

1.5 Emotions are critical to patterning

- song "Home sweet home"
- complete emotional face

1.6 The brain processes wholes and parts simultaneously

- game: "Simon says"
- asking about and describing emotional states

Week 5

1.7 Learning involves both focused attention and peripheral perception

- game "Simon says"

- How to go to my house

1.8 Learning involves both conscious and unconscious processes

- asking and giving directions
- role play: “ Can you tell me how to get to...?”

Week 6

1.9 We have two types of memory: spatial and rote memory

- game: “Remember”
- asking about and describing places using superlatives

1.10 We understand best when facts are embedded in natural, spatial memory

- superlatives quiz
- pair work, asking and describing the picture

Week 7

1.11 Learning is enhanced by challenge and inhibited by threat

- game “ What will you do?”
- asking about and describing vacations

Week 8

1.12 Each brain is unique

- role play” Where did you go during vacation?”

The students work individually, in pairs, or in a group during the speaking activities. The teacher observes the students and gives advice if they experience difficulties.

4. The last step of the experiment was the post-test. The students took the English speaking post-test was evaluated by three raters. Then students answered the

questionnaires and complete the open-ended questions to express their opinions towards learning speaking English through BBL activities.

Data Analysis

The data was analyzed as follows:

The raw scores from both the pre-test and the post-test were changed into percentages in order to calculate the yield as follows:

1. The data from the pre-test and post-test

- The 2 sets of data from the experiment were analyzed by comparing means using one group dependent sample t-test (the score from the pre-test and post-test from the same sampling group) to find a significant difference.

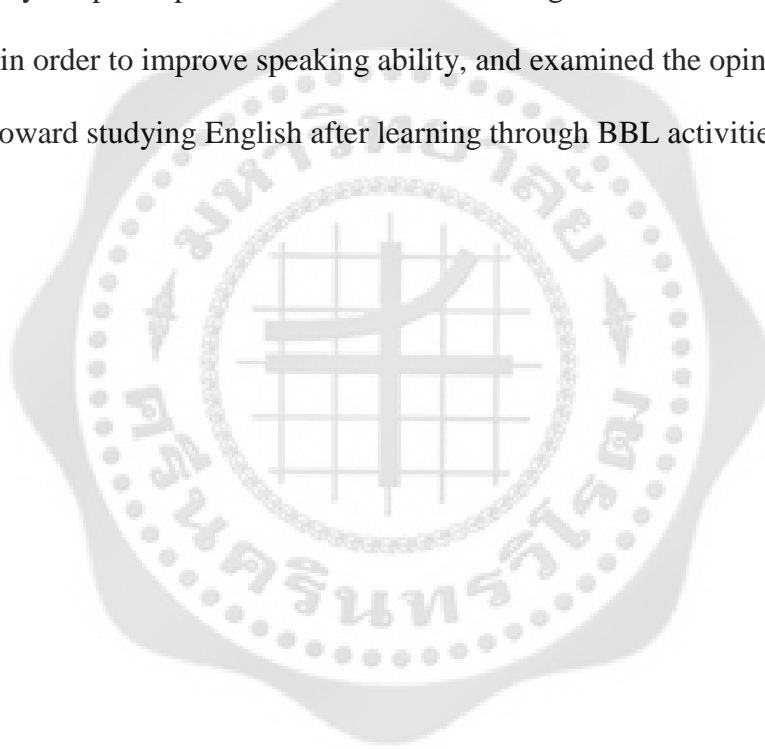
2. The data from pre-test and post-test open-ended questions

The data from the questionnaires aimed to check the opinions of the students toward learning English through BBL and was descriptively compared with an emphasis on key of themes of students' ideas.

CHAPTER FOUR

FINDINGS

The purpose of this study was to analyze the effects of using Brain-Based Learning (BBL) on the English speaking ability of Thai students. The participants of this study consisted of 35 Prathomsuksa 6 students at Watsamrongnua School. The data from this study were obtained through English speaking tests and questionnaires answered by the participants. The researcher investigated the effectiveness of BBL activities in order to improve speaking ability, and examined the opinions of the students toward studying English after learning through BBL activities.



Objective 1: To investigate the effectiveness of Brain-Based Learning activities on the English speaking ability.

This objective was answered by using English speaking tests, a self-assessment of the English speaking ability of the students. In order to answer a research question, the mean scores of the student's English pre-test and post-test were compared. An independent t-test was used in this case.

Table 2 illustrates the comparison between the mean pre-test and post-test scores.

Table 2: *A Comparison of the Mean Scores on the Pre-test and Post-test Scores*

English Speaking Ability	N	Score	X	S.D.	t
Pretest	35	20	7.4857	2.74	-10.390**
Posttest	35	20	10.1143	3.43	

** sig = .01

As illustrated in table 1, the English speaking ability of Prathomsuksa 6 students was significantly higher, at a level of 0.01. The participants had significantly higher mean scores on the post-test ($X = 10.1143$, $S.D. = 3.43$) than they did on the pre-test ($X = 7.4857$, $S.D. = 2.74$).

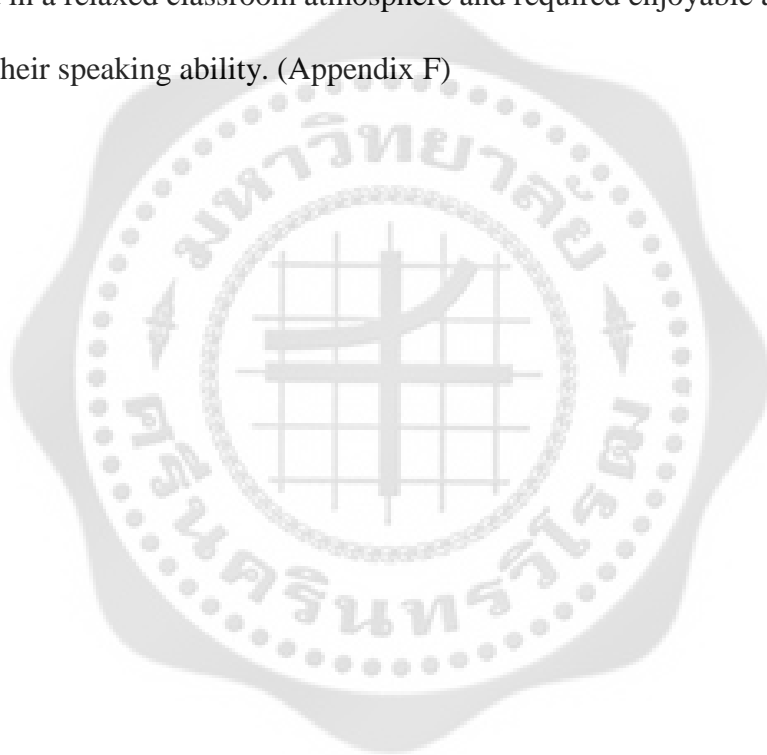
Objective 2: In order to study the opinions of students toward studying English after learning through BBL activities

The objective was answered via 15 responses to likert-scale questionnaires and expressed 5 open-ended questions by the participants.

Table 3: *The Opinions of the Students toward Studying English*

Questionnaire Items	Average points
1. BBL activities activate the interest of students and emphasize the need to speak English.	3.71
2. BBL helps students to both enjoy and remember the lessons well.	3.80
3. The relaxed atmosphere allows students to be more confident and active when studying and speaking English.	3.43
4. Students like the BBL teaching pattern.	3.86
5. Students enjoy practicing their speaking skills.	3.34
6. Students like to learn and speak English through role play activities.	3.34
7. Students like to learn English and speak through singing songs.	3.69
8. Students like to learn and speak English through playing games.	4.03
9. Students find it difficult to describe pictures.	3.17
10. Students worry about English speaking activities.	3.14
11. The teacher acts a facilitator in speaking activities.	4.34
12. Students help each other during speaking activities.	3.17
13. Students improve their English speaking skills by using other forms of the mass media, i.e. the internet, TV.	3.40
14. BBL activities promote students to improve the following: grammatical structures, vocabulary, comprehension, pronunciation, fluency.	3.43
15. Students improve their English speaking skills by singing English songs in their daily lives.	3.83
Mean	3.58

Table 3 presents all 15 aspects of the opinions of the learners on Brain-Based Learning activities. Almost all of students responded positively, with an average of 3.58 points. As illustrated in each item, it was found that students responded positively to items 1 through 4, item 7 and 8 and items 11 to 15. It was found that students responded neutrally to item 5, item 6, item 9, and items to 13 to 14. The students were interested in a relaxed classroom atmosphere and required enjoyable activities to help improve their speaking ability. (Appendix F)



CHAPTER FIVE

CONCLUSIONS AND DISCUSSIONS

In this chapter, the results of the study are discussed in accordance with each objective. The implications, limitations and recommendations for further research are given at the end of the chapter.

Summary of the research

The purposes of the current study were to investigate the effects of the BBL on Prathomsuka 6 students' speaking ability and to study the students' opinion towards the studying English through BBL instruction and activities. The participants of the study were 35 Prathomsukas 6 students selected by simple random sampling method. The experiment lasted for 20 hours within 2 months. The instruments used in this study including a pre-post test, lesson plans, speaking test criteria, and students' opinion open-ended questionnaires. The participants took the same pre-post tests. Their tests were rated by three raters using the speaking test criteria. A t-test was employed to test the significance of the statistic difference. Before taking the posttest, students had to express opinion in the questionnaires and answer open-ended questions towards the BBL activities.

Summary of the Findings

The analysis showed that the Prathomsuksa 6 students' speaking ability taught through the BBL activities significantly improved to the end of the experiment treatment. The scores of students' posttest ($X = 10.1143$) was higher than the scores of the students' pretest ($X = 7.4857$). The findings showed the significant difference between the pretest and posttest mean scores at the 0.01 level. Furthermore, as to the

students who were evaluated as less proficient students, the findings reveals that the y have improved considerably after applying the BBL.

According to the students' opinion from the questionnaires found that almost students expressed positively toward studying English through BBL activities in an English class. The answers from open-ended questions revealed that the BBL was useful to develop speaking ability. Besides, students also pointed out problems occurred during the instruction.

The discussion of the finding in details in order, the following part shows the effect of the BBL on Prathomsuksa 6 students' speaking ability after the experiment. The students' opinions towards the BBL are also discussed.

Discussion of findings

According to the statistic findings, it was found that the students had improved the quality of speaking in the higher mean scores in posttest from the pretest. The following accounts for this improvement.

In this study, the participants were instructed through 3Ps step following the implementation activities of the 12 principles of the brain. They learnt from relaxing atmosphere, participate the enjoyment classroom activities and various situations to let them emphasizing the speaking process so that students can be able to create their own speaking. For example, the students practiced songs, games and role-play to reduce stress and worry. Meanwhile, learning was occurred when the brain has stimulated by appropriates input or less stress. Therefore, students could create their own speaking. They corrected their speaking and discuss with friends observed and rated by the teacher. As a result, students practiced in each activity or situation which encouraged

them to use the language and they also intended to speak when they presented their speaking tasks.

The finding accorded to Cain and Cain (1991) who suggested the 12 principles of the brain. The brain is a parallel processor and it can perform several activities at once, like tasting and smelling. It means each student has the freedom and alternative to choices and improves their weakness. Similar to Jensen (2000) he stated that BBL is a learning process based on the nature of brain learning and to answer what the brain needs. It is the integration of learning skill to promote the function of the brain. The classroom activities helped students free to speak and become more confident when challenged by individual speaking tasks. Songs and games provided relaxing and enjoyment to students. These activities provided the students a chance to be engaged in learning. Role-play allowed student to work together. They helped each other, shared their ideas and solved problems together.

Likely, Khotbantao (2005) stated that the brain can be prepared for learning. In order to help students practice and improve their speaking ability in the language classroom, teachers should create the appropriate activities and the appropriate atmosphere in the classroom environment, the sitting posture of the students, peripheral learning materials, and most importantly, the teacher factor. Relaxing atmosphere was important factor to help student success in learning. Teacher praised and gave positive suggestion help students less stress when they performed speaking activities.

Furthermore, this finding in accordance with studies concerned BBL but in the different skill. As Jantawat (2006) researched the effects of using integrated techniques in teacher training and how this affected his students understanding of

Brain-Based Learning. After the teacher training program, he found that the understanding of brain-based learning had significantly increased after exposure to integrated training. Boonsompan (2007) studied the use of BBL to encourage students to increase their knowledge of vocabulary and improve their reading ability. She found that after the Brain-Based Learning activities, students showed an increased knowledge of vocabulary that she described as very good and a level of improvement in their reading ability that she described as good. Singhadet (2010) found the improvement on Mathyomsuksa 1 speaking ability follow Eric Jensen's theory.

The students' Opinion towards the Brain-Based Learning Activities

Students' opinions towards the BBL from the questionnaires

Regarding the findings, students in the experimental group agreed with the application of the BBL. One of the strong agreements was the "The teacher acts a facilitator in speaking activities" ($X=4.34$). The findings suggest that the BBL procedure encouraged students to practice speaking and interest in a relaxed classroom atmosphere and required enjoyable activities to help improve their speaking ability.

In regard to the questionnaires, students thought that the use of the BBL made their English class interesting because the BBL procedure let students participate various activities not only individual but also in pairs and in group. Therefore, less proficient students are more comfortable to practice their speaking without any stress when they work with other.

To study students' opinions towards the BBL more obviously, the open-ended questions conducted for students in the experimental group to answer. The next section reported them in details.

The students' opinions towards studying English after BBL instruction activities from the open-ended questions

In regard to the open-ended questions on students' opinions, students expressed their positive opinions toward studying English through BBL activities. They claimed that the BBL activities led to the improvement of speaking skills in the classroom and made English class interesting because the activities allowed students to participate in various activities both pair work and individual work.

Students believed that the BBL activities helped them be more interested in speaking skill and learning in English class. BBL also improved their speaking and even their reading, writing and listening abilities. They maintained that the BBL activities created an enjoyable working atmosphere. They could also apply their knowledge to daily use and their future study.

However, students faced problem during a discussion about their speaking activities. Also, some students said that their friends were not good co-workers. They did not pay much attention to practice speaking task. This made them feel annoyed and worry about scores, sometimes they did not want to go on the activities.

Limitations of the Study

Even though BBL activities were effective in speaking ability, it was limited to time of study which could affect to students' learning progress. The study time should be extended therefore the different learning progress. It could make students gain more understanding about the lesson and they could have enough time to practice for fluency. The continuity of the lesson was limited. Each class was separated so the procedure did not run continuously. It caused of students forgot the previous lessons.

Teacher had to spend times revising again. There was no native speaker teacher.

Students did not have a chance to practice speaking and familiar with language using.

Conclusion

The findings of the study confirmed the effectiveness of the BBL on students' speaking ability. The findings showed the significant difference between the pretest and posttest mean scores. Furthermore, as to the students who were evaluated as less proficient students, the findings reveals that the y have improved considerably after applying the BBL. Moreover, the students showed positive opinion towards the BBL. They agreed that learning through the BBL in 4 skills, reading, listening or writing and thinking skills.

Recommendations for Further Studies

The recommendations for further research are suggested as follows:

1. There are many techniques to teach speaking, further study should be adapted with different disciplines in order to find out which one is effective for teaching speaking in the Thai class.

2. Different factors can cause different results, so the further study should investigate the effects of the BBL activities on different variables, for example, age, gender, leaning styles and background knowledge.



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APPENDICES



Appendix A

Lesson Plan

Subject: English

Level: Grade 6 Students

Duration: 50 Minutes

Topic: Great vocations

.....
Goal: Students can ask and describe places using superlative

Contents

- World record

The Nile is the longest river in the world.

The Mount Everest is the tallest mountain in the world.

The Vostok Station is the coldest place of the world.

superlative : tallest, shortest, longest, coldest, driest, fastest, biggest, most expensive, most beautiful

Language Focus

A : What's the longest river in the world?

B : Place + verb to be + superlative

The Nile is the longest river in the world.

Materials

- Textbook : Go Go loves English

- Tape recorder

- places' picture

- Word cards

Objectives

- To enable students to pronounce the vocabularies correctly.
- To enable students to describe and ask about places using superlative.

Procedure

Warm up. (5 Minutes)

BBL: We have two types of memory: spatial and rote

“remember” game

- divide students into two groups, A and B
- Group A tell the name of country each begin by the teacher “ During vacation I would like to go to...
- students from group B repeat the places of group A

Presentation (10 minutes)

- Show students the pictures of the well know places over the world.
 - Do you know where it is?
 - Do you how long / big / tall it is?
 - Would you like to go there?
- students pronounce the superlatives.
- Students pronounce name of the countries.
 - asking about and describing places using superlatives

A: What’s the longest river in the world?

B: The Nile is the longest river in the world.

Practice (20 minutes)

BBL: We understand best when facts are embedded in natural, spatial memory

- describe picture of the places which the teacher shows in a whole class
- describe picture of the places which the teacher shows by random

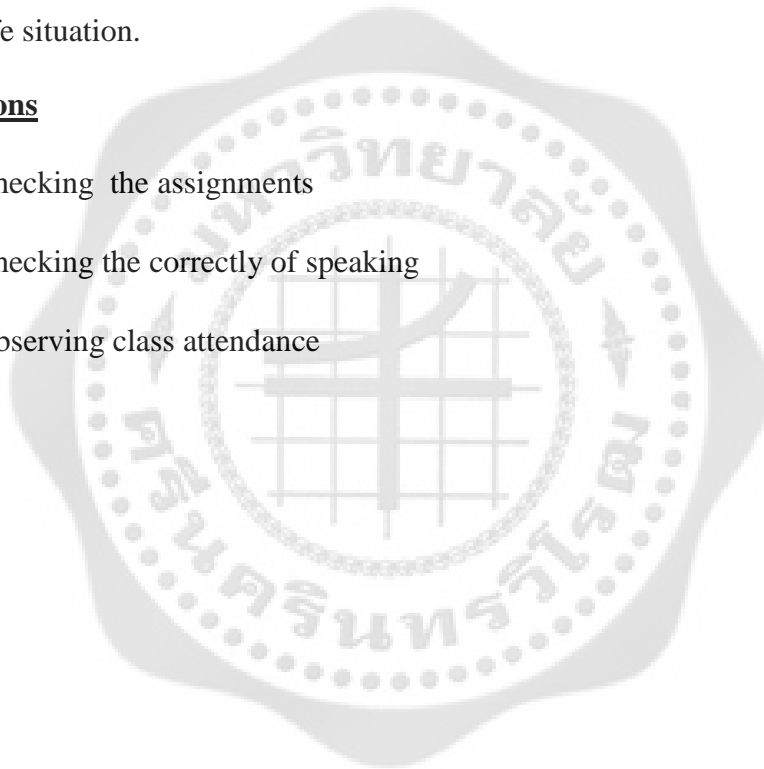
- students practice asking and describe places using superlative in pair

Production (15 minutes)

- Ask the students to choose the place where they would like to go best, then draw the picture and present in front of the class
- Show students' picture on the board to discuss
- The teacher gives the benefits of describing places, thing or people in their real life situation.

Evaluations

- Checking the assignments
- Checking the correctly of speaking
- Observing class attendance



Appendix B

Content in General

BBL lesson plans with content applied from English subject. The vocabulary, grammar, and sentence structure is from a textbook sanctioned by Office of Basic Education Commission the contents as follows:

Week 2

1.1 The brain is a parallel processor

- Ice breaking; tasting and smelling
- asking about and talking about prices

1.2 Learning engages the whole physiology

- game: big basket
- I like and I don't like

Week 3

1.3 The search for meaning is innate

- song “ If you're happy”
- asking about and describing one's day

1.4 The search for meaning comes through patterning

- role-play: “ What happened?”
- I had a bad day! What happened?

Week 4

1.5 Emotions are critical to patterning

- song “ Home sweet home”
- complete emotional face

1.6 The brain processes wholes and parts simultaneously

- game: “Simon says”
- asking about and describing emotional states

Week 5

1.7 Learning involves both focused attention and peripheral perception

- game “Simon says”
- How to go to my house?

1.8 Learning involves both conscious and unconscious processes

- asking and giving directions
- role play: “ Can you tell me how to get to...?”

Week 6

1.9 We have two types of memory: spatial and rote memory

- game: “Remember”
- asking about and describing places using superlatives

1.10 We understand best when facts are embedded in natural, spatial memory

- superlatives quiz
- pair work, asking and describing the picture

Week 7

1.11 Learning is enhanced by challenge and inhibited by threat

- game “ What will you do?”
- asking about and describing vacations

Week 8

1.12 Each brain is unique

- role play” Where did you go during vacation?”

Contents

1. It's a magic hat

Language functions: Asking about and talking about price

Target language: How much is the guitar? It's \$85.

That's expensive.

How much are those socks? They're \$3

That's cheap.

2. I had a bad day

Language functions: Asking about and describing one's day

Target language: I had a bad day! What happened?

First, I woke up late. Next, I missed the bus.

Then, I forgot my homework!

3. Turn left at the corner

Language functions: Asking for and giving directions

Target language: Excuse me. Where's the bank?

Turn left at the corner. It's next to the grocery store.

Pardon me. Where's the shopping mall?

Go straight. It's across from the park.

4. He is going to the mountain

Language functions: Asking about and describing emotional states

Target language: I'm tired. Why? Because I stayed up late last night.

I'm happy. Why are you happy?

I got a good grade in math.

5. World records and great vacations

Language functions: Asking about and describing places using superlatives

Target language: What's the longest river in the world?

The Nile is the longest river in the world.

Where's the tallest mountain in the world?

It's Mountain Everest. It's in Asia.



Appendix C

Speaking Score Sheet

No.	Identify																				score 20	Evaluation				
	Grammar				Fluency				Vocabulary				Pronunciation				Comprehension									
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4						
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adapted

from Montgomery (2011) and Rcampus (Online; <http://www.rcampus.com>).

Rating scale

16 - 20 = Excellent

11- 15 = Good

6 - 10 = Fair

1 - 5 = Poor

Appendix D

Speaking Test Criteria

Category	Level	Description
Grammar	1	no subject-verb agreement; no verbs conjugated.
	2	no subject-verb agreement; no verbs conjugated.
	3	subjects generally agreed with verbs; verbs used in tense or conjugated logically.
	4	consistent subject-verb agreement; consistent and logical conjugation of verbs, including expression in the tenses.
Vocabulary	1	few or no vocabulary words from the unit were used.
	2	vocabulary words were used.
	3	many of the new vocabulary words used.
	4	employment of most of list of words and creative expression of action in the illustration.
Pronunciation	1	very difficult to understand; looks for words with many starts and stops.
	2	difficult to understand, but effort made.
	3	understandable with some errors.
	4	understandable with a few errors.
Fluency	1	unable to express ideas fluently; many pauses or breaks.
	2	difficult expressing ideas fluently.
	3	able to express ideas fluently with little difficult.
	4	able to communicate clearly with difficult.

Comprehension	1	attempts describe picture shows little comprehension.
	2	description reveals understanding of the topic; 3-4 items were described.
	3	speech express understanding of the unit topic; items described in some way.
	4	describe amount of the numbered items in the scene, clearly comprehending the setting and task.

Montgomery (2011)
Rcampus (Online; <http://www.rcampus.com>).



Appendix E

English Speaking Pretest and Posttest

Directions: Listen carefully to interview questions then answer.

1. What's your name?
 2. How old are you?
 3. Where do you live?
 4. How many brothers or sisters do you have?
 5. What is your favourite sport?
 6. What is your favourite food?
 7. What is your favourite subject?
 8. Who is your best friend?
 9. Which country would you like to go best?
 10. What would you like to be in the future?
- 

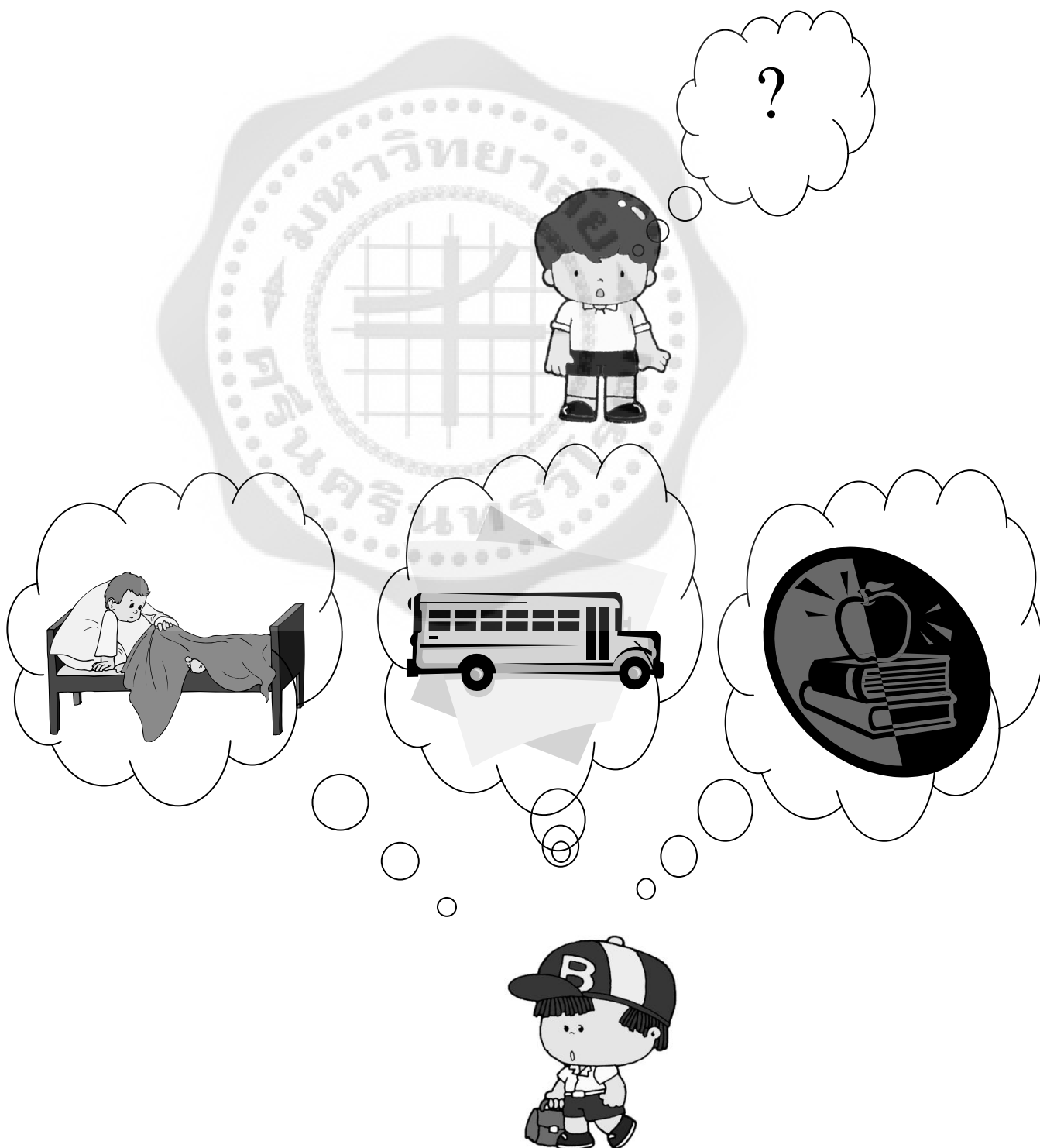
Pair work**I had a bad day**

Language functions: Asking about and describing one's day

Target language: I had a bad day! What happened?

First, I woke up late. Next, I missed the bus.

Then, I forgot my homework!



Song for Teaching Conversational English and Vocabulary

How Much Is It?

Do you like to haggle? Do you like to get a bargain?
If you do, then this song may save you a couple of dollars.
Listen and figure out if the customer gets the deal she's looking for.

Customer: How much is it Sir?
How much does it sell for?
How much is it Sir?
How much does it cost?

Customer: How much is it Sir?
How much does it sell for?

Salesman: Ninety-five dollars!
It's a very good price!

Refrain: Eighty-one, eighty-two, eighty-three, eighty-four,
eighty-five, eighty-six, eighty-seven, eighty-eight, eighty-nine,
ninety?

Customer: That's expensive, Sir!
That is more than I thought!

Salesman: That's a very good price!
That's a very good deal!
It's a very good price!
It's a very good deal!

Customer: I don't want to spend that much.
Thank you very much. Good bye!

Refrain: Eighty-one, eighty-two, eighty-three, eighty-four,
eighty-five, eighty-six, eighty-seven, eighty-eight, eighty-nine,
ninety?

Salesman: I will take eighty five,
if you pay me in cash.

Customer: All I have is eighty two.

Salesman: All right, eighty two for you.

World records and great vacations

Language functions: Asking about and describing places using superlatives

Target language: What's the longest wall in the world?

The Great Wall of China is the longest wall in the world.

Where's the tallest mountain in the world?

It's Mountain Everest. It's in Asia.



Appendix F

First section

The Opinions of the Students toward Studying English

Questionnaire Items	Strongly agree 5	Agree 4	Neutral 3	Disagree 2	Strongly disagree 1	Average point
1. BBL activities activate the interest of students and emphasize the need to speak English.						
2. BBL helps students to both enjoy and remember the lessons well.						
3. The relaxed atmosphere allows students to be more confident and						
4. Students like the BBL teaching pattern.						
Students enjoy practicing their speaking skills.						
. Students like to learn and speak English through role play activities.						
7. Students like to learn English and speak through singing songs.						
8. Students like to learn and speak						

English through playing games.						
9. Students find it difficult to describe pictures.						
10. Students worry about English speaking activities.						
11. The teacher acts a facilitator in speaking activities.						
12. Students help each other during speaking activities.						
13. Students improve their English speaking skills by using other forms of the mass media, i.e. the internet, TV.						
14. BBL activities promote students to improve the following: grammatical structures, vocabulary, comprehension, pronunciation, fluency.						
15. Students improve their English speaking skills by singing English songs in their daily lives						
Mean						

ความคิดเห็นของนักเรียนต่อการเรียนภาษาอังกฤษโดยการเรียนรู้แบบใช้สมองเป็นฐาน

คำชี้แจง: ให้นักเรียนทำเครื่องหมาย / ในช่องความคิดเห็นให้ตรงกับความจริง

พฤติกรรม	มากที่สุด 5	มาก 4	ปานกลาง 3	น้อย 2	น้อยที่สุด 1	เฉลี่ย
1. BBL เป็นกิจกรรมที่ทำให้ให้นักเรียนเกิดความสนใจ กระตือรือร้นในการเรียนและการพูดภาษาอังกฤษ						
2. BBL ช่วยให้นักเรียนจำบทเรียนได้ดีขึ้นและ สนุกสนาน						
3.บรรยากาศที่ผ่อนคลายทำให้ ให้นักเรียนมีความมั่นใจใน การเรียนและกล้าการพูดภาษาอังกฤษมากขึ้น						
4. นักเรียนชอบการสอนแบบ BBL						
5. นักเรียนชอบทักษะการพูดภาษาอังกฤษ						
6. นักเรียนชอบการพูดภาษาอังกฤษโดยกิจกรรมบทบาท สมมติ (role play)						
7. นักเรียนชอบการพูดภาษาอังกฤษโดยการใช้เพลง (song)						
8. นักเรียนชอบการพูดภาษาอังกฤษโดยการเล่นเกมส์ (games)						
9. การบรรยายเรื่องจากรูปภาพ (describing picture) เป็น						

สิ่งที่ยากสำหรับนักเรียน						
10. นักเรียนมีความกังวลใจในการปฏิบัติกิจกรรมการพูด ภาษาอังกฤษ						
11. ครูให้ความช่วยเหลือและแนะนำในการปฏิบัติ กิจกรรมการพูด						
12. นักเรียนให้ความช่วยเหลือเพื่อนในกิจกรรมการพูด ภาษาอังกฤษ						
13. นักเรียนชอบศึกษาเพิ่มเติมจากสื่อหรือแหล่งเรียนรู้ ภายนอกห้องเรียนเพื่อพัฒนาการพูดภาษาอังกฤษ						
14. กิจกรรม BBL ช่วยให้นักเรียนพัฒนาการพูด ภาษาอังกฤษด้านการใช้ไวยากรณ์ ด้านคำศัพท์ ด้านความ คล่องแคล่ว ด้านการออกเสียง และด้านความเข้าใจใน ภาษา						
15. นักเรียนต้องการพัฒนาการพูดภาษาอังกฤษเพื่อ นำไปใช้ในชีวิตรประจำวัน						

Second section

1. สำคัญและความรู้ที่นักเรียนได้จากการเรียนแบบ BBL คือ

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2. นักเรียนคิดว่าการเรียนการสอนแบบ BBL มีความเหมือนหรือแตกต่างกับที่นักเรียนเคยเรียนหรือไม่

- การเรียนการสอนแบบ BBL มีความเหมือนกับที่เคยเรียนมา คือ

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- การเรียนการสอนแบบ BBL มีความแตกต่างกับที่เคยเรียนมา คือ

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3. จากการเรียนการสอนครั้งนี้ นักเรียนได้พัฒนาตนเองอย่างไรบ้าง

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4. นักเรียนมีความรู้สึอย่างไรต่อการเรียนการสอนภาษาอังกฤษแบบ BBL

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5. นักเรียนมีข้อเสนอแนะอะไรบ้างทั้งต่อกิจกรรม วิธีการสอน สื่อการสอน อุปกรณ์ และครูผู้สอน

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VITAE

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