Effect of Using Mind Mapping Towards English Reading Comprehension Skill of Students at Watlinthong School

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Abstract

This thesis objectives: 1. to develop using mind mapping for students in Watlinthong school, 2. to compare reading comprehension skill of students before and after using mind mapping, and 3. study result of using mind mapping of students in Watlinthong school . The target groups of this study were 26 students at grade 8-9 in Watlinthong school , Ang Thong, Thailand who were selected to participate in this study conducted in the second semester academic year 2021. The research instruments used were 1) the test to measure reading comprehension before and after using the mind mapping in teaching reading is a multiple-choice, 4 choices, and 20 items and 2) plan of learning activities used in the experiment. The statistics analyzed mean ($\bar{x}$), S.D., percent (%), and a t-test (independent sample) were adopted to evaluate the difference between the students' results using mind mapping. The results of the study revealed that 1) post-test scores of the students were higher than pre-test scores. Additionally, the post-test mean scores of students at grade 8 were $\bar{x}$ = 16.75 and students at grade 9 were $\bar{x}$ = 16.64. There was statistically significant difference of the post-test mean scores experiment group at .01 level of significance and 2) and the total mean of group work by the construction of the mind mapping of 4 groups of students, of which 2 groups had 6 members and 2 groups had 7 members, by using the mind mapping assessment criteria and rated the quality of student's mind mapping creation scores into 4 levels, namely very good level, good level, fair level, and improvement level. The result found that students can score points on creating a mind mapping by reading a given reading and get an average score of 35.14, and the results of the quality rating from the scores of the mind

mapping of each group of students. Overall, the students were of very good quality. The content analysis on qualitative data spelt out the positive impacts of mind mapping technique on elevating not only students to learn reading English comprehension, but also motivation and confidence in writing.

Keywords: Mind mapping; Reading comprehension; Reading English skills

Introduction

In teaching and learning process of English, there are four skills taught: listening, speaking, reading, and writing. Reading is one of the language skill that plays an important role in foreign language acquisition. Brown states that "In foreign language learning, reading is a skill that teachers expect learners to acquire". It is argued as the most essential skill for success in all education context. Reading is very important for English learners because reading can enlarge their knowledge, vocabulary, and information.

From reading, they are able to get complete understanding of the text. According to Snow "reading does not occur in vacuum, it is done for a purpose to achieve some ends." During reading the reader processes the text with regard to the purpose. To be a good reader, the learner must learn how to comprehend and understand the passage.

Learning to read well is a long-term developmental process. At the end point, reader can read a variety of materials with ease and interest, can read for varying purposes, and can read with comprehension even when the material is neither easy to understand nor intrinsically interesting. And the reading process is complex and multi-dimensional. There are some components that need to be considered in the teaching of reading towards recognizing this complexity. The writer chooses one of the components that should be taught in reading process, the component is comprehension. Pardo states that comprehension is a process in which readers construct meaning by interacting with text through the combination of prior knowledge and previous experience, information in the text, and the stance the reader takes in relationship to the text. When learners comprehend, they interpret, integrate, critique, infer, analyze, connect and evaluate ideas in texts. When comprehension is successful, learners are left with a sense of satisfaction from having understood the meaning of a text.

Nowadays, the need of reading comprehension requires teachers to facilitate students through interesting strategies in learning process. Harmer states that "students are better to be impulsed in responding the context and gaining their feeling about it than only focusing them on the text construction". The teachers usually ask the students to read without giving the solution about how to read with pleasure and comprehend through interesting strategies. The students are used to comprehend the text only by reading normally, as what their habits in learning process. In conclusion, students are stated having no problems in learning reading comprehension because of their habits -reading normally.

For the learners of English as a Foreign Language (EFL), reading is the most vital skill to master due to several reasons. First, students can usually perform at a higher level in reading than in any other skills. They can comprehend written materials beyond their ability to discuss orally or in writing with equivalent accuracy. This can undoubtedly increase their motivation to learn. Second, reading requires very minimum necessities. Different from speaking which requires opportunities to interact with sparring partners, or from writing which needs a lot of guidance and time to practice, reading necessitates only a text and motivation. Third, reading is a service skill. After learning how to read effectively, students will be able to learn effectively by reading. In terms of language learning, by reading, learners can develop their knowledge of grammar, discourse organization, vocabulary, and culture. In addition, Davis stated that reading is essential for everyone, it is fundamental to function in society today, and a vital skill in finding a good job. It also develops the mind and the imagination and helps discover new things.

Reading comprehension skill is not merely a simple skill as many English teachers perceive. Answering questions after reading a text is a common practice in the teaching and learning process of reading comprehension skills. It is very often that in the arrangement of the lesson plan, the teachers have not yet distinguished between learning steps and readings steps. It is very clear that when planning a reading activity, the teachers do not refer to a certain reading theory.

There are many reasons why reading can be hard. It's important to note that struggling readers will often have problems in multiple areas. According to Smith & Collins, there are two aspects of comprehension processes that we think are important to teach: (1) comprehension monitoring, and (2) hypothesis formation and evaluation. Many students find interesting story in reading and think that they

understand the story. First, students had difficulties in getting information from the text. Then this situation leads the students to have low achievements in reading activity. In addition, the teaching and learning process of reading comprehensions run conventionally in class. It makes the students think twice to do reading activity; moreover, reading is a long activity.

Mind-mapping is supposed to be an interesting alternative technique that will help the students support the reading about the text they have read by their own schema, thus that they can comprehend the text, not on their creativity. The mind mapping helps to organize the information in the story into a form that is easily assimilated and remembered. The mind mapping is a technique to use the whole brain by using visual and other graphic to create a meaningful impression. By using this technique, the readers can quickly identify the information from the text they read and also grab the structure of a subject and the way that pieces of information fit together. It can help the readers to make a note from the text clearly. Every piece of the text can be noted and described in a map which consist of any symbols or pictures that connected each other to be complete information.

Mind mapping is a new teaching technique for teaching reading. As young generations are surrounded by many of new electronic devices, the technology is quite reachable and familiar to them. The mind mapping technique might be useful for students, as drawing a mind map helps the brain to visualize better than linear notes. Moreover, teaching by using mind mapping strategy can be more attractive to students. Mohaidat stated that the use of mind mapping stimulates the use of the two sides of the brain; the ideas are well organized so the brain can read the information and remember them more than the linear thinking. Alomari also agrees that students can benefit from using mind mapping. Studies on the use of mind mapping in English classroom is still limited in Thailand. Thus, this study attempted to investigate the effects of mind mapping on Thai students.

As a result, the process of reading that the students should go through is still invisible. Apart from this, teaching reading is more difficult when students are reading texts in a second language. Observing Watlinthong school classrooms in Thailand, the researchers found that students encountered unknown words, and translation from English to their mother language. One of the most powerful constructivist based-reading techniques that can make reading comprehension skills belong to the students is mind mapping.
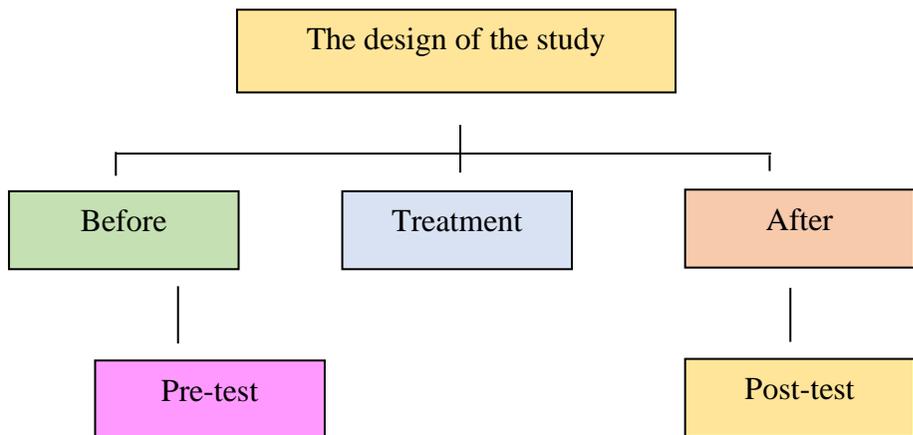
From the importance of reading English for comprehension and the issues of reading comprehension encountered including the concepts of meaningful learning theory and teaching techniques using mind mapping can improve students' reading skill. Therefore, the researcher is interested to study mind mapping to use in learning activities for reading comprehension skills at Watlinthong school, Ang Thong province, and believe that the mind mapping method is one of the best way to improve English reading ability of students. This is a cause of creating a mind mapping training students to summarize or analyze the important content of the story. The mind mapping makes students clearly discover the structure of their knowledge of the subject and lead to conception and relates ideas to each other. This will be beneficial for the further development of English reading skill.

Research objectives

1. To develop using mind mapping for students in Watlinthong school.

2. To compare reading comprehension skill of students before and after using mind mapping

3. To study satisfaction of using mind mapping of students in Watlinthong school .

Research Method

This research study is designed by Quasi-Experimental research to collect data and the effect of using mind mapping on the reading comprehension skills of students at Watlinthong school. McMillan and Schumacher state that quasi-experimental research is a good design of the research because although it is not true experiments, it provides reasonable controlled over most sources of invalidity, and it is usually stronger than the pre-experimental design. Quasi-experimental design focuses on treatment and outcome, hence the data was taken from pre-test and post-test in order to know whether or not mind mapping is effective than expository technique in improving students' reading comprehension achievement. In this research design, there is a kind of class used. There is the experimental class which used mind mapping technique and the controlled class by expository technique.

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Design of the study

Target group of the research

The population of this study is 26 students at grade 8 and grade 9 in Watlinthong school , the second semester of the academic year 2021. Specially, they are from different academic levels and background to ensure the reliability and accuracy of the results; 12 students at grade 8 and 14 students at grade 9. The reasons to choose these target groups are: 1) students require reading ability   2) the students come from different academic levels, so they had experience different number of courses which effected on their performances. Both groups were taught using mind mapping of extra English subject.

Research Tools

3.3.1 The test to measure reading comprehension before and after using the mind mapping in teaching reading is a multiple-choice, 4 choices, and 20 items. The confidence and difficulty level of the test are examined by experts which are presented in appendix A and B.

3.3.2. Plan of learning activities used in the experiment, it is a map of reading by using a mind mapping, consisting of 8 plans with 2 hours each. Each plan consists of short content, there are not too many concepts. It is appropriate to the needs, interests, and knowledge of the students . It is factual or content about basic concepts, principles, and abstract notions after the students have learned the meaning, characteristics, and elements of the mind mapping. The researcher asks students to practice reading in the chapters and do exercises by adding concept

words and concept linking words to the given mind mapping. It starts with an easy reading to a more complex one until students can create a mind mapping from the readings themselves. The plans for each learning activity plan are as follows:

The plan for learning activity 1 is "Beatrix Potter"

The plan for learning activity 2 is "Boudica"

The plan for learning activity 3 is "Dick Whittington"

The plan for learning activity 4 is "Elizabeth I"

The plan for learning activity 5 is "Emmeline Pankhurst"

The plan for learning activity 6 is "Florence Nightingale"

The plan for learning activity 7 is "Isaac Newton"

The plan for learning activity 8 is "Robin Hood"

The following steps:

1. The step before creating a mind mapping is the stage where students read the given readings and find different types of mind mapping words including link word's mind mapping to be organized into groups.

2. Stage of creating a mind mapping is the stage where students add different types of concept words to the given concept map. In which the mind mapping in each plan will train students to write the diagram according to the specified elements from a simple detailed chart to more complex charts until the students can read the chapters and write the summary as a mind mapping entirely.

3. Mind Mapping Assessment, form in this study, the researcher assessed the competency to create a mind mapping of students after reading the given readings in each learning activity plan by using the evaluation form of the mind mapping that has been examined by experts. Scoring section for creating a mind mapping, the researcher used the concept mapping ability assessment criteria adapted from the concept map scoring principles proposed by Novak and Gowin i.e. accuracy and correlation of the text, giving 1 point per 1 body of text, accuracy, and conceptual linkage are given 5 points per level and the accuracy of the samples is given 1 point per 1 sample.

Tool making

1. Creating a reading comprehension test before and after the experiment has the following steps:

1.1 Researcher studies the basic education curriculum concerning reading by considering learning objectives and principles and the scope of the content.

1.2 Researcher studies the scope of subject content from English textbooks Secondary 3 (S3) students.

1.3 Researcher studies magazines, journals, newspapers, additional reading books in English at the Secondary 3 (S3) students to select appropriate subjects and vocabulary.

1.4 Researcher studies the techniques for creating tests and measurement techniques.

1.5 Researcher creates a test to measure reading comprehension multiple-choice type, 4 options, and 35 items.

1.6 Researcher brings the reading comprehension test to experts to check and correct and then to take the test to modify and improve according to the suggestions.

1.7 Researcher brings the reading comprehension test to use for the experiment with students at grade 8 in Wat Phothiwong School, Angthong province that is not a sample group of 12 people is used to determine the difficulty (p) and the discriminating power (r).

1.8 Researcher brings the results of the experiment to improve questions and options using techniques 25% analysis of the high score group and the low score group and find the difficulty (p) and discriminating power (r) of the test, selecting only the items with the difficulty on the level of 0.20 - 0.80 and the discriminating power at the level of 0.20 and above, 20 items are obtained.

1.9 Researcher brings the selected 20 items of the reading comprehension test used to find the confidence of the test using the formula of Kuder Richardson (KR-20).

2. Researcher creates a plan for learning activities, to use in the study as the following details:

2.1 Researcher studies the purpose of reading from the secondary student's curriculum documents as a guideline for selecting or creating content to be used in the learning activities plan.

2.2 Researcher studies basic vocabulary and grammar in secondary student's level as a guideline for creating and selecting content to be used in the learning activities plan.

2.3 Researcher studies journals, textbooks, and other additional reading books to select content suitable for secondary students.

2.4 Researcher creates a learning activity plan according to the teaching and learning principles, writing a mind mapping to show the ability to read for comprehension, totaling 8 plans.

2.5 Researcher brings the learning activities plans to the experts for checking the quality inspection and the accuracy of the content and then modifying according to the instructions and amendments as appropriate to be applied to the sample group.

Data Collection

This study is conducted to collect data. The researcher will collect the data by myself. There are steps to do as follows.

1. Data are collected from the sample group of students using the pre-test and post-test.

2. Conduct an experiment with the following steps:

2.1 The researcher did a pre-test on the sample with a reading comprehension test.

2.2 The researcher conducted the experiment according to the 8 learning activities plans created, each plan was 2 hours, total 16 hours. The researcher used the mind mapping assessment form to evaluate the students' work.

3. The researcher did the post-test by using the same test that was used for the pre-test.

4. The scores obtained from taking the test before and after. The experiment were studied to compare the difference of pre-study and post-study test scores by testing the significance of the difference by t-test, with the conclusion of the post-teaching record and the evaluation of the mind mapping to reflect the overall picture of the ability to read comprehension English after implementing the learning activities plan.

Data Analysis

1. Analysis of the item-by-item test, the researcher used the exam to test with students at grade 8 and grade 9 in Wat Lintong School that is not a sample group of 12 people and took the student's score to calculate the difficulty classification of powers and the confidence value of the test using the formula of Kuder Richardson (KR 20).

2. Researcher analyzes the scores before studying to classify groups according to students' abilities into adept groups, medium groups, and weak groups, using the following criteria:

Score	Groups
11-20	Good
6-10	Medium
0-5	Weak

3. Researcher analyzes the development scores or the difference in scores before and after classes using the following criteria:

Percentage increase	Development level
21 Up+	Very good
11-20	Good
0-10	Pretty

4. Researcher analyzes students' ability to read English for comprehension from the assessment of mind mapping by using the following assessment criteria.

1. Matter

There is a link in each body created and have the correct meaning, 1 point each

2. The hierarchy of Mind Mappings and their associations.

The researcher rated level the Mind Mapping words correctly in order of importance and have the Mind Mapping connected correctly; each level is 5 points

3. Examples in Mind Mappings

For example, the Mind Mapping is correct to get 1 point per sample.

Score	Quality level
36 Up+	Very good
26-35	Good
16-25	Pretty
0-15	Repairable

5. The researcher compared the mean difference in reading ability scores for understanding before and after the experiment of students studying by using The Wilcoxon Signed Ranks Test statistics.

6. The researcher found the consistency and appropriateness of the Learning Activities Plan (IOC).

Research results

This section summarizes the objectives of the study and the subjects, materials, and procedures.

1. Objectives of the study

In this study, the objectives were:

1) To develop using mind mapping for students in Watlinthong school . After the researcher has taught according to the learning activity plans and recorded the teaching results. the researcher assessed the construction of the mind mapping of 4 groups of students, of which 2 groups had 6 members and 2 groups had 7 members, by using the mind mapping assessment criteria and rated the quality of student's mind mapping creation scores into 4 levels, namely very good level, good level, fair level, and improvement level which the results found students can score points on creating a mind mapping by reading a given reading and get an average score of 35.14, and the results of the quality rating from the scores of the mind mapping of each group of students. Overall, the students were of very good quality. Conclude that students have developed their reading comprehension ability by writing a summary with a better mind mapping.

2. To compare reading comprehension skill of students before and after using mind mapping. The result of comparison scores before and after and the percentage of development scores using mind mapping of students at grade 8 and grade 9, Watlinthong school was showed by mean $(\bar{x})$ and S.D. which students at grade 8, pre-test $(\bar{x})$= 6.50 S.D = 1.88, post-test $(\bar{x})$ = 16.75 S.D = 2.09, and students at grade 9, pre-test $(\bar{x})$ = 7.29 S.D = 1.68, post-test $(\bar{x})$ = 16.64 S.D = 2.10.

3. To study result of using mind mapping of students in Watlinthong school . After the researcher has taught according to the learning activity plan and recorded the teaching results. The researcher knew that the students who have developed reading with mind mapping had a statistically significantly higher reading achievement after learning at .01, achieving the set objectives.

2. Subjects, Material and Procedures

The research subjects for this study were 26 students at grade 8, 12 and grade 9, 14 who studied English in the second semester of the 2021 academic year. The subjects of the study in the classes were mixed between high, moderate and low proficiency in English. In addition, the instruments used in this study including:

1) Reading comprehension test before and after using the mind mapping in teaching reading, 2) Plan of learning activities used in the experiment. The data were analyzed by percentage value, mean, and standard deviation.

Recommendations

In this study, the researcher has 2 suggestions as follows:

1. Suggestions for organizing learning activities.

Organizing learning activities by having students write a mind mapping to summarize the meaning of the story read should give students more time to practice than study this time. Because this will enable students to understand and write their mind mapping more accurately.

1) The content used in the practice of creating a mind mapping should be familiar to students or have some background to help students understand the details more easily. And summarizing the content with a mind mapping should not contain too many mind mapping words.

2) Students should be able to participate in the selection of content or choose the content themselves to practice skills in creating a mind mapping from what they like and are interested in. As for the problem in constructing a mind mapping in the early stages, students don't understand the meaning of the words and are unable to choose the appropriate mind mapping linking words. Teachers should first focus on teaching vocabulary and sentence structures to students.

2. Suggestions for the next study.

1) There should be educated in this manner at the level and some other subjects because it will encourage students to practice critical thinking and learn meaningfully.

2) The effects of mind mapping should be explored in other areas such as operational processes, behaviors, interests, and attitudes.

References

Aljaser, A. M. (2017). The Effectiveness of Electronic Mind Maps in Developing
    Academic Achievement and the Attitude towards Learning English among
    Primary School Students. *International Education Studies*, 2017,10, 80-95.
    doi:10.5539/ies.v10n12.

Alomari, A. m. (2019). Using Mind Mapping Technique to Improve
    ReadingComprehension Ability of Fourth grade Arabic Language Students

in Jordan. *IOSR Journal of Humanities and Social Science (IOSR-JHSS)*. 24(1), 53-58. doi:10.9790/0837-2401015358.

Brown, H. Douglas. (2004). *Language Assessment-Principles and Classroom Practices.* New York: Longman.

Collins, A & Smith, Edward E. (2007). *Center for the Study of Reading.* Champaign: University of Illinois at Urbana.

Erythrica Alifia nur. (2017). *The effect of mind map to the students' reading comprehension at grade xi of Sman 1 pace in the academic year of 2017.* thesis of English education department, faculty of teacher training and education. University of Nusantara Pgri Kediri.

Harmer, Jeremy. (2007). *The Practice of English Language Teaching*. (4th ed). Oxford: Pearson Longman.

James H. (2006). *McMillan and Sally Schumacher.* Research in Education-6th ed. Boston: Pearson Education.

Snow, Catherine E. (2002). *Reading for Understanding: Toward a Research and Development Program in Reading Comprehension*. Santa Monica: RAND.