



Challenging in Using Whole Language Approach and Brain based Learning to Develop English Communication Skills in Thailand 4.0

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ABSTRACT

Using Whole Language Approach and Brain based Learning to Develop English Communication Skills in Thailand 4.0 Learning proposed as a way to solve the problems of students to study English more effectively by focusing on self-learning, individual differences and brain development. This article aims to describe the idea and process in developing English Communication Skills in Thailand 4.0. The authors began with the intensive review of Whole language Approach and Brain-based Learning. After that, both conceptual ideas were integrated into Whole language Approach and Brain-based Learning Model. Whole language Approach and Brain-based Learning Model is consisted of 6 instructional steps: 1) Warm up and Stimulate brain, the teacher warms up by exploring and reviewing the students' prior knowledge as asking the questions or pre-test, then stimulates the students' left and the right brain with various activities and the students respond to their own experiences. 2) Present new knowledge, the teacher prepares the activities by linking students' old knowledge and new knowledge according to content and using the interesting activities and sorting of easy content to difficult content. 3) Construct new knowledge and Practice, Students construct new knowledge by themselves and practices language skills; listening, speaking, reading and writing to get new knowledge. Using various activities as individual activities, pair work activities and group activities. 4) Present and exchange learning, the students present new knowledge, experience and/or works to class about language skills; listening, speaking, reading and writing. Stimulate students by questioning, discussing, exchanging learning and giving suggestions to improve learning. 5) Summarize and apply new knowledge, the students summarize knowledge and language skills: listening, speaking, reading and writing together by correcting knowledge and suggesting misconceptions or more researching. 6) Evaluate, the teacher evaluates learning through various methods such as observing, evaluating language skills; listening, speaking, reading and writing, questioning, presenting, summarizing, correcting. The research utilized Whole Language Approach and Brain based Learning in designing the one lesson plan for teaching Festival topic for Grade 10 students as an example for other English teachers.

Keywords: *Whole Language Approach, Brain-based Learning, English Communication Skill*

1. INTRODUCTION

Thailand 4.0 era has set a vision to transform economic structure of Thailand to drive Value- Based Economy through innovation. To succeed this goal, Thailand more quality population occupied with higher-order thinking such as creative and innovative thinking. Education is regarded as one effective tool in cultivating more quality population for the next generation. Teachers

in this 21st century face huge challenges in promoting their students to attain several abilities and skills needed for living and surviving in the 21st century.

In particular, learners at present in Thailand need more skill in communication in English. English language is one important subject for driving the success of Thailand in competing with other countries in the global economy. Hence, there is an urgent need to

develop the quality of teaching and learning English language in order to prepare better citizens with higher skills in English communications for living and/or working in the real world [1].

However, in Thailand, the management of English language learning may not be successful as the way it should be. Particularly in English Communication skills, the result of the ordinary National Educational test (O-NET) of Grade 10 students at Surasakmontree school in three academic years (2018 to 2020) were between 36.79 to 33.89. That results showed that students had poorly developed English language skills in many aspects that may lead to a lack of quality in teaching and learning in English. During this period, grade 10 students did not differ greater in their ability of English [2].

1.1. IMPORTANCE OF THE WHOLE LANGUAGE APPROACH

The whole language approach (WLA) is an approach to emphasize learning in all dimensions, which is the opposite of traditional education which focused on teaching and learning only on the student's memory and assessment by using an exam. In teaching and learning management in Thailand 4.0 era, there is a relationship between emotional intelligence, cognitive intelligence, and physical. Technology is an important skill for the

student as challenges their ability and intelligence. The whole language approach is a method that is suitable for teaching and learning, especially in English Communication Skill

WLA is a philosophy and a belief that is used to provide the learning experience of language development and teaching strategies. This method emphasizes the flexibility of teaching and learning by integrating listening, speaking, reading, and writing. Following this process, the student will understand language learning rapidly [3] [1] [4].

The importance of the WLA is language teaching that fits with student age and uses student-centered. Students do activities according to their interests, solve problems in their practice, interact and work with peers, and have self-confidence and self-esteem for learning the English language to communicate appropriately. Therefore, the WLA can be developed for teachers to teach the English language in all dimensions. [5]; [6]

1.1.1. THE LEARNING PROCESS OF THE WHOLE LANGUAGE APPROACH

The authors reviewed and analyzed previous studies related to the WLA [7][8][9][10][11]. Next, we synthesized five steps of the WLA as in Table 1.

Table 1. Synthesis of WLA teaching steps.

Pranee Yamongkon (2011)	Tarinee Unaprom, and Potjananon (2011)	Witchulada Rak-ngam (2014)	Pornpisuth Wongpinta, Phasuk Buntham, and Simmy Upara (2017)	Laddawan Mitkool, Prakob Jaiman and Saisawat Ketchart (2019)	Synthesis of WLA teaching steps
Multimedia presentation – Use print media, and video media for introducing into lesson then connect to core knowledge, prior knowledge, and new knowledge	Presentation	Presentation -Know /understand learning objectives - Participate in activities that can develop learning, listening, reading, and writing skills.	Connecting prior knowledge and new knowledge -Asking questions from the teacher about the story that students are going to learn. - Simulate students' interests and connect their prior knowledge and new knowledge	Presentation	Presentation Prepare students for connecting prior knowledge and new knowledge by using print media, video, and activities
Teaching Teachers explains vocabulary, expressions, language structures (grammar), interpretation of students, and	Teaching - Pronunciation -Spelling		Learning through media - Students listen or read an article, provide real visual media - Teachers ask questions and guide reading strategy including	Teaching Read stage	Construction of knowledge Students attend activities to develop their language skill

Pranee Yamongkon (2011)	Tarinee Unaprom, and Potjananon (2011)	Witchulada Rak-ngam (2014)	Pornpisuth Wongpinta, Phasuk Buntham, and Simmy Upara (2017)	Laddawan Mitkool, Prakob Jaiman and Saisawat Ketchart (2019)	Synthesis of WLA teaching steps
element of language			observing vocabulary, idioms, and structure		
Practice -Students practice together for build explicit knowledge from reading an article, speech summary, then write a summary		Practice	Read, search and present -Teachers and students participate in discussions and express their opinions about what has been read. -Students research topics that they want to know	Practice Independent reading	Practice Students practice from reading an article, speech summary, then write a summary
Presentation of results - Students draw conclusions and analyzed and select the way to presentation according to aptitude and interest	Summary	Presentation of results	Writing a summary Students summarize the article that their read by write a summary	The stage of Multi-expressing	Present and summary - Present a work according to student's aptitude and interest.
Measurement and evaluation -Assessment of actual conditions. - Use a variety of tool for measuring	Measurement and evaluation		Evaluation - Teachers and students assessed their work and wrote a summary. - Students read their own writing and peers' writing. Then make a revision - Teachers read and evaluated the writing with give their explanation for students to improve	Evaluation	Evaluation Use a variety of tool for measuring learning

1.2. BRAIN-BASED LEARNING

Brain-based Learning (BBL) refers to teaching and learning through real-life situations, or based on the latest scientific, or remapping of the brain's connections when learning new concepts. This method summarizes the concepts along with the practice as promote and boost learning retention and focus of brain [12] [13].

1.2.1. IMPORTANCE OF BRAIN-BASED LEARNING

Kamolchat Klom-im [14] mentioned the principle of BBL as follows.

1. The brain is a parallel processor. The most potent feature of the brain is its capacity to function on many levels and in many ways simultaneously, working with a combination of both ideas experience and emotions

Including information that exists in a variety of formats, therefore, effective teaching and learning will lead to a variety of learning.

2. Learning engages the entire physiology; health, sleep hygiene, nutrition, emotion, and fatigue. which affect the memory of the brain, teachers should pay attention not only interested in one-sided feelings or intelligence.

3. The brain, learning from searching for meaning occurs through patterning. Effective teaching must recognize that meaning is unique to individuals and that students' understanding is based on individual experiences.

4. The brain, learning from searching for meaning occurs through patterning. Searching for meaning arises from learning patterns, procedures, organizing information.

5. Emotions and cognition are linked. Emotions are critical patterning and emotions are the motivators of learning and creativity. Learning is influenced by emotions, feelings and attitudes.

6. Every brain simultaneously perceives and creates parts and wholes. If the whole or sub-section is overlooked in any part, it will make it difficult for students to learn.

7. The brain learns from interactions with the environment, touch and action.

8. The brain, learning always including both conscious and unconscious process

9. The brain use memory into 2 types; 1) a spatial memory system 2) a set of systems for rote learning. Therefore, memorization prevents students learning from experiences. Moreover, the students unable to provide details from what have been memorized.

10. The brain understands and remembers best when facts and skills are embedded in natural spatial memory and real situation.

11. The brain learns more from challenging and inhibited. The environment in classroom is necessary to become more challenge but inhibited by threat.

12. Every individual has a unique brain. Therefore, every individual has his/her own learning styles.

1.2.2. THE LEARNING PROCESS OF BRAIN-BASED LEARNING

The authors reviewed and analyzed previous studies related to BBL [12][13][15][16][17]. Next, we synthesized six steps of BBL as follows.

Table 2. Synthesis of the BBL

Pranee Yamongkon (2011)	Tarinee Unaprom, and Potjananon (2011)	Witchulada Rak-ngam (2014)	Pornpisuth Wongpinta, Phasuk Buntham, and Simmy Upara (2017)	Laddawan Mitkool, Prakob Jaiman and Saisawat Ketchart (2019)	Synthesis of WLA teaching steps
Preparation - Preparing a framework to learn new concept	Introduction - Prepare to learning and teaching the lesson	Brain stimulation - Prepare students before learning - Intro in the lesson plan	Introduction and learning agreement	Preparation - Intro in the lesson plan	Introduction and brain stimulation - Introduce lesson plan by check student prior knowledge
Acquisition - Organize activities to connect prior knowledge and new knowledge arranged from easy to difficult concepts	Providing knowledge - Teach student to connect prior knowledge and new knowledge arranged from easy to difficult concepts		Providing knowledge	Perception - Organize activities to create a process of thinking, and searching	Providing new knowledge - Organize activities to connect prior knowledge and new knowledge arranged from easy to difficult concept
Elaboration and Memory Formation - Students learn by using information and opinion that support their learning.	Practice and experience - Students will be able to learn and help each other to learn and create works in activities	Organize and practice experience - Provide learning experience for the student	Training skill and game activity	Extension - Organize activities to connect prior knowledge and new knowledge through asking	Practice - Practice in individuals and groups by using a variety of activities

Pranee Yamongkon (2011)	Tarinee Unaprom, and Potjananon (2011)	Witchulada Rak-ngam (2014)	Pornpisuth Wongpinta, Phasuk Buntham, and Simmy Upara (2017)	Laddawan Mitkool, Prakob Jaiman and Saisawat Ketchart (2019)	Synthesis of WLA teaching steps
- Extracting information from students' learning	such as researching, observing, experiments, drawing, and practicing in activities	- Action and practice		questions and summarize explicit knowledge.	
	Learning exchange - Present works to exchange and share knowledge		Learning exchange		Learning exchange - Present works in individual and group.
	Summary - Teachers and students summarize their knowledge and do worksheet.	Summary - Students summarize a mind ma - Students summarize the activities and evaluate together	Summary	Memorization - Students come up with new ideas that can summarize learning.	Summary - Summarize explicit knowledge
Functional Integration - Students applying prior knowledge to learn new knowledge	Implementation - Teacher assign student to work individually, in pairs, or in groups by giving the topic, issue that student interested to study	Extension - Create explicit knowledge - Applying knowledge to daily life and further study	Implementation	Implementation - Teacher set a new experience similar to the previous situation. - Applying knowledge to daily life and further study	Implementation - Applying knowledge to daily life and further study

The authors reviewed and analyzed previous studies related to the WLA and BBL in order to create the new teaching model called the Whole Language Approach

and Brain based Learning (WLA-BBL) model for developing students' English communication skills in Thailand 4.0 as shown in Table 3.

Table 3. Synthesis of WLA-BBL model.

WLA	BBL	Synthesis of WLA-BBL
Prepare - Prepare for connect the new knowledge by using print media, video or activities	Introduction and brain stimulation - Introduction into lesson be repeat and check prior knowledge and stimulating the brain function	Introduction and brain stimulation - Introduction into lesson be repeat and check prior knowledge and stimulating the brain function
Create explicit knowledge - Use activities to encourage students to create explicit knowledge in language	Present new knowledge - Organize activities to connect prior knowledge and new knowledge arranged from easy to difficult concept	Present new knowledge - Organize activities to connect prior knowledge and new knowledge arranged from easy to difficult concept
Practice - Practice listening, speaking, reading and writing skills in variety context	Practice - Practice listening, speaking, reading and writing skills in variety context	Create explicit knowledge - Create explicit knowledge in individual and group by using a variety of activities
Present and summary	Exchange learning	Present and exchanging learning

- Present works according to students' aptitude and interest	- Present works individually or in groups	- Present works to exchange and share knowledge
Evaluation - Assessment of actual conditions. - Use a variety of tool for measuring - Teamwork - Questionnaires	Summary - Summarize explicit knowledge	Summary and Implementation - Summarize explicit knowledge and applying knowledge to daily life
	Implementation - Applying knowledge to daily life and further study	Evaluation - Use a variety of tool for measuring

The WLA-BBL was applied in designing one lesson plan in English subject of Festivals for Grade 10 students as an example.

2. LEARNING OBJECTIVES

2.1. Cognitive

2.1.1 Students can learn and understand the importance of learning about the festival and important dates of the native language.

2.2. Psychomotor

2.2.1 Students can listen and fill in words about festivals and important national days of the native language.

2.2.2 Students can speak and present about festivals and important national days of the native language.

2.2.3 Students can read the text aloud correctly according to the principle of reading about festivals and important national days of the native language.

2.2.4 Students can write about festivals and important national days of the native language.

2.2.5 Students can compare the similarities and differences between festivals and important days of the nation with their native language.

2.3 Attitudes

2.3.1 Students are qualified to learn until achieving the goal and are eager to learn.

2.4 Subject matter

Festivals and important days

Vocabulary and Idioms such as Halloween, Thanksgiving Day, Valentine's Day, New Year Day, Songkran Day, Christmas day

3. LEARNING ACTIVITIES

Stage 1: Warm up and Stimulate brain

The teacher asks the question and repeat prior knowledge of festivals and important dates of westerner. To exploring the students' prior knowledge that Do you

have enough basic knowledge to learn new knowledge? If students have insufficient prior knowledge of festivals and important dates. Teachers will repeat prior knowledge for students before introducing them to new knowledge in this lesson by using question "What is Halloween?" and others question as follow.

Teacher: Do you like festivals?
Expected Answer: Yes / No
Teacher: What is your favorite festival? Where is it?
Expected Answer: I like Christmas day. Etc.
Teacher: Do you know the Western festivals?
Expected Answer: Yes / No
Teacher: What the Western festivals do you know?
Expected Answer: Valentine's Day, Halloween, Thanksgiving Day.

Then, teacher stimulates the students' interest in learning by assign Worksheet: Halloween source: https://www.matichon.co.th/lifestyle/food-travel/news_1199885 In order for students to brainstorm ideas about Halloween, teachers use questions to motivate students as follows:


Teacher: What is this festival?
Expected Answer: It's Halloween festival.
Teacher: What activities people do in this festival?
Expected Answer: They tell scary stories and watch horror movies. etc.
Teacher: What do they wear?
Expected Answer: They wear mask, spooky outfits, costumes. etc.

Stage 2: Present new knowledge

Student do Activity: Match the words to connect students' prior knowledge with the students' new knowledge by match the words on the left with the meanings on the right in item 1 to 6. The teacher explains more about the words that students still do not understand. Then the students shared their answers of Worksheet: What is Halloween? (section 1). If any of the

students miss conception, teacher will share the correct answer and explain in the detail to provide students with correct concept about the vocabulary in the lesson

Stage 3: Construct new knowledge and Practice

The teacher opened the sound clip 3.1  “What is Halloween? Let’s students listen 2 times by clicking on <https://www.allthingstopics.com/what-is-halloween.html> or scan QR code and assign worksheet 3.2: What is Halloween? (section 2). The teacher opened the sound clip 3.1 round 1, teacher explains to students about the first round as follows:

“Round 1, have students listen to What is meaning, underline it. Round 2 have students read along.” to practice language skills, listening, speaking, and reading

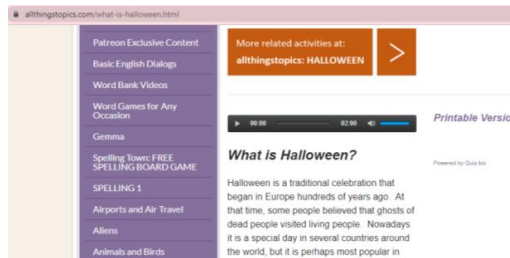



Figure 3.1: the sound clip 3.1  and QR Code

Source: <https://www.allthingstopics.com/what-is-halloween.html>

Students are divided into 4 groups, by assorted abilities of students consists of high, medium, and low. Then, each group studies, and explore an article in Worksheet: What is Halloween? (section 2). After studying and reading the article, each group answers all questions in the Worksheet. If students have questions during the activity, teachers will provide and suggestions. After that, students and teachers check their answers in Worksheet: What is Halloween? (Section 2).

Each group of students brainstormed on selecting the festivals and important days that they are interested to learn. Then, each group of students summarized the concept map by studying the information on Canva.com https://www.canva.com/esign/DAE9eX7SV4w/BoDmV50bWK_i2akgzBQwmg/edit or scan QR code as well as assign each group of students to prepare and present their work.

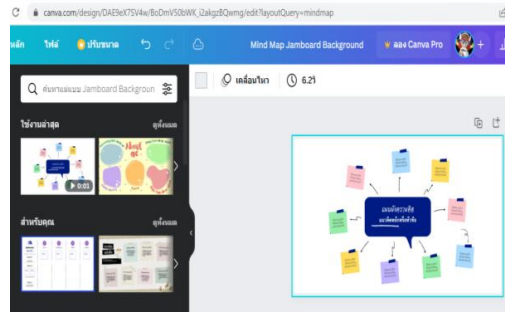


Figure 3.2. Concept Map from Canva.com
Source: https://www.canva.com/design/DAE9eX7SV4w/BoDmV50bWK_i2akgzBQwmg/edit

Stage 4: Present and exchange learning

4.1 Teachers use the Pickers “Magic 8 Ball” app where teachers click on the link. <https://www.onlinesopwatch.com/random-name-pickers/magic8ball/full-screen/?r=1~10> or scan the QR Code which uses the application as follows) Teacher should prepare the application as ready for use.

- 4.1. 1The teacher enters the group name in the settings.
- 4.1. 2Setting the number to set the number of groups.
- 4.1.3 To randomly each group of students to present in the classroom, click on the black ball once.
- 4.1.4 To start a new random group, click “Continue” on the green button.

Each group of students presents a summary of the Concept Map on the topics that students their study and research. When each group complete the presentation, teacher raises questions, giving some feedback, and provide suggestions to improves in the next assignment.

Example Questions:

- What do you do on Valentine’s Day?
- What is the best thing to write on a Valentine’s Day card?
- What is a good Valentine’s Day meal?
- Where is Thanksgiving celebrated?
- How long has Thanksgiving been a holiday in the U.S.A? etc.

Stage 5: Summarize and apply new knowledge

Student summarize key concept on tittle Festivals in part of language skills; listening, speaking, reading and writing by doing in Worksheet 3.3 on title: My Learning Logs. And also encourage students to summarize the importance of learning about national festivals and important dates and responsive instruction for festival.

Stage 6: Evaluate

Students do Post-Test on tittle Festivals 10 items (in figure 3.4). Teachers click to Google Forms via

<https://forms.gle/AvV7Znt5FeriJVaz7> or scan QR code which is an assessment of the knowledge of the learners. Teachers show the QR code for students and do the post test on title Festivals.

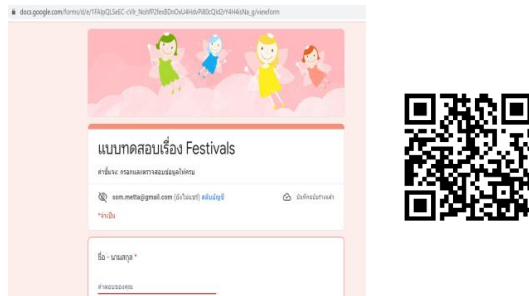


Figure 3.4: Google Forms pre-test: Festivals and QR Code

Source: <https://forms.gle/AvV7Znt5FeriJVaz7>

During the activity, teachers use reading assessment to assess students' reading skill, use listening assessment to assess students' listening skill, use speaking assessment to assess students' speaking skill, and use writing assessment to assess students' writing skill.

4. CONCLUSION

Learning a foreign language, the especially English language is very important and necessary in daily life. Because this is a crucial tool for communication, education, the pursuit of knowledge, occupation, and building cultural diversity in the global community. All will bring friendship and cooperation with other countries that help students to develop themselves and each other. Also, lead the way to learning and understanding different cultures. Therefore, the authors utilize the approach that can improve English communication skills by using the WLA and BBL to develop students' listening, reading, speaking, and writing skills. The results from are affected their learning of language and Life-Long Learning

5. IMPLICATION

Suggestions for applying the results of this study are as follows

1. The results show that the WLA based on BBL can develop learning management in English communication skills. Teachers can apply the WLA in each content appropriately.

2. Teachers who teach foreign language subjects, should offer this approach (WLA and Brain-based Learning) to use as a teaching and learning approach to develop the listening, speaking, reading, and writing skills of students.

3. Teachers should empower students to select the content that there are interested. This can increase efficiency in teaching and learning.

ACKNOWLEDGMENTS

This research was supported by Surasakmontree School. I would like to express my sincere thanks to my research advisors, Dr. Jirutthitikan Pimvichai and Assoc. Prof. Dr. Khajornsak Buaraphan for their valuable comments, suggestions, and encouragement throughout the process of this research

REFERENCES

- [1] Office of the Education Council, *The National Scheme of Education* Bangkok, 2017, B.E. 2560 – 2579 (2017 – 2036).
- [2] National Institute of Educational Testing Service, "Results of the Basic National Education Test (O-NET) Grade 12, Surasakmontree School, Academic Year 2018 - 2020," ed. Bangkok, (2018 - 2020).
- [3] Ministry of Education, *Practice form for teaching according to the plans of activities for teaching English*. Bangkok, 2002.
- [4] Chaniphan Chatisathien, *Learning Innovation in Experience Management for Early Childhood Development*. Bangkok, 2014.
- [5] Thanakrit Nithivanich, "The effects of the whole language teaching approach on reading comprehension ability of Prathom Suksa V students at Bangkok International Preparatory and Secondary School " Master of Education, Sukhothai Thammathirat Open University, Bangkok, 2017.
- [6] Athitiya Somthanapornrat, "The Development of Whole Language Approach Using Fables to Enhance Fluency Thinking of Pre-Childhood Students," Master of Education, Bansomdejchaopraya Rajabhat University, Bangkok, 2014.
- [7] Pranee Yamongkon, "The Development of an English Instructional model Based on Whole Language Approach for Mattayomsuksa 4," Ph.D. curriculum and teaching, Naresuan University, 2011.
- [8] Tarinee Unaprom and Potjananon A, "A Comparison of English Reading Aloud and Spelling Skills of Pratom Suksa IV Students Using Integration of Phonics and Whole Language Approaches and the Teacher's Manual," *Journal of Education Graduate Studies Research Khon Kaen University*, vol. 5, pp. 186 – 192, 2011.
- [9] Witchulada Rak-ngam, "The Use of local community lessons through the whole language approach to develop English learning achievement of sixth grade students," Master of Arts, Nakhon Ratchasima Rajabhat University, Nakhon Ratchasima, 2014.
- [10] Pornpisuth Wongpinta, Phasuk Buntham, and Simmy Upara, "The Effect of Using Whole Language Approach to Develop English Reading Comprehension and English Writing for Communication Skills of

Prathomsuksa 5 Students," *Graduate School Journal*, vol. 10, pp. 119-130, 2017.

[11] Laddawan Mitkool, Prakob Jaiman, and Saisawat Ketchart, "Model of Learning Management of Technique of Phonic and Whole Language to Enhance English Oral Reading Skill for Prathomsuksa 1 Students," *Narkbhut Paritat Journal*, vol. 11, pp. 22 – 30 2019.

[12] Jensen E, *Brain-based Learning: The New Paradigm of Teaching*. USA: Corwin Press, 2008.

[13] Jutatip Matchimo, "Comparisons of Reading, Writing Abilities and Attitudes Towards English Learning of Prathomsuksa 6 Students Between Learning Based on SQ4R Learning Approach and Brain-Based Learning Approach," Mahasarakham University, Mahasarakham, 2016.

[14] Kamolchat Klom-im, "Brain-Based Learning Management. For teacher professional students in Physical Education," vol. 10, pp. 80-81.

[15] Chaweewan Silom, "The Development of learning management model by using brain-based learning in general chemistry unit for undergraduate students at Institute of Physical Education," Ph.D. Education, Srinakharinwirot University, Bangkok, 2012.

[16] Wanatchaporn Puengprom, "The Development of Learning Activity Package in English Reading Comprehension Skills based-on Brain Based Learning Approach for Mattayomsueksa 1 Student," Master of Education, Mahasarakham University, Mahasarakham, 2017.

[17] Paweena Wichanee, "A Study of Learning Achievement, Scientific Analytical Thinking and Attitudes towards Biology on "Kingdom of Life" By using Brain-Based Learning (BBL) with game for 10th Grades students," Burapha University, Chonburi, 2015.

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