UNIVERSIDAD TÉCNICA DE AMBATO

FACULTAD DE CIENCIAS HUMANAS Y DE LA EDUCACIÓN

CARRERA DE PEDAGOGÍA DE LOS IDIOMAS NACIONALES Y EXTRANJEROS

MODALIDAD PRESENCIAL

Proyecto de Trabajo de Graduación o Titulación previo a la obtención del Título de Licenciada en Pedagogía de los Idiomas Nacionales y Extranjeros Mención: Inglés.

"**MIND MAPS AND READING COMPREHENSION**"

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Ambato – Ecuador

2020 - 2021

SUPERVISOR APPROVAL

CERTIFY:

I, Lcda. Mg. Marbella Cumandá Escalante Gamazo, holder of the I.D No. 1802917250, in my capacity as supervisor of the Research dissertation on the topic: **"MIND MAPS AND READING COMPREHENSION"** researched by Karen Michelle Alvarez Chacón with I.D No. 0502923147, confirm that this research report meets the technical, scientific and regulatory requirements, so the presentation of it, is authorized to the corresponding organism in order to be submitted for evaluation by the Qualifying Commission appointed by the Board of Directors.

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DECLARATION PAGE

I declare this undergraduate dissertation entitled "Mind maps and Reading Comprehension" is the result of the author's investigation and has reached the conclusions and recommendations described in the present study.

Comments expressed in this report are the author's responsibility.

Karen Michelle Alvarez Chacón

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AUTHOR

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DEDICATION

To my grandmother for her love, care and support. To my parents who always supported me, to my brother, family and friends for being there for me. I love you all so much.

Michelle

AKNOWLEDGEMENTS

First of all, I thank to my family who supported me during my whole life, especially my grandmother. To all my professors.

Michelle

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CARRERA DE PEDAGOGÍA DE LOS IDIOMAS NACIONALES Y EXTRANJEROS

Theme: "MIND MAPS AND READING COMPREHENSION"

Author: Karen Michelle Alvarez Chacón

Tutor: Lcda. Mg. Marbella Cumanda Escalante Gamazo

ABSTRACT

English has become one of the most spoken languages in the world. English teachers must face the challenge of achieving important learning in reading comprehension, and for this, they must use some strategies that help students in the reading process. Depending on the reader's goal, there are many strategies that can be applied when reading. The aim of this research is to analyze the relationship between Mind maps and the development of Reading Comprehension. The population used for this research were 42 students from the 2nd semester of PINE major at Universidad Técnica de Ambato. This research was based on a pre-experimental design. At first it was necessary to apply a pre-test in order to check students' reading comprehension using the third part of an English Test (KET) Cambridge and 2 questions added by the researcher. After that, the researcher applied the treatment and students had the opportunity of practicing the strategy for a month. Finally, the group took a post- test to evaluate the effectiveness of the strategy. The results obtained were analyzed using T-Student. Based on the results obtained through the statistical analysis, it was proved that there is a relationship between mind maps and the reading comprehension because mind maps facilitate remember and organize information which help students to improve their reading comprehension. Thus, it stimulates students' creativity and strengthens their reading comprehension.

Key words: strategy, mind map, reading comprehension, improvement.

B. CONTENTS

CHAPTER I. - THEORETICAL FRAMEWORK

1.1 Investigative Background

In order to gather information some previous researches were considered that are related with this study research about mind maps and reading comprehension. It is worth mentioning that the best works were selected, which were conducted by professionals from different fields and were freely accessible.

The first research titled ***"Mind Mapping** in CLIL: How It **Facilitates Students' Reading Comprehension"*** was carried out by Puspitasari (2020). This research was published on The Journal of English Education and Teaching (JEET) thanks to the Muhammadiyah Yogyakarta University. The author pointed out as the main objective, to know how Mind Mapping in CLIL Facilitates Students' Reading Comprehension in order to know whether the **mind map** can be one of the **important choices to improve students' reading comprehension.** This research was directed by utilizing a qualitative descriptive research design. This study was conducted on fourth semester students.

In order to obtain the data, 37 students in the fourth semester were assigned to write reflective essays about mind maps tasks, and 6 students in the fourth semester were interviewed to obtain the main data. As result, it was found that **Mind maps** allow students to improve their **reading comprehension** and be more active when reading because 37 students affirm that mind maps helped them to **comprehend English texts** and all the **processes** that students go through **making mind maps** help to achieve second language reading comprehension in the CLIL classroom Therefore, the **author suggested** applying mind maps as an **alternative to teach reading** and recommend to students to use mind maps for reading.

This research is valuable for this study because it shows that mind maps help students to develop their reading comprehension and **retention of information**, also mind maps help students through the process of doing mind maps because they have a more active reading and **comprehension of texts**.

There is a research titled *"Improving Students' Reading Comprehension by using Mind Mapping to the Second Semester Students of Manajemen Informatika Department of Stmik"* developed by Indriana & Saori (2018). This research was published on The Journal Ganec Swara. The authors pointed out as the main objective, to improve the students' reading comprehension in learning English especially reading in order to found the problems in **teaching reading comprehension**. This research was directing by using action research and qualitative and quantitative methods. This study was conducted on second semester students.

In order to obtain the data, students of second semester were interviewed and observed in the Learning process. Data of this research comes from field records, interviews transcripts and pre- and post-test results. The Result of the research showed that **applying mind maps** when reading **students enjoy the learning process**, also mind maps help **students' reading comprehension skills** have improved during English teaching, because the results showed that the average score after the test is higher than the average score before the test. Therefore, the authors suggested that teachers should gain more knowledge about English teaching in the classroom, especially **how to use mind maps** to improve students' reading comprehension.

Taking into consideration what the authors concluded in this research, Mind maps improves **students' understanding of text** because, through this activity they enjoy reading texts and improve their knowledge in English learning language. It is important mention that students just not improve reading comprehension, they also **improve writing and creativity** when making mind maps.

There is an investigation which is related to the topic to be investigated tittle ***"The use of Mind Mapping to teach Reading Comprehension"*** developed by Saori (2020). This research was published on Journal of Languages and Language Teaching (JOLLT) on the electronic page Research Gate. The author pointed out as the main objective, to find out the **impact of using mind mapping** toward students' reading comprehension. This research was directed by using a quasi-experimental research design using two groups: experimental and control group. The experimental group was treated with mind mapping, while the control group was treated with conventional learning techniques. This study was conducted on students of the first-year of Nabi' Nubu' Islamic Senior High School.

In order to obtain data in this research was used an instrument that was a **reading test** applied in both groups before and after. As result, it was found that the use of mind maps has an important impact on students' reading comprehension because after treatment the average score of the experimental group (71.76) was higher than that of the control group (60.24). Therefore, the author suggested that mind maps can be another **technique for teaching reading comprehension**.

According to what the author mentioned, it is important to emphasize that students have difficulties in reading due to their lack of adequate knowledge of the language and lack of confidence. For that reason, is essential to **develop strategies** that allow students to reach their knowledge.

At the Kristen Indonesia Jakarta University, Indonesia, there is an investigation that is related to the topic to be investigated as Male (2018) socialized when he launched his research with the theme: "**Using Mind Mapping to Improve Students' Reading Comprehension** at SMK BPS&K II Bekasi". This research was published on English Education Department Collegiate Forum (EED CF) on the electronic page Research Gate. The author pointed out as the main objective, to enhance students' reading comprehension by implementing mind mapping in order to show that **mind mapping** is a **powerful tool** that can help learners **develop their reading comprehension**. This

research was directed by using two-cycled action research. This study was conducted on 25 students of X Accounting class in SMK BPS&K II Bekasi.

 The results show that **mind maps can improve students' reading comprehension**. It can be seen from the increase in the average score of the **three tests conducted** during the action research period, that is, from 54.4 to 70 to 90. In addition, students' **attitudes towards reading comprehension** changed **from negative to positive**. Therefore, the author suggested that teachers can use mind maps as an alternative strategy to develop students' reading comprehension.

This research is important for this study because it shows that **mind maps** help students to develop their **reading comprehension** and the **implementation of the mind map** changed the students' perception of reading English text from the unpleasant pleasure. In addition, this study is valuable because it warns of some deficiencies that this research could present. To face these deficiencies, it is necessary that future researches modify some aspects like **materials, media, activities and strategies to improve the results** of the study.

There is an investigation which is related to the topic to be investigated tittle *"Effectiveness of **Mind Mapping Technique** in Information Retrieval Among Medical College Students in Puducherry-A Pilot Study"* developed by Kalyanasundaram et al. (2017). This study was published on Indian Journal of Community Medicine on the electronic page NCBI. The author pointed out as the main objective, to assess the **impact of mind mapping technique** in information retrieval among medical college students in Puducherry. This research was directed by using experimental study. This study was conducted on students of six semester of MBBS. In order to obtain data one group (n = 32) followed the text reading method, and the other group (n = 32) followed the mind mapping technique to learn the same paragraphs as them. A pre-designed questionnaire was used to assess knowledge about the subject on Day 0 and Day 7 of the baseline. Knowledge gain is the main outcome variable and was compared between the two groups.

As result, it was found that the average knowledge score of the text group was lower than that of the mind map group at baseline (2.6 Vs 3.5; p = 0.08). On day 0, the average score of the text group was slightly lower than that of the mind map group (8.7 Vs 9.0; p = 0.26). On day 7, the average score of the mind map group was significantly higher than that of the text group (8.9 Vs 8.5; p = 0.03).Therefore, the author suggested that the **use of mind maps** is an **effective and innovative way to remember things** better than conventional reading text methods.

This research is important for this study because it shows the importance of **implement a new strategy** or method to **improve reading comprehension**. It is important to consider the opinion of students, in this research students found that mind maps are more **useful for remembering things** than the conventional method of reading text, and this method is attractive to learners.

At Department of English Language and Literature, King Saud University, Saudi Arabia, there is a research which is related to the topic to be investigated tittle "*The Impact of Electronic Mind Maps on Students' Reading Comprehension*" developed by Talal (2018). This study was published by Canadian Center of Science and Education on the electronic page Research Gate. The author pointed out as the main objective, to investigate the impact of the **electronic mind map** (IMindMap) on the development of **reading comprehension** among the ninth grade students in Jordan. This research was directed by using a quasi-experimental study. The sample of the study included two 9th grade sections from two public schools in the first bureau of Irbid in the 2016-2017 school year. Each part consists of (30) students, and these two parts are randomly assigned to the experimental group and the control group. The experimental group used the **electronic mind mapping strategy** to teach the selected text, while the control group used the traditional method to teach the same text.

 The data was collected using a **reading comprehension test** that was directed for both groups using a pretest and posttest. Statistical analysis showed that the average score between the two groups was significantly different at the (α=0.05) level, which was

beneficial to the experimental group. Therefore, the author suggested to train teachers and English teachers, especially **how to design electronic mind maps** and apply them to their teaching practice.

This research is important for this study because it shows the importance of use an online mind mapping tool to develop reading comprehension in order to increase understanding of texts and students' creativity.

At Department of Education University of Science and Technology, Abu Dhabi, there is a study which is related to the theme to be investigated tittle *"The Effect of **Using Electronic Mind Map** as a Medium of Instruction on Fourth Graders' Arabic **Reading Comprehension** at Jordan"* developed by Issa (2019). This study was published by International Journal of Innovative Science and Research Technology on the electronic page Research Gate. The author pointed out as the main objective, to investigate the use of **Electronic mind mapping** in Arabic language instruction and determine its effect on the development of reading comprehension. This research was directed by using a quasi-experimental design with control and experimental groups. The sample of the study was made up of 67 students selected from fourth-grade students in two schools in northern Jordan. One class was composed of (30) students who have received the reading comprehension instruction of the electronic mind map, and the other class (35) students represent the control group. **Achievement tests** with a reliability coefficient of (0.87) were performed before and after treatment in both groups.

The results showed that the average scores of participants were statistically significant (0.05 = α), which was better than participants who used **electronic mind maps**. The results showed that the **use of electronic mind maps** has a **great influence on reading comprehension**. Therefore, the author suggested to organize training classes for Arabic teachers and general teachers to train them to guide them in preparing electronic mind maps and their **employment in teaching.**

This research is important for this study because it shows that applying mind maps is more effective than using other traditional methods to improve reading comprehension. In addition, this study show the importance of **electronic mind maps** because students can focus on the **basic ideas and sub-thoughts of the text**, use their **own experience** and put forward their **own ideas**, so the results are very positive and encouraging for students.

1.2 Theoretical Framework
Independent Variable

Mind Maps

Mind maps are instruments that serve to include relevant information where it can include graphics, concepts, words or phrases in an organized way. To create a mental map is important to know how to perform the structure in the same way as the help of knowing how to perform the hierarchical structure of the map **(Avila, 2019).**

Mind mapping allows to take notes of substantial information, mind maps use pictures, signals and different colors which helps to remember information in a better way. This strategy makes complex texts simpler and can improve self-learning ability. It is a visual tool that can be used to create ideas, take notes, organize ideas and develop concepts. The use of different colors, pictures and flowcharts attracted the interest of the audience **(Wheeldon &Faubert, 2019).**

In order to create a mind-map, it is essential to start in the middle of the page with the topic or main idea. From the topic we can add different ideas and examples that could be in different directions to create an ordered diagram. The ideas are composed of keywords, phrases, concepts, facts and figures. **Murley (2007)** describes that mind maps show ideas about a topic, the main theme is located in the center of the map, main subtopics on

branches radiating from the main theme, and sub-subtopics around each subtopic. Mind maps can be made with mind mapping tools or with paper and pens.

Strategy

A strategy is defined as the procedure or resource that is used by teachers to achieve meaningful learning in students. It should be mentioned that the use of various strategies allows teachers to achieve an active, participatory, cooperative and experiential learning process. It is important to mention that the strategies as a mediation resource must be used with a certain intention, and therefore must be aligned with the learning purposes, as well as with the skills to be developed **(Nolasco, 2017)**.

A mind map is a tool used like a strategy that improves the students' learning because it increases the comprehension and knowledge of any information. **Kalyanasundaram et al. (2017)** assure that traditional teaching and learning methods involve the one-way transmission of knowledge, which makes students lack innovative ability. Teachers need to change teaching strategies to maintain students' interest and enhance their self-learning and critical thinking skills.

Learning Strategy

Learning strategies are general procedures used to learn and solve problems both inside and outside the academic field. This form of learning is related to the actual life of the student because it helps to solve a problem or a task. This means that students become autonomous and able to learn **(Wheeldon &Faubert, 2019).**

A learning strategy is a way to complete tasks. More specifically, a learning strategy is a way for an individual to organize and use a specific set of skills to learn content or

complete other tasks more effectively. For example, despite knowledge and skill deficits, many students with learning problems, including students with learning disabilities (LD), have acquired and used specific learning strategies to succeed **(Freeman, 2020)**.

The underutilized learning strategy in education is mind mapping. Mind map is a multi-sensory tool that can help students organize, integrate and retain information. A recent work has shown that using mind maps as a note-taking strategy can promote retain information **(D'Antony, 2010)**.

Mind mapping Tool

The mind mapping tool allows the design of visual maps of ideas. Using the mind map maker tool, you can create a mind map to show the hierarchical structure and relations between different ideas. **Aston (2020)** describes that mind maps are an excellent tool for understanding and conveying ideas, because humans are visual, so we can process visual information quickly. You can make mind maps on a piece of paper, but using mind mapping tools online has many benefits, such as:

- Unlimited size: You can make a mind map of any size.
- Flexibility: You can easily move ideas.
- Co-creation: You can create the same mind map with other users.
- Visual presentation: You can use different templates to create mind maps.

There are many tools on the internet that students can use to create mind maps in a faster and more dynamic way for example: Lucidchart, Mindmeister, Miro, Canva.

Dependent Variable

Reading Comprehension

According to **Elleman & Oslund (2019)** the reading comprehension is a complex cognitive task where the reader not only extracts and interprets the information of a text from his previous knowledge, but also, he must reflect on the process to understand in different situations. Understanding implies attributing a meaning to a reading.

Understanding includes the processing of the text at various levels: syntactic, lexical, semantic and referential. For this reason, the student must complete some operations in interaction with the text, in which knowledge and skills intervene: (a) basic skills, which let to identify words accurately and quickly; (b) complex skills, which allow to understand sentences and the text as a whole; (c) the ability to use previous knowledge about texts; (d) meta-cognitive skills, which can mark goals and solve understanding problems; (e) metalinguistic skills, which allow to understand different language units; and (f) the ability to recall verbal information. Whether the reader uses basic skills or complex skills to understand the text, there are some skills that can enable the reader to understand the text better.

If readers can predict what the text may involve, associate the information in the text with background knowledge, ask questions while reading, monitor the understanding of the text and summarize what is being read, then good text comprehension will be produced.

Reading Strategies

Reading is an active thinking process to understand printed and graphic texts. Effective readers know how to apply strategies when reading, because what they read should make sense. Students could monitor their own understanding. When students lose the meaning

of what they read, they often unconsciously choose and use a reading strategy (such as rereading or asking questions) to help them re-understand the meaning of the text. When students learn specific topics through real reading tasks, they can use reading skills and strategies **(Carpenter, 2017).**

Effective readers use strategies to understand what they read before, during, and after reading. Before reading, they must use prior knowledge to think about the topic and predict the possible meaning of the text. During the reading process, readers must monitor their understanding by asking, thinking and reflecting on the thoughts and information in the text and they can emphasize important words, sentences, and opinions that they consider important. After reading, they must reflect on the thoughts and information in the text, link the content of the reading with their own experience and knowledge, clarify their understanding of the text, and expand their understanding in a critical and creative way.

Students can use reading comprehension strategies to read and understand the content of the reading, which can help memorize relevant information in the text as the main idea and help distinguish the information that can be used for the topic. **(Carpenter, 2017).**

Summarizing is a reading strategy that helps readers how to take a big part of text and summarize it to key ideas and important phrases for more brief understanding. Also this strategy allows to determine essential ideas and combine important facts that support them.

Reading sub-skills

There are a number of sub-skills involved in reading for example: scanning, skimming, deducing, understanding text structure, inferring, and predicting. Teachers need to work with their students to analyze what these skills are and to show them how they can get

better at these skills. Teachers also need to conduct activities that will practice these specific skills. (**Cain & Oakhill, 2017**). The more important sub-skills of reading are skimming and scanning because learners can use in education to solve tasks, and in the social life to read newspapers and magazines.

Scanning

Scanning is a reading sub-skill that allows readers to find names or specific details in texts. This sub-skill allows readers to find detailed information in the text, such as dates, names, numbers, etc., and it is defined as the ability to quickly find specific facts.

Skimming

Skimming is a reading sub-skill that can help readers quickly finish reading to get the main points. This sub-skill can help students to infer the general meaning of the text, thereby interpreting the text faster and facilitating the reading process.

Reading

Reading is a receptive skill. It involves understanding a written text and making it meaningful. In order to do this, the text must have two important characteristics, namely coherence and cohesion. Coherence is the logical organization and flow of thoughts in the entire text, meanwhile cohesion is the logical organization of the entire text.

Reading is a complex process that involves the use of different skills. It depends on the purpose of reading, which is why teachers must use them to promote learning. According to **Spratt, Pulverness, & Williams (2011)**, in order to read something, we need to apply

some subskills, such as scanning, skimming, reading for detail, inferring, deducing meaning from context and predicting.

In order to read a text and just find specific information we use a subskill called scanning. On the other hand, skimming is a sub-skill that involves reading for general understanding. A third sub-skill is reading for detail that involves browsing the text to get an estimate of its meaning. Inferring is another sub-skill used to get meaning from text. Readers can use other skills like deducing meaning from context that involves getting the meaning of unknown words based on surrounding words.

1.3 Objectives

1.3.1 General Objective
- To analyze the relationship between Mind maps and the development of Reading Comprehension in the students of 2nd semester of PINE career at Universidad Técnica de Ambato in the academic period October 2020-January 2021.

1.3.2 Specific objectives
- To identify the importance of using Mind maps as a strategy for the Reading Comprehension Development.
- To evaluate the level of Reading Comprehension Development.
- To implement the strategy of mind maps to improve the Reading Comprehension Development.

To realize about the importance of using mind maps as a strategy to develop reading comprehension was met because researcher read some important academic articles with the same topic which mention that using mind maps were important for students to develop their reading comprehension because students could retain information, increase their understanding of texts and develop their creativity.

To assess the level of reading comprehension researcher applied a pretest in order to evaluate the previous knowledge that students had before to apply the treatment. Students were evaluated using a pre-test Key English Test (KET) A2 level part 3 from Cambridge University which has 5 multiple choice questions and two open questions added by the researcher; these questions helped evaluate students' reading understanding.

To implement the strategy of mind maps researcher explained different reading sub-skills and reading strategies in order to know how to create mind maps in an easy way. In addition, the researcher used different mind mapping tools like Miro, MindMeister, Lucidchart, and Xmind that allow to create mind maps easily because these tools allow organize thinking, take notes, attach images, use attractive colors and pictures in order to have a clear representation of students' ideas of different lectures used in this study.

CHAPTER II.- METHODOLOGY.

2.1 Materials

The materials used for this study research were books, articles, virtual libraries that allowed to find different information about the study. In addition, it used technological materials like computer, cellphones, online platforms (Zoom, WhatsApp, Google Forms, Rubrics, and Mind mapping tools.) which helped with the development of the study. Finally, students, teachers and researcher from Universidad Técnica de Ambato participated in the study research.

2.2 Methods

This study research used a qualitative and quantitative approaches, it was *qualitative* because students from second semester were studied in their natural environment, which enabled to analyze and to know if students use mind maps, to know the frequency of use of this strategy and how students use it in order to develop their reading comprehension. In addition, using the Zoom platform it was possible to observe if students use other tools in order to understand readings. Also, it was necessary the investigative background to compare the reality with this educational research.

In addition, this study used a *quantitative approach* because researcher applied a survey before to start the study in order to know the perspective, the real context and the opinion about the subject of study. Moreover, it was focused on a pre-experiment which was applied to the students of second semester of PINE major, also it was applied a pre-test and post-test in order to see the relationship between both variables. Similarly, in order to collect the data were applied statistical methods and data collection strategies to verify the viability of the hypothesis and to clarify the relationship between mind maps and reading comprehension whereby the results of the survey, pre-test and post-test were interpreted

through graphs and data table, in accordance with students' realism. To sum up quantitative approach was very important in this research because it was used to quantify data and generalize results from the experiment.

This study was centered on bibliographic and pre-experimental modality research. Firstly, it was *bibliographic* because it was based on other research findings related to the both variables of the present research. Therefore, it was analyzed some relevant information found in academic articles, books, magazines and papers that allowed to identify the importance of this study.

Secondly, it was *pre-experimental research* since it was carried out with the whole group of second semester students, in order to check the relationship between the independent variable (mind maps) and the dependent variable (reading comprehension). This procedure involved 3 stages, the first stage was applied a pre-test in order to evaluate students' reading comprehension, then was applied a treatment (mind maps) and finally the researcher applied a posttest to verify the effectiveness of the strategy in reading comprehension.

Moreover, this research used one type of research. *Correlational research* was used to have a perspective and overview about the realism of students. This allowed to formulate the hypothesis and to continue with the research.

2.2.1 Data process

For this study 42 students from the second semester of PINE major participated. At the beginning of the pre-experimental research a survey was applied in order to know a perspective of the study. It should be mentioned that this instrument was designed by the researcher. Furthermore, this survey was validated by an expert.

Since this study was based on the pre-experimental design, the whole group of students was evaluated using a pre-test Key English Test (KET) A2 level part 3 from Cambridge University to evaluate students' reading comprehension. It is important to mention that researcher added two open questions in order to evaluate students' reading understanding. Therefore, students had to read a lecture and answer 5 multiple choice questions from the KET test. In the questions added by the researcher, students had to write the main idea of the text and to write a short paragraph about what they had understood about the lecture. This test was taken using Google Forms.

Therefore, the test was scored in the following way. The 5 multiple choice questions were scored on 5 points, one point each. The main idea was scored over one point and the short paragraph was scored over 4 points using a rubric taking in account 4 aspects: Identify theme or message and supporting details, Summarize with evidence, Make connections (cause and effect) between parts of a text and Coherence. It means that the total points of the final score is over 10 points.

Then, mind maps were implemented to the whole group during 3 Reading classes and they developed 6 practices. Mind maps were reviewed using a rubric. Thus, students experienced how to make a mind map using different mind mapping tools and they used different reading strategies in order to make a mind map. Also, they could develop their reading comprehension by using reading subskills. All these activities were developed over 4 weeks, one hour and 30 minutes per class one day a week. After this procedure, a post-test (KET) was applied again to the whole class. Therefore, it was possible to evaluate students' improvement in reading comprehension.

Finally, with the data obtained from the survey, pre-test and post-test, the information was tabulated and represented in graphics. Subsequently, once the mathematical and statistical calculations were done in SPSS program, the interpretation and analysis of results were directed in order to validate the hypothesis and to draw conclusions about the research.

CHAPTER III. RESULTS AND DISCCUSSION

3.1 Analysis and discussion of the results

Students' Survey

Question 1: Teachers use reading tasks for developing reading comprehension.

Table 1 Reading tasks for developing reading comprehension

Alternative	Frequency	Percentage
Always	17	40%
Very Often	20	48%
Sometimes	5	12%
Rarely	0	0%
Never	0	0%
TOTAL	**42**	**100%**

Source: Survey addressed to students from second semester of PINE-UTA.

Developed by: Alvarez, M. (2020)

Graphic 1 Reading tasks for developing reading comprehension
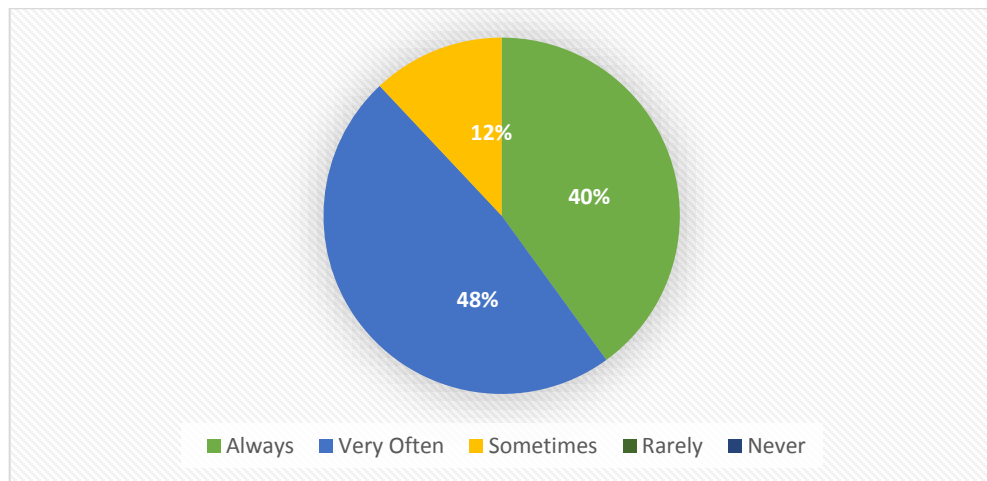
Source: Survey addressed to students from second semester of PINE-UTA.

Developed by: Alvarez, M. (2020)

Analysis and Interpretation

After analyzing the frequency, the following data was obtained: 48% out of 42 students said that their teacher very often uses reading tasks, while the 12% of students assure that teacher sometimes uses readings to develop reading comprehension. According to these results, teacher is a guide to encourage students to read and to create habits on reading, which means that students are in constant practice and could develop their reading comprehension.

Question 2: Teacher encourages to create mind maps when reading.

Table 2 Create mind maps when reading

Alternative	Frequency	Percentage
Always	8	19%
Very Often	17	40%
Sometimes	16	39%
Rarely	1	2%
Never	0	0%
TOTAL	**42**	**100%**

Source: Survey addressed to students from second semester of PINE-UTA.

Developed by: Alvarez, M. (2020)

Graphic 2 Create mind maps when reading
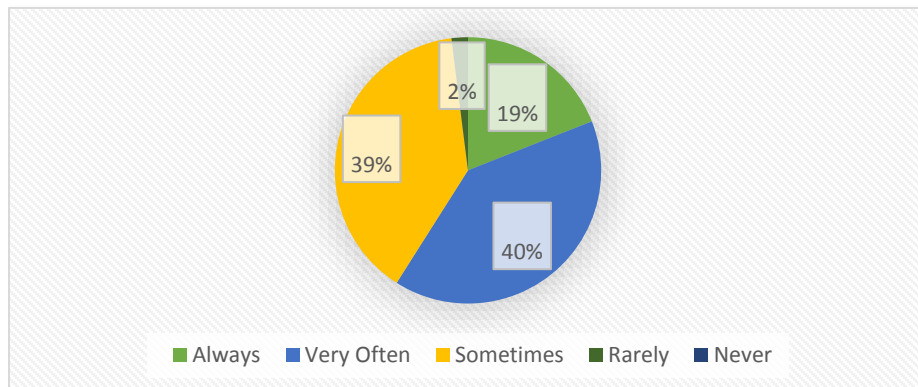
Source: Survey addressed to students from second semester of PINE-UTA.

Developed by: Alvarez, M. (2020)

Analysis and Interpretation

The results of the frequency show that 39% out of 42 students assure that teacher sometimes encourages them to create mind maps while 2% of students rarely create mind maps when reading. These results demonstrate that the teacher uses mind maps during reading lessons, so that students were already familiar with the use of this strategy. It is important that teachers use mind maps like a strategy for reading comprehension, because mind maps can allow students to capture ideas more quickly and remember information

Question 3: Reading strategies when reading.

Table 3 Reading Strategies when reading

Alternative	Frequency	Percentage
Selection of the main idea	5	12%
Summarizing	14	33%
Note taking	11	26%
Highlighting	10	24%
Mind maps	2	5%
Other	0	0%
TOTAL	**42**	**100%**

Source: Survey addressed to students from second semester of PINE-UTA.

Developed by: Alvarez, M. (2020)

Graphic 3 Reading Strategies when reading
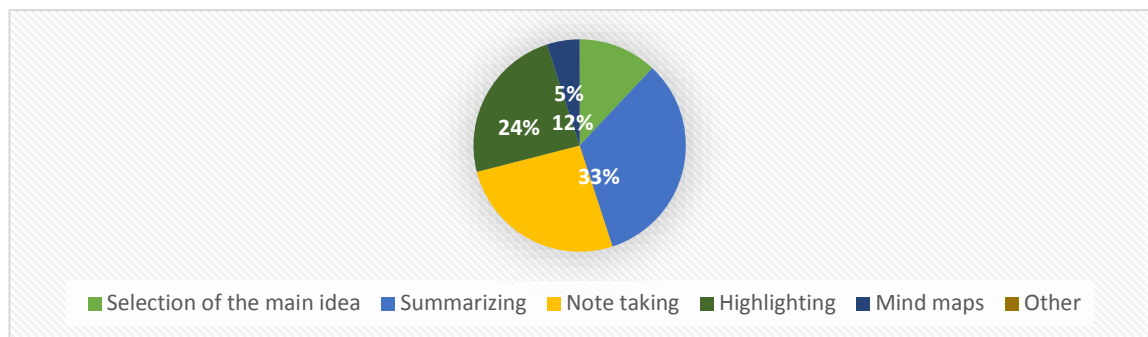
Source: Survey addressed to students from second semester of PINE-UTA.

Developed by: Alvarez, M. (2020)

Analysis and Interpretation

After analyzing the frequency, the following data was obtained: 33% out of 42 learners apply summarizing as a strategy when reading while the 5% of students create mind maps as a strategy when reading. These results demonstrate that students use different reading strategies when reading in order to understand lectures. It is important that students use reading strategies because it makes students confident in the thinking and analysis of texts.

Question 4: Apply reading sub-skills when reading.

Table 4 Apply reading sub-skills when reading.

Alternative	Frequency	Percentage
Skimming	4	10%
Scanning	5	12%
Predicting	6	14%
Inferring	3	7%
Deducing	21	50%
Understanding text structure	3	7%
Other	0	0%
TOTAL	**42**	**100%**

Source: Survey addressed to students from second semester of PINE-UTA.

Developed by: Alvarez, M. (2020)

Graphic 4 Apply reading sub-skills when reading.
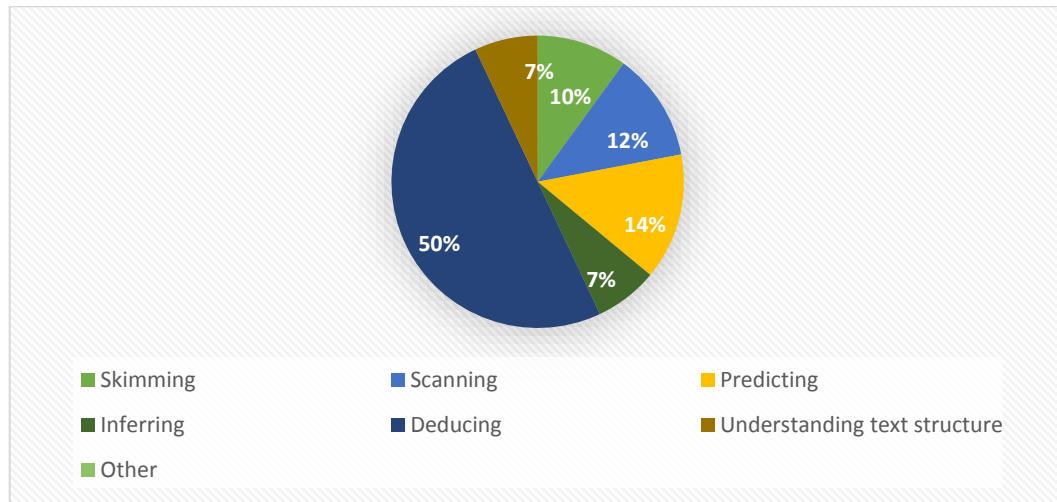
Source: Survey addressed to students from second semester of PINE-UTA.
Developed by: Alvarez, M. (2020)

Analysis and Interpretation

The results of the frequency show that 50% out of 42 students use deducing meaning as a reading subskill, while 7% use inferring and understanding text structure as reading subskills when reading. According to these results, the majority of students affirm that they deduce meaning from context which allows learners to think about the situation or context guessing meaning of unfamiliar words. It is important that students use reading sub-skills because they help students read in different ways according to the purpose for reading.

Question 5: Mind maps as strategy when reading.

Table 5 Mind maps as reading strategy.

Alternative	Frequency	Percentage
Very Important	12	29%
Important	21	50%
Moderately Important	8	19%
Slightly Important	1	2%
Unimportant	0	0%
TOTAL	**42**	**100%**

Source: Survey addressed to students from second semester of PINE-UTA.

Developed by: Alvarez, M. (2020)

Graphic 5 Mind maps as reading strategy.
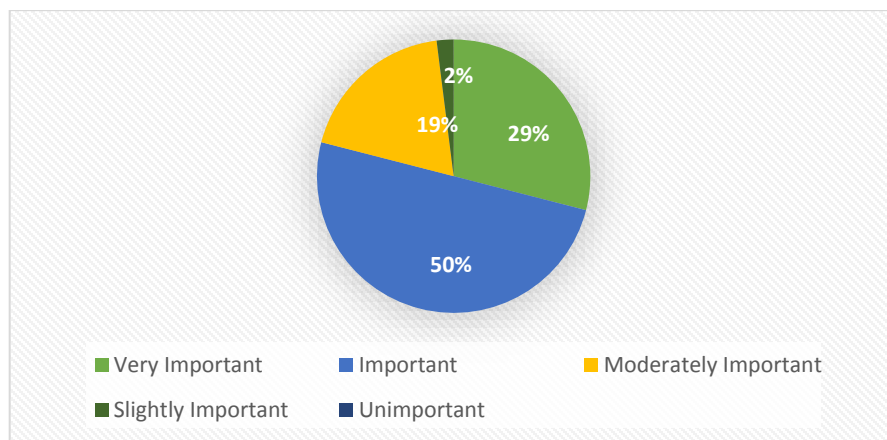
Source: Survey addressed to students from second semester of PINE-UTA.

Developed by: Alvarez, M. (2020)

Analysis and Interpretation

After analyzing the frequency, the following data was obtained: 50% out of 42 learners said that mind maps are important, while 2% of students consider slightly important the use of mind maps strategy when reading. These results demonstrate that the majority of students like to use this strategy. It is important that students use different strategies in

order to understand texts such as mind maps because this strategy makes complex texts to simpler information in which students can organize ideas, summarize ideas and take notes in order to remember important information of texts.

Question 6: How to create mind maps.

Table 6 Mind maps.

Alternative	Frequency	Percentage
Yes	41	98%
No	1	2%
TOTAL	**42**	**100%**

Source: Survey addressed to students from second semester of PINE-UTA.

Developed by: Alvarez, M. (2020)

Graphic 6 Mind maps
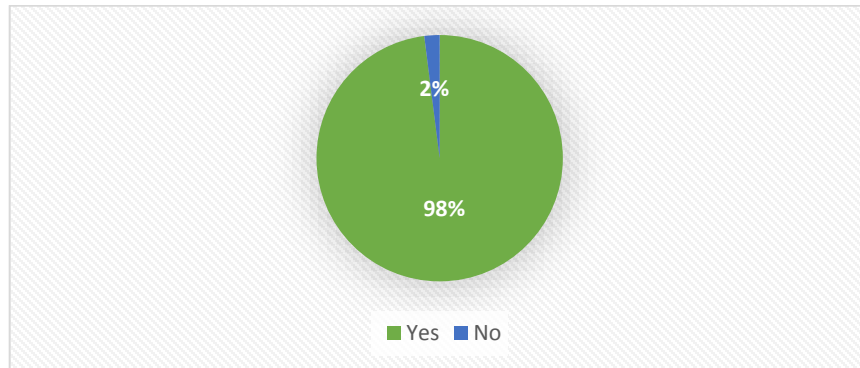
Source: Survey addressed to students from second semester of PINE-UTA.

Developed by: Alvarez, M. (2020)

Analysis and Interpretation

The results of the frequency show that 98% out of 42 students know how to create mind maps, while 2% of students don't know how to create mind maps. These results demonstrate that learners are familiarize with the structure, procedure of creation and the use of mind maps, but it is important to reinforce how students can create a mind maps in

a dynamic way using mind mapping tools. In addition, it is important that students know how to create mind maps because it has some benefits like allow students to capture ideas more quickly and remember information.

Question 7: Apply mind map strategy when reading.

Table 7 Mind map strategy

Alternative	Frequency	Percentage
Always	2	5%
Very Often	8	19%
Sometimes	22	52%
Rarely	10	24%
Never	0	0%
TOTAL	**42**	**100%**

Source: Survey addressed to students from second semester of PINE-UTA.

Developed by: Alvarez, M. (2020)

Graphic 7 Mind map strategy
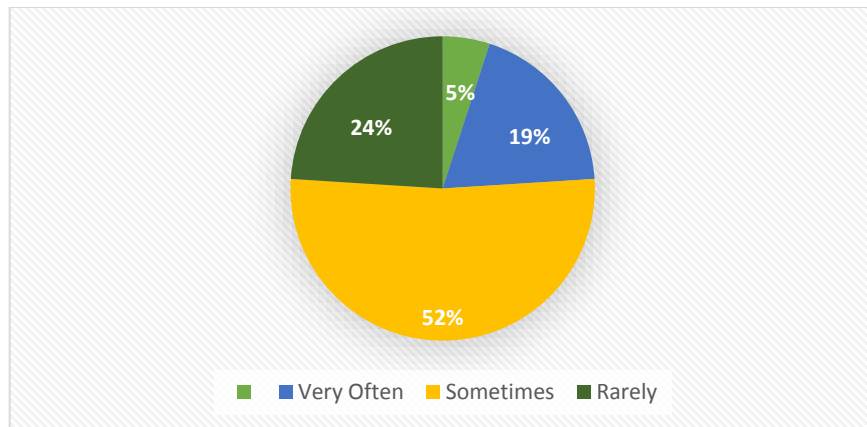
Source: Survey addressed to students from second semester of PINE-UTA.

Developed by: Alvarez, M. (2020)

Analysis and Interpretation

After analyzing the frequency, the following data was obtained: 52% out of 42 students sometimes use mind map strategy when reading, while 5 % of learners always use mind maps. These results show that students usually make mind maps in class and like to use this strategy when reading in order to remember information about different lectures. It is important to implement this strategy because it improves self-learning in which students can create ideas, take notes, organize information and develop concepts.

Question 8: Online mind mapping tools to create mind maps.

Table 8 Online mind mapping tools

Alternative	Frequency	Percentage
MindMeister	7	16%
Ayoa	2	5%
Milanote	4	10%
Miro	1	2%
Lucidchart	9	21%
Xmind	4	10%
None	10	24%
Other	5	12%
TOTAL	**42**	**100%**

Source: Survey addressed to students from second semester of PINE-UTA.

Developed by: Alvarez, M. (2020)

Graphic 8 Online mind mapping tools
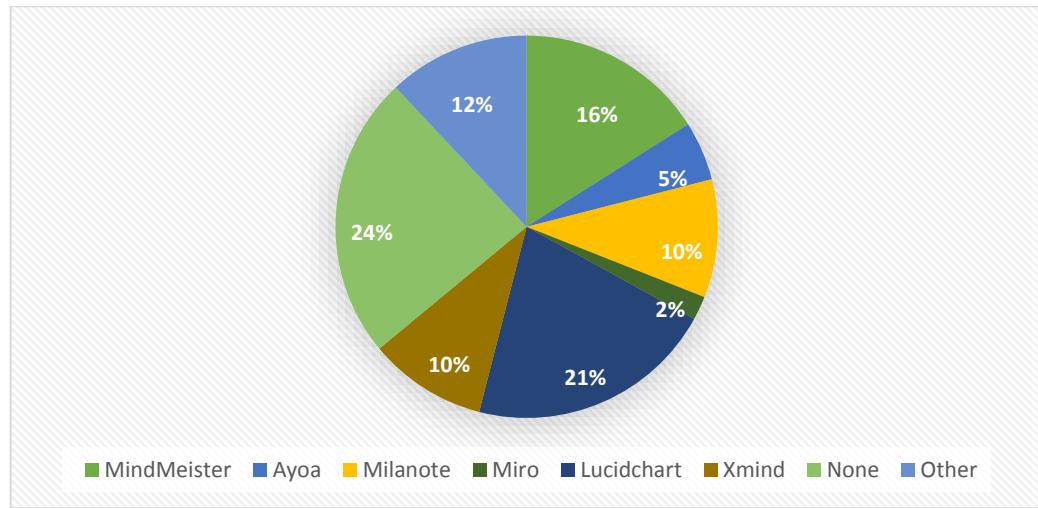
Analysis and Interpretation

The results of the frequency show that 24% out of 42 students don't use none kind of mind mapping tool, while 21% of learners use Lucidchart, 16% use MindMeister and 12% of students like to use other mind mapping tools. These results show that students are familiarize with mind mapping tools but they don't usually use this tools online. It is important to encourage students to use this tools in order to make mind maps in an easy way because they have advantages such as illustrate ideas using different templates adding colors and images, share ideas by clicking and dragging and collaborate with other users making the same mind map.

Pre-test Results

Table 9 Pre-test results

Criteria	Average	Expected average
Multiple choice	3	5
Main idea	0,28	1
Paragraph: Identifies theme or message and supporting details.	0,61	1
Paragraph: Summarizes with evidence	0,44	1
Paragraph: Makes connections (cause and effect) between parts of a text	0,35	1
Paragraph: Coherence	0,30	1
Percentage	49,8%	100%

Source: Pre-test addressed to students from second semester of PINE-UTA.

Developed by: Alvarez, M. (2020)

Graphic 9 Pre-test results

Analysis and Interpretation

Table 9 and graphic 9 show the average scores obtained in the pre-test of six parameters: multiple choice questions, main idea, and paragraph: identifies theme or message and supporting ideas, summarizes with evidence, make connections (cause and effect) and coherence.

Taking into account the results presented above, the average of each criteria is low that means students have low level of reading comprehension because the general percentage of the pre-test was 49,8 %.

Multiple choice questions showed that students reach an average of 3 points out of 5 points; the 3 points represent the 30% of the total test. These results evidence that students read quickly the lecture and didn't understand the whole text because these type of questions ask for specific information. It is important to mention that some students finished the pre-test quickly that means that they didn't read carefully the lecture and they just chose answers randomly.

The main idea average was 0,28 out of 1 point that represents 2,8% of the total test. These results showed that students couldn't understand the fundamental idea of the text and didn't know how to identify it.

The paragraph was assessed using four reading comprehension parameters. The first parameter was identifying the theme and supporting ideas, the average of this parameter was 0,61 out of 1 point which means that some students could restate understanding of theme or message and identify supporting details.

The second parameter assessed in the paragraph was summarize with evidence, the average of this parameter was 0,44 out of 1 point which means that students could attempt to summarize in own words, but lacks one or more main points or includes unnecessary details.

The third parameter assessed in the paragraph was to make connections (cause and effect), the average of this parameter was 0,45 out of 1 point which means that students could make a vague connection or establish a general cause/effect relationship.

The last parameter assessed in the paragraph was coherence, the average of this parameter was 0,3 out of 1 point which means that students' paragraph was confusing and hard to follow.

After applying the pre-test, researcher applied 6 practices in order to develop students' reading comprehension using mind map strategy. The average results were the following presented in Table 10.

Intervention Results

Table 10 Intervention results: Reading practice

Reading Practice[a]	Average
1	5,2
2	5,8
3	6,6
4	7,3
5	7,8
6	8

Source: Reading practices addressed to students from second semester of PINE-UTA.

Developed by: Alvarez, M. (2020)

Graphic 10 Intervention results: Reading practice
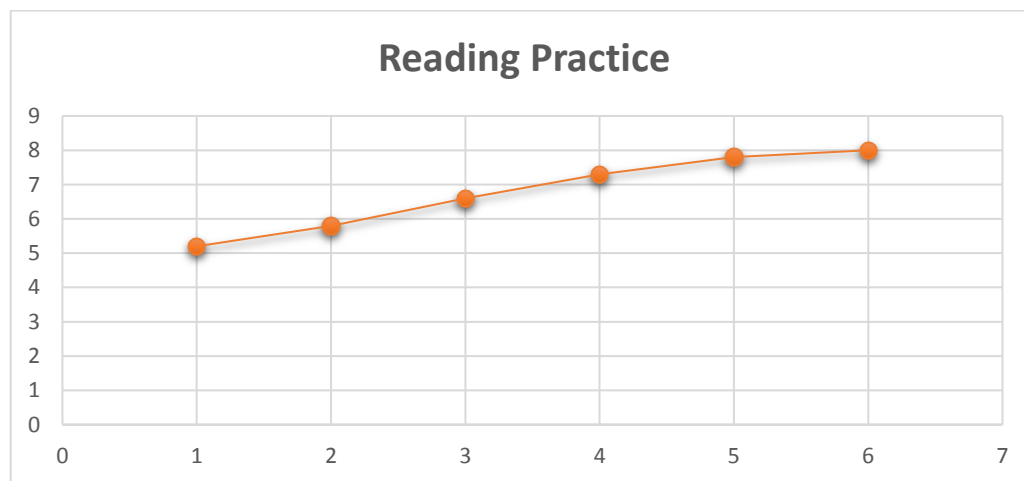
Source: Reading practices addressed to students from second semester of PINE-UTA.

Developed by: Alvarez, M. (2020)

Analysis and interpretation

Table 10 shows the results obtained in the application of 6 reading practices in which students had to use mind map strategy in order to improve reading comprehension. The parameters assessed in these applications were the same of the pre-test and post-test. It was considering 6 parameters: multiple choice questions, main idea, and paragraph: identifies theme or message and supporting ideas, summarizes with evidence, make connections (cause and effect) and coherence.

The average of the first practice was 5,2 and the second practice was 5,8 because students had problems answering the multiple choice questions, the main idea and the paragraph because they couldn't organize their ideas and explain what they understood in the lecture.

In the third practice the average was 6,6 and the fourth was 7,3. These results showed an improvement in the students 'grades and in their reading comprehension because they could improve the 6 parameters assessed.

In the fifth practice the average obtained was 7,8 and the sixth was 8. These results showed an excellent development of students 'reading comprehension because through the application of the mind map strategy students could remember information in order to answer multiple choice questions, summarize and organize their ideas in order to answer the main idea of the lecture and write a good paragraph about what they understood. It is important to mention that students improve in all paragraph 'parameters.

After applying the 6 practices using mind map strategy, it was applied a post-test in order to analyze the average results of reading comprehension parameters. The average results were the following presented in Table 11.

Post-test Results

Table 11 Post-test results

Criteria	Average	Expected average
Multiple choice	4,60	5
Main idea	1	1
Paragraph: Identifies theme or message and supporting details.	0,85	1
Paragraph: Summarizes with evidence	0,69	1
Paragraph: Makes connections (cause and effect) between parts of a text	0,65	1
Paragraph: Coherence	0,65	1
Percentage	84,4%	100%

Source: Post-test addressed to students from second semester of PINE-UTA.

Developed by: Alvarez, M. (2020)

Graphic 11 Post-test results
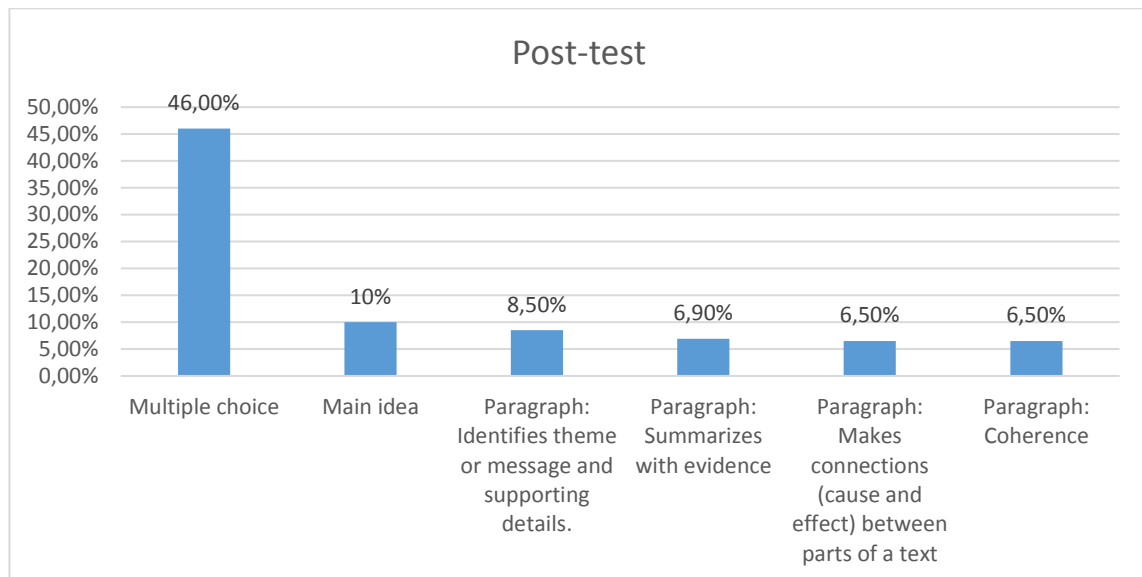
Post-test

Multiple choice	46,00%
Main idea	10%
Paragraph: Identifies theme or message and supporting details.	8,50%
Paragraph: Summarizes with evidence	6,90%
Paragraph: Makes connections (cause and effect) between parts of a text	6,50%
Paragraph: Coherence	6,50%

Source: Post-test addressed to students from second semester of PINE-UTA.

Developed by: Alvarez, M. (2020)

Analysis and Interpretation

After applying the mind map strategy for 6 times the average of each criteria increase that means students improved their level of reading comprehension because the general percentage of the post-test result was 84,4 %.

Multiple choice questions showed that students reach an average of 4,6 out of 5 points. These results evidence that students improved their grade through using the mind map strategy because they improved 1,6 points in this parameter. It is important said that using these strategy students have to read the lecture carefully in order to get, to summarize and to organize ideas in the mind map.

The main idea average in the post-test was 1 over 1 which means that students improved this parameter and they know how to identify the main idea of the text.

The first parameter average of the paragraph (identify the theme and supporting ideas) was 0,85 out of 1 point which means that students improved this parameter and they could

explain the theme of the lecture in own words, acknowledging different interpretations, and offering supportive evidence.

The second parameter assessed in the paragraph was summarize with evidence, the average in the post-test of this parameter was 0,69 out of 1 point which means that students could summarize in own words by identifying three main points from text.

The third parameter assessed in the paragraph was make connections (cause and effect), the average in the post-test of this parameter was 0,65 out of 1 point which means that students could make connections and establishes cause/effect relationships.

The last parameter assessed in the paragraph was coherence, the average in the post-test of this parameter was 0,65 of 1 point which means that students paragraph improved. The paragraph had details organized logically and make sense. Sentences were strong and expressed ideas with varied structure and connectors. Transitional words and conjunctions were appropriately.

Comparison of the Pre-test and Post-test averages.

Table 12 Comparison of the Pre-test and Post-test averages.

Criteria	Average	Percentage
Pre-test	4,98	49,8%
Post-test	8,44	84,4%
Total improvement	3,46	34,6%

Source: Comparison of the Pre-test average and Post-test average addressed to students from second semester of PINE-UTA.

Developed by: Alvarez, M. (2020)

Graphic 12 Comparison of the Pre-test and Post-test averages.
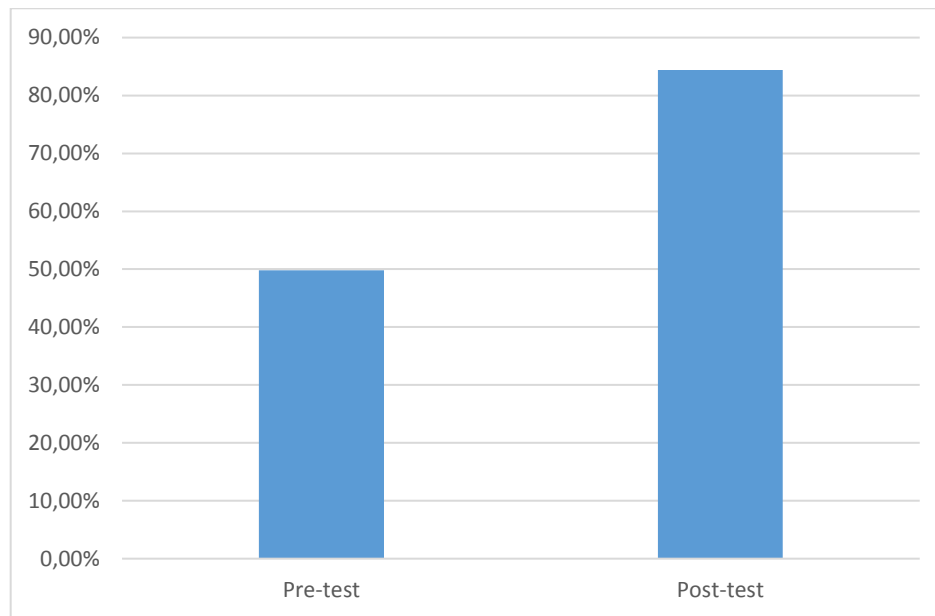
Source: Comparison of the Pre-test average and Post-test average addressed to students from second semester of PINE-UTA.

Developed by: Alvarez, M. (2020)

Analysis and Interpretation

The average score of the pre-test was 4,98 out of 10, which is equivalent of 49,8%. On the other hand, the average of the post-test was 8,44 out of 10, which is equivalent of 84,4%. The difference between the two averages was 3,46. Thus it can be said that after the application of mind map strategy, students had an improvement of the 34,6% in their reading comprehension.

3.2 Hypothesis Verification

In order to verify the hypothesis of this study research it was necessary to use Shapiro-Wilk in order to test the normality of distribution. Shapiro's test was used for a small sample of population (42). This analysis helped to verify that the results were reliable.

Table 13 Normality Test

	Shapiro-Wilk		
	Statistic	df	Sig.
Average_pretest_result	,902	42	,002
Average_posttest_result	,654	42	,000

Sig> 005 =Ha

Sig<005= H0

Source: Normality test.

Developed by: Alvarez, M. (2020)

The values in the Sig column determine the normality of distribution. Values greater than 005 determine a normal distribution. So, values lesser than 005 are not normal. In this case, values of Sig column are greater than 005. This means that the results obtained are normal and reliable to this study.

Hypothesis:

Null Hypothesis

Mind maps do not have a relationship with the Reading Comprehension in the students of 2nd semester of PINE at Universidad Técnica de Ambato.

Alternative Hypothesis

Mind maps have a relationship with the Reading Comprehension in the students of 2nd semester of PINE at Universidad Técnica de Ambato.

The statistic method (T-student) facilitated to compare the averages pre-test, and post-test.

Table 14 Mean T- Student.

		Mean	N	Std. Deviation	Std. Error Mean
Par 1	Average_pretest_result	1,6310	42	,46930	,07241
	Average_posttest_result	2,7976	42	,31351	,04838

Source: Mean T-Student.

Developed by: Alvarez, M. (2020)

The data generated by the statistical software IBM SPSS proved that there are relevant differences between the means of the two samples analyzed. The pre-test value was 1,6310, and the average value of the post-test was 2,7976.

Table 15 T-Student test.

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error mean	95% Confidence Interval of the difference l				
					Lower	Upper			
Par 1	Average_pretest_result - Average_posttest_result	-1,16667	,50203	,07746	-1,32311	-1,01022	-15,061	41	,000

Source: T-Student Test.

Developed by: Alvarez, M. (2020)

The results of Table 15 were obtained using T test, to decide if the null or alternative hypothesis could be accepted, the sig tailed were analyze. The result of sig tailed was 0,000, which is less of 0,005 (level of significance), the null hypothesis is rejected, and the alternative one is accepted. That means Mind maps have a relationship with the Reading Comprehension in the students of 2nd semester of PINE at Universidad Técnica de Ambato.

3.3 Discussion of Results

Many authors agree that mind maps help students improve their reading comprehension. For example, Puspitasari (2020) stated that mind maps have a positive impact on students' reading comprehension through the process of making maps. These processes include repeated reading, selecting basic information, categorizing and organizing information, determining how concepts are related to each other, and displaying through visual arts and keywords. Moreover, according to Kalyanasundaram et al. (2017) mind mapping is a strategy to remember things more effectively than conventional ways of reading texts. These statements agree with the results of this study, that mind map strategy helps students remember information, organize information, and determine the relationship between concepts which help them to improve their reading comprehension. Using mind maps to teach English, the monotony of conventional ways of reading can be broken because it gives the opportunity to develop students' creativity, forcing the learners to reread and enhance their reading comprehension.

This research demonstrates that using mind map strategy students could improve their reading comprehension because the average result of the pre-test was 4,98 and then in the post-test the average was 8,44 that showed an improvement of (3,46). These results are supported by another research from Saori (2020) that found that the use of mind maps has an important impact on students' reading comprehension because after treatment the average score of the experimental group (71.76) was higher than that of the control group (60.24), concluding that mind maps help to develop students' reading comprehension.

CHAPTER IV: CONCLUSIONS AND RECOMMENDATIONS

4.1 Conclusions

Based on the results obtained through the statistical analysis of T test, it was proved that Mind maps have a relationship with the Reading Comprehension in the students of 2nd semester of PINE at Universidad Técnica de Ambato. The implementation of new strategies in order to improve students' reading comprehension are necessary since they facilitated remember and organize information in an appropriate manner. Thus, it stimulates students' creativity and strengthens their reading comprehension.

Many authors have made enough theoretical contributions in other studies to prove the importance of using mind maps for students because this strategy develop reading comprehension of EFL learners since this strategy is dynamic, creative, and motivating for the students, In addition, it allows students to take notes, generate ideas, organize information and improve their memory. Initially, these theories allowed to explain, predict and understand the topic, and finally, they maintained the results of this research project.

The results showed that the reading comprehension level of students was low because the average score in the pre-test was 4,98 out of 10 points. The majority of students were not capable of express the main idea and explain what they understood of the reading, which verified that learners did not have a good level of reading comprehension at the beginning. It could be perceived that they do not learn efficiently or do not have knowledge of how to express the main idea of a text and how to summarize in an efficient way a lecture, due to the poorly applied strategies when reading.

Finally, the implementation of mind map strategy allowed students to reinforce their text understanding. It helped them to develop their reading comprehension, for a better organization of ideas from lectures using the structure of the mind map. In addition,

students could develop their ability to express the main idea of the text and summarize the lecture in an effective way.

4.2 Recommendations

Teachers should give more importance to the reading skill and encourage reading habits. They should prepare material and activities to make students practice and improve reading skill during English lessons. Therefore, mind map strategy is an excellent alternative because it enables students to express their ideas in a creative way by giving them the possibility to summarize their ideas in an organized way, which also facilitates remember information.

To motivate the interest in developing the students' reading comprehension, the use of effective strategies such as mind maps must be taken into account, because it encourages students to organize and summarize their ideas effectively in English. In addition, teachers should explain how to apply this strategy in order to avoid confuse at the moment of make the mind map.

It is important to evaluate students' reading comprehension by using different readings because, in that way, the students will have practice and the acquisition of knowledge will be easier and active.

To use different mind mapping tools so that students have different options and they can choose the one that they can best use or like. In addition, it is important to let the students choose the mind mapping tool of their preference because they already have experience using these tools.

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ANNEXES

Annex 1. Survey aimed to students

Objective: To collect information concerning the use of mind maps to develop reading comprehension.

General Instruction

Please read each question carefully, and mark with an "X" the answer that most closely fits your opinion.

1.- How often does your teacher use a reading task for developing reading comprehension?

Always ☐   Very Often ☐   Sometimes ☐   Rarely ☐   Never ☐

2.- How often does your teacher encourage you to create mind maps when reading?

Always ☐   Very Often ☐   Sometimes ☐   Rarely ☐   Never ☐

3.- Which of these reading strategies do you apply when reading?

Selection of the main idea ☐

Summarizing ☐

Note taking ☐

Highlighting ☐

Mind maps ☐

Other: _____

4.- Which of these reading sub-skills do you apply when reading?

Skimming ☐

Scanning ☐

Predicting ☐

Inferring ☐

☐

Deducing

Understanding text structure ☐

Other:_____

5.- How important do you consider the use of mind map strategy when reading?

Very Important ☐   Important ☐   Moderately Important ☐

Slightly Important ☐   Unimportant ☐

6.- Do you know how to create a mind map?

Yes ☐   No ☐

7.- How often do you apply mind map strategy when reading?

Always ☐   Very Often ☐   Sometimes ☐   Rarely ☐   Never ☐

8.- Which of these online mind mapping tools do you use to create mind maps?

MindMeister ☐

Ayoa ☐

Milanote ☐

Miro ☐

Lucidchart ☐

XMind ☐

None ☐

Other: _____

Author: Alvarez, M. (2020)

Annex 2. Cambridge KET Reading Test sample part 3 (Pre-test and Post-test)

Questions 14 – 18

For each question, choose the correct answer.

A family of dancers

The women in the Watson family are all crazy about ballet. These days, Alice Watson gives ballet lessons, but for many years, she was a dancer with the National Ballet Company. Her mother, Hannah, also had a full-time job there, making costumes for the dancers.

Alice's daughter Demi started learning ballet as soon as she could walk. 'I never taught her,' says Alice, 'because she never let me.' Now aged sixteen, Demi is a member of the ballet company where her mother was the star dancer for many years.

Alice's husband, Jack, is an electrician. They met while he was working at a theatre where she was dancing and got married soon after. 'When Demi started dancing, the house was too small for her and Alice to practise in so I made the garage into a dance studio. Now the living room is nice and quiet when I'm watching television!' he says.

Last month, Demi was invited to dance in the ballet *Swan Lake*. Of course, Alice and Hannah were in the audience and even Jack was there, which made it very special for Demi. Jack says, 'I'm not that interested in ballet myself but it's fantastic seeing Demi taking her first steps with Alice's old company!' Demi was wearing a dress that Hannah made for Alice many years before.

'It was very exciting for all of us,' says Hannah. 'Demi's way of dancing is very like Alice's. I know I'm her grandmother, but I think she has a great future!'

14 What is Alice Watson's job now?

    A dancer

    B teacher

    C dress-maker

15 Demi had her first ballet lessons

    A at a very young age.

    B at the National Ballet Company.

    C from her mother.

16 Jack helped his wife and daughter by

    A moving to a larger house.

    B letting them use the living room for dancing.

    C making a place for them to practise in.

17 What was the best thing about the *Swan Lake* show for Demi?

    A It was her first show with the company.

    B All her family were there.

    C She was wearing a new dress.

18 Hannah says that Demi

    A will be a star one day.

    B is her favourite granddaughter.

    C dances better than Alice did.

What is the main idea of the text?

_____

_____

Write a paragraph of what you understood from the reading.

_____

_____

Annex 3. Reading Comprehension Rubric (Paragraph)

	Advanced (1p)	**Proficient** (0,75)	**Basic** (0,50)	**Below basic** (0,25)
Identifies theme or message and supporting details.	Explains theme or message in own words, acknowledging different interpretations, and offering supportive evidence.	Restates understanding of theme or message and identifies supporting details.	Identifies theme or message inconsistently.	Identifies theme or message with guidance.
Summarizes with evidence	Summarizes in own words by identifying three main points and elaborating with evidence using correct form.	Summarizes in own words by identifying three or more main points from text.	Attempts to summarize in own words, but lacks one or more main points or includes unnecessary details.	Recognizes a summary statement, but lacks ability to write a summary independently. Retells selection randomly.
Makes connections (cause and effect) between parts of a text	Makes in-depth connections and/or establishes cause and effect relationships.	Makes connections and/or establishes cause/effect relationships specific.	Makes a vague connection or attempts to establish a general cause/effect relationship.	Requires guidance to make a connection or establish a simple cause/effect relationship.
Coherence	Writing is smooth and makes sense. Sentences are strong and express ideas with varied structure and connectors. Transitional words and	Writing may not be smooth, or make sense. Some transitional words and conjunctions are missing. Some sentences are not	Contains fragments and/or run-on sentences. Transitional words and conjunctions are either missing or misused.	Writing is confusing and hard to follow

	strong, some lack variety.		

Source: Castanon, Hagen & Rose (2020)

Developed by: Alvarez, M. (2020)

Annex 4. Mind map (Rubric)

CRITERIA	PERFORMANCE INDICATORS (Observable descriptors indicating extent to which a criterion is met)			
	Level 1 (0,25)	**Level 2 (0,50)**	**Level 3 (0,75)**	**Level 4 (1)**
Depth of coverage (knowledge)	-Bare minimum of content covered. -No extension of ideas evident	-Shows a basic level of coverage of key ideas only. -Attempts extension of a few ideas.	-Shows a solid grasp of most of the content. -Shows extension of most key ideas.	-Shows a solid grasp of all the content covered. -Extensions of the key ideas show a deep understanding of the content.
Central Image (communication)	-Present but difficult to separate from other information.	-Present but not clearly related to key idea.	-Clear use of picture or image that relates to key idea.	-Stands out meaningfully and grasps the key idea through metaphor.
Ideas have key images (Communication)	-A little evidence of key images. Has only a few keywords.	-Images and keywords are evident, but either too few or some are imprecise.	-Images and keywords clearly show an understanding of the content.	-Images and keywords clearly and dynamically show an

				understanding of the content.
Colour or codes or links used to illustrate connections between ideas (Thinking)	-A little use of colour, codes or links to illustrate connection between ideas.	-Obvious attempt is made to use colour, codes or links to enhance clarity and memory. Still some inconsistency of application.	-Clearly uses colour, codes or links to clarify connections and to assist with memory for most aspects of Mind map.	-Effectively uses colour, codes, or links to meaningfully clarify connections for all aspects of Mind map.
Ideas radiate out from central image and from most to least complex. (Application)	-Some ideas are connected to and radiate out from centre. -Some confusion in moving from most to least complex.	-All ideas radiate out from centre. -Still some confusion in moving from most to least complex.	-Ideas clearly connect to central image and ideas. -Generally moves from most to least complex.	-Ideas clearly connect to central image and ideas. -Consistently and accurately shift from most to least complex.

Authors: Masykuri et al (2018)

Source:
https://www.researchgate.net/publication/325163516_An_analysis_of_logical_thinking_using_mind_mapping/figures?lo=1#fullTextFileContent

Annex 5. Authorization document

<div align="center">

CARTA DE COMPROMISO

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Ambato, 02/10/2020

</div>

Doctor Marcelo Núñez
Presidente
Unidad de Titulación
Carrera de Pedagogía de los Idiomas Nacionales y Extranjeros
Facultad de Ciencias Humanas y de la Educación.

Mg. Sarah Iza en mi calidad de Coordinadora de Segundo semestre paralelo "A" de la Carrera de la Pedagogía de los Idiomas Nacionales y Extranjeros, me permito poner en su conocimiento la aceptación y respaldo para el desarrollo del Trabajo de Titulación bajo el Tema: **"Mind maps and Reading Comprehension"** propuesto por la estudiante Karen Michelle Alvarez Chacón portadora de la Cédula de Ciudadanía 050292314-7, estudiante de la Carrera de Pedagogía de los Idiomas Nacionales y Extranjeros, Facultad de Ciencias Humanas y de la Educación de la Universidad Técnica de Ambato.

A nombre de la Institución a la cual represento, me comprometo a apoyar en el desarrollo del proyecto.

Particular que comunico a usted para los fines pertinentes.

Atentamente.

SARAH
JACQUELINE
IZA PAZMIÑO
....

Mg. Sarah Iza Pazmiño
0501741060
0984060528
sj.iza@uta.edu.ec

Source: Authorization document

Developed by: Alvarez, M. (2020)

Annex 6. Lesson Planning

LESSON PLAN N°1			
Teacher: Michelle Alvarez	**Date:** 30/10/20.		
Topic:: Mind maps and Reading Comprehension	**Total time:** 90 minutes		
Objectives **General:** -To use Mind maps as strategy to improve reading comprehension **Specific:** - Ss will be able to answer questions of a lecture. -Ss will be able to use in a good way mind mapping tools -SS will be able to summarize in a paragraph what they understood of a lecture using a mind map.	**Materials:** -Zoom -PowerPoint Presentation -Reading practice 1 and 2 (Google Forms) -Miro Mind mapping tool		
GENERAL PRESENTATION -T self-introduction. - T checks attendance			5
LEAD-IN -T asks questions about what is reading comprehension? And ask about: which reading strategies use students when reading? -T teacher gives some examples of reading strategies and how to improve reading comprehension using different reading subskills.			10
PRESENTATION T introduces the topic of the class. (The use of mind maps) -T uses a PPP to explain the content. -T explains what a mind map is and how to create mind map giving examples. -T explains how to summarize a lecture in a mind map and how to use the mind map in order to create a paragraph giving examples. - T presents several tools in which students could make a mind map online.			20
PRACTICE -T presents a reading practice. -Students read the lecture about "Climbing Mount Everest". -T and Ss analyze the lecture in order to have the main idea of the lecture. -T and Ss summarize the lecture using a mind map (T shares the screen to show how to create a mind map using the lecture) -T and students create a mind map. -T and students create a paragraph using the mind map.			20
PRODUCTION -T asks Ss to complete the reading practice number 1 (https://forms.gle/rtkvTq3a8KRzLtaj8)			25
Wrap up -T asks the following questions: - What is a mind map? -How you can create a mind map? -Which mind mapping tools do you prefer to use? Why?			10
Evaluation -Ss make a mind map -Ss make a paragraph about the lecture These activities were evaluated using rubrics.			
ASSIGNMENT -Ss have to complete the "practice number 2" (https://forms.gle/4SdcAE4XF38URsDi8)			

LESSON PLAN N°2		
Teacher: Michelle Alvarez	**Date:** 06/11/20.	
Topic: Mind maps and Reading Comprehension	**Total time:** 90 minutes	

Objectives General: -To use Mind maps as strategy to improve reading comprehension Specific: - Ss will be able to answer questions of a lecture. -Ss will be able to use in a good way mind mapping tools -SS will be able to summarize in a paragraph what they understood of a lecture using a mind map.	Materials: -Zoom -PowerPoint Presentation -Reading practice 3,4 (Google Forms) -Miro Mind mapping tool	
GENERAL PRESENTATION -General Instructions - T Checks attendance		5
LEAD-IN -T asks which mind mapping tool Ss used to complete the reading practice N2. -T gives feedback.		10
PRESENTATION -T gives feedback about reading practice 2 -T shares screen and presents the reading practice 2 -T asks which questions were difficult for students -T presents some mind maps well done by students like examples. -T explains how to summarize the reading in a mind map and how to use the mind map in order to create a paragraph giving examples from the students.		20
PRACTICE -T presents a "reading practice 3" -Students read the lecture about "Family Castle". -T and Ss analyze the lecture.		20
PRODUCTION -T asks Ss to complete the reading practice number 3: https://forms.gle/eDJkkQSkqAt4QKFM6 -S answers questions from the lecture - Ss summarize the lecture using a mind map -T and students create a paragraph using the mind map.		25
Wrap up -T asks the following questions: - What is the main idea of the reading practice 3 "Family Castle"? -What are the important details of the reading? -Which mind mapping do you use to create the mind map?		10

Evaluation -Ss make a mind map -Ss make a paragraph about the lecture These activities were evaluated using rubrics.		
ASSIGNMENT -Ss have to complete the "practice number 4"		

LESSON PLAN N°3

Teacher: Michelle Alvarez	Date: 04/12/20.
Topic: Mind maps and Reading Comprehension	Total time: 90 minutes

Objectives	Materials:
General: -To use Mind maps as strategy to improve reading comprehension **Specific:** - Ss will be able to answer questions of a lecture. -Ss will be able to use in a good way mind mapping tools -SS will be able to summarize in a paragraph what they understood of a lecture using a mind map.	-Zoom -PowerPoint Presentation -Reading practice 5,6 (Google Forms) -Mindmeister mapping tool

GENERAL PRESENTATION -General Instructions - T Checks attendance		5
LEAD-IN -T asks which mind mapping tool Ss used to complete the reading practice N4. -T gives feedback.		10
PRESENTATION -T gives feedback about reading practice 4 -T shares screen and presents the reading practice 4 -T asks which questions were difficult for students -T presents some mind maps well done by students like examples. -T explains how to summarize the reading in a mind map and how to use the mind map in order to create a paragraph giving examples from the students.		20
PRACTICE -T presents a "reading practice 5" -Students read the lecture about "Don't skip breakfast". -T and Ss analyze the lecture.		20
PRODUCTION -T asks Ss to complete the reading practice number 5: https://forms.gle/uBnrK7X3UsHgqiKF8 -S answers questions from the lecture - Ss summarize the lecture using a mind map -T and students create a paragraph using the mind map.		25
Wrap up -T asks the following questions: - What is the main idea of the reading practice 5 ""Don't skip breakfast" -What are the important details of the reading? -Which mind mapping do you use to create the mind map?		10

Evaluation -Ss make a mind map -Ss make a paragraph about the lecture These activities were evaluated using rubrics.		
ASSIGNMENT -Ss have to complete the "practice number 6" https://forms.gle/ynTDLRW3mcxBRrft9		

READING COMPREHENSION PRACTICE 1

CLIMBING MOUNT EVEREST

Rebecca Stevens was the first woman to climb Mount Everest. Before she went up the highest mountain in the world, she was a journalist and lived in a small flat in south London.

In 1993, Rebecca left her job and her family and travelled to Asia with some other climbers. She found that life on Everest is hard. 'You must carry everything on your back,' she explained, 'so you can only take things that you will need. You can't wash on the mountain, and in the end, I didn't even take a toothbrush. I'm usually a clean person, but there is no water, only snow. Water is very heavy, so you only take enough to drink!'

When Rebecca reached the top of Mount Everest on May 17 1993, it was the best moment of her life. Suddenly, she became famous.

Now she has written a book about the trip and people often ask her to talk about it. She has a new job too, for a science programme on television.

Rebecca is well-known today, and she has more money, but she still lives in the little flat in south London, among her pictures and books about mountains!

1. Before Rebecca climbed Everest, she worked for

    A. a bookshop

    B. a newspaper

    C. a TV station

2. Rebecca didn't take much luggage because she

    A. didn't have many things.

    B. had a bad back.

    C. had to carry it herself.

3. Rebecca didn't wash on Everest because

    A. it was too cold.

    B. there was not enough water.

    C. she is a dirty person

4. Rebecca carried water for

    A. drinking.

    B. cooking.

    C. cleaning her teeth.

5. Rebecca became famous when she

    A. got to the highest place in the world.

    B. wrote a book about her trip.

    C. was on a television programme.

6.What is the main idea of the text?

7.In your own words write a brief summary of the text

READING COMPREHENSION PRACTICE 2
EDINBURGH FESTIVAL

Every year, thousands of people come to Edinburgh, the capital city of Scotland to be part of the Edinburgh Festival. For three weeks every August the city is filled with actors and artists from all over the world. They come to Edinburgh for the biggest arts festival in the UK. During this time the streets of the city are alive with music and dance from early morning until late at night. You can even see artists painting pictures on the streets. One of the best parts of the Festival is the 'Fringe', where students do comedy shows in small halls and cafes.

Tens of thousands of tourist come to the Festival to see new films, plays and hear music played by famous musicians. This year, you can see over eight hundred performances with actors from more than sixty countries.

The tickets for these performances are quite cheap, and it is usually easier to see your favourite star in Edinburgh than it is in London. So come to Edinburgh next summer, but remember it can be hard to find a room, so why not book your hotel now.

1. **How long is the Edinburgh Festival?**

A. Less than a month.

B. A month.

C. More than a month.

2. **Why do actors and artists come to the Festival?**

A. It is the biggest in the world.

B. It is the biggest in Europe.

C. It is the biggest in Britain.

3. **Who takes part in the 'Fringe'?**

A. Students.

B. Famous Artists.

C. Famous Actors.

4. **How many performers are there this year?**

A. Less than eight hundred performances.

B. About eight hundred performance.

C. Over eight hundred performances.

5. **What are difficult to find during the Festival?**

A. Places to stay.

B. Tickets for the shows.

C. Famous people.

6. **What is the main idea of the text?**

7. **In your own words write a brief summary of the text**

READING COMPREHENSION PRACTICE 3
FAMILY CASTLE

My name is Will, and our family decided that we all wanted to live together, so we looked online. We eventually found a castle we could buy. There are 20 of us altogether, including my aunts, uncles and grandparents, and we all have a room each. The castle is huge - it takes about ten minutes to walk from one side to the other. It's really cold inside the castle, especially in winter. My gran wears a coat inside as it's so cold. We had no heating at first and only one toilet when we moved in either!

When I lived in Manchester, the shops and the school were very near. Here at the castle, the nearest village is 10 minutes away, and it takes 30 minutes to get to the nearest town to do our weekly shopping. At first, I took the bus to school, but it took too long. Now my mum takes me there as she has just got a job at the school.

The best thing about living in the castle is that there is a lot of space - I can ride my bicycle all day in our large ground. I don't play online games so much as I did. We now have heating and bathrooms along with a modern kitchen, so things are much better than they were. I love living in a castle with my whole family, and I hope to stay here for a long time.

1. Where did Will's family find the castle?

A. on the internet

B. in a newspaper

C. in Manchester

2. What did the castle not have when they moved in?

A. a toilet

B. heating

C. a kitchen

3. Where does Will's family go shopping?

A. The nearest town

B. Manchester

C. The nearest village

4. How does Will get to school?

A. By car

B. By bus

C. On his bicycle

5. What does Will like most about living in the castle?

A. Not playing online so much now.

B. The new modern bathroom and kitchen.

C. Riding his bike around the castle.

6. What is the main idea of the text?

7. In your own words write a brief summary of the text

READING COMPREHENSION PRACTICE 4
LONDON POLICE FORCE

Today there are police officers everywhere, but in 1700 London had none at all. A few old men used to protect the city streets at night, and they were not paid very much.

About 300 years ago, London was starting to get bigger. The city was very dirty, and many people were poor. There were so many thieves who stole money in the streets that people stayed at home as much as possible.

In 1750, Henry Fielding started to pay a group of people to stop thieves. They were like police officers and were called 'Bow Street Runners' because they worked near Bow Street.

Fifty years later, there were 120 Bow Street Runner, but London had become very big and needed more police officers. So, in 1829, the first Metropolitan (or London) Police Force

was started with 3000 officers. Most of them worked on foot, but a few rode horses. Until 1920 all the police in London were men.

Today, London police are quite well paid, and for the few police officers who still ride horses, the pay is even better than for the others.

1. **In 1700, there were**
A. police officers everywhere.
B. police officers only in London.
C. no police officers in London.

2. **300 years ago, many people**
A. came to live in London.
B. wanted to leave London.
C. had big houses in London.

3. **The Bow Street Runners**
A. stole money.
B. stopped people stealing.
C. paid people to steal.

4. **Of the 3000 Metropolitan police officers,**
A. all of them rode horses.
B. some of them rode horses.
C. most of them rode horses.

5. **Today, police officers who work with horses are paid**
A. more than their colleagues.
B. the same as their colleagues.
C. half as much as their colleagues.

6. What is the main idea of the text?

7. In your own words write a brief summary of the text

READING COMPREHENSION PRACTICE 5
DON'T SKIP BREAKFAST

Do you skip breakfast? Millions of people do, and if you are one of them, you are putting your ability to think and learn at risk. Skipping breakfast can cause you to be hungry, tired, and crabby by the middle of the morning. Why is that? First, when you wake up, you have not eaten for about eight hours. Your body's fuel, called glucose, is low. Eating breakfast raises the level of glucose in your brain. Your brain requires a constant flow of glucose to do mental work.

So eating breakfast will give you a mental edge at school. What if you don't have enough time for breakfast or if you are not hungry when you wake up? Having something for breakfast is better than nothing. Drink some milk or juice. Then catch a nutritious snack later on in the morning. Yoghurt, dry cereal, cheeses, or fruit are good choices. What if you don't like breakfast foods? Then eat healthy foods you do like. Even cold pizza or a fruit smoothie can power your morning. Any way you look at it, there's no reason to skip this essential meal.

1. **When can you feel tired and hungry if you skip breakfast?**
A. In the morning.
B. In the afternoon.
C. In the evening

2. **What does eating breakfast do to your brain?**
A. makes you think better
B. wakes up your brain
C. fuels your brain

3. **What advice does it give if you don't have time for breakfast?**
A. skip it and wait for lunch
B. have a drink at home and then a snack at school.
C. make a sandwich to eat at school

4. **What advice does it give if you don't like breakfast?**

A. have some fast food

B. have a sugary fruit drink

C. choose any healthy food

5. **Why has someone written this text?**

A. to answer questions about skipping breakfast

B. to tell people about the benefits of having breakfast

C. to make people know what people breakfast habits

6. What is the main idea of the text?

7. In your own words write a brief summary of the text

READING COMPREHENSION PRACTICE 6
EMIRATE AIRLINES MANAGER

Emma Ross left school at eighteen when to college and then worked at a local airport. After a year, she went to work for Easyjet and then she joined Emirate Airlines as a flight attendant. Five years later, she got her present job as a manager.

Here is what she told us about her job:

'My office is at Gatwick Airport, but I spend 60% of my time in the air. I teach flight attendants and help with any problems. I also go to lots of meetings.

My working hours are using from 8 a.m. to 4 p.m., but sometimes I work from 1 p.m. to 9 p.m. At work, the first thing I do is check plane times on my computer, and then I speak with some of the flight attendants.

Sometimes, I go on long flights to check how the flight attendants are doing. That's my favourite part of the job, but I like office work, too. Travelling can be hard work. When I get back from a long journey, all I can do is eat something and then go to bed! I earn a

good salary, and I love working for Emirate Airlines. I plan to work there for a long if I can and continue to travel.'

1. Emma's first job was

A. at a college

B. with Easyjet

C. at a local airport

2. Emma does most of her work

A. in the office

B. in meetings

C. in planes

3. At the beginning of each day, Emma

A. goes to a meeting

B. works on her computer

C. talks to flight attendants

4. What does Emma like best?

A. Flying

B. working in the office

C. meeting different people

5. Emma would like to

A. stay in the same job

B. stop travelling

C. earn more money

6. What is the main idea of the text?

7. In your own words write a brief summary of the text

Source: https://www.esleschool.com/a2-climbing-mount-everest/

Annex 8. Students' Authorization

Ambato, 12 Octubre del 2020

Sres.
ESTUDIANTES DE SEGUNDO SEMESTRE "A"
CARRERA DE PINE
Presente.

De mi consideración:

Yo Karen Michelle Alvarez Chacón, con C.I # 050292314-7, estudiante de Noveno Semestre de la Carrera de Pedagogía de los Idiomas Nacionales y Extranjeros de la Universidad Técnica de Ambato, solicito muy comedidamente a los estudiantes del SEGUNDO SEMESTRE "A" PINE, me concedan la autorización para realizar la Aplicación del trabajo de Titulación: "MIND MAPS AND READING COMPREHENSION", y en conjunto solicito el permiso para realizar grabaciones de las clases.
Segura de constar con la aprobación a mi petición, quedo muy agradecida.

Atentamente.
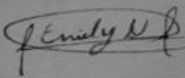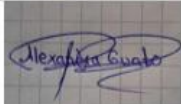
Karen Michelle Alvarez Chacón
C.I # 050292314-7
ESTUDIANTE DE NOVENO SEMESTRE
CARRERA DE PEDAGOGÍA DE LOS IDIOMAS
NACIONALES Y EXTRANJEROS

ESTUDIANTES DE SEGUNDO SEMESTRE "A"
CARRERA DE PINE

Autorización de los estudiantes: Firmas escaneadas como imagen.

N°	APELLIDOS Y NOMBRES	FIRMA
1	Bryan Alexander Gordon Fiallos	
2	Emily Cristina Noroña Tapia	
3	Odalis Analia Tamayo Villena	
4	Víctor Hugo Quezada Peñarreta	
5	Randy Israel Ortiz Mera	
6	Abner Steeven Pérez Barahona	
7	Camino Cordero Odalis Belén	
8	Paúl Andrés Vintimilla Jumbo	
9	Nicole Abigail Segura Pilatasig	
10	Guato Mena Lissette Alexandra	

11	Dévaky Maeba Gallegos Pandacina	
12	Karen Viviana Tapia Benítez	
13	Mónica Katherine Guachi Caiza	
14	Pamela Elizabeth Casa Molina	
15	Acosta Montesdeoca Patricia Fernanda	
16	Oñate Perez Genesis Mireya	
17	Hallo Salazar Laura Estefania	
18	Emanuel Alejandro Benavides Guaman	
19	Torres Pérez Jemima Abigail	
20	Mayra Alejandra Chasiluisa Chicaiza	
21	Gabriela Mishell Chuquitarco Guagchinga	
22	Evelyn Alexandra Miranda Moya	
23	Carolina Marisol Ruiz Proaño	

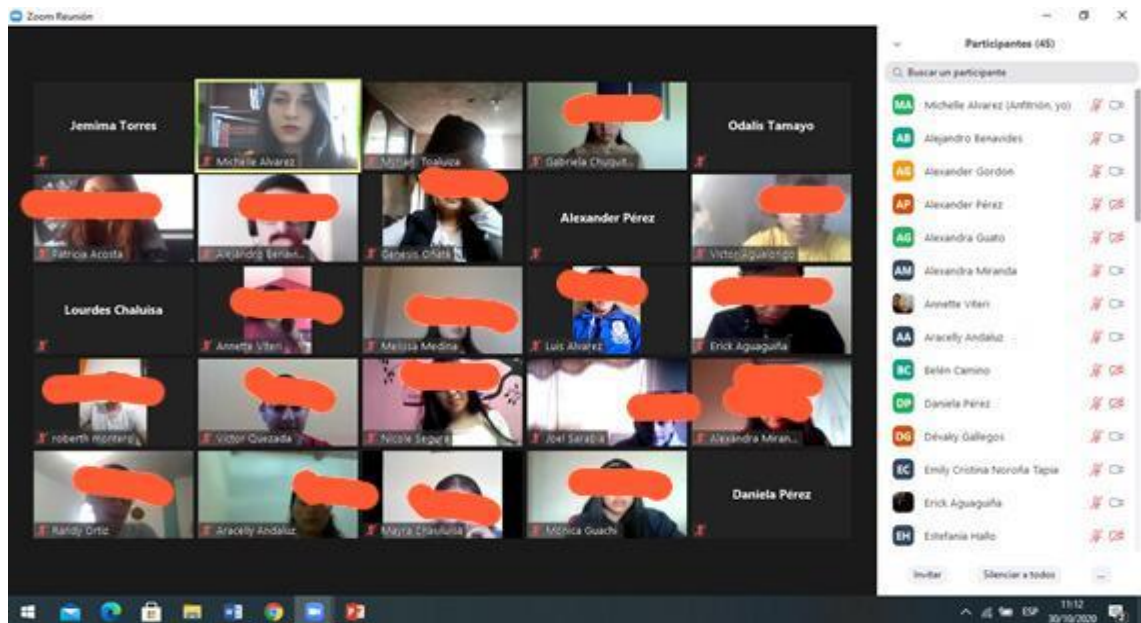**Annex 9.** Evidence of activities
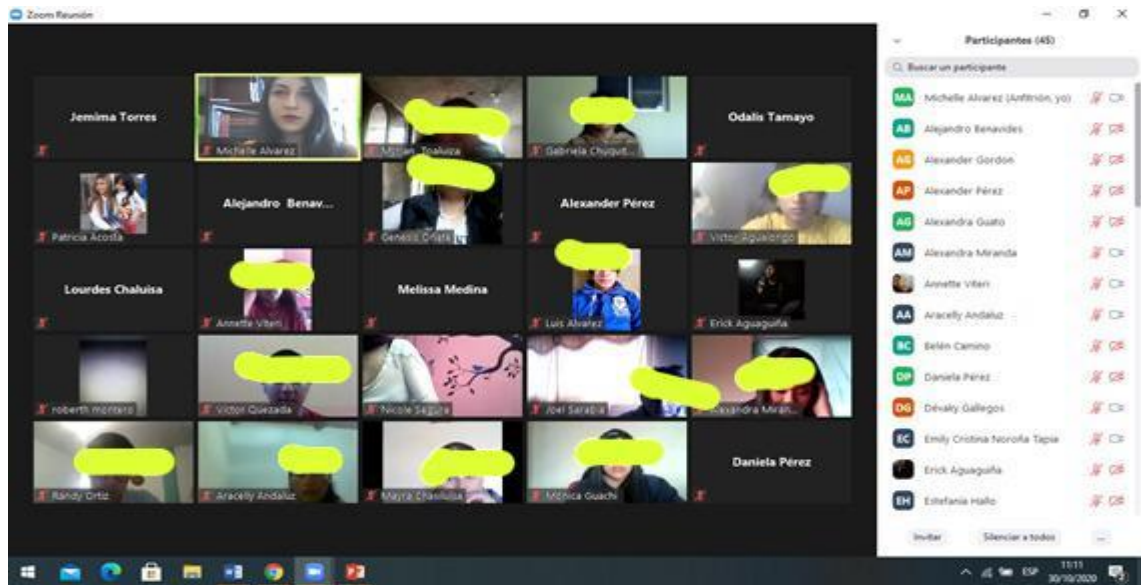
Source: Activities

Developed by: Alvarez, M. (2020)

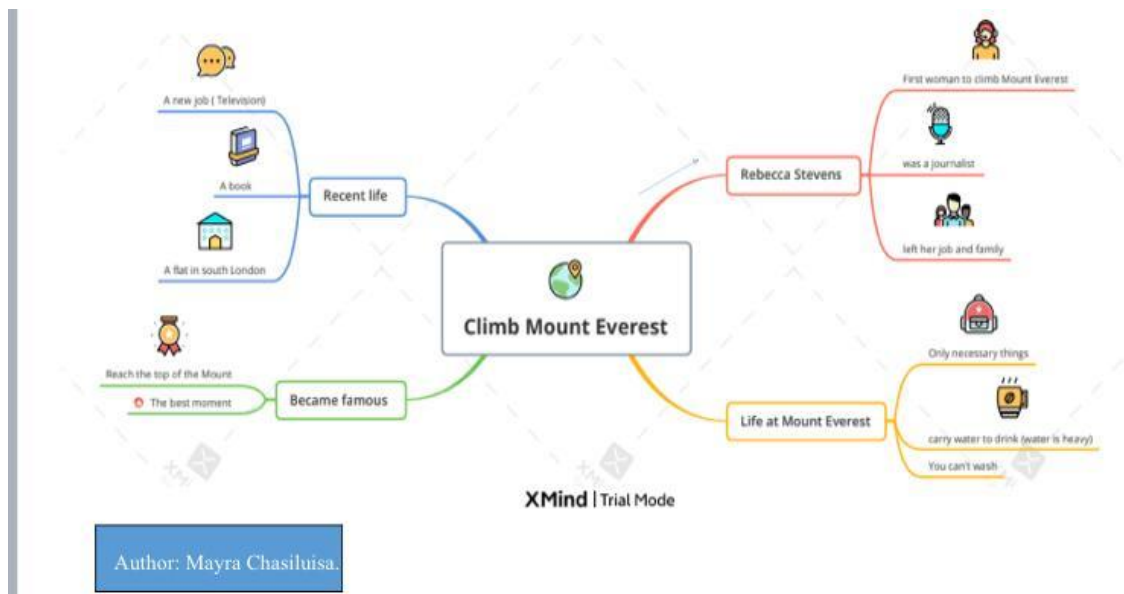**Source:** Activities

Developed by: Alvarez, M. (2020)
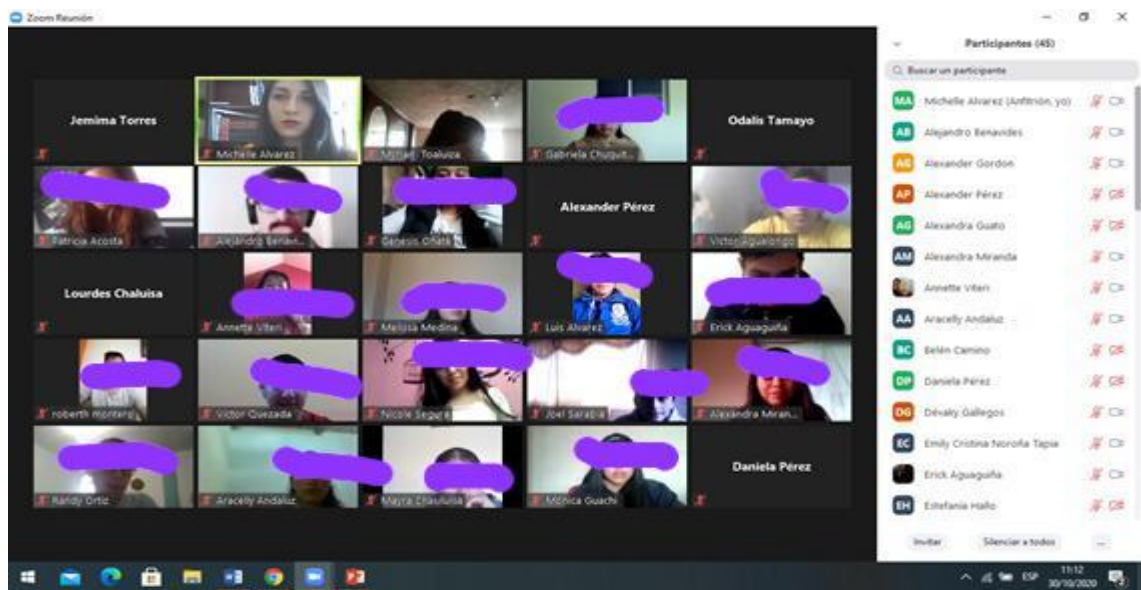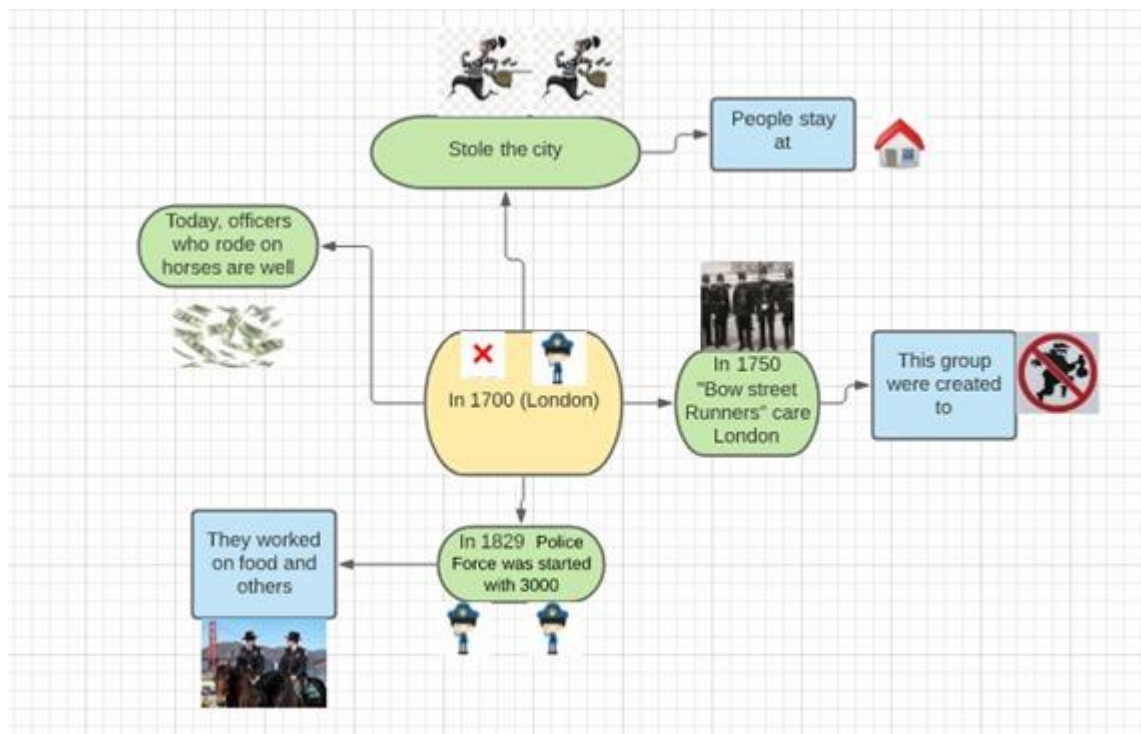
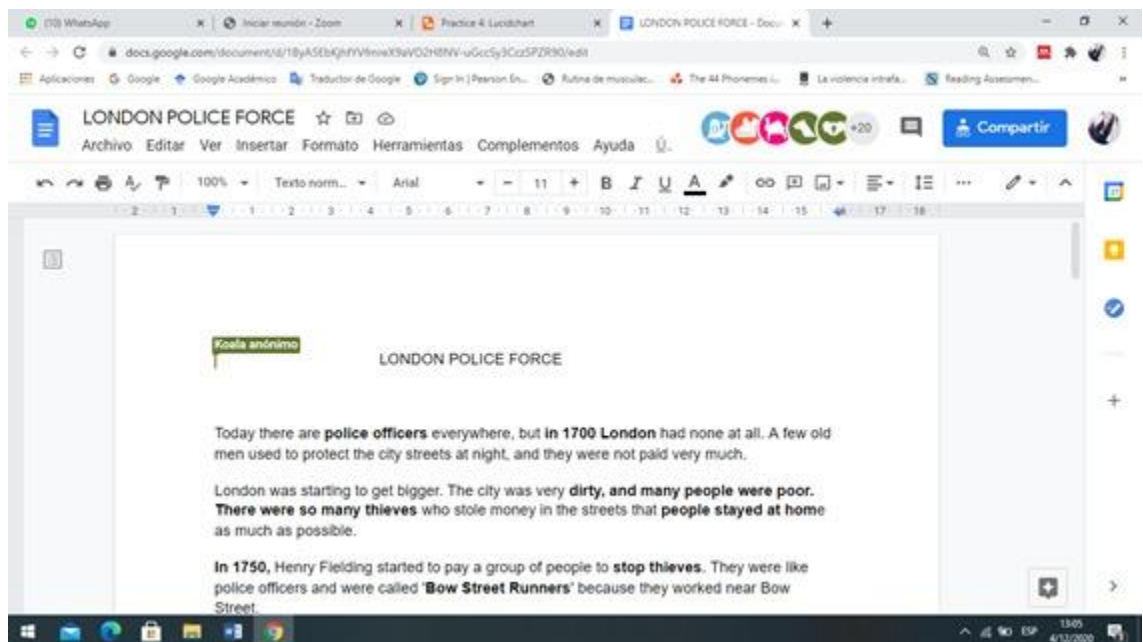**Source:** Activities

Developed by: Alvarez, M. (2020)

Source: Activities

Developed by: Alvarez, M. (2020)

Source: Mind map

Developed by: Alvarez, M. (2020)
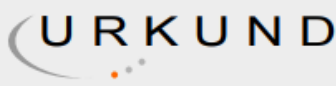

Source: Mind map

Developed by: Alvarez, M. (2020)

Source: Activitie.

Developed by: Alvarez, M. (2020)

Annex 10. Urkund Analysis

Urkund Analysis Result

Analysed Document:	Michelle Alvarez thesis urkund.pdf (D90973643)
Submitted:	1/5/2021 2:20:00 AM
Submitted By:	kalvarez3147@uta.edu.ec
Significance:	0 %

Sources included in the report:

Instances where selected sources appear:

0