

IMPROVING READING COMPREHENSION FOR NON-ENGLISH MAJORS THROUGH MIND-MAPPING TECHNIQUE IN READING LESSONS

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ARTICLE INFO		ABSTRACT
Received:	07/4/2021	Reading comprehension plays an essential role for not only language competency mastery but also for knowledge mastery. However, many non-English majors at universities in Vietnam have problems in English reading comprehension. Therefore, the aim of the research is to improve English reading comprehension for non-English majors through the use of mind-mapping technique in reading lessons. The participants of this study were 20 non-English majors at Thai Nguyen University of Education. First of all, an experiment was carried out to examine the impact of mind maps on reading comprehension of non-English majors. The results of the experiment showed that there were statistically significant differences in the scores from pre-test to the post-test. Additionally, classroom observation was conducted to collect data related to students' attitudes toward mind-mapping technique. Finally, questionnaires were administered before and after the experiment to collect learners' difficulties that they have when they read English texts as well as their attitude and opinions about using mind maps in reading lessons before and after the experiment. Based on the findings, the research proposed suggestions that enhance the use of mind maps in English reading lessons.
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NÂNG CAO KHẢ NĂNG ĐỌC HIỂU CHO SINH VIÊN KHÔNG CHUYÊN TIẾNG ANH THÔNG QUA VIỆC THIẾT KẾ SƠ ĐỒ TƯ DUY TRONG CÁC BÀI HỌC ĐỌC HIỂU

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THÔNG TIN BÀI BÁO		TÓM TẮT
Ngày nhận bài:	07/4/2021	Đọc hiểu đóng một vai trò thiết yếu không chỉ đối với việc làm chủ năng lực ngôn ngữ mà còn cho việc nắm vững kiến thức. Tuy nhiên, nhiều sinh viên không chuyên tiếng Anh tại các trường đại học ở Việt Nam gặp khó khăn trong việc đọc hiểu tiếng Anh. Vì vậy, mục tiêu của nghiên cứu này là nâng cao khả năng đọc hiểu tiếng Anh cho sinh viên không chuyên Anh thông qua việc sử dụng kỹ thuật sơ đồ tư duy trong các bài đọc. Đối tượng tham gia nghiên cứu gồm 20 sinh viên không chuyên tiếng Anh. Trước hết, chúng tôi tiến hành thực nghiệm để nghiên cứu tác động của sơ đồ tư duy đối với khả năng đọc hiểu tiếng Anh của sinh viên. Kết quả thực nghiệm cho thấy có sự khác biệt đáng kể về điểm số từ bài kiểm tra trước đến bài kiểm tra sau thực nghiệm. Ngoài ra, quan sát lớp học được thực hiện để thu thập dữ liệu liên quan đến thái độ của học sinh đối với kỹ thuật lập sơ đồ tư duy. Cuối cùng, bảng câu hỏi được thực hiện trước và sau thực nghiệm để thu thập những khó khăn của người học khi đọc văn bản tiếng Anh cũng như thái độ và ý kiến của họ về việc sử dụng kỹ thuật sơ đồ tư duy trong các bài học đọc trước và sau thực nghiệm. Dựa trên kết quả điều tra, nghiên cứu đã đề xuất một số giải pháp giúp nâng cao hiệu quả của sơ đồ tư duy trong các bài học đọc tiếng Anh.
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1. Introduction

Reading comprehension is considered the basis of all language skills and the ultimate goal of the reading process where learners set connections between the learning activities, the learner's experience and the learner's prior knowledge to form the meaning of a text. It was also thought as the skill related to the learning process and directly affects success in different academic subjects. One of the techniques which can help enhance students' reading comprehension is mind-mapping. Mind-mapping technique is a useful learning strategy because it helps students improve their reading comprehension by clarifying complex concepts in reading texts into simple so that students can understand the main contents as well as the details of passages.

According to Buzan [1], mind mapping is a creative thinking tool reflecting the brain's way to work. It is one of the simplest ways to put information out of the brain. Mind-mapping technique is considered as the way to write creatively and effectively because it will map our opinions literally. Murley [2] defines mind mapping as a nonlinear visual outline of complex information that can aid creativity, organization, productivity, and memory. Mind maps graphically illustrate knowledge in a relational background, with the main topic at the centre of the map, major subtopics on branches stemming from the main topics, and sub-subtopics radiating from subtopics, etc. According to Riska Dwi Cahyani [3], the mind map is an important technique that improves the way we take notes and enhances our creative problem solving. This means that the readers can make what they have read easier so that they can comprehend what the writers mean in the texts. He also confirmed that mind mapping is a technique that facilitates fast learning and agile memory of things learned. The latest research also found mind mapping is possible for encouraging creativeness and motivating the ability of arrangement.

Regarding reading comprehension, Ortlieb [4] considered it the basis of all language skills and the ultimate goal of the reading process, where learners set connections between the learning activities, the learner's experience and the learner's prior knowledge to form the meaning of a text. William Grabe [5] stated that reading comprehension is a process where readers learn something from what they read and involve it in an academic context as a part of education. In the classrooms, almost all teachers use texts or books as tools to provide materials of subjects. Frequently, the teacher asks the students to read the texts and answer questions to make sure that they understand the texts. Reading also engages the human brain, emotions, and beliefs as stated by Weaver [6]: "Reading is a process which is very much determined by what the reader's brain and emotions and beliefs bring to the reading; the knowledge/information (or misinformation, absence of information), strategies for processing text, moods, fears and joys all of it". From all the definitions above, it could be concluded that reading comprehension means the readers have to find out the information in the text in order that they could understand completely what the writer meant in her or his writing.

Nowadays, mind map has been successfully applied in teaching and learning languages thanks to their great benefits. They can be used for presentation, taking notes, strategy setting, project management and so on. There have been several studies on the impact of mind mapping technique on different aspects of learning a language such as writing, speaking, listening, grammar and vocabulary. According to Wen [7], students can improve their reading and writing skills via visual learning which can enhance their learning motivation and self-study ability. Besides, the teacher can apply visual learning by letting students make their own maps with colourful images and lines, which can raise their interests and creativity and consequently their competencies in reading and writing. As pointed out by Li, Yang & Chen [8], mind mapping is effective for knowledge building and understanding, vocabulary learning and ideas association. Khoiriyah [9] proved that mind mapping technique could encourage the students to join in the teaching-learning process of writing subject actively. They can generate and develop ideas and concepts associated with the topic by contributing information, knowledge, and experience they

already have. Asrifal Mirza [10] investigated the use of mind mapping strategy to improve students' speaking ability. The results of the research showed that mind mapping commonly uses picture to replace speaking topic which help students limit the topic and develop ideas easily. As a result, their speaking skill becomes systematic and fluent. Sabya Al, Zahrani [11] confirmed the importance of using mind maps in teaching grammar as well as training courses which should be provided for language teachers.

There have been several specific researches on improving students' reading comprehension through mind mapping technique. Fitri Aprilia [12] found out that the process of teaching and learning with the help of mind mapping technique not only enhanced the students' reading comprehension but also built up their interest, enthusiasm, and motivation towards learning English. Riska Dwi Cahyani [3] emphasized that the students could easily identify the implicit and explicit details of the text. They could also determine the meaning of new words and the main idea of the texts through the use of mind mapping technique. Moreover, Kaufman [13] argued that mind mapping is a useful technique in reading comprehension since it allows students to glance all their notes, then easily add more details in the appropriate branches or make relations between ideas.

Mind maps have several benefits which can help students in comprehending and retaining the information they read. Specifically:

- A mind map could help learners organize their thoughts. It makes a complex reading passage more transparent and this will help learners remember the detailed information of the reading text much more easily.
- A mind map provides a simple overview of a reading passage. It allows learners to see an overall picture, identify associations and discover the logical order between individual details.
- A mind map enhances memory through employing several mental triggers such as images and colors. As a mind map promote the use of keywords instead of whole sentences, learners can remember main ideas and concepts easily and quickly.

Although using mind maps as a tool to improve English reading comprehension has been widely applied all over the world and showed many positive advantages, this method is still relatively new and less popular at universities in Vietnam. Working with first-year non-English majors at Thai Nguyen University of Education (TNUE), we can see that the students have some problems in reading comprehension. For example, they cannot get essential information to do the tasks after reading the text. Although the students sometimes know the meaning of almost all the words, they have difficulties in summing up the main contents of the reading texts as well as the details in each paragraph. Therefore, this study was conducted to seek solutions to improve reading comprehension for non-English majors through the use of mind-mapping technique in reading lessons. The specific objectives are to identify the key concepts of mind-mapping technique, investigate the impacts of mind maps on the students' reading comprehension, and possible solutions to enhance the effectiveness of using mind-mapping technique in reading lessons.

2. Methodology

2.1. The research design

The researchers applied mixed methods: qualitative and quantitative methods. In the quantitative research method, we employed an experiment to investigate the relationship between receiving a remedial education and achievement. In our study, an experiment was carried out to examine the impact of mind maps on reading comprehension of non-English majors. Meanwhile, the qualitative research design aimed to discover and understand the experiences, perspectives, and thoughts of the participants regarding reading comprehension and the use of mind maps in reading lessons. Therefore, along with the experiment, classroom observation was conducted to collect data related to students' attitudes toward mind-mapping technique. In addition,

questionnaires were administered before and after the experiment to collect learners' difficulties that they had when they read English texts as well as their attitude and opinions about using mind maps in reading lessons.

2.2. The participants

Taking part in the research includes 20 TNUE volunteered freshmen whose major is not English. The researcher put all of them in only one group, no control or comparison group was employed.

2.3. Research instruments and procedure

2.3.1. Pre-questionnaire

The researcher used survey questionnaires as the data collection instruments of this research. Based on the research questions, a pre-questionnaire was briefly designed and delivered to the students at the beginning of the experimental time with 10 close-ended questions. Questions from 1 to 4 aimed to find out individual information of respondents about their name, sex, age and period of time studying English, respectively. Question 5 was for the self-judgement of the students about their English reading comprehension skill. Question 6 was about the difficulties that the students have when they read English texts. Questions from 7 to 10 seek the opinions of the students about using mind maps in English reading lessons before the experiment.

2.3.2. Pre-Test

The pre-test aims to identify students' reading comprehension before applying mind mapping technique. The researcher designed the reading pre-test based on KET format. All the 35 questions were multiple-choice. Finally, the researcher collected and marked the students' pre-test.

2.3.3. Lesson plans

Five reading lessons in which mind-mapping was integrated were delivered to the experimental class by the researcher. In the first reading lesson, the researcher introduced mind-mapping technique by showing a model of mind map and steps to make it. Then the researcher divided the students into 5 groups and asked them to make their own mind maps to illustrate the reading text they have just learned. Figure 1 shows an example of mind maps designed by one of the groups. During the next reading lessons, the researcher asked the students about the knowledge of the previous lesson and required them to make their own mind maps for other reading texts. At the end of each lesson, the researcher collected mind maps drawn by students, asked for comments from students, gave feedback and declared the mark for each mind map.

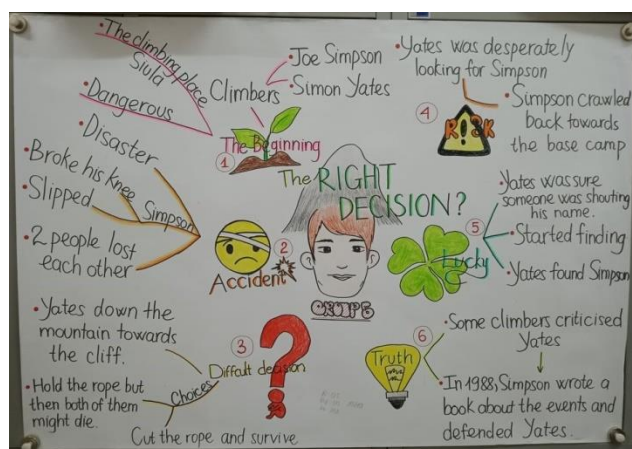


Figure 1. An example of mind map

As can be seen in Figure 1, the students were required to include the topic, the main ideas, supporting ideas, and useful vocabulary, which can help enhance their reading comprehension of the reading text.

2.3.4. Observation checklist

The researcher designed a checklist with 3 main contents for the experimental class: knowledge observation, skill observation and attitude observation. Classroom observation was conducted by the researcher during the reading lessons in the class to collect data related to the knowledge, skill and attitude of the students.

2.3.5. Post-test

After the reading lessons, the researcher required students to do another test in 40 minutes, and then collected and evaluated students in order to know how much their improvement was and find out the differences between reading pre-test and post- test results. The reading post-test also consists of 35 multiple-choice questions based on KET format. The pre- and post- tests had the same difficulty level, but the question items were different.

2.3.6. Post- questionnaire

After collecting the results of the post- test, a post-questionnaire was designed and delivered to the group of students to gather information regarding their attitudes towards mind mapping technique and their suggestions to improve the effectiveness of mind mapping technique in reading lessons.

3. Finding and discussion

3.1. The current situation of reading comprehension of non-English majors at TNUE

Before conducting the pre-test, the researcher let the participants self-assess their level of English reading comprehension; the results of the survey are summarized in Table 1. It can be seen that almost all students were not confident with their English reading comprehension. The percentages of fair was 40% and the figure for poor levels was 45%. Also, the percentages of students rating themselves at good and very poor level were 10% and 5%, respectively.

Table 1. Level of students' English reading comprehension

Levels	Number of students	Percentage (%)
Good	2	10
Fair	8	40
Poor	9	45
Very poor	1	5
Total	20	100

After self-assessment process, the students did the pre-test. Table 2 illustrates the proportion of students at different reading levels. It can be seen that the students evaluated their ability objectively and correctly since only 5/20 students gained ≥ 80 points- good level, 8/20 gained ≥ 50 – fair level and 7 students gained < 50 – poor and very poor level.

Table 2. Results of the reading pre-test

Levels	Number of students	Percentage (%)
Good	5	25
Fair	8	40
Poor	6	30
Very poor	1	5
Total	20	100

The researcher also gathered the students' opinions about their difficulties when reading English texts and presented the results in Table 3. From Table 3, it can be concluded that the biggest difficulty that students had when they read English texts was lack of vocabulary. It can be explained that students do not usually understand the whole content of texts while reading texts. Other common problem is lack of time and unsuitable English reading strategies. Some students even had all the difficulties that the researchers listed when reading English texts.

Table 3. *Difficulties that students have when they read English texts*

Difficulties	Frequency	%
Lack of vocabulary	15/20	75
Poor grammar	7/20	35
Lack of time	12/20	60
Lack of background knowledge	5/20	25
Lack of focus	9/20	45
Lack of motivation	7/20	35
Lack of interest	6/20	30
Lack of suitable reading strategies	10/20	50
All of these difficulties	4/20	20

From all the analysis above, it can be seen that students did not feel motivated in learning English reading lessons; therefore, the most important thing is making the lessons more interesting to attract students' attention to help them remember grammar, vocabulary, background knowledge and other elements related to reading comprehension well. Mind-mapping may be a useful technique to raise students' attention and memory.

3.2. Impact of mind maps on students' reading comprehension

3.2.1. Students' scores in the reading tests

In order to evaluate the impact of mind mapping technique on students' reading comprehension, a pre-test and a post-test were conducted in the study. The scores that students got in the pre- and post- tests were summarized in Figure 2.

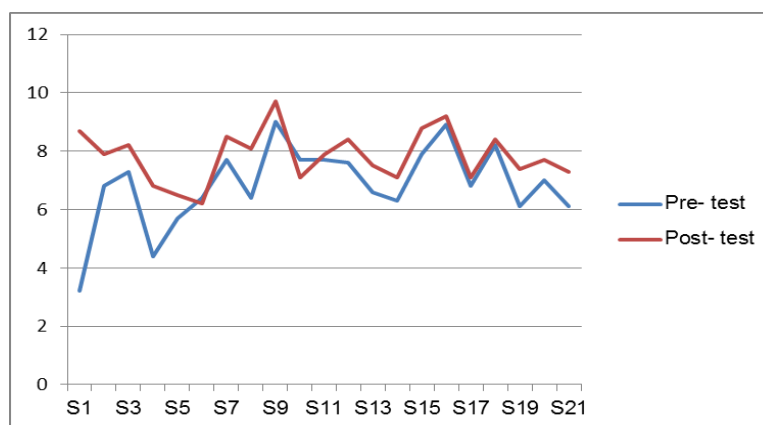


Figure 2. *Students' scores in reading tests*

From figure 2, it can be seen that there was a significant progress in the group of students after the reading lessons since there were remarkable differences between the pre-test and the post-test results. Specifically, in the pre-test, the highest score was 8.5 and the lowest score was 2.5; the average pre-test score of the student group was 6.7/10. In the post-test, the highest score went up to 9.5 and the lowest score also increased to 6.5/10; the average post-test score of the student group

was 7.9/10. The average pre-test score was lower than that of post-test (1.2). This data demonstrates that mind-mapping technique has a positive effect on students' reading comprehension.

3.2.2. Results of classroom observation

In addition, the results from the analysis of the observation checklists show that students' interaction, attitude during the lessons and the atmosphere in the class was always positive. Specifically, in the process of working with mind maps, the students were highly collaborative with the researcher as they understood and followed the instructions of the researcher and asked questions to get clear explanation. They did not chat with their mates or played their mobile phones. Also, these students took part in team work or discussed about drawing mind maps actively. The students seemed happy and interested in the lessons, which made the classroom atmosphere exciting.

3.2.3. Students' feedback on using mind maps while learning reading comprehension

In order to gather students' feedback on the reading lessons applying mind-mapping technique, a post-questionnaire was designed and given to the students. The responses of students are shown in Table 4.

Table 4. Students' feedback on using mind maps in reading lessons

Feedback	Number of students
1. It helps to create meaningful lessons because it forces students to find connections between new learning and existing knowledge.	16/20
2. It helps to boost memorization.	14/20
3. It creates meaningful engagement because learners actively engage in the process of brainstorming, generating ideas, and connecting concepts together.	18/20
4. It makes complex issues easier to understand.	16/20
5. It Improves my learning productivity.	12/20
6. It helps to boost my creativity.	15/20
7. It improves my writing skill.	10/20
8. It improves my teamwork skill.	13/20

All of the benefits listed in questionnaire were voted by the students with at least 50%. Interestingly, almost all of the students claimed that mind- mapping technique created meaningful engagement because they could actively engage in the process of brainstorming, generating ideas, and connecting concepts together.

In conclusion, there was a considerable improvement in reading comprehension of non-English majors at TNUE through mind- mapping technique. Moreover, we can see that all the processes of teaching and learning with the help of mind mapping technique not only enhanced the students' reading comprehension but also built up their interest, enthusiasm, and motivation towards learning English.

4. Conclusion and recommendations

4.1. Conclusion

The main findings of the study can be summarized as follows:

Firstly, the non-English majors at TNUE had a lot of problems when they learned reading comprehension. Some of the biggest problems were lack of vocabulary and lack of background knowledge.

Secondly, there were remarkable differences between the pre-test and the post-test results of the participants. This proved that the students' English reading comprehension was improved significantly after the reading lessons with mind maps.

Finally, by analyzing students' questionnaire responses gathered and observing the classes, the researcher realizes that in the process of working with mind maps, students' interaction, attitude during the lessons and the atmosphere in the class was always positive.

In conclusion, mind-mapping technique is an effective method for teaching and learning English reading lessons. The results of this study have shown that helping non-English majors to draw their own colorful and interesting mind maps could reduce their difficulties to learn and remember the content, grammar points and new vocabulary longer. Also, they can motivate students to study by employing the knowledge of grammar and vocabulary in reading texts regularly. Besides, mind maps are easy to design, so the students could implement this technique for not only learning reading comprehension but also for learning other language skills such as writing, speaking and listening.

4.2. Recommendations for teaching English reading with mind maps

Based on the results of the study and the conclusion above, the researchers would like to make some recommendations for both teachers and students when applying mind-mapping technique in reading lessons.

4.2.1. For students

After any reading text, students should use their pens and papers to draw a mind map using key words and pictures in the texts. The researchers proposed 4 main elements of a reading comprehension mind map which can give the learners deeper insight into the reading texts.

Main Topic: When you know the key topic of your mind map, put it right in the center of your map where you can add more branches and visualize the next steps.

The key words in the main theme should be condensed, concise, and in large font size. You can highlight them by using colors and clear images.

Major sub-topics, Sub-topics and Details

- Major sub-topics with keywords and illustrative images are ideas based on the central topic, so they start from the main topic in the center.

- Sub-topics are the branches drawn from the major sub-topics branch and they complement the major sub-topics branch idea.

- You can draw as many major sub-topics branches as you wish, as long as the space on your mind map allows.

- All sub-topics branches radiating from one point (belonging to the same idea) should have the same color.

New Grammar and/ or Vocabulary

New vocabulary is a major barrier in reading comprehension. To make sure that the learners understand and remember all the new words, ask them to add the words or phrases that they don't understand to their mind maps, either in a vocabulary box, or as part of the main topic, major sub-topics branches and sub-topics branches related to this vocabulary.

Images and Symbols

Along with the main content of the reading texts summarized by words and phrases, students can insert images or symbols to help them remember this main content much more easily.

4.2.2. For teachers

- Make mind maps familiar with students: Before requiring the students to design their own mind maps in English reading lessons, teachers should give the students detailed instructions about them. Besides, teachers should make mind maps become more useful by guiding students to make their own mind maps for learning other language skills such as writing, speaking and listening.

- Notice and address the difficulties of students timely: When students design their own mind maps, the teacher can go around the class, observing and realizing students' problems such as identifying main topic and keywords of the mind maps, then solve them satisfactorily.

- Let students work in groups or pairs with mind maps: In class, teachers can design suitable tasks related to making mind maps for any reading text and let students work in groups or in pairs. These mind maps should involve main aspects of reading texts such as main content, detailed information, grammar and vocabulary. Then, the teacher can ask students to present about these mind maps in front of the class. By doing this way, students can not only improve their English reading comprehension but also share their knowledge with other students with their own knowledge.

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