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Application of Metacognitive Strategies to Improve Critical Thinking in a Group of Seventh Grade Students at Methodist High School During the III Trimester of 2018

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Dedication

I dedicate this thesis to my husband and my mother for they have been incredibly supporting during the entire time I have been carrying out this investigation. To my husband, thank you for sharing and supporting my goals in every aspect of my life; thank you for your advice, patience and consideration throughout my academic career. You are my perfect partner in life. To my mother, thank you for your amazing emotional support. You have always cheered me up and comforted me whenever I needed it. I also thank God for having both of you in my life and for giving me the ability to achieve this personal goal.

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Abstract

This study was carried out to analyze the effects of metacognitive strategies to improve critical thinking in seventh grade students at Methodist High School during the III Trimester of 2018. While observing teenage students during a teaching practicum in 2016 and more recently by a pre- test observation to a seventh grade group at this school in 2018, the researcher noticed that some students had difficulties when discussing literature and expressing ideas or opinions critically about a topic. For this reason, she established the following research questions: Why study critical thinking in teenagers? Why study how to improve critical thinking in teenagers? With the intention of answering these questions and accomplishing the objectives of this investigation, she consulted critical thinking theories and metacognitive strategies to help students to improve their critical thinking.

In order to meet the objectives of this study, the researcher applied eight instruments to collect data: *an interview to an experienced teacher, a self -assessment critical thinking questionnaire, a pre-test reading questionnaire, a pre-test observation checklist, a feedback board, an activity observation checklist, a post-test reading questionnaire and a post-test observation checklist*. She also implemented four activities: *a think aloud, a K-W-L chart, a think-pair-share and heuristics* that were based on metacognitive strategies such as self-questioning, self-monitoring, and self-evaluating. After the implementation of strategies and the application of instruments the researcher found that students slightly improved their critical thinking skills. Due to this fact, she was able to determine that using metacognitive strategies can help to improve students' critical thinking.

Resumen

Este estudio fue llevado acabo para analizar los efectos de las estrategias metacognitivas para mejorar el pensamiento crítico en estudiantes de séptimo grado en el Colegio Metodista durante el III Trimestre del 2018. Durante observaciones a estudiantes adolescentes en una práctica docente en 2016 y más recientemente durante una observación a un grupo de séptimo grado en este colegio, la investigadora notó que algunos estudiantes tenían dificultades para discutir literatura, expresar ideas y opiniones críticamente sobre un tema. Por esta razón, ella estableció las siguientes preguntas de investigación: ¿Por qué estudiar el pensamiento crítico en adolescentes? ¿Por qué estudiar cómo mejorar el pensamiento crítico en adolescentes? Con la intención de responder estas preguntas y cumplir los objetivos de este estudio, la investigadora consultó teorías sobre el pensamiento crítico y estrategias metacognitivas para ayudar a los estudiantes a mejorar su pensamiento crítico.

Con el propósito de cumplir los objetivos de estudio, la investigadora aplicó ocho instrumentos para recolectar datos: una entrevista a un experimentado profesor, un cuestionario de autoevaluación del pensamiento crítico, un cuestionario de lectura como prueba previa, una lista de verificación de la observación como prueba posterior, una pizarra de retroalimentación, una lista de verificación de observación de actividades, un cuestionario de lectura como prueba posterior y una lista de verificación de la observación como prueba posterior. Ella también implementó cuatro actividades: *think aloud*, (pensar en voz alta), K-*W-L chart* (un cuadro de lo que sé, lo quiero saber y lo que aprendí), *think-pair-share* (piensa, trabaja en pareja y comparte) y *heuristics* (elaboración de heurísticas), las cuales estaban basadas en la estrategias metacognitivas de auto cuestionamiento, auto monitoreo y auto evaluación. Después de la aplicación de los instrumentos y la implementación de las actividades, la investigadora encontró que los

estudiantes levemente mejoraron sus habilidades del pensamiento crítico y debido a esto pudo determinar que usar estrategias metacognitivas pueden ayudar a mejorar el pensamiento crítico de los estudiantes.

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CHAPTER I

INTRODUCTORY FRAMEWORK

The introductory framework of the current investigation will supply a synopsis of the components of chapter I which contains the background and importance of the investigation. The chapter is divided into five parts: problem statement, objectives, purpose and significance of the study, the antecedents, and the scope or projections of the research.

The first part corresponds to the problem statement of the research in which the main problem of the research is pointed out and the research question is given. The second part states the objectives of the investigation, and includes general and specific objectives that will be achieved throughout the research. The investigation aims to study the effect of metacognitive strategies on seventh grade students' critical thinking. The third part, involves the justification and purpose of the research, the main reason why the researcher decides to investigate about critical thinking and the metacognitive strategies to improve it. The fourth component aims to show the antecedents and as well as the previous international and national investigations done on the topic that were reviewed by the researcher. Finally, the filth part corresponds to the scope or projections of the current research, and together with the possible accomplishments reached through the investigation.

Problem Statement

Generally, all humans are able to think, but some are taught how to do it critically. The difference between a person who simply thinks or uses his or her ability to think and the one who does it critically is the strategies that are used to develop this skill which by the way should happen

early in his or her school life and should happen at a young age in order to make it a habit and apply it during his or her life. Thus, this idea leads to the question, why study critical thinking in teenagers? Why to study how to improve critical thinking in teenagers? In this research, metacognitive strategies will be applied to improve the critical thinking in seventh grade students, individuals of twelve or thirteen years old. Critical thinking skills might help individuals to face life situations in a better way, from adverse situations in school to problems in everyday life at work, college or home.

Currently, educational system teaches subjects and contents such as math, science, social studies, language, arts; students learn by memorizing, but they are not being taught how to analyze, apply or reflect on the learning they are achieving. Students lack the tools to develop critical thinking and problem solving skills. Due to that, students do not know how to refer to a topic with a deeper insight; they have trouble in the production part of tests which required them to explain a situation or infer from a story or text. Moreover, students find difficulties when facing conflicts related to their social life in school or at home that could lead to emotional disorders that are very common in schools nowadays. All these due to the fact that they ignore how to think critically to give a personal opinion regarding a topic and apply conflict solving skills when necessary.

During a teaching practicum that took place at Methodist High School in the second semester of 2016, the researcher taught ninth grade students and as the semester proceeded, she realized that during literature lessons where students had to give their opinion and insights about a reading or story, some struggled demonstrating critical thinking when sharing their point of view regarding the text or when they were asked to go beyond what it is stated in the text, even though these students are highly proficient in English language, which is their second language. At this school student are fully bilingual since elementary school; also in middle school and high

school they study other languages like French and Mandarin. This situation leads the researcher to think that students understand a second, third and fourth language, but when they have to express their opinion in English, their second language, they should exhibit critical thinking competence as they reason how the setting contributes to the behavior and motivations of the characters, effects or causes, conflicts on the plot, and makes a difference in the solution or solutions on those problems, among others.

As stated in the previous paragraph, the researcher realized there was some drawbacks and a gap in critical thinking in reading comprehension and literature analysis, and decided to investigate how to address this situation. Considering all these, an important question is raised as the main purpose of this research: What is the effect of metacognitive strategies on seventh grade students' critical thinking at Methodist High School during the I Trimester of 2018? Throughout this work, metacognitive strategies will be applied and taught to students in order to help acquire the necessary competences to improve their critical thinking level and be able to state their own point of view and opinion using relevant evidence from a passage to support their thinking. In addition, they should be able to reach decisions, solve problems, deal with conflicts and finally formulate questions or ideas with the purpose of finding the most truthful facts or evidence.

Objectives of the investigation

Every investigation needs to define its objectives According to Hernandez (2014), objectives point out the purpose of the investigation; they must be clearly expressed as they guide the study. There are two types of objectives: The first one is the general one that directly answers the research question and guides the main purpose of the research. The second type are the specific objectives that are derived from the general one. The target research contains a general objective and its specific objectives related to the research question: What is the effect of metacognitive

strategies on seventh grade students' critical thinking at Methodist High School during the III Trimester of 2018?

General Objective

To analyze the effects of metacognitive strategies to improve critical thinking in seventh grade students at Methodist High School during the III Trimester of 2018

Specific Objectives

The following are the specific objectives of the current investigation:

1. To identify the drawbacks of critical thinking on a group of seventh grade students at Methodist High School.
2. To apply metacognitive strategies in order to improve seventh grade students' critical thinking at Methodist High School.
3. To evaluate the effectiveness of metacognitive strategies on seventh grade students' critical thinking at Methodist High School.

Purpose and significance of the study

This research will focus on identifying the difficulties students face to demonstrate critical thinking when expressing their opinion about a topic in written material such as, shorts texts, paragraphs, essays, articles, stories, books, and everything that involves reading comprehension and applying metacognitive strategies to overcome those difficulties and improve their critical thinking. In light of this fact, is that this research results extremely convenient for Methodist High School entire community.

The results of the research are going to be informed to the Principal and English Department Head of the school to show them the findings and conclusions of the study; if it

should happen that the strategies applied meet expectations and produce positive outcomes and students actually improve their critical thinking, the Education authorities of the school could embrace the methodology and strategies used to train their teachers in order to apply them with the rest of the students of the school in years to come. In addition, the teachers of the school will have a base to start or continue working with metacognitive strategies in the classroom to trigger students' critical thinking regarding any topic or subject leading to improve their learning process and improve the way students react to social and emotional situations within the school or at home.

Since literature is one of the strongest subjects studied in the English class in this school, it is highly important that students achieve a good level of critical thinking to be able to analyze the readings and texts studied in class and become successful during the evaluation of literature.

The Seventh Grade students will be the beneficiaries of this investigation. These students will develop better critical thinking and problem solving skills, abilities that remain very important in the intellectual growth of human beings. A person in todays' society, needs to be capable to think critically to become successful professionally, socially, academically, and financially. As an example, companies and job recruiters focus on looking for people that meet abilities such as critical thinking and problem solving skills to enrich their highly valuable human resources and work force. These companies even test their candidates on critical thinking and problem solving skills. In addition, in every educational institution, such as schools, colleges, and universities; students must meet a certain profile which includes critical thinking in order to be able to achieve success in the major they choose in college or make a successful career.

Students with well-developed critical thinking will be able to apply this skill in many areas, dimensions, and life situations. According to Facione (2015) as cited in APA Delphi Report, Delphi 1990, a strong critical thinker shows the following characteristics: always stay well informed, capable of understanding and respect other's opinions, analyzing alternatives, self-confident, open-minded, prudent, objective, and willing to reconsider to change his or her mind if another opinion is supported. All these qualities will lead students to improve their academic performance and efficacy in the school. Moreover, students will grow to become adults capable of reasoning, communicating and acting assertively.

Antecedents

Since ancient times human beings have been evolving thanks to their unique ability of thinking. According to Takiguchi (2015), the act of thinking is the highest mental activity that humans are able to show. Civilization and all the technology and science improvements occurred due to the thinking process. It is easy to realize that humans are no longer living in caves eating raw food. They have evolved and become today's humans, the ones that are capable of communicating, studying, and building not just infrastructure or technology but building knowledge every day.

As reading Takiguchi's Human Brain Thinking Process article, thinking is defined as a mental process in which the brain produces thoughts. The brain receives information through the five senses (sight, taste, hearing, smell, and touch) and chemically processes along with hormones and releases a message through neurons (brain cells), this message creates a thought that could become a response like an action, movements or feelings. On the other hand, there is the concept of critical thinking. Scriven and Paul (1987) stated "Critical thinking is the intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing,

synthesizing, and/or evaluating information gathered from, or generated by, observation, experience, reflection, reasoning, or communication, as a guide to belief and action" (Para. 1).

Having these two concepts defined, it is imperative to notice the difference between them, since it is not the same to think than to think critically. All humans can think but not all of them can do it critically. To become a successful critical thinker, the person must be trained to analyze and synthesized the information to deliver valuable ideas and insights regarding the analyzed topic or a solution to the conflict in spot.

The concept of critical thinking might have its origins around 2500 years ago with the practices, vision, and ideas of Socrates. According to the Critical Thinking Community (2015) as cited in Paul, Elder and Bartell (1997), Socrates established a questioning method that consisted in deep questioning and probing ideas before accepting them. In other words, Socrates believed that people should not accept the ideas mostly of the authorities just trusting in their knowledge or insights, instead people must question and argue their ideas, they should ask for evidence that support those ideas and prove that these wise men or authorities were right about what they were preaching and the concepts were logical and reasonable. Socrates created the bases of critical thinking process which later was followed by other ancient philosophers as Plato and Aristotle.

Since critical thinking is not a process that people usually practice as a rule, it could be difficult to put into practice in common life situations. Nonetheless, critical thinking skills can be taught and people can be trained to achieve them. Using metacognitive strategies might improve critical thinking and problem solving skills. More recently, in the 70's a method of teaching called Metacognition was developed in order to help students to be aware of their own knowledge, to use critical thinking and develop problem solving skills to have a better leaning

experience. Flavell (1976) first refer to metacognition as the following "I am engaging in metacognition if I notice that I am having more trouble learning A than B; if it strikes me that I should double-check C before accepting it as a fact" (p.232). According to Howie (2011) as cited in Michenbaun (1985), metacognition can be described as the ability to be aware of one's own knowledge, to determine things a person knows o does not know and the ability of manipulating and controlling the thinking process. It means that individuals can be trained in metacognition through specific strategies to develop the competence to control their own thinking and lead this thinking into a more critical one with positive results in analyzing, and synthetizing information, and also in achieving the competence of problem solving.

Several approaches and strategies have been applied to attempt improving thinking and critical thinking skills throughout the last years, some researchers based their studies in using metacognition and metacognitive strategies such as self- monitoring, self- evaluating, - being aware of your knowledge, the resources and environment needed to learn. In this investigation the researcher is going to discuss at least six studies related to the current topic that will help the researcher to amplify the range of information and results obtained in previous studies and also will function as a start point to her own investigation.

The first study using metacognitive strategies to improve a skill reviewed by the researcher was *"Estrategias metacognitivas aplicadas en comprension de la lectura por estudiantes de Ingles I. Caso Vice – Rectorado Luis Caballero Mejias"* researched by Isamar Mayoga Castillo in Venezuela in 2009. The study was published in 2013 by the Revista de Investigacion de la Universidad Pedagogica Experimental Libertador. The investigation was applied to students of English as a second language in the university, Universidad Nacional Experimental (UNEXPO) Antonio Jose de Sucre, in 2009. These students were successful in

their learning and had already passed the English I course at the institution; reason why the researcher chose them in order to investigate if the success of these students was due to the application of metacognitive strategies in their English language learning process and reading comprehension skills.

The general objective of her research was to determine the metacognitive strategies students use to develop reading comprehension. In order to identify the metacognitive strategies used by these students, she applied a questionnaire as an instrument to collect data during the I semester of 2009, and the questionnaire was applied to students that successfully passed the English I course during the II semester of 2008. The students had a performance rate or scores about 6.5 from a scale of 1 to 9 in the English course. The population of the institution for the study consisted in 320 students and the sample to apply the questionnaires was 85 students, nonetheless, it was applied to only 80 students since 5 of them could not be reached a that moment. The questionnaire includes 10 questions regarding the frequency and usage of metacognitive strategies while reading during the course.

According to Mayora, (2009) the questions were based on the theory of Pogglioli (2007), which determines the metacognitive strategies used by readers such as: organizing the reading to achieve better understanding, being aware of your responsibility in your learning, realizing the aspects that can hinder one's understanding, self- questioning and self-evaluating to measure one's learning and understanding, among others. Students had to mark with an X if they used the strategies always, often, or rarely. The collected data from the questionnaire was registered and analyzed to obtained the results and identify the metacognitive strategies utilized by students.

Based on the results, being aware of your responsibility in your English learning process, and the availability of didactic resources to learn (book, dictionaries, internet, etc) were the strategies always used by students, it was resulted in a 71.5%. The strategies that were applied more often are understanding and completing tasks based on the text easily, on the other hand, enjoying reading English text during their spare time was done rearly. Summarizing the conclusions of Maryora's investigation, it was proven that successful students and good readers definitely applied metacognitive strategies when reading in order to achieve better understanding and comprehension of a text. Besides, it was also demonstrated that good readers always engage responsibly in their leaning process by using metacognitive training, self-questioning, self-monitoring, evaluating their learning, and being aware of the resources and material that help them to increase their learning and improve their reading comprehension skills.

The second investigation work reviewed by the current researcher was *"La investigacion y desarrollo del pensamiento critico en estudiantes universitarios"* by Pedro Luis Mendoza Guerrero in Spain, 2015. Mendoza carried out his research in two universities in Peru with similar curriculum but different approaches, teaching and learning strategies. The general objective was to value the development of critical thinking competence from the implementation of the investigative competences as methodological strategies. More specifically, the author wanted to know the effects and impact of using investigative strategies in the development of university students' critical thinking. The researcher stated that the methodological strategies used to teach lessons in each university might have a positive or negative effect in the critical thinking of the students. He also mentioned university students lack critical thinking or it is poor and it represents a relevant problem in today's society.

To meet his objectives, Mendoza chose 892 students from two different universities, by studying the same range of majors and careers like business administration, medicine, accounting, economy, psychology and engineering among others .The first university is the Señor de Sipan (USS), which teaching –learning methodology consists in exposing and giving the contents to the students so they acquire the knowledge (concepts, theories, laws and scientific approaches, individual and cooperative work, research and projects.) The second university is Universidad Católica Santo Toribio de Mogrovejo (USAT), which teaching- learning methodology rests in developing the learning from investigative competences (writing research papers, studies, making projects, and moreinteractive lessons, individual and cooperative work), which seems to use a metacognitive approaches and strategies.

The instrument used to collect data and measure the critical thinking of students from the two universities was a questionnaire called "Cuestionario de Pensamiento Critico (CPC 2) by Santiuste Bermejo (2001). This questionnaire consists of 30 questions regarding critical thinking skills: reading, writing and speaking. The answers were based on a scale 1 to 5 (1: strongly disagree, 2:disagree, 3: sometimes, 4: agree, 5 strongly agree) to collect data and obtaining the results of each student. Once the questionnaires were applied, Mendoza analyzed the collected data to obtain the results and conclusions.

Summarizing the conclusions, Mendoza stated that the students in the different majors or careers in both universities in which the teaching- learning methodology was based on investigative competences, and encouraging students to research and investigate about contents to achieve knowledge obtained a higher development of critical thinking than students who were exposed to contents to achieve knowledge. According to Mendoza, it was proven that investigative methodology in universities can improve students' critical thinking and help

students to become better professional as they contribute to the development of the country and society in the future.

The third investigation consulted by the researcher was *"Didáctica Problematizadora para la Configuración del Pensamieno Critico en el Marco de la Antencion a la Diversidad"* by Mario Fernando Almeia Mejia, Fany Rubiela Coral Delgado and Miriam del Socorro Ruiz Calvache, from Universidad de Menizales, Colombia in 2014. The general objective of this investigation was to analyze the effectiveness of implementing a problem solving didactic methodology in the development of critical thinking of fifth grade students at Instituto Champagnat in Ciudad del Pasto. The authors wanted to measure the students' skills and competences in critical thinking and problem solving skills, then implement a learning methodology based on problem solving activities during two months in different subjects like math and science with the purpose that students acquire knowledge by practicing and developing argumentation, analysis, problem solving skills, and evaluation.

In order to achieve the general objective, the authors used several instruments to collect data, such as observations, questionnaires, pre- test, post-test, and evaluation rubrics to measure critical thinking and problem solving skills before and after the application of the teaching method. The instruments were applied to a population of 40 students from 9 to 11 years old, who were in fifth grade. Specifically, the researchers create a rubric based on critical thinking concepts to measure students' competences on argumentation, analysis, problem solving skills, and evaluation. The rubric consisted of a 1 to 3 scale: 1 inadequate, 2 adequate, and 3 very adequate.

After the application of instruments and the analysis of the collected data, the researchers found favorable outcomes; the students were able to improve their critical thinking and problems solving skills after the application of the didactic method, the post – test showed higher scores than the pre- test in argumentation, analysis, problem solving and evaluation, proving that the hypothesis of the researchers was valid. Critical thinking in fifth grade students could be developed from the implementation of a problem solving teaching methodology.

In the national context, in Costa Rica, there are some investigations about critical thinking and metacognition. The researcher of this work consulted three works to enrich her knowledge about her own research. The first national work was *"La metacognicion: Una herramienta para promover un ambiente aulico inclusive para estudiantes con discapacidad"* an essay published by the electronic journal (Educare) from the Universidad Nacional de Costa Rica, written by Ana Patricia Vazquez Chaves (2015). In this essay, Vasquez suggested that metacognitive strategies used as a teaching- learning methodologies within the classroom would promote a more inclusive environment for students with disabilities.

Vazquez stated in her article that Costa Rica and the public Education Ministry (MEP) have been improving and implementing the policies about inclusive education in the classrooms during the lasts years; nonetheless, some of the students with disabilities might not be as successful as expected due to the methodology and teaching approach used by the teachers and instructors. The way teachers introduce the topics and contents might not help these students' understanding or do not benefit the way these students learn. Based on several investigations applied in Universidad Nacional throughout the years, the author proposed that the implementation of metacognitive strategies such as organizing ideas, making summaries, conceptual maps, schemas, essays, questioning, self-monitoring- and self-evaluating might help

students with special needs or disabilities to optimize their leaning and be aware of their own leaning process, allowing themselves to realize they can take on the responsibility of their own learning, but always guided by a teacher who during the process will lessen his or her mediation or participation as the one who presents the topics and contents in class while students improve their skills and competences to control in a conscious ways their learning process and acquire knowledge.

The second national study reviewed by the current the researcher was "Implementation of Self- Assessment Rubrics as a Metacognitive Strategy to Improve Oral Performance in a Conversational Course at the University of Costa Rica" written by Vanesa Muñoz Ruiz (2013). The main purpose of the investigation consisted in analyzing the effectiveness of implementing self - assessment rubrics as a metacognitive strategy and to improve oral performance in students. The investigation was carried out in a level seven conversational class constituted by ten students (6 females and 4 males, aged between 19-54 years old); these students had already passed six courses before the study, so they had a basic knowledge of English language and their performance and academic grades during the classes were diverse due to little time spent studying because students were also engaged to other university courses, high school or working.

In favor of meeting the objectives of the investigation, Muñoz collected data directly from the students by making class observations, talking to students, applying questionnaires and interviews, and analyzing documents. According to the syllabus and methodology of the course, students had to make oral presentations after each unit studied in class; during the investigation these oral presentations were recorded and given to the students, so they could hear themselves and used the self-assessment rubrics (created by the researcher base on the contents of the unit) to evaluate their performance, to identify and correct errors committed during the presentation. The

rubrics were designed by Munoz with three specific columns: the first one contained the grammatical structure or pattern according to the topic studied, in the second column, students needed to write their own mistakes, and in the third column, students had to write the corrections needed. Students participated in several practices and oral presentations using the rubrics throughout the semester to complete the investigation.

After analyzing the collected data, Munoz concluded that using self-assessment rubrics as a metacognitive strategy was remarkably effective to improve students' oral performance. Students were able to identify their mistakes and correct them according to the grammar structures learned during the course which lead them to create better and proper oral presentations which helped their language proficiency. Nonetheless, the research stated some recommendations regarding the usage of self- assessment rubrics that can be summarized as to make sure students understand the rubrics to create more friendly designed rubrics according to the level of students for it would help them understand exactly what they are asked to do during the assessment. It also encourages future researchers to study a long term effect of using the rubrics to improve oral performance maybe by using them for a longer period of time to evaluate the how much improve.

Finally, the third national investigation consulted by the researcher was "The Effect of Self –evaluation as a Metacognitive Strategy to Improve Oral Production" by the Basic Level Students at Instituto Nacional de Aprendizaje", by Susan Vargas Rodríguez (2017). Vargas's general objective in her investigation was to analyze the effect of applying self- assessment rubrics as a metacognitive strategy to improve students' oral production. She applied her investigation in a group of eighteen students between 18 to 25 years old from Commerce English at Instituto Nacional de Aprendizaje (INA) in Hatillo, San Jose, Costa Rica. The students were

taking a basic English level course, nonetheless their proficiency in the English was varied; some were either basic, intermediate or advanced.

According to Vargas, in her investigation she aimed to identify the most common grammar mistakes made by students in oral production, then teach students the strategy of self-evaluating, and finally measure if the implementation of the rubrics helped them to correct their own mistakes thus improve their oral production. In order to meet her objectives, Vargas used observations and questionnaires to collect the required data. She started with a diagnostic of the students, she used an observation as a pre-test to identify the common errors in oral production; then she created the self-assessment rubrics based on the topics studied and the common mistakes found. After that, she instructed students to use rubrics to evaluate their own oral presentation and role plays previously recorded, this was for students to identify and correct their errors. In addition, students were given a notepad to keep a register of their most common mistakes as a self- monitoring tool of their learning. Once the pre-test data was collected, she applied her lesson plans and activities (including self-assessment rubrics); finally, she made another checklist observation to measure students' improvement in oral production.

Summarizing Vargas's results, she found that the usage of self-assessment rubrics as metacognitive strategy, indeed produced a positive effect in students' oral production. Students also, were able to identify their mistakes and correct them in future performances, which made them become more aware of their own learning, made didactic resources available to help them improve their English oral proficiency.

Scope

Before stating the possible outcomes, projections and accomplishments of this research, it is important to mention the place, time and population where the investigation will be carried out. The current investigation is going to take place in a private educational institution called Methodist High School of Costa Rica, located in Sabanilla, San Jose Costa Rica during the III Trimester of the present year. The population selected is a group of seventh grade students formed by fifteen students with an age range of 12-13 years old. The interactions with the students are going to be set during the English lessons of the group.

Since the expected results of the research are linked to the objectives and methodology of the investigation, the researcher identified the following goals and its limitations.

The main purpose of the current research is to analyze the effects of metacognitive strategies to improve critical thinking in seventh grade students at Methodist High School during the I and III Trimester of 2018. In order to meet this objective, the researcher will use instruments to diagnose students' critical thinking, then will apply metacognitive strategies through activities in order to help students improving their critical thinking in reading comprehension or literature analysis. Since the investigation is going to be carried out in only one group of seventh grade, it is expected to help students of this particular group to improve their critical thinking in English class, the other seventh grade groups in the institution will not benefit from the investigation at the beginning. Nonetheless, if the outcome becomes positive, it is expected that other teachers in the school engage into applying this methodology in their own lessons.

Another expectation is to meet the specific objectives. Being able to identify the drawbacks in student's critical thinking, having successfully application of metacognitive

strategies and evaluating their effectives in critical thinking improvement. If all these objectives meet successfully, students will be able to express their opinion regarding any topic that requires more deeply insights to be analyzed or understood, besides if students improve their critical thinking will also improve their problem solving skills making easier to express themselves, questioning, arguing or debating about academic, social, and daily life issues and situations. However these expectations are conditioned to the several aspects that could vary during the research: for example, the attitude of the students towards the researcher interactions and the strategies, the previous knowledge of students about the topic, the attendance to class of every student during the lessons, language barrier in some cases, the reduced time during the trimester to develop the investigation and also social an d emotional situations within the personal life of each student that might affect their learning.

Finally, the researcher will aim to achieve the investigation objectives and help students to improve their critical thinking in class by applying a metacognitive learning approach during her interactions with the students, but also the researcher will respect the current approaches and methodologies used in the school and will not tried to change or criticized the school teachers' techniques or the school methodologies; moreover the current syllabus and approaches dictated by the Minister of education (MEP) will be respected. The target investigation will only provide the results to the authorities of Methodist High School to be taken into account as their convenience and approval as a guide to their teachers.

CHAPTER II

THEORETICAL FRAMEWORK

The theoretical framework of the investigation represents one of the most important sections of an investigation. According to Vinz (2015), the theoretical framework provides the base and support of the research by mentioning all the theories and approaches in which the investigation is grounded. These theories represent the foundation of the investigation and support the researcher's work.

The theoretical framework of the current investigation contains the literature review consulted by the researcher to ground her own work. The concepts and theories stated in this paper correspond to critical thinking concepts and metacognition and metacognitive strategies.

Literature Review

Critical Thinking

Definition of Critical Thinking

Critical thinking is a complicated concept, throughout the years many authors have been giving definitions and improving those definitions to reach a more accurate concept. One of the most recent and best known definition was presented by Elder and Paul (2005). According to them, critical thinking is the mental process of analyzing and evaluating the way of thinking and one's thoughts in order to improve them. In other words, during the critical thinking process, the thinker needs to analyze, synthetize, and evaluate the information that has received from observation, experience, oral or written communication to develop and idea, argument, solution, or reasoning about the information receive to create one's opinion.

In reference to Lau and Chan (2018), critical thinking can be defined as the skill to apply clarity and rationality in the process of thinking to be able to choose ideas, actions and beliefs. All individuals can think, but not all of them can do it critically. In order to achieve the critical part of thinking, individuals must evaluate their thinking and put their thoughts through the universal intellectual standards and elements of thinking.

Universal intellectual standards of thinking

The intellectual standards of thinking should be applied to evaluate the quality and reasoning regarding a problem, a solution, an idea, an opinion, or belief. The evaluation of the information received can be applied by raising questions to verify if the information fulfills the intellectual standards and improve reasoning and critical thinking. According to Paul and Elder (2008), there are seven standards considered as the most relevant: clarity, accuracy, precision, relevance, depth, breadth, logic and fairness.

Clarity. If the statement or received information is considered unclear, the individual can ask for clarification, specific or detailed information, even for examples or repetition of the original insight in order to get better understanding of the situation and lead reasoning in a proper way.

Accuracy. The received information could be clear but incorrect or false. The thinker must ask or seek for proven or correct data to support the information, to verify if the statement is valid.

Precision. The received information could be considered clear and accurate but it lacks details and specific data. The thinker has to ask or look for more details to get a bigger picture of the statement or situation.

Relevance. Once again the information might be clear, accurate, and precise, but it is no considered relevant or important for the discussion or situation evaluated at the moment. The individual should evaluate if the received data represents importance or contributes to the situation.

Depth. The thinker must ask if the received information is superficial or not deep enough to address the complexity of the question or situation. The information must deal with all the variables and factors about the current situation.

Breadth. The received data, opinion, questions or argument could be clear, accurate, precise and relevant but it might lack breadth. The thinker should evaluate if another point of view, a counterpart side could be valid too in order to contribute to the situation.

Logic. The received information must encourage a logic chain or combination of thoughts; therefore, this chain of thoughts has to make sense and support each thought to be considered logic. If the chain is disorganized and does not make sense the thinking line will be non-logic.

Fairness. Usually thinking goes in the direction of the thinker's interests, but this not always meets fairness. The thinker has to consider all the insights, positions, and interests of everyone involved in the situation to reach fair opinions and solutions.

Elements of critical thinking

In favor of achieving a high quality critical thinking, every piece of information, question, situation or argument needs to be analyzed by the thinker through the elements of thinking and reasoning. According to Elder and Paul (2017), the thinking process possesses eight elements or parts: purpose, raising questions, information, inferences, concepts, assumptions, implications and point of view.

Every time an individual or thinker receives information he or she starts the thinking process; the person analyzes the information with a purpose: to answer a question, solve a problem or give an opinion. The thinker uses available information such as concepts, theories, points of view, and takes into account assumptions and consequences to reach a conclusion.

Purpose. Every thought or attempt to reason has an objective, a motive, a goal to achieve. What is the purpose of a task, strategy, activity, or project?

Questions. A good thinker needs to raise the correct questions that will guide his or her thinking process. These questions depend on the problem or situation currently analyzed by the thinker. What is the main issue? What is the situation? Do I understand the problem? The previous questions, represent examples of valid questions to start the thinking process.

Information. The thinker hast to collect data in order to answer questions or solve problems. This data consists of facts, information, experiences, evidence and everything the thinker could use to acquire knowledge and meet the purpose.

Inferences. According to the collected information, the thinker is going to be able to draw conclusions, inferences, insights and interpretations regarding the issue or situation.

Concepts. The concepts refer to the possible theories, principles, laws, approaches and methods that the individual might use to get the answer or solution. The thinker could utilize these concepts to make his or her own hypotheses to come up with the best ideas to meet the objective.

Assumptions. The thinkers have their own founded beliefs depending on the topic, problem or situation; they have acquired ideas or concepts throughout time in a conscious or unconscious

way regarding the situations. These assumptions need to be verify by the thinkers to avoid taking incorrect information for granted.

Implications and consequences. All thoughts and actions are followed by other thoughts or actions in a logic way. It is similar to the cause –effect theory. A good thinker will analyze each possible consequence of each decision.

Point of view. The point of view represents how the thinker sees and perceives the situation or problem. The individual must wonder why he or she has a certain point of view and considers the viewpoints of others to appeal fairness.

Characteristics, Skills and Traits of a Critical Thinker

All human beings can think, but not all them can do it critically. In light of this statement, the researcher has investigated some author and their theories about what should be the adequate characteristic or skill of a good critical thinker.in the following paragraphs the researcher will make a summary of some of the more relevant characteristics found.

Valuable intellectual traits

According to Elder and Paul (2014) and the Critical Thinking Foundation, if a thinker applies the standards and elements of thinking as a habit or on a regular basis. The thinker will become a good or cultivated thinker who will be able to improve his or her critical thinking level. They observed that eight characteristics or intellectual traits represent the more valuable or desirable in a thinker: humility, courage, empathy, autonomy, integrity, perseverance, confidence in reason, and fair-mindedness.

Intellectual humility. The human mind has difficulty accepting it is wrong about a topic, unconsciously humans usually assume they have an answer for every issue or situation.

Nonetheless, achieving intellectual humility seems easier by making an effort to recognize the limitations of one's knowledge, accepting ignorance or lack of understanding might lead the thinker to be humble and eager to learn or acquire new knowledge.

Intellectual courage. Intellectual courage is developed whenever the thinker decides to stand true to his or her ideas, opinions, point of view and thinking about a topic despite the fact that others do not approve the ideas or are not quite popular. Thinkers also show courage when they recognize their ideas or beliefs could be incorrect, dangerous or irrational even though, when those ideas were previously strongly founded. Thinkers then, decide to challenge their own knowledge and look for new information.

Intellectual empathy. Intellectual empathy is reached every time thinkers place themselves in someone else's place to try to experience what the other person is currently suffering or thinking and truly understand it. In other to be intellectually empathic, individuals have to take into account others' viewpoints, assumptions and opinions besides their own and become willing to recognize past similar situations when they strongly believed were right but were wrong.

Intellectual autonomy. Critical thinking ideal goal is to get total control over one's own mind and thinking process. This autonomy aims to control thoughts, beliefs, assumptions or insights independently from others' approval. This autonomy represents a major duty to thinkers since they must have to be able to evaluate their reasoning to and validate if their thinking is rational, correct, and based on believable facts and evidence.

Intellectual integrity. Thinkers achieve intellectual integrity whenever they rule themselves with the same standards as others regarding validation and evaluation of facts,

evidence, assumptions and opinions. Thinkers should be honest and true with their own thinking and accept if they have inconsistencies, doubts or contradiction in their reasoning process.

Intellectual perseverance. Perseverant thinkers are able to overcome difficulties, confusions and obstacles to accomplish their purpose, to reach a solution or improve an opinion. Thinkers need to evaluate if their point of view is rational or not and evaluate other viewpoints and struggle with the confusion for longer than expected to get resolution and do not give up.

Confidence in reason. Critical thinkers believe that giving people the opportunity to reason and improve their thinking is the best way to reach higher standards in humankind interests and behavior. Encouraging others to cultivate and develop their thinking and reasoning competence will lead to teach them how to think buy themselves and draw logical, rational, and coherent ideas.

Fair- mindedness. A good critical thinker needs to focus on fairness, he or she must treat all arguments, viewpoints and opinions alike without letting his or her own assumptions, feelings and interests interfered with the received information. All the elements and standards of the thinking process have to be applied to reach fairness.

Skills of a Good Critical Thinker

According to Facione (2015) as cited in Delphi (1990), a good critical thinker shows the fallowing characteristics and skills: " a)inquisitive with regard to a wide range of issues, b) concerned to become and remain well-informed, c) alert to opportunities to use critical thinking, d) trusting in the processes of reasoned inquiry, e) self-confident in their reasoning skills, f) open-minded regarding divergent world views, g) flexible when considering alternatives and opinions, h) understanding of the opinions of other people, i) fair-minded when appraising reasoning, j)

honest in facing biases, prejudices, stereotypes, or egocentric tendencies, k) prudent in suspending, making or altering judgments, l) willing to reconsider and revise views where honest reflection suggests that change is warranted." (p.4).

The Merriam Webster online dictionary defines the term skill as the ability of learning and performing something with adequate competence. As any skill, critical thinking skills and the ones described by Facione, can be acquired, improve, or develop with dedication and perseverance, since they are skills, could be learned, improved and cultivated through time.

Other authors consider that since critical thinking is such complex concept, the skills of a good critical thinker should not be limited or universally standardized. According to Erstad (2018), in order to become an exceptional critical thinker, the students need to focus on six crucial critical thinking skills. The first skill refers to identification of the problem or situation and identify all the factors, areas and people involved. The second one consists of researching all arguments, ideas, and claims and evaluate their authenticity and truthfulness. The third skill is to recognize biases and analyze information in an objective way; that is one of the most difficult skills to improve. The fourth one refers to infer and draw conclusion from the received information and determine which inferences are correct or incorrect. The fifth skills is relevance, determining what information is important or contributes to the purpose. Finally, the sixth skill corresponds to curiosity, thinkers must remain productively curios about the problem and situation and questioning every piece of information or argument.

Importance and Benefits of Critical Thinking

As mentioned in chapter one, critical thinking represents a relevant concept in today's world in every field, education, work, business, technology, science, industry and health. Every

year, millions of people need to become more completive and highly prepared to fulfill a job position or become expertise in a certain field; as a result, individual have to educate themselves and improve all their skills to achieve competence. One way to accomplish this, it's by improving their critical thinking and problem solving skills to become good critical thinkers. These desirable skills were developed previously in this chapter by the researcher.

According to Jones (2016), there are several benefits at work that can be brought up by applying critical thinking. One benefit corresponds to leadership, a good leader must be skillful to solve problems, take decisions and show empathy to his or her teammates. Another important benefit is the improvement of teamwork, a good critical thinker would be able to deal with different situations, solutions, viewpoints and opinions from other, by knowing how successfully deal with them, the thinker can contribute to reach efficient conclusions. Time saving stands also as an advantage; an excellent thinker would establish priorities and identify what situations are more important than other to solve in a faster way the more relevant situations and save resources. Being able to identify and use multiple methods and approaches to solve a problem or reach a decision remains as another benefit of critical thinking acquisition.

Other advantages observed by Jones correspond to communication improvement, conflict resolution and detailed orientation. A great critical thinker in the workplace could pay attention to different conflicts, analyze them objectively and give fair solutions. Besides, the thinker has been trained in evaluating evidence or researching to prove his or her theories or ideas to communicate them with confidence and success. Finally, critical thinking teaches how to self-question everything, including situations, claims, arguments, information and even product, a good critical thinker would have the skill to pay attention to detail, look for flaws and evaluate the outcomes or final product according to the company quality standards. All these benefits can

also be achieved in the classroom, that is the reason why training students in critical thinking is such an important deal in education. Students should be instructed in critical thinking since early stages, so they become successful individuals with critical competence in different fields of life

Improving critical thinking skills might not only help individuals in successfully developing a career or keep a job, but also, it would help them to enhance their emotional intelligence. As a consequence of that, individual could be able to manage social, affective and emotional aspect of their life in a better way which would lead them to become happier individuals with a sense of balance on their lives.

Measuring Critical Thinking

Measuring and evaluating critical thinking might to be an easy task; throughout the years several researchers have attempted to create instruments to measure thinking, all of them have utilized qualitative and quantitative instruments. The qualitative instruments focus on small groups, in evaluating their reasoning skills through essays, open question questionnaires, observations and conversations; while the quantitative instruments are more universal and common. These instruments are applied to bigger groups or populations and consist of numerous questions with range of possible answers or a Likert scale to analyze data. Other instruments commonly used by teachers are self-created rubrics to assess students' critical thinking.

According to Mendoza (2015) some of the most relevant instruments are the Critical Thinking Questionnaire (CPC2), the Pencrisal Test.

Critical thinking questionnaire (CPC 2). According to Santiuste (2001) as cited by Mendoza (2015), the questionnaire consists of 30 items that evaluate the critical thinking dimensions established by Santiuste: substantive dimension and dialogical dimension. The test

assesses the questions through a scale of 1 to 5 referring to the following values: 1= Totally agree, 2 = Agree, 3 = Sometimes, 4 = Disagree, and 5 = Totally disagree.

The substantive dimension includes all the actions that an individual would perform or do in order to explain his or her point of view and the evidences and reasons that support it. On the other hand, the dialogical dimension includes all the actions the individual would do in order to analyze opposite viewpoints and arguments different to his or her own. These actions also will help individuals to identify varied perspectives and create their own reasonable opposing arguments and opinions successfully. Both dimensions evaluate the four basic skills: reading, writing, listening and speaking, with the purpose to attempt to measure individual critical thinking.

PENCRISAL Test. The PENCRISAL test is another instrument to measure critical thinking. This questionnaire attempts to measure thinking skills in most common or everyday situations. According to Rivas and Saiz (2012), the test consists of 35 items including problems or solutions expressed in simple - common everyday language and that require an open response and justification by the individuals. The items are built according to five factors: deduction, induction, reasoning, decision making and problem solving skills. The answers to the items are validated trough a scale from 0 to 2 points where 0 corresponds to an incorrect answer or solution, 1 to a correct solution but lacks from justification or reasons, and 2 corresponds to a correct answer based on valid reasons and explanation.

As mentioned before in this chapter, critical thinking can be measured by identification and improvement of the corresponding skill of a good critical thinker, and by evaluating if the thinker fulfills the skills, elements and intellectual standards of the critical thinking theory.

Critical Thinking in Reading Comprehension and Literature

Nowadays, developing and improving students' critical thinking have become more urgent since it is imperative that students engage themselves to thinking critically and reason in order to successfully contribute to society through science, technology, health, business and other important fields and become integral individuals who can enjoy or benefit from a good quality of life and all its implications. By enhancing students' thinking skills and teaching them how to do it, students might be able to raise questions, solve problems, expressing opinions, viewpoints, augments, identify and analyze their insights, biases and assumptions, and also they would be able to infer and guess about certain topics or situations; a good way to improve thinking and get students closer to criticism is by working with literature and reading comprehension of text.

According to Chang and Tung (2009), analyzing a literature piece requires students to apply the principles and skills of critical thinking. During the reading process, students need to recall previous information and activate prior knowledge or experience to attempt to construct meaning from the new text. Moreover, students need to recognized facts, opinions, arguments, viewpoints and differentiate them with the purpose of understanding the intentions of the author or narrator; then they must use their own interpretation and analysis to reach and create their opinion and statements regarding the text.

In addition, the literature work provides students with several situations, problems, scenarios, subjects and themes depending on the type of literary piece, whether fictional or non-fictional pieces. All of this exposure to different aspects can help the students gain knowledge and develop curiosity about the topic they are reading; as a consequence, they will be challenged to accept or differ from the author's point of view or question the provided facts within the text

and apply the reasoning process to create their opinion or make their mind about a situation or topic.

As observed by Kathib (2012), one of the most important objectives of teaching is to engage students to think critically and literature represents a useful tool to do it. Using fictional and non-fictional material regularly in class will help students to acquire knowledge, make judgments,evaluate facts and evidence, and put into practice all the relevant skills of a good critical thinker on regular bases; as a result, students' critical thinking will be improved.

Writing book reports and analyzing literature represent common tasks teachers usually ask students to do since it requires higher thinking and reading comprehension skills. Besides the common components of the report such as identifying characters, plot and setting, students need to go further. According to Private Writing (2017), students need to identify the conflict of the stories and find the resolution; they also have to recognize and evaluate facts and evidence that support the conflict and all the elements involved in the analysis. Furthermore, one of the most difficult components of the report seems to be finding the symbolism and meaning of literature figures such as metaphors. Finally, to complete the analysis, students must adopt a critical approach in which they will base their ideas, view and analyze the topic, an approach to base their point of view and critically refer to their ideas.

Learning Strategies

The current research aims to use metacognitive strategies to improve students' critical thinking. Metacognitive strategies represent a type of learning strategy. It is mandatory to make a review of certain concepts first, such as strategy, learning strategies, metacognition and metacognitive strategies.

Definition of strategy

The definition of strategy was first used in military or war contexts; the Cambridge online dictionary defines strategy as "a detailed plan for achieving success in situations such as war, politics, business, industry, or sport, or the skill of planning for such situations" (2018). It also refers to strategy as "a long-range plan for achieving something or reaching a goal, or the skill of making such plans" (2018). Summarizing both definitions, it is clear that a strategy is the plan made or applied with the purpose of reaching a goal. Planning a successful strategy can include using methods, techniques, actions and activities.

Definition and types of learning strategies

According to Oxford (2017) throughout time, mostly during the last three decades, many authors have attempted to define learning strategies; as a consequence, for several years the concept has been confusing although some relevant points have conveyed and remained as the key points of the term. Oxford (2017) makes a summary of the most known definitions according to Okada, Oxford, Abo, (1996) as cited by Oxford (2017), learning strategies are behaviors, actions and steps followed by language learners with the purpose of improving their learning. Another definition was used by Leaver, Erhman and Shekthman (2005) as cited by Oxford (2017), learning strategies correspond to conscious or unconscious actions or techniques an individual uses to learn. Nonetheless, Oxford (2017) states that the actions and steps must be chosen and applied by the learner in a conscious way. The learner must be willing and aware of the actions he or she is using in order to improve their learning.

Oxford also mentions that some strategies such as planning and monitoring could be used to learn different subjects and problem solving skills in every aspect of one's life and other strategies are more used for specific purposes like learning a foreign or second language.

According to Oxford (1990), language learning strategies can be classified in direct and indirect strategies. The direct strategies include memory, cognitive and compensation strategies; on the other hand, indirect strategies include metacognitive, affective, and social strategies.

Direct strategies. Direct strategies are the ones that engage the mind in a mental process to achieve a specific purpose. The memory strategies help the learners to store and retrieve information such as, recognizing and applying images and sounds, creating metal links to access information. The cognitive strategies are used to understand and produce language; it is common for learners to practice language through repetitions drills, sending and receiving messages and recognizing structure patterns. Finally, the compensation strategies are used by learner to be able to communicate in the foreign language even though they suffer from lack of knowledge. Compensation includes overcoming limitations in communicating, speaking and writing by recurring to gestures, asking for help, choosing a topic or mentioning synonyms, and it includes guessing intelligently by using clues, getting the gist or gaining understanding for previous knowledge or background.

Indirect strategies. These strategies are called indirect since they help learners to be involved and manage learning without using the target language. Affective strategies involve the attitudes, emotions, motivation and values of the learners towards the learning process. The main objective of these strategies is to help learners to be self-confident, control their emotions and lower anxiety when communicating. Social strategies include learning the language by interacting with others. This interaction can be achieved by cooperating with others, asking and clarifying questions and information, showing empathy and understanding of others' cultural context. Finally, one of the most important and more commonly used type of strategy is the metacognition that involves managing, controlling and regulating the learning process in every

subject or situation and not only in language acquisition. These strategies are going to be widely developed by the researcher in the following paragraphs.

Metacognition and Metacognitive Strategies

Metacognition seems to be a complex term that several authors have defined in similar ways. Each author agrees with the previous definitions and add more insights and information to that. Due to that fact, this present research will focus on applying some metacognitive strategies that seem relevant to describe the concept of metacognition and its origin.

According to Tarricone (2011), one of the first definitions of metacognition was given by Flavell (1976), metacognition refers to the ability of self-regulating one's own learning process and knowledge acquisition. In the following years Flavell continued researching the subject and updating his own definition. Metacognition, so, intends to be aware on an individual cognitive process to learn, but it raises de questions of what is cognition? The Oxford dictionary refers to cognition as the "mental action or process of acquiring knowledge and understanding thought, experience and senses". To sum up, cognition is taking place every day at every second, it's the internal process of the brain where it receives information through senses and releases an action, in the case of the learning process, through cognition the learner can active his or her memory to store or retrieve information, and acquire and collect new data. On the other hand, metacognition allows the learner to regulate, monitor and evaluate his or her cognition process in order to improve learning. According to Brown (1987) as cited by Tarricone (2011) metacognition is the ability to control our own cognitive process.

As previously mentioned, metacognitive strategies help learners to plan, monitor and evaluate their learning process. Saylor Academy (2012) mentions that metacognitive strategies are the activities that learners choose to control their learning process and how it progresses with

each activity to ensure they will accomplish their learning goal. Some of these strategies include to monitor if the topic is being understood, recognizing lack of comprehension, identify strategies that help to improve understanding, adjusting the speed or pace of one's learning process and keep the necessary attitude to learn.

One of the most important classification of metacognitive strategies was stated by Rebecca Oxford in 1990. She classifies metacognitive strategies in these factors: "centering your learning, arranging and planning your learning and evaluating your learning." These strategies were meant to be applied in second language acquisition classrooms, but also, they can be applied to learn other subjects or topics. In addition, Oxford (2017), reinforces the characteristics of the metacognitive strategies and refers to them as meta-strategies in self- regulated L2 language learning strategies. (S2R). Moreover, Forgarty (1994) observed that in order to engage into metacognition, learners need to followed three main stages: developing a plan before completing a task, monitoring understanding and comprehension, and evaluating their thinking and learning after the completion of the task.

Centering your learning. To center learning, students need to concentrate their energy, interest and resources in the main objective or subject of learning; they need to focus in the current task or activity. There are three major strategies to center the learning; the first one is overviewing and linking to already known material, activating previous knowledge helps students to engaged in the new topic or task and get familiar to it. Students can ask themselves, what do I know about this, did I already learn something about this subject? Referring to language learning, they can ask did I learn similar vocabulary or similar grammar rules or patterns. In the specific case of reading comprehension or literature analysis as it is the focus of this research, students can ask themselves: did I read something similar to this text or book? Did I experience similar

situations? Did I solve similar problems? What were mi viewpoints or opinion about previous readings?

The second, strategy relate to paying attention; direct attention leads to concentrate in the specific task and avoid distractors while indirect attention refers to previously decide to pay attention to certain details or elements regarding the task, in language learning it could be to identify, register, tone, accent, in reading could be apply to identify characters, setting, main idea or supporting details. The third centering strategy applies mostly to language learning, it consist in delaying speaking in the target language and focusing on listening and reading in order to get familiar with the language and built self-confidence and comfort before starting to talk.

Arranging and planning your learning. According to the United Nations Developing Programme (2009), planning can be defined as "the process of setting goals, developing strategies, outlining the implementation arrangements and allocating resources to achieve those goals" (p.7). As mentioned in the previous definitions, the planning strategy involves to set the objective and purpose of the task, the tools resources and activities that are going to be needed in order to achieve the goal. Oxford (1990) identifies six basic planning strategies: finding out about language learning, organizing, setting goals and objectives, identify the purpose of the task, planning a language task, and seeking opportunities to practice the language.

The first planning strategy corresponds to finding out about language learning, researching and discovering students' difficulties when learning and how to address those problems by using the proper strategies to fix them. The second strategy is organizing, arranging the proper physical space and environment, results immensely important. The learners need adequate room where they feel comfortable and can focus; listening and reading require environments absent of background noises and distractions. When at home or in the classroom,

students and teacher must set a proper environment to learn. Organizing a schedule also results relevant in learning planning, setting time to practice, studying and relaxing in class or at home.

Setting goals and objectives represents the third strategy. The goals can be developed for short or long term, and they should be set for all the language skills: speaking, listening, reading and writing. In order to be successful, the goals have to be specific, realistic, met in a deadline previously set by the learner. According to Israel (2007) setting goals is a great metacognitive strategy to improve reading comprehension, students think and set their goals before starting to read. One example is to make a "to do list" before the reading task, in other words, they can write their purposes" identify, characters, setting, conflict, main and supporting ideas, etc; also they might activate their preview knowledge by self-questioning, what do I know about this topic? Is the tittle related to something I know? What would I learn if I read this?

The fourth strategy is to identify the purpose of the task, the teacher can help their students by informing them the purpose of the task and discuss it before starting the task, this way students could have a better understanding of the task and avoid confusion. The purpose might be linked to the goal and aims of the task. The fifth arranging strategy refers to planning for a specific task. Students need to understand the task and the resources or aids they will need to complete the task, recognize the resources they have and what resources they need to look for. Finally, the last planning strategy corresponds to seeking opportunities to practice the target language, teachers must encourage students to look for opportunities to practice the language outside of the classroom and apply what they have learned. The students can plan their practice by listing the activities according to their specific needs, for example, they can practice their listening skills by listening to music or listening dialogues of movies, and practice their reading

skills by reading books, comics, or magazines in the target language different from the ones they read in class and monitor their comprehension and analysis.

Evaluating your learning. According to Oxford (1990), evaluating your learning involved two strategies or categories: self- monitoring and self-evaluating. When students apply self-monitoring they will be able to consciously notice their mistakes in the four skills (writing, reading, listening, speaking) depending on the task there are working on, and correct them. Nonetheless this strategy should be applied carefully in other to avoid students to be obsessed with error correction and affect communication. Anderson (2002) observed that students can accomplish their goals by monitoring the use of strategies; they can ask themselves if they are still using the selected strategies in a correct way or if they have been working on different strategies and apart themselves to their main objectives. Self-monitoring, allows students to be aware of their own learning process and their thinking; it involves a conscious process to realize if what they are doing is correct or it needs correction or improvement. In a reading task, students can implement self-questioning, summarizing, paraphrasing, inferring, critical reflection or implementing think aloud activities, to monitor their comprehension or analysis of the text or literature piece.

The other evaluating strategy refers to self-evaluating. Whenever students self-evaluate their performance, they attempt to measure the progress of their learning. According to Anderson (2002), second language learners engage in metacognition when they try to evaluate their progress and performance and figure out if their learning is effective. Teachers can help students to evaluate their learning by asking them to answer four questions: what I am trying to accomplish? What strategies I am using? How well am I using the strategies? What else can I do? These questions will lead students to evaluate their learning process and make the necessary

changes to improve their learning. Some effective actions to evaluate performance are keeping journals, diaries, records, checklists. In a reading task, one effective strategy can be to answer questions regarding the text or reading, identifying causes, effects, consequences; sharing opinions, inferences or engaging in discussions about the topic in analysis.

Implemented Metacognitive Strategies

In order to meet the second specific objective of the current investigation, which is to apply metacognitive strategies in order to improve seventh grade students' critical thinking at Methodist High School, the researches is going to use self- monitoring as self-evaluation as metacognitive strategies and apply four activities or tactics corresponding to these to strategies. As mention before, according to Oxford (2017), metacognitive strategies, more recently called meta strategies are planning, monitoring and evaluating, and each strategy can be apply or develop by using tactics, which are define as the manifestations or actions of the strategies done by learners in an specific setting with a specific purpose or objective. The four tactics or activities tar are going to be used by the researcher correspond to: think- alouds, active thinking routines (K-W-L charts, and Think –Pair- Share), and elaborating heuristics.

Think – aloud. According to Israel S.E. (2007), a think aloud is a metacognitive assessment tool that allows students to express their thoughts orally when reading. This activity helps teachers monitor students thinking and reading process, and also will allow students to be aware of what they are thinking during the reading. It is considered important, that students be informed of the purpose of the activity while carrying it out and use specific prompts or question to encourage themselves, such as, tell me more, what are you thinking? Can you explain further; could you rephrase or elaborate in a different way? Some of the benefits think – aloud activity are to help teacher t c collect valuable information regarding their students thinking, and reading

process, and for students, it will help them to monitor and be aware of their knowledge and thinking about the current topic., also the process can lead them to established a chain of logical thought to improve their thinking and achieve the objective.

Active thinking routines. According to Richhart (2014), thinking routines are tools that are used constantly in the classroom to involve or support thinking actions like making connections, giving descriptions and explanation, discussing viewpoints, perspectives and reasoning according to evidence. The structure of the routines lays in some characteristics: the routines are explicit, they have goals and purpose, they are easy to learn and remember, they can be practiced individually or in groups in different contexts, and finally they can show or reflect students' thinking. These routines become familiar to teachers and students. For the current research purposes, the researcher is going to use two thinking routines based on monitoring and evaluating meta strategies: K-W-L charts, and Think - Pair- Share.

K-L-W charts. According to Ogle (1986) as cited in Tompkins (2014), a K-W-L chart is commonly used tool or tactic used by teachers to activate students' prior knowledge of any topic, decode and organize the information as they ask questions. The letters K-W-L stand for, what I know, what I wonder o want to know and what I learned. The chart is divided in three columns, one for each letter category. Students can develop their chart individually, as well in pairs or groups. A chart can be completed by the whole class with the teacher's guide. The general objective of the chart is to engage students in metacognition to activate background knowledge, guide their thoughts and help them to improve their learning through self- monitoring and self-evaluating their thinking process.

Think – Pair –Share. According to Lyman (1981) as cited and updated by Harvard School of Education (2015), a Think -Pair- Share routine takes place when a teacher provides a

question, situation, problem and gives student some minutes to think and develop ideas about the given question. They must analyze the topic and then share and discuss their ideas with a classmate. The main purpose of this activity is to encourage students to think and reason about a specific topic, and then explain and defend their ideas with classmates. It also encourages discussion since not all students think the same or reach the same viewpoints or opinions. By using this tool, students will be self-monitoring and evaluating their thinking and their classmates' thinking since they need to write their ideas and listen to their classmates' ideas as well.

Elaborating heuristics and concept maps. Armstrong (2017) observed that a great metacognitive tool to improve students' critical thinking is to elaborate heuristics and map concepts. A heuristic consists of attempting to solve a problem or reach a conclusion, solution or discovery. In order to elaborate the heuristic students can follow several organizing structures such as algorithms, diagrams, or create their own pattern to follow. This map will help students to organize and develop their ideas and thoughts. To successfully complete the task students must monitor their thinking and use strategies, and go evaluating their ideas, approaches, or methods implemented to achieve their goals and answer questions, solve the problem or formulate opinions.

CHAPTER III

METHODOLOGICAL FRAMEWORK

This chapter explains the methodology and designs followed by the researcher to complete the current investigation. Besides, in this chapter, the researcher describes the instruments, strategies and activities that are going to be implemented during the investigation to collect data, obtain results and meet the objectives of the research.

According to Barrientos (2012), the methodological framework of a research paper is one of the main parts of the investigation since it will determine the steps and strategies to collect data and how to analyze them in the direction of obtaining the expected results and fulfilling the purpose of the research.

Research Approach

In the benefit of facing the problem statement of the investigation there are three approaches that can be used by the researcher as reported by Hernandez (2014). The approaches correspond to quantitative, qualitative and mixed approach. In the following paragraphs a brief description of each type will be provided.

In the quantitative approach, according to Hernandez (2014) the researcher collects the required information and analyzes it based on numbers, figures and statistics to prove the hypothesis of the investigation. When using a quantitative approach, the researcher is required to measure a phenomenon or the problem, subject of the investigation, and its frequency. This type of investigation is more objective due to the fact that all the collected data must be analyzed through numeric and statistical analysis to test the previous exposed hypothesis and theories, during these analyses, the researcher takes into account the possible variables, error margin, and

sample of population that might affect the investigation. Some useful instruments to implement in a quantitative research are surveys and questionnaires with close ended questions and a Likert scale to measure the evaluated items.

Another research approach is the qualitative approach, as mentioned in Hernandez (2014), a qualitative investigation focuses on the interpretation of phenomena from the point of view of the participants by taking into account their natural environments and context. In a qualitative investigation, the researcher needs to get to know the individuals, their environment, their costumes, traditions, and their socio economic and educational status in order to address the problem or phenomenon in this population and analyze its effect on them. In this type of approach, the information is taken directly from the participants by observations, interviews, and questionnaires. It results imperative to indicate that the current investigation is developed from a qualitative point of view for the reason that it aims to analyze the effect of a particular phenomenon in specific individuals of a population, more detailed it aims to analyze the effect of applying metacognitive strategies to improve seventh graders' critical thinking in a school. To meet this objective, the researcher previously met with the students at the school and their environment and she is going to implement instruments to collect data directly from the students to analyze the effect of metacognition on students' critical thinking.

The last approach corresponds to the mixed approach, which is a combination of characteristics from quantitative and qualitative approaches. As observed in Hernandez (2014), a mixed method is considered by a researcher when a better understanding of the phenomenon or problem needs to be accomplished and several instruments including quantitative and qualitative and their corresponding analyses are required for that specific study. This approach has been created more recently than the other two.

Research Method

Every research approach has its specific method or design to carry on the investigation. According to Hernandez (2014) a research design refers to the way in which the investigation is going to be done; it includes the plan and steps to be followed in order to meet the objectives of the research and answer the investigation question. He mentions that for a qualitative approach there are five main designs: grounded theory, narrative, ethnographic, phenomenology, and action research. In the following paragraphs, the researcher will mention a brief description of each design.

The grounded theory design consists in creating a theory to explain the studied phenomenon from the collected data and its analysis. In the narrative design, the researcher studies history, events, facts, and the life or story of an individual or group; moreover, the researcher takes into account the timeline of the events and the feelings, opinions and experiences of the individuals to create a complete narrative version of the event. On the other hand, the ethnographic design bases the investigation in studying the culture, traditions, beliefs, socioeconomic and political context, education and way of life in general of specific communities, societies or civilizations.

The current investigation takes into account the phenomenology and action research as its design. The phenomenology, according to Hernandez (2014), studies and explores the experience and effects of an event or situation in a specific group of individuals. This design aims to study the impact, meaning, aptitude and experiences of the individuals towards the phenomenon. The group of people could be from a particular community, city, workplace or classroom as it is the case of the current research which attempts to study the effects of applying metacognitive strategies to improve student's critical thinking in a specific group of seventh grade students at

Methodist School. The metacognitive strategies represent the phenomenon in which students are going to be exposed to in order to reach a reaction, in this case, to try to make a change in students' critical thinking. According to Creswell (2013), as mentioned by Hernandez (2014), the phenomenological method dictates the importance of collecting information directly from the participants of the research, considering the place and time of the application and instruments and taking into account the natural environment of the participant. In order to meet these criteria, the researcher is going to collect data from the seventh grade students in their school by using observation checklists, interview, questionnaires and a feedback board.

The other design used in the present investigation corresponds to action research. According to Cohen, Manion and Morrison (2005), an action research takes place when a problem involving people, procedures and tasks needs an urgent solution. It is the most common research method applied in the classroom by teachers. Action research contemplates identifying a problem in a group or population, implementing a plan based on strategies and techniques to aim solving that problem and finally presenting the outcomes of those implemented strategies concerning the individual and the problem. In the current investigation the researcher will apply the mentioned principles of an action research paper; she will use instruments to identify the difficulties of students' critical thinking; she will apply metacognitive strategies within the classroom to attempt to solve the problem and induce a positive change in student's critical thinking, and finally she will evaluate the e effectiveness of the implemented strategies.

Information Sources

Information sources are considered highly relevant in a research paper because they are proof that the researcher's work has valid theoretical and methodological background. In addition, the variety of sources allow the researcher to choose the specific instruments she is

going to need to collect valuable data from her investigation according to the qualitative approach implemented in the current research. The Yale University Library (2017) states that there are three main types of information sources: primary, secondary and tertiary sources.

The primary source corresponds to the original source or material about a topic which has not be evaluated or interpreted by others yet. These sources include first hand results, data, opinions and discoveries. The information can be presented in print, electronic form or directly from individuals in a conversation. Some example of primary sources are literary creation such as books, novels, stories, poems, web sites; surveys, questionnaires, interviews, video or audio recordings, and speeches. In the specific case of this investigation, the researcher already used primary sources as theories in books or websites to obtaining information from the theoretical work and literature review on chapter I and II; books such as Teaching Students Thinking Skills and Strategies by Dorothy Howie (2011) and "Metodología de la investigación" by Roberto Hernández; and websites like www.criticalthinking.com, besides she is going to collect data directly from the participants by applying questionnaires to students, an interview to a teacher of the school and collect information directly from class observations.

The secondary sources consist in the opinion, interpretation or evaluation of a primary source. In other words, they are someone else's point of view and analyses of the original material or evidence. Examples of these sources includes biographies, newspaper and magazines articles about the original source such as published interviews not made by the current researcher, journals, documentaries, and critic reviews among others. In the current investigation some previous investigations were taking in to account in chapter I as antecedents from this research like "The Effect of Self –evaluation as a Metacognitive Strategy to Improve Oral Production Made by the Basic Level Students at Instituto Nacional de Aprendizaje" by Susan Vargas (2017),

articles such as “Importancia Marco Metodológico” by Minor Barrientos (2012). Moreover, some articles were considered in the literature review and background and an interview to a teacher about what she had previously noticed about students’ critical thinking drawbacks will be considered in the research.

The tertiary sources constitute an interpretation and collection of information from primary and secondary sources; they are usually confused with secondary sources. Additionally, these sources help the researcher to locate information from primary and secondary sources. Dictionaries, encyclopedias, chronologies, abstracts, guide books, indexes and manual represent examples of tertiary sources. During the current work some indexes, abstracts and dictionary were consulted to clarify concepts and located specific information.

Analysis Categories

The researcher has identified two main categories in the current investigation: critical thinking and metacognitive strategies.

Critical Thinking. As mention in previous chapters of the research, according to Elder and Paul (2005), critical thinking can be defined as the mental process of analyzing and evaluating the way of thinking and thoughts in order to improve them. Since it is a process, it can be developed and improved through time by using adequate strategies. Critical thinking represents a difficult concept to evaluate or measure due to the fact that nobody can read minds to know what is exactly happening in someone’s mind. In the present investigation, the researcher will apply an observation checklist, and questionnaires based on the characteristics, competences and habits of a good critical thinker to attempt to measure students’ critical thinking and possible drawbacks and difficulties they might have when expressing ideas critically.

Metacognitive strategies. Metacognition is one of the more recently implemented teaching methods. As mentioned in previous chapters, many authors have referred to metacognition. One of the first definitions was introduced by Flavell, according to Flavell (1976) as cited by Tarricone (2011), metacognition refers to the process in which an individual is aware of her or his own thinking process. To be engaged in metacognition, the individual must put into practice self- questioning and self- monitoring their own thinking.

As Pierce (2003), mentions, in order to improve learning and avoid just memorizing contents, students must learn studying and thinking strategies such as metacognitive strategies. Students need to be provided with tools that help them to learn how to think and how to learn, not only to memorize contents, but also to be aware of their learning and construct significant and meaningful learning, as well as improving their critical thinking skills. For the current investigation, the researcher will apply metacognitive strategies like self- monitoring and self-evaluating by using think alouds, K-W-L charts, think-pair- share activities, and creation of heuristics with the purpose of teaching students these helpful strategies and improve their critical thinking regarding reading and literature analysis with academic purposes and also the skills will help them in real life situations, problem solving and decision making.

Data Collection Instruments

As previously explained in this chapter, an investigation needs to follow an approach and a design, but also in order to fulfill the objectives of the investigation, the researcher needs to implement and create instruments to collect the data and information required. As the presented work is a qualitative, phenomenological and action research, the instruments that will be used to gather information correspond to qualitative instruments such as observations, an interview, and questionnaires to obtain information directly from the participants.

Observations and checklists. The observation is a fundamental instrument in a qualitative investigation since it allows the researcher to be immersed in the environment of the participants and observe not only the overall event, but also all the actions, gestures and reactions of the participant at the moment. Additionally, observation helps to collect data at the precise moment, in other words, the information is caught "live". Hernandez (2014) states that there is a difference between seeing and observing. The researcher needs to be trained not only to see what is happening around him or her, but to observe using all his or her senses to collect more valid, detailed and significant information. Observation can be classified according to the level of participation of the observer as passive or active. In this case, the researcher will implement a participative observation in which she will attend to a lesson at the school. She will observe the class; and she will actively participate in the lesson to introduce the metacognitive strategies and the topic studied. Moreover, the researcher will use a checklist observation as a pre-test to meet the first specific objective of the investigation which is to identify the drawbacks on students' critical thinking. She will also use a checklist observation as a post- test to meet the third specific objective which is to evaluate the effectives of metacognitive strategies on students' critical thinking. The checklist will contain four columns: the first one contains the components or criteria, in this case, the criteria will be the eight intellectual traits and skills of a good critical thinker, the second one has the word "yes" that will be checked if the criteria is met, the third one, a "no", if criteria is not met, and the last column is for "comments".

Besides using checklists as a pre-test and post -test, the researcher is going to use a checklist to collect information from each activity. This checklist has four columns; the first one contains the statement or criteria, the second and third columns contain the words "yes" and "no",

and the last one indicates "comments". By using this activity checklist, the researcher will be able to have feedback from the implementation of each activity.

Interview. An interview represents another qualitative instrument to collect data from an individual participant in the investigation. According to Galan (2009), the interview consists in conversation or an interchange of verbal communication between the researcher and one or more participants. The interview allows the researcher to ask questions based on the problem or topic studied and listen the responses of the individual. During the interview the researcher can also observe the gestures and aptitudes of the participant to gather more meaningful information. Additionally, the interview might have open and close questions, since it is a conversation the researcher could expand the questions depending on the answers of the participant and also can explain the purpose of the interview. The interview could be more informal and flexible than a written questionnaire or survey.

In the current investigation, the researcher will interview an experienced teacher at the school, a teacher who has worked in the school for several years and knows the seventh grade students. The researcher will take notes to collect detailed information. The purpose of this interview is to help the researcher to identify the drawbacks on students' critical thinking which is the first specific objective of this work. Besides, the teacher might contribute to indicate possible ways or strategies to address the difficulties in critical thinking and give valuable information about the student's behavior and competences. The interview will contain ten main questions, but it could be extended at the moment of the interview depending on its development.

Questionnaires. A questionnaire is a very common and useful instrument to collect information directly from the participants. Galan (2009) mentions that a questionnaire is a printed form containing questions about the topic studied and questions related to the objectives and

categories of analysis of the investigation. The questionnaire can be applied individually or as a group, also it can be implemented in person or sent by e mail. In the case of this work, the researcher will apply two questionnaires directly to the students and will be answered individually. The first questionnaire will be applied as a pre- test in the first lesson or intervention and the second questionnaire will be applied as a post- test in the last intervention. Both questionnaires have ten multiple choice questions and two open or essays questions to assess reading, understanding or analysis of a non-fiction reading and to assess students' competence in guessing, identifying, reasoning and expressing opinions regarding the text.

Feedback board. In order to obtain valuable feedback from students to all the implemented activities in during the lessons, the researcher will create a board or a question wall inside the classroom with questions about each activity to get students opinion about the activities; at the end of each lesson students will answer the question in a post-it note and paste it on the board, later the researcher will collect the notes to get the information. The researcher will ask some questions such as, did you like the activity? did the activity help you to better understand the reading? What suggestion would you give to improve the activity?, and other questions to obtain relevant information to improve next activities and to evaluate how students react to the implemented metacognitive strategies.

Critical Thinking Questionnaire (CPC 2). As mentioned previously in chapter 2, the CPC 2 questionnaire implemented by Santiuste, is used to attempt to measure individuals' critical thinking competence in writing, reading, speaking and listening in the dialogical and substantive dimensions by answering 30 questions. These questions will evaluate the actions students do in order to be able to reason, give and support opinions or arguments, identify opposite perspectives, find evidence and express reasonable viewpoints, ideas, or opinion about a topic. In

the case of this investigation the researcher will make a questionnaire based on CPC 2, but only will ask 16 questions that make reference to the reading ability or competence, since all the investigation focus on critical thinking improvement from reading material in class. The questionnaire will contain 16 questions, and a Likert scale as follows: a scale from 1 to 5 referring to the following values: 5= Totally agree, 4 = Agree, 3 = Sometimes, 2 = Disagree, and 1 = Totally disagree.

Collection data process and data analysis

In the previous paragraphs, the researcher mentioned the instruments that she will use in the investigation to collect data and their description and usefulness according to the objective of the research. In the fallowing paragraphs, the researcher will address to the implemented strategies that she is going to use to meet the second specific objective of the investigation, which is to apply metacognitive strategies in order to improve seventh grade students' critical thinking. For the implementation of these strategies, the researcher will create a lesson plan for each intervention with the participants. The theoretical background and consulted authors, the description and benefits of these strategies were mentioned in the literature review on Chapter II; due to this reason, in the following paragraphs the researcher will only mention how she will apply the strategies with seventh grade students at Methodist School.

Think Aloud. As mentioned in chapter II, this strategy will be applied during the second intervention with the group. A think aloud is a way to implement and practice a self- monitory strategy with students. The researcher will hand in a reading or text to students, previously selected by the researcher (Gilray's Flower-Pot by J.M. Barrie), then, the researcher will model how to carry on a think aloud activity, later the researcher and students will start to read the text aloud and in several occasions they will stop to discuss the content and asking questions about

the topic, in order to stimulate their thinking and be aware of how critical they can be about the subject. They can comment the situation, conflict, causes, effects, advantages, disadvantages, agreement or disagreement regarding their topic. (See lesson plan 2).

K-W- L Charts. K-W-L stands for what I know, what I want to Know, and What I learned, these charts correspond to a self- monitory and self- evaluation strategies. This strategy will be used during the third intervention; students will be given a topic or an open question, previously selected by the researcher (Reading: Google, E- Readings). The students will work in pairs with the K-W-L chart; they will discuss the topic with their classmate and write down their opinion in each column of the chart. By using this strategy, students will activate the previous knowledge, question and discuss opinions with a classmate and then; they will be able to evaluate themselves by recognizing what they have learned. (See lesson plan 3).

Think Pair Share. Implementing this strategy will allow students plan and monitor their leaning; it will be applied in the fourth intervention. First stage, students will be given a situation or reflection of a topic, previously selected by the researcher ("The Lottery Ticket by Anton P. Chekhov"), then students will reflect and think about the situation individually. In the second stage, students will work in pairs and discuss about the case; they will be instructed to write their insights about the topic, including pros, cons, problem, solution, and opinions. During the third, stage, students will share and report their information to the rest of the group. (See lesson plan 4).

Heuristics. Creating heuristics is a valuable strategy to practice problem solving, decision making skills and the ability to identify and organize elements. The creation of heuristics will be implemented during the sixth intervention with the participants. Students will be given a reading (That Spot by Jack London) and will read it in pairs to discuss it and identify the elements of a literary analysis such as, characters, conflict, resolution, causes, consequences,

events and personal opinion. Then, they will create their heuristic; once it is completed, they will share their work with the rest of the class and hand it in to the researcher. This strategy will allow students to generate quick steps to solve the problem, make a decision, identify and organize elements to improve and accelerate their thinking process; they will be self - questioning and self-monitoring themselves in order to complete their heuristic. (See lesson plan 5).

CHAPTER IV

DATA ANALYSIS

This chapter contains the results and analysis of the collected data. According to Hernandez (2014), the data analysis chapter of a qualitative investigation shows the relation among the researcher, the participants, the instruments used to collect data and the results obtained through analysis of the information. In order to obtained results, the researches previously collected data and information through the application of qualitative instruments such observations, interviews, questionnaires and tests. In the current work, the researcher carried out the investigation in a seventh grade group of sixteen students in their corresponding learning environment at their school during English lessons.

Analysis and Interpretation of the Results

Throughout this chapter, the researcher will address to the implemented instruments and activities and their correspondent analysis to present and explain the results that would lead to the final conclusions and recommendations of the investigation. The instruments will be analyzed as they were designed and applied in the researcher's lesson plans.

Interview

Before carrying out the investigation, the researcher interviewed an experienced teacher who currently teaches seventh graders. This teacher will be referred as Mr. Temple here on for this research purposes. The interview consisted of ten questions and was recorded to collect the information in a better way and with the purpose of consulting it whenever the researcher needed to refer to its content.

The first and second questions of the interview are related to the teacher's educational background and experience. He indicated that he has over nine year of experience teaching English to students of different ages and levels. He started teaching kids in elementary school, then adults in college and currently, he is teaching teenagers in middle and high school. He also, mentioned that he has been teaching at Methodist High School for two years and presently he teaches seventh grade. During the third, fourth and fifth questions, Mr. Temple was asked about the difficulties and drawbacks he has noticed in students' critical thinking skills and which ones are more common and more evident. Mr. Temple mentioned that students sometimes have trouble to think outside the box and think beyond than what they see on the pages, so he has to encourage them to do it. The difficulties students show are that some of them have a hard time when they have to guess or infer from a text or situation, or express their ideas maybe because of language barrier or lack of vocabulary. Mr. Temple stated that, in this particular group, half of students are pretty knowledgeable and do not show difficulties and the other half do have more difficulty to express themselves or comprehend a reading or attempt to say their opinion in Spanish which is not allowed in the class; but all students understand what is the passage or situation about or get the gist of it. In addition, he mentioned that the complications are more evident during speaking than in writing. Another drawback to consider is the fact that some of the students do not like to read, so that reading and thinking critically about a text can be difficult for them and avoid to do it.

The sixth, seventh and eight questions refer to the use of metacognition and metacognitive strategies in class and their effect on enhancing students' critical thinking, Mr. Temple assured that he usually uses metacognitive strategies and activities to encourage students to think beyond what is in front of them, but sometimes time is too short. They do not have enough time in class

to develop the activities since they need to cover other contents different from literature or reading. Nonetheless, he carried out active thinking routines individually or in pairs. He also, recommended to work with active thinking routines to encourage students to put self-questioning, self- monitoring and self-evaluating into practice, such as K-W-L charts.

The ninth and tenth questions focus on the effectiveness of using metacognitive strategies in class and if the syllabus of the school encourages teacher to develop or improve students' critical thinking skills. M. Temple answered that he believes that using metacognitive strategies continuously and with enough time will help students to improve their critical thinking. Moreover, he mentioned that the syllabus of the school does instruct the teacher to develop and carry out activities to lead students to become active critical thinkers and improve their thinking skills through meaningful learning. After this interview the researcher was able to have a better understanding or a bigger picture of the status of the group and also she was able to identify some drawbacks on students' critical thinking and haw to address them by taking into account the teacher's suggestions.

Critical thinking questionnaire, CPC 2

The self-assessment CPC 2 questionnaire consists of sixteen questions related to substantive and dialogic dimension of reading. The researcher made an adaptation and only took into account sixteen question from the original questionnaire applied by Santiuste since the current investigation evaluate critical thinking from literary passages or written material. This questionnaire was applied to sixteen students during the first intervention with the students. There will be one graph for each question to analyze the results. the first twelve questions refer to the substantive dimension of critical thinking in the skill of reading while the last four questions, that

is, from question thirteen to sixteen corresponds to the dialogic dimension of critical thinking regarding the reading skill.

This questionnaire was written in Spanish which is the students' first language to be sure that they understand the questions and avoid that the language barrier could interfere with the results. It is also important to mention that this questionnaire was answered by students according to their own perception and opinion which could lead to notice differences between what they think of themselves and what the researcher observed and determined during the interview, application of the pre-test reading questionnaire and the pre-test observation checklist. The following graphs will show only the opinion and answers of the students whether or not they are correct or close to reality.

Figure 1

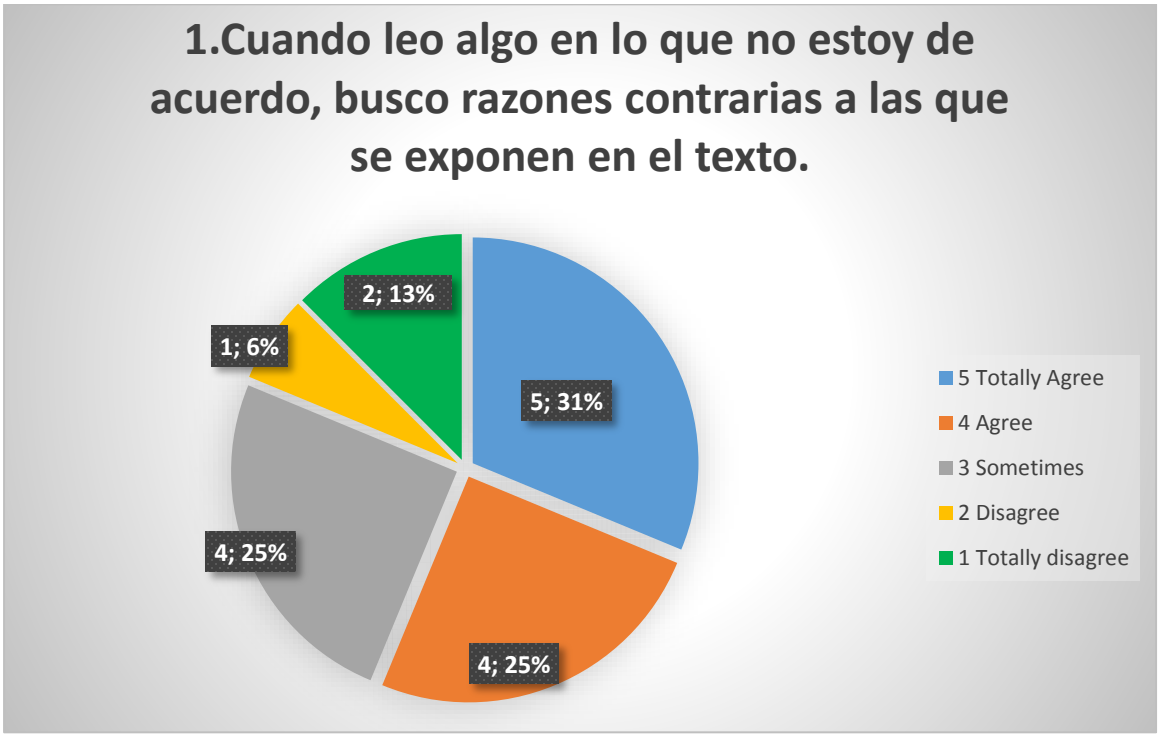

Figure 1 shows the answer to the question number 1 of CPC 2 questionnaire.

Source: Researcher's creation.

According to Santiuste (2001) as cited in Mendoza (2015), a well-developed substantive dimension of critical thinking requires that individuals be able to recognize and look for opposite reasons when they do not agree with a statement This figure shows that five students, (31%), totally agreed in looking for opposite reasons when they do not agree with something they read. Four students, (25%), just agreed which means that they perceived themselves as successful in this dimension. While 25% or four students, admitted that sometimes they look for opposite ideas; this means that these students saw themselves looking for opposite reasons or viewpoints in certain occasions when they differ with a statement. Finally, one student, (6%), disagreed and two students, (13%) totally disagreed which is interpreted as three students struggled to develop the substantive dimension

Figure 2

Figure 2 shows the answer to the question number 2 of CPC 2 questionnaire.

Source: Researcher's creation.

Students were asked if they can recognize and differentiate facts and opinions in a text in order to evaluate their drawbacks on Sastiuste's substantive dimension. This graph depicts that five students, (31%), totally agreed while three students, (19%), agreed. These students considered that they are able to recognize and differentiate facts from opinions which means they also possess a well-developed substantive critical thinking dimension. Moreover, six students out of sixteen, (38%), mentioned that sometimes they are able to do it. On the contrary, one student, (6%), equally disagreed and totally disagreed with the statement, that is, these two students have trouble in recognizing and differentiating facts from opinions.

Figure 3

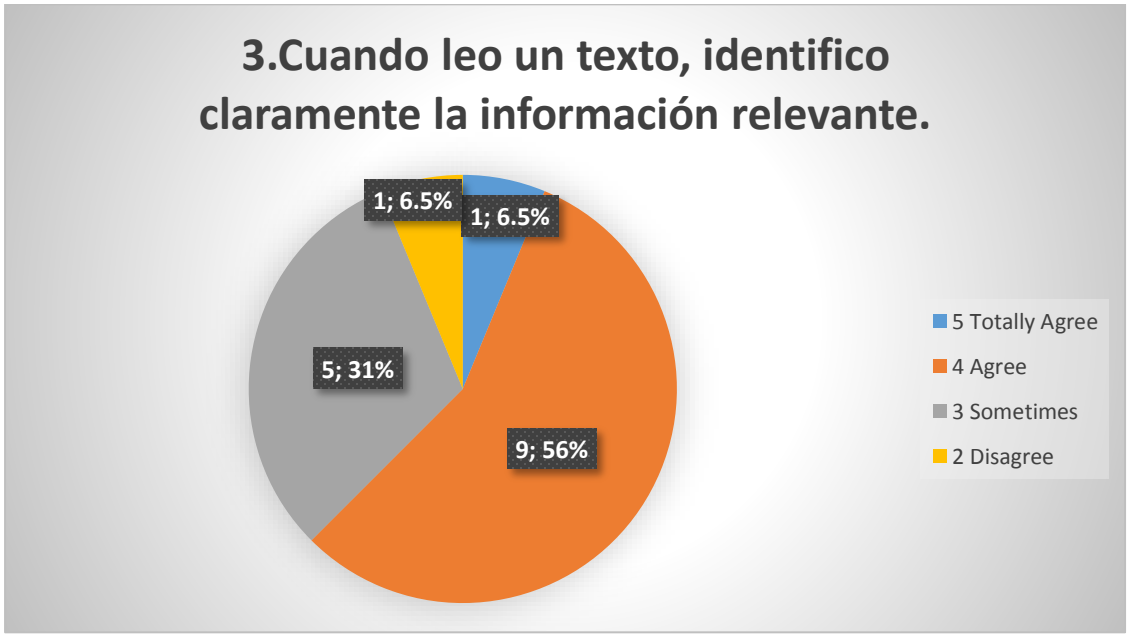

Figure 3 shows the answer to the question number 3 of CPC 2 questionnaire.

Source: Researcher's creation.

This graph shows that one student, (6.5%), stated that they totally agreed while nine students, (56%), agreed that they are able to clearly identify important or relevant information in a reading, which according to Santiuste (2001), it is another required skill to improve the substantive dimension. Five students, (31%), admitted that sometimes they are able to do it whereas one student, (6.5%), disagreed. These data show that identifying relevant information is not a major drawback in this specific group of students.

Figure 4

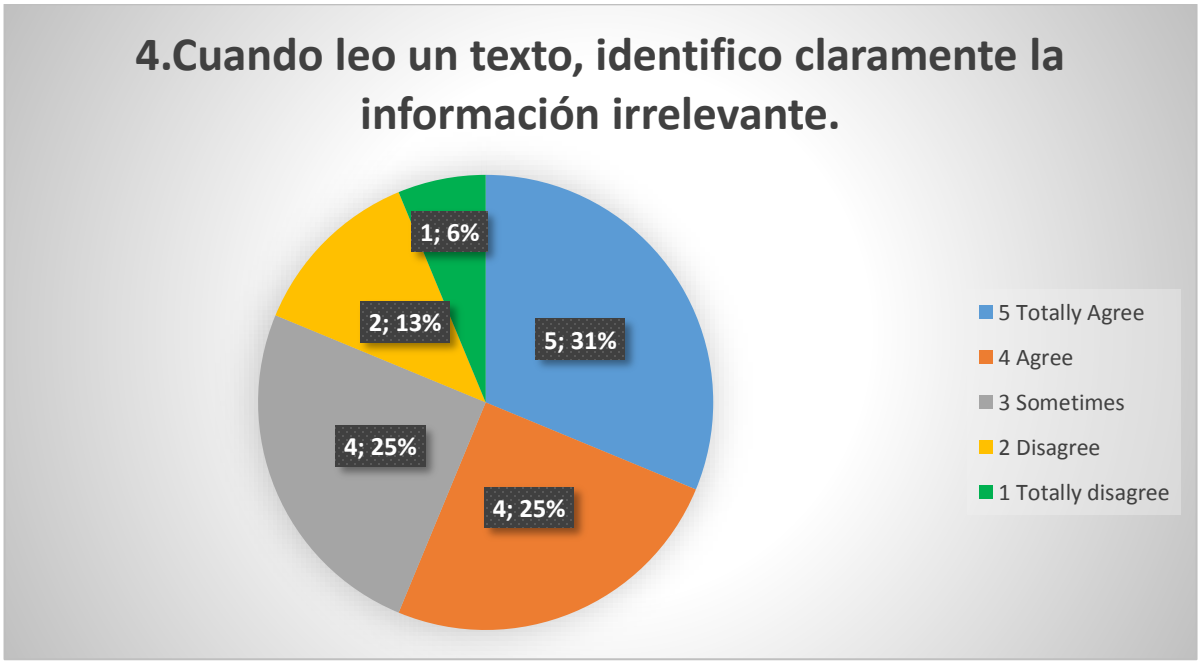

Figure 4 shows the answer to the question number 4 of CPC 2 questionnaire.

Source: Researcher's creation.

This figure shows that five students, (31%), totally agreed they are able to recognize the irrelevant information in a text while four students, (25%), agreed. Four students, (25%), admitted that sometimes they are able to do it. On the other hand, two students, (13%), disagreed, and only one student, (6%), strongly disagreed that they are not proficient when identifying irrelevant information in passage. By interpreting these statistics and taking into account Santiuste's substantive dimension of critical thinking, the researcher found that almost half of the group considered themselves able to determine irrelevant information in passages while the other half of the group struggle when they have to identify irrelevant information. This skill will be reinforced during the implemented strategies.

Figure 5

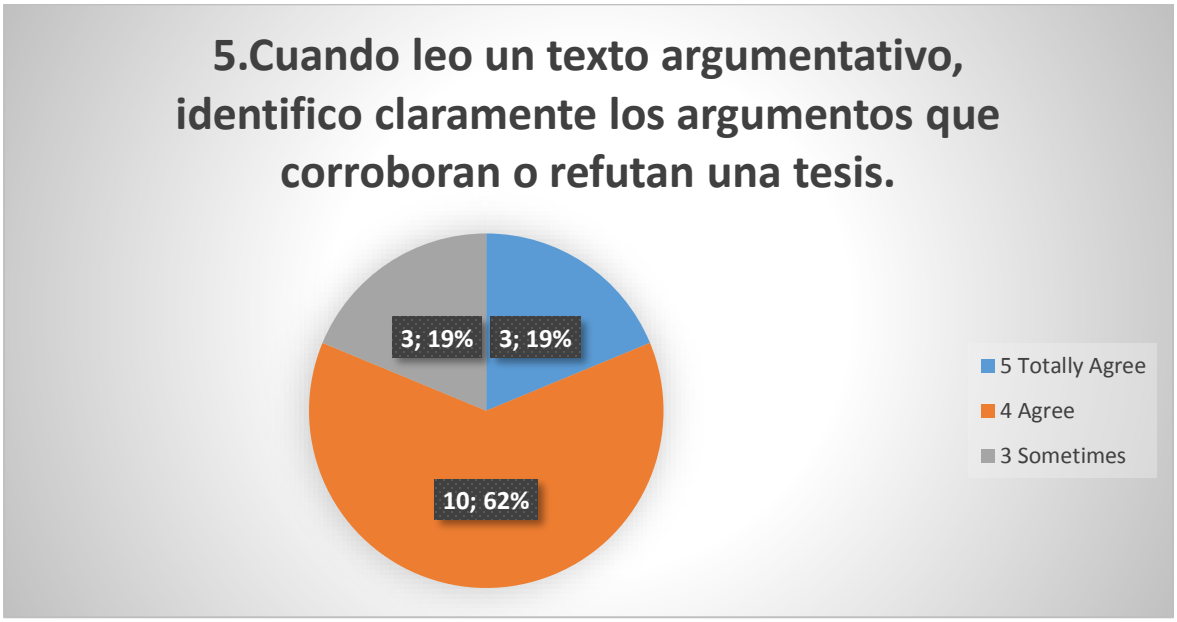

Figure 5 shows the answer to the question number 5 of CPC 2 questionnaire.

Source: Researcher's creation.

In this question, students were asked if they can clearly identify arguments that support or refute a statement. The figure depicts that ten students out of sixteen, (62%), agreed that they can do it while three students, (19%), strongly agreed and also three students, (19%), stated that sometimes they are able to identify supporting and opposite arguments. According to this data, the researcher found that the majority of students considered that they are able to identify the type of argument in a text while no one admits they struggle when doing it. Nonetheless, the researcher reinforced this skill in the implemented strategies since she observed during the pre-test observation checklist and application of reading questionnaire that students struggled in fulfilling this skill.

Figure 6

Figure 6 shows the answer to the question number 6 of CPC 2 questionnaire.

Source: Researcher's creation

In this graph, the researcher shows that seven students, (44%), totally agreed that they know how to draw important conclusions from a reading while six students, (37%), agreed. Two students, (13%), admitted that they sometimes can draw conclusions and only one student, (6%), disagreed. By analyzing these results, the researcher found that the majority of students considered themselves successful when drawing conclusions regarding a text which means that students have a high proficiency in this particular skill or the substantive dimension.

Figure 7

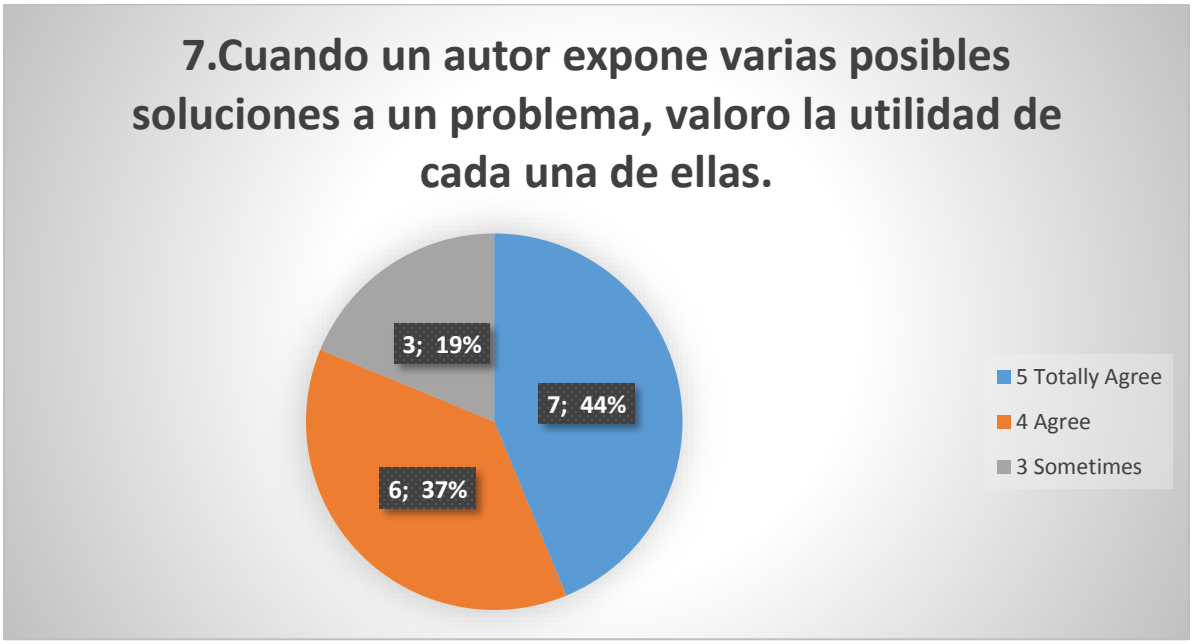

Figure 7 shows the answer to the question number 7 of CPC 2 questionnaire.

Source: Researcher's creation.

According to Santuiste (2001) as cited in Mendoza (2015), in order to successfully develop the substantive dimension, students need to evaluate the usefulness of the solution given by an author in a passage. Due to this fact, in this question, students were asked if when a narrator or author gives solutions to a problem or situation they evaluate each solution and its functionality to solve the problem. Seven students, (44%), totally agreed while six students, (37%), agreed. Three students, (19%), stated that they sometimes are able to evaluate the solutions. By analyzing this data, the researcher found that none of the students disagreed; this means that all of the students considered themselves proficient when evaluating solutions to a problem. Nonetheless, this skill was reinforced during the implemented activities.

Figure 8

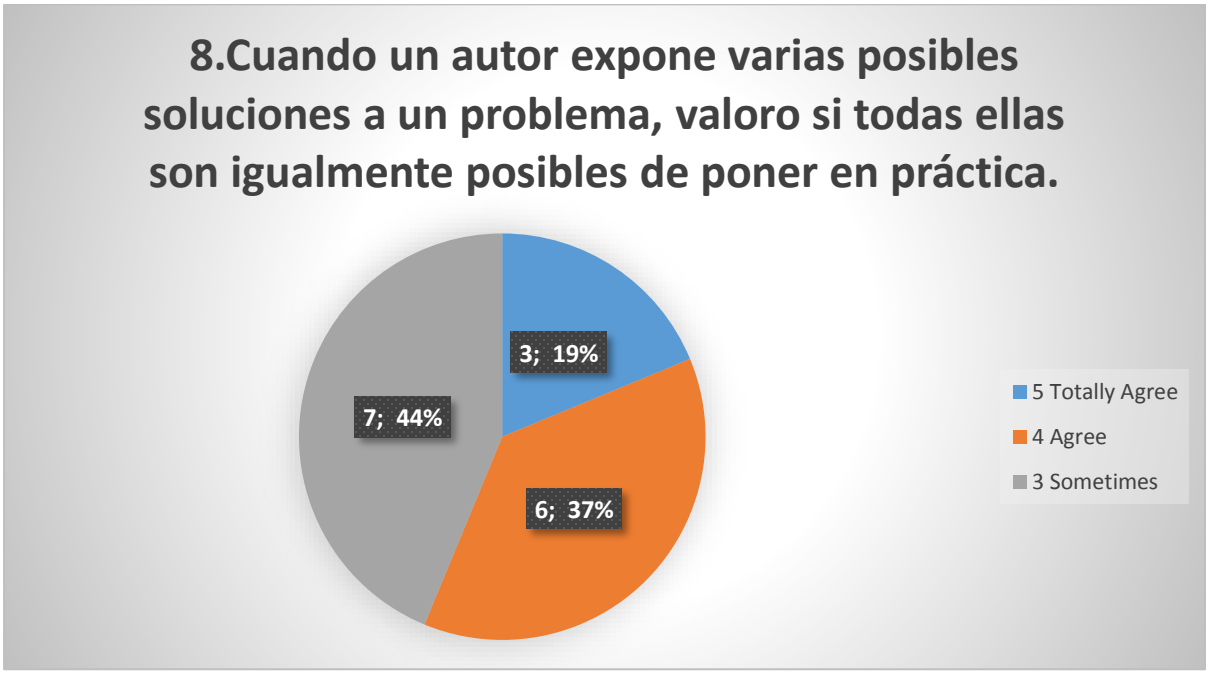

Figure 8 shows the answer to the question number 8 of CPC 2 questionnaire.

Source: Researcher's creation.

In this graph, the researcher shows that three students, (19%), assessed if the solutions presented by an author or narrator are equally possible to put into practice while sixth students, (37%), agreed they do it. On another side, seven students, (44%), indicated that they sometimes evaluate the possible solutions. As commented in the previous graph's description, the majority of the students assured that they are able to evaluate the usefulness of the solution given by an author; however, in this graph, the researcher shows that seven, a major quantity, of the students are able sometimes to evaluate not the usefulness of the solution but the possibility of put them into practice.

Figure 9

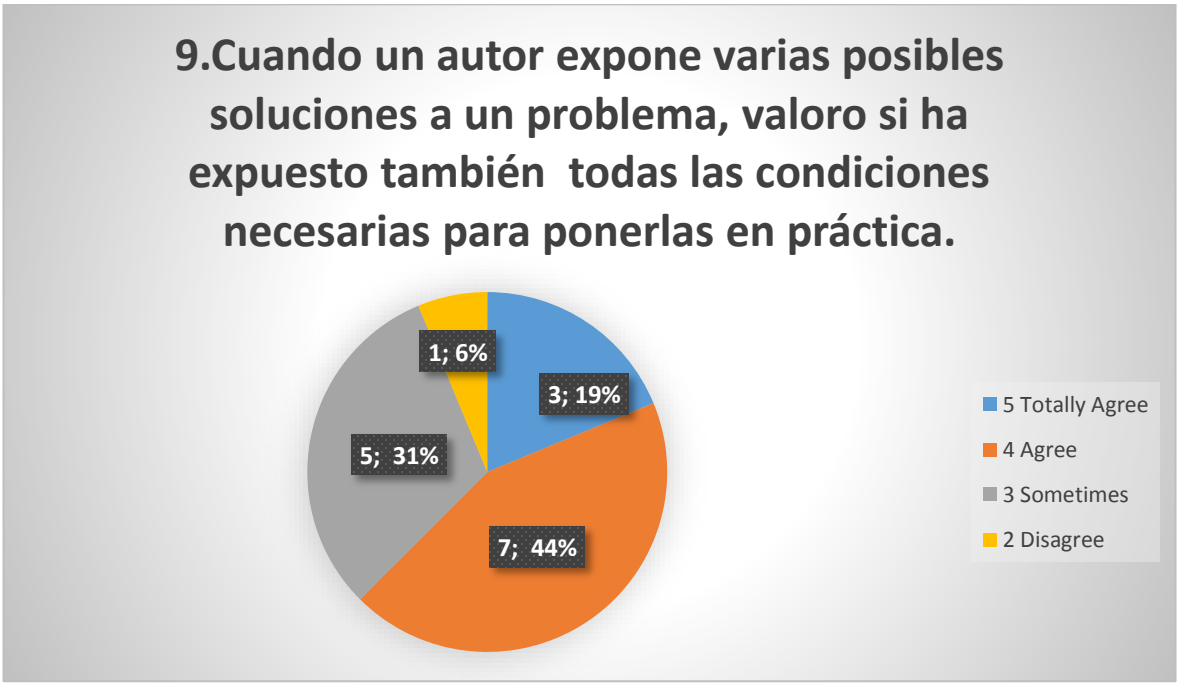

Figure 9 shows the answer to the question number 9 of CPC 2 questionnaire

Source: Researcher's creation

This figure depicts the students' answers when they were asked if when an author present several possible solutions to a problem, they asses if all the solutions meet the necessary conditions to be put into practice. Three students, (19%), totally agreed they can do it while seven students, (44%), simply agreed. On the other hand, five students, (31%), admitted they sometimes do evaluate the conditions of each solution. Finally, only one student, (6%), of participants indicated that they disagreed. According to the students' responses only four students recognized that they struggle whenever they need to evaluate the conditions and viability of the solutions given by an author.

Figure 10

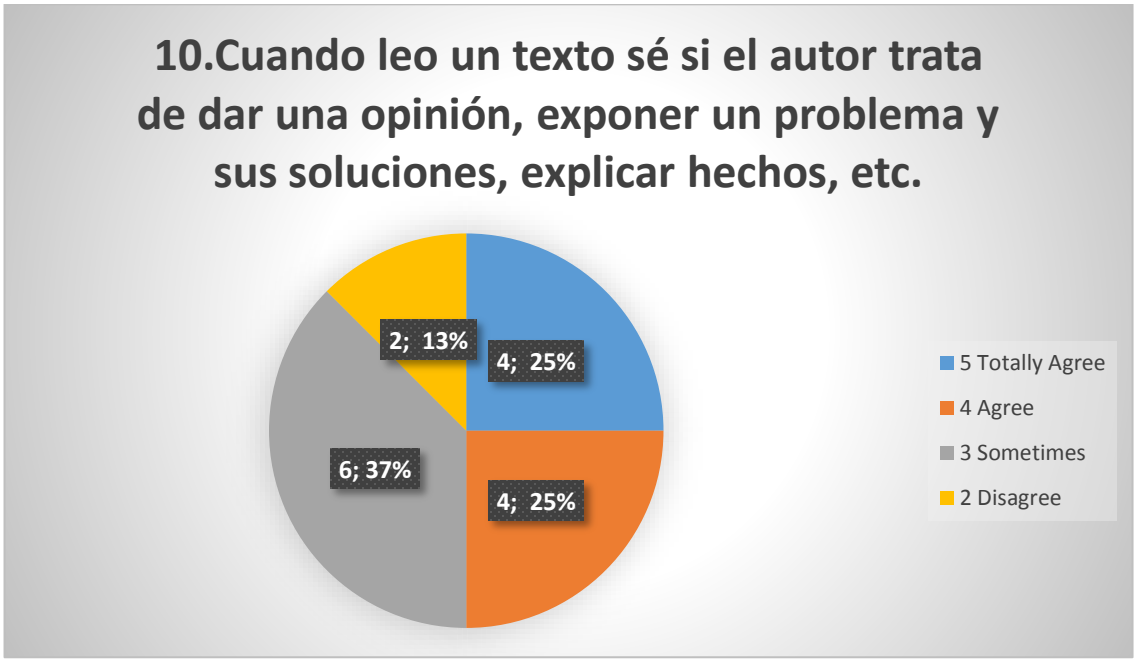

Figure 10 shows the answer to the question number 10 of CPC 2 questionnaire

Source: Researcher's creation

This figure shows the students' responses when they were asked if they are able to identify if the author or narrator is expressing opinions, presenting a problem and its solutions or telling facts. Four students, (25%), strongly agreed that they do it while also four students, (25%), agreed. In addition, six students, (37%), admitted that sometimes they can identify what an author is expressing whereas two students, (13%), disagreed. As established in the substantive dimension's skills, students must be able to recognize the opinions, problems or solutions presented by an author. According to the results, in these specific seven graders, half of the group is able to determine if the narrator intentions or purpose while the other half is not convinced that they can do it. The results were similar to the result obtained from the interview and pre-test, where almost half of the students show a proficient level in critical thinking.

Figure 11

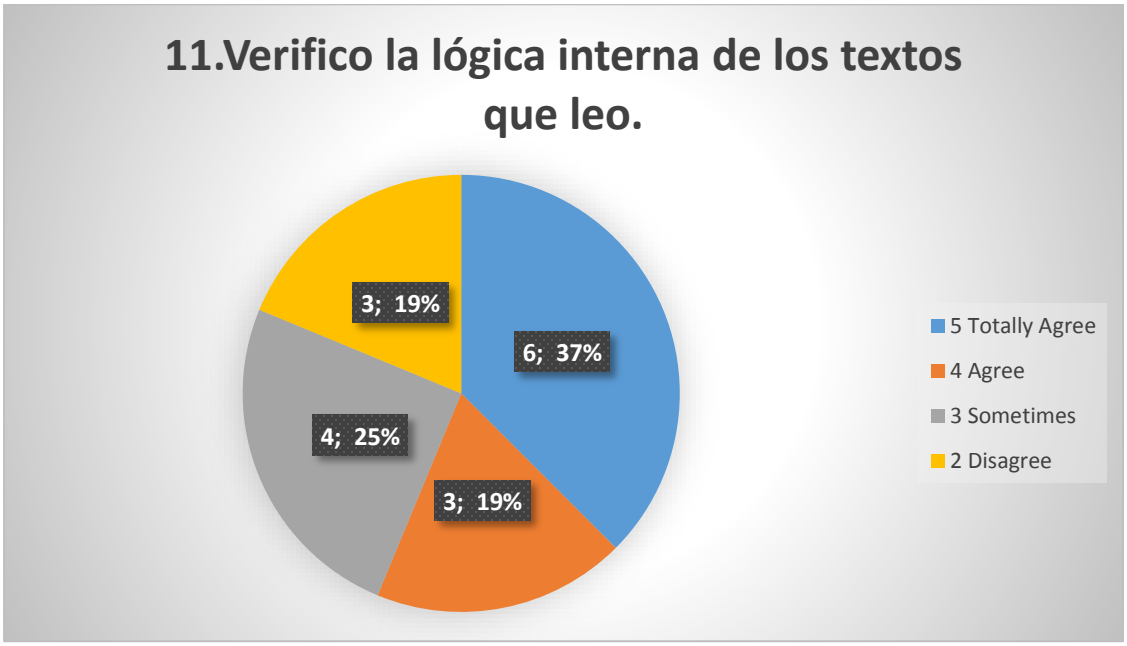

Figure 11 shows the answer to the question number 11 of CPC 2 questionnaire

Source: Researcher's creation

In this graph, the researcher shows that 6 students, (37%), totally agreed that they verify the internal logic of a reading or text. Also shows that three students, (19%), agreed and four students, (25%), admitted that they sometimes evaluate the internal logic. On the contrary, three students, (19%), disagreed. According to these statistics, the researcher found that almost half of the students do evaluate if texts and passages have a coherent order of ideas when they are reading while the others admitted sometimes do it or do not do it at all. Nonetheless, the researcher found during the pre- test reading questionnaire that many students are not proficient when determining the order of events within the readings.

Figure 12

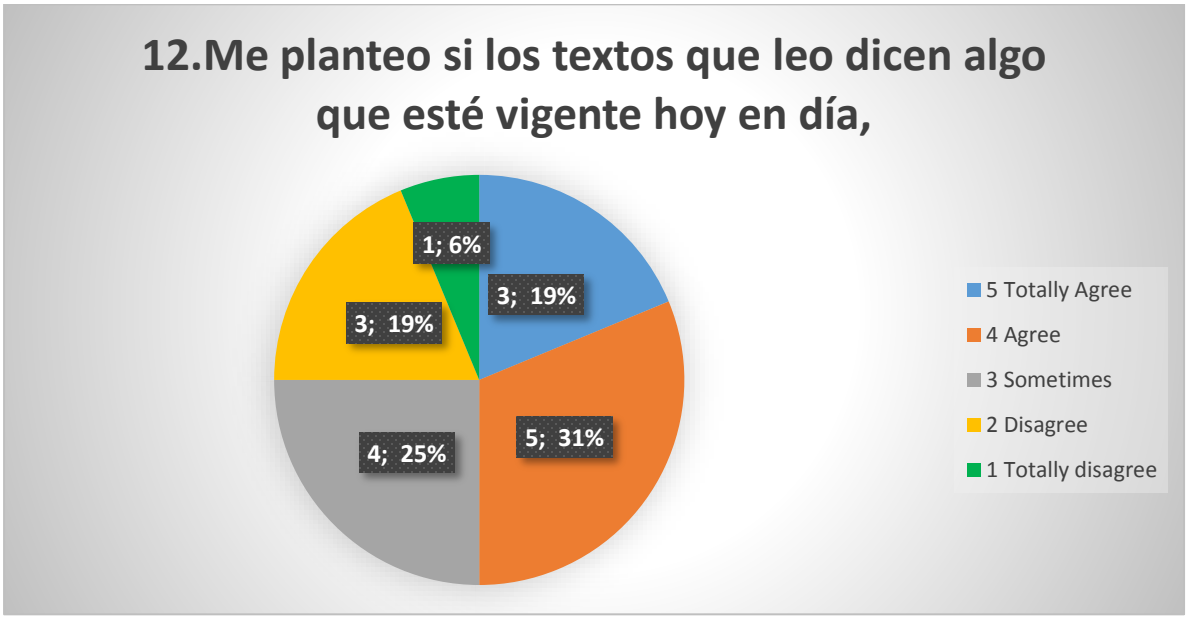

Figure 12 shows the answer to the question number 12 of CPC 2 questionnaire.

Source: Researcher's creation.

This figure depicts that three students, (19%), totally agreed that they wonder if the information that they read corresponds to present or current information while five students, (31%), agreed. Moreover, four students, (25%), stated that they sometimes verify if the information is valid and current whereas three students, (19%), disagreed and only one student, (6%), totally disagreed. In this graph, it is shown that the answers were varied; however, the researcher could notice that half of the students do wonder or question if the information is valid at the present moment which mean they are very critical when evaluating information.

Figure 13

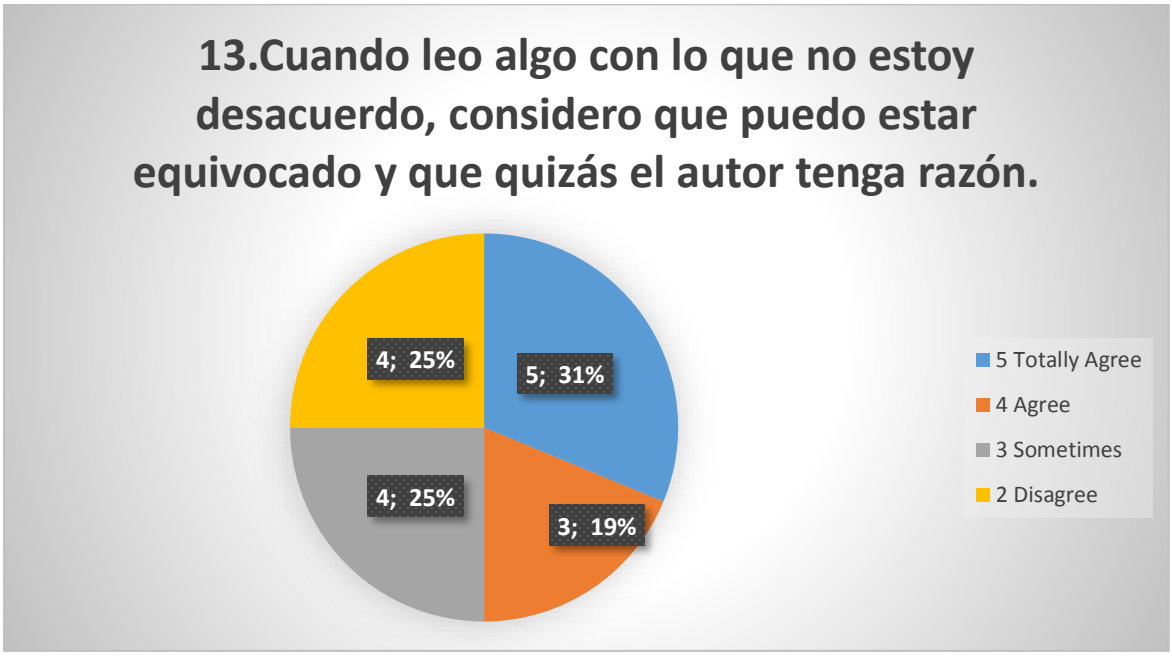

Figure 13 shows the answer to the question number 13 of CPC 2 questionnaire.

Source: Researcher's creation.

This graph depicts that five students, (31%), totally agreed that when they read a document and they do not agree with the information, they take into consideration that they might be wrong and the author might be right. Besides, three students, (19%), agreed and four students, (25%), admitted that sometimes they do it. On the contrary, four students, (25%), disagreed with the statement.

According to Santuiste (2001) as cited by Mendoza (2015), the dialogic dimension of critical thinking includes the action that individual will apply to evaluate different opinions, arguments or viewpoints. Recognizing one's mistaken opinions or ideas and acknowledging that others could be right represent actions that half of the students do while the other half stated that they do not do it, which means they struggle whenever they need to admitted their wrong about

something or they lack of knowledge in that matter. This analysis was consistent to the pre- test observation list where the researcher found that some students need to improve in the critical thinking trait of humility.

Figure 14

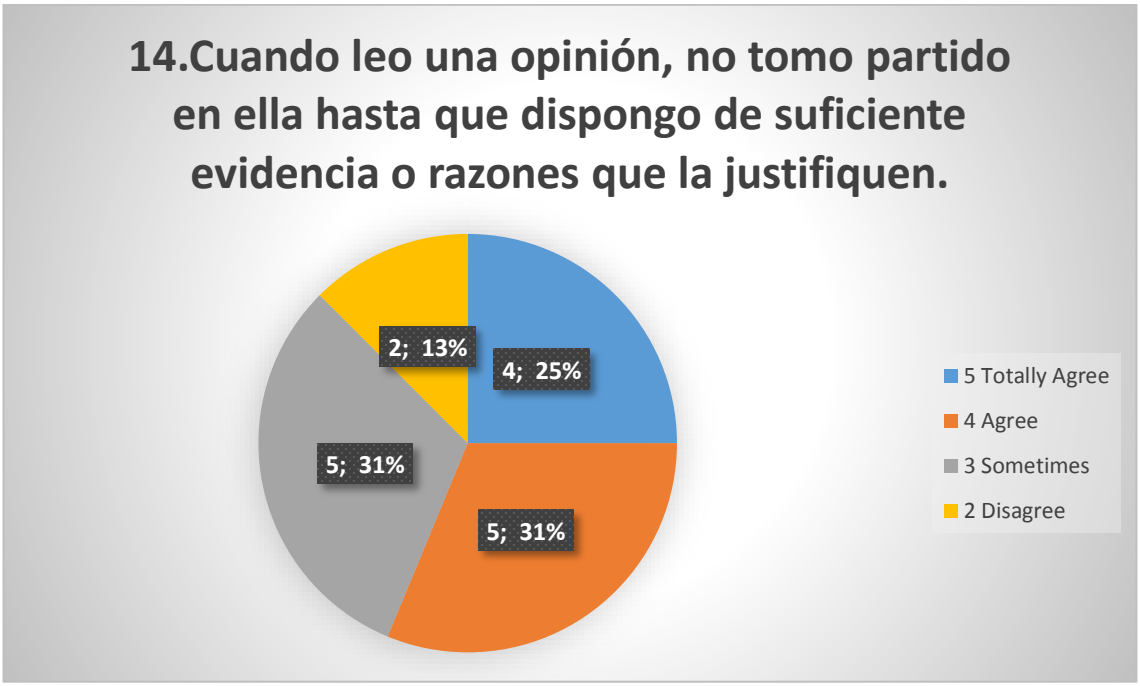

Figure 14 shows the answer to the question number 14 of CPC 2 questionnaire

Source: Researcher's creation

This figure shows that four students, (25%), totally agreed with the statement that whenever they read a document or passage, they supported an idea or opinion until they have obtained enough evidence or valid reasons while five students, (31%), agreed. According to the dialogic dimension actions, these students considered themselves proficient enough to critically discuss an opinion in order to support it or oppose it depending on the obtained evidence or valid reasons. Five students, (31%), mentioned that sometimes they do it and two students, (13%),

disagreed with the statement. However, the researcher found in the pre- test questionnaire that supporting opinions with evidence or reasons represents a major drawback.

Figure 15

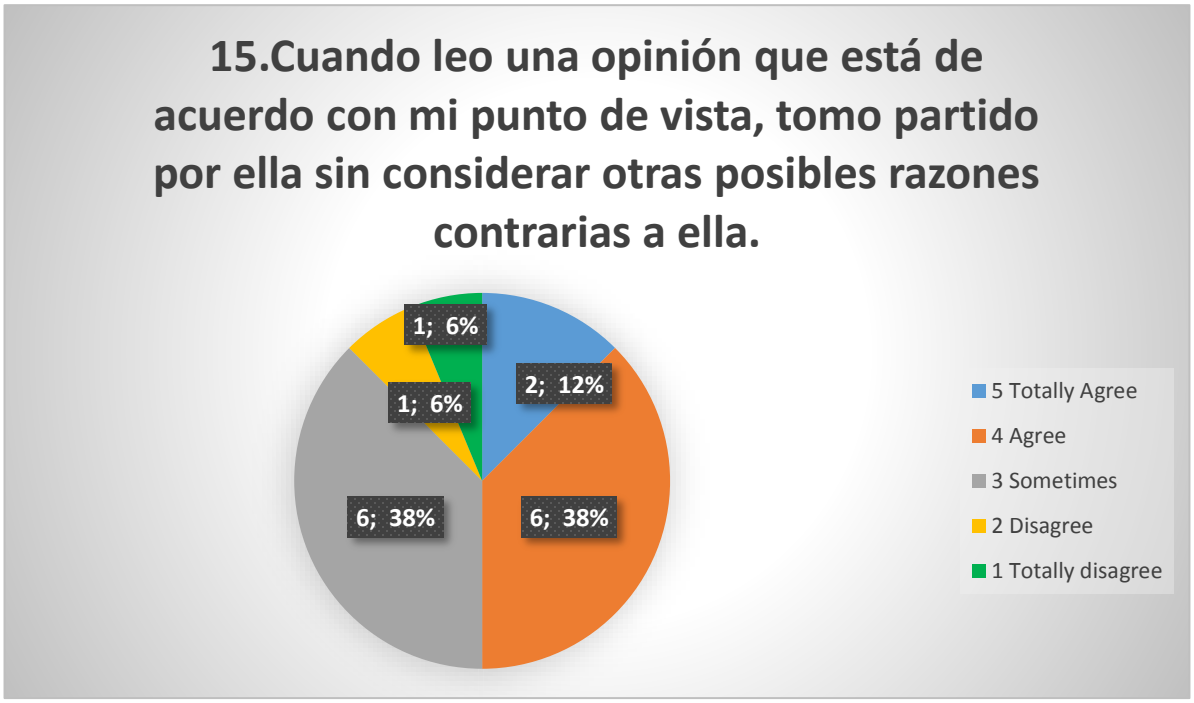

Figure 15 shows the answer to the question number 15 of CPC 2 questionnaire.

Source: Researcher's creation.

This graph depicts that two students, (12%), totally agreed that whenever they read an opinion which they agreed with, they support it without taking into account possible opposing reasons or viewpoints while six students, (38%), agreed. In addition, six students, (38%), stated that they sometimes do it. On the opposite side, equally one student, (6%), disagreed and strongly disagreed with the statement. These results show a contradiction since in the previous figure, the majority of students stated that they do not support an idea or opinion until they evaluate other alternative reasons while in this figure almost the same number of students admitted that they do or sometimes support an opinion without taking into account other valid reasons. As in the previous

graph, the researcher considered that identifying an analyzing valid reasons and evidence represent a major difficulty on students' critical thinking skills.

Figure 16

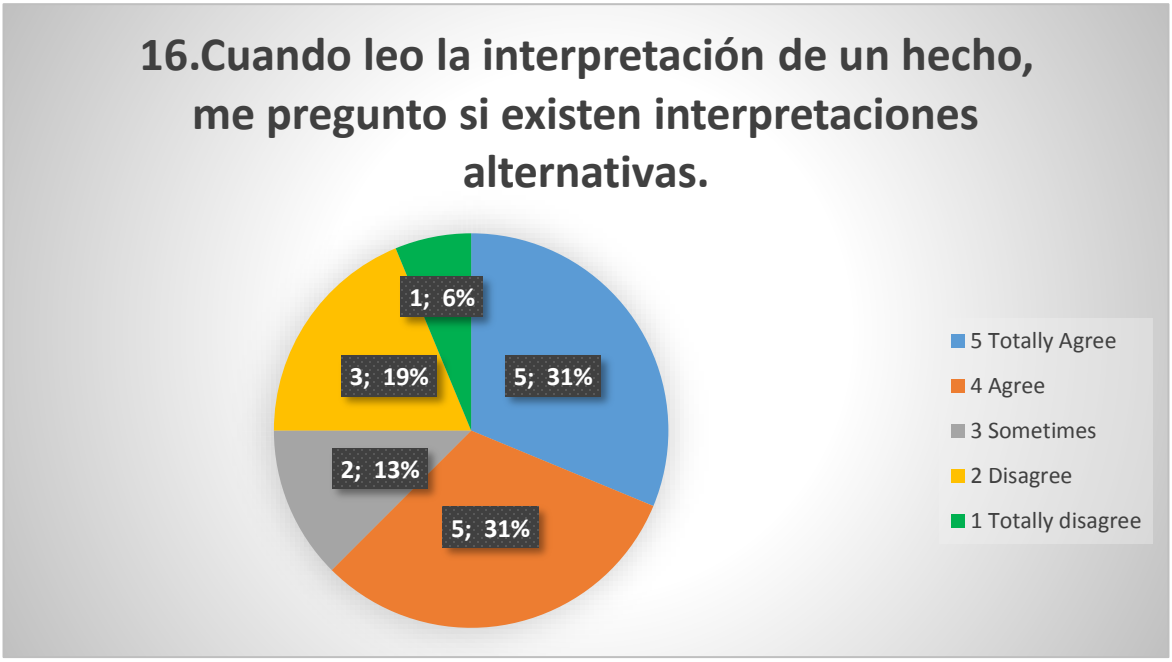

Figure 16 shows the answer to the question number 16 of CPC 2 questionnaire

Source: Researcher's creation

In the last question of the questionnaire, students were consulted if whenever they read the interpretation of a fact, they wonder if there are other alternative interpretations available. The graph depicts that equally five students, (31%), totally agreed and agreed they do it while two students, (13%), admitted that they sometimes wonder if there are other alternatives available. On the contrary, three students, (19%), disagreed and only one student, (6%), totally disagreed with the statement. According to these statistics, the majority of students considered themselves able to look for alternative interpretations. Nonetheless, the researcher found during the interview and pre-test that students struggle when they need to think beyond what is stated in a text.

Table 1

Students' grades of Critical thinking questionnaire

Student	Points	Grade
Student 1	68	85
Student 2	67	84
Student 3	66	83
Student 4	64	80
Student 5	64	80
Student 6	61	76
Student 7	61	76
Student 8	61	76
Student 9	60	75
Student 10	60	75
Student 11	59	74
Student 12	57	71
Student 13	56	70
Student 14	52	65
Student 15	52	65
Student 16	49	61

Note: Source: Researcher's creation.

In order to analyze these results, the researcher established the following rubric according to the grades: below 70, student needs improvement, from 71 to 75, student has an average critical thinking, from 76 to 79, student has a good level of critical thinking, from 80 to 85, the

student has a very good level of critical thinking, and finally, above 85, the student has an excellent level of critical thinking.

In this table the researcher shows the students' grades and obtained points of the critical thinking questionnaire. Five students obtained between 60 and 64 points out of 80 points available and were grade from 80 to 85 which denoted a very good level of critical thinking. Three students obtained 61 points and were graded with 76 which represents a good level of critical thinking. Four students obtained from 57 to 60 and were graded from 71 to 75 which denotes an average level of critical thinking. Finally, four students obtained from 49 to 56 points and were grade from 61 to 70 which indicates that these students need to improve more their critical thinking skills. To sum up, the average overall grade was 75 which means that these seven graders showed an average level of critical thinking and should be improve it.

Pre-test and Post- test reading questionnaire

The pre -test and post- test reading questionnaires consist of ten multiple choice questions and two open essay questions oriented to evaluate students' proficiency in general reading comprehension, identifying main idea and supporting details, drawing conclusions, insights, formulating opinions or arguments, among other exercises that require critical thinking. The pre-test and post- test were applied during the first and last intervention respectively.

Figure 17

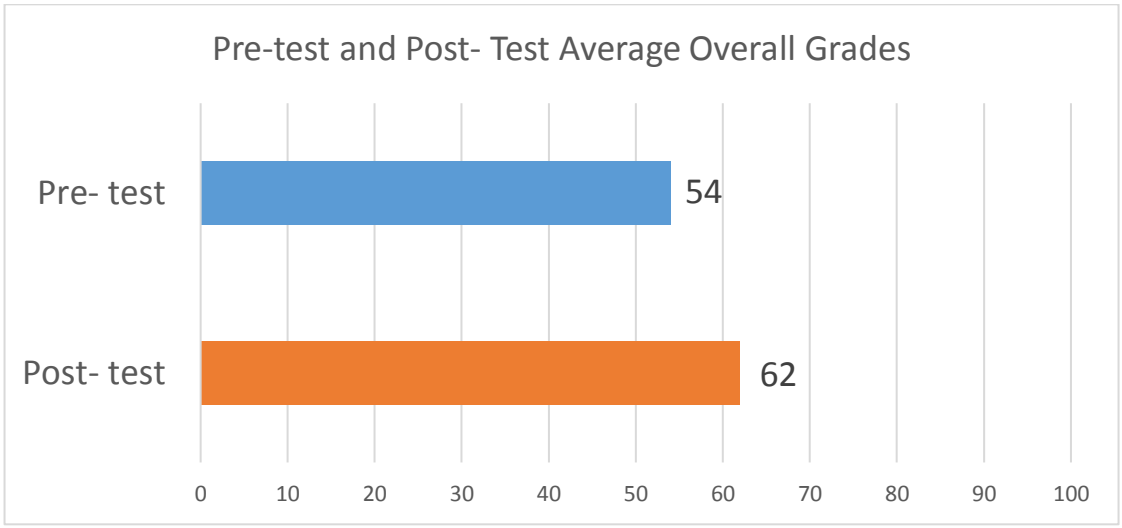

Figure 17 shows the average overall grades obtained by students in Pre-test and Post-test

Source: Researcher's creation.

The blue line in the graph indicates the average overall grades of the pre- test which is 54 and the orange line indicates the average overall grades of the post-test after the application of the strategies which is 62. It shows an improvement of 8 points in the average overall grades.

According to the study and grading of the reading questionnaires, the researcher could determine that the improvement was more evident on the open essay questions. Students were able to overcome some of the drawbacks they were having before the implementation of the strategies and could support their viewpoints and opinions with valid reasons an evidence from the passages. Besides, students also improved in recognizing literary elements and relevant information from passages and made insights about events or facts they have read.

Pre- test and Post - test Observation Check list

Table 2

Pre- test and Post - test Observation Check List

Intellectual trait	Pre-test Yes	Post- test Yes	Pre-test No	Post- No
Humility	7	12	9	4
Courage	8	10	8	6
Empathy	11	12	5	4
Autonomy	9	10	7	6
Integrity	10	11	6	5
Perseverance	9	10	7	6
Confidence in reason	12	12	4	4
Fair mindedness	11	12	5	4

Note: Source: Researcher's creation.

According to Elder and Paul (2014) a good critical thinker must have the above mentioned eight intellectual traits of critical thinking. The table shows the number of students that meet the intellectual traits of critical thinking and the comparison between the observation in pre -test in the first observation made by the researcher and the observation during the post - test after the application of the strategies. In humility 5 students improved, in courage 2 students improved, in empathy, autonomy and perseverance 1 student improved. Confidence in reason remained the same and finally, fair-mindedness, 1 student improved.

The researcher found after the application of the pre-test and before the implementation of the metacognitive strategies that nine students were struggling in showing humility because they had a hard time when recognizing they did not know some information or that they were wrong or mistaken and assured they already knew the topics. Eight students had trouble showing courage since they seem confused and did not defend their ideas when the researcher differed from their opinion and established a discussion. Five students did not show empathy since they slightly considered their classmates' opinions during the first observation. Seven students did not show autonomy in their thinking process for they were hesitant to support their opinions and ideas with evidence and valid reasons from the passage. Moreover, they were confused when they needed to identify facts, opinions, and recognizing pros, cons, causes and effects of situations and events. Six and seven students struggled to show integrity and perseverance respectively because when the researcher debated about an idea they were confused and did not stand true to their beliefs and opinions to overcome confusion a defend their opinion. Lastly, twelve and eleven students had difficulties to display the confidence in reason and fair-mindedness because when the researcher were asking questions about some specific facts or passages in a text they did not encourage their classmates to participate, and when other did, they did not validate their opinions fairy or avoiding their assumptions towards the topic or towards the person that was expressing his or her ideas. However, as mentioned in the previous paragraph, there were a slight improvement in the number of students who fulfilled the traits in the post- test.

Activity Feedback board

Think Aloud

This activity was implemented during the second intervention. It was carried out by thirteen students since three students were absent that day. Students read a fiction passage called "Gilray's Flower Pot.

Figure 18

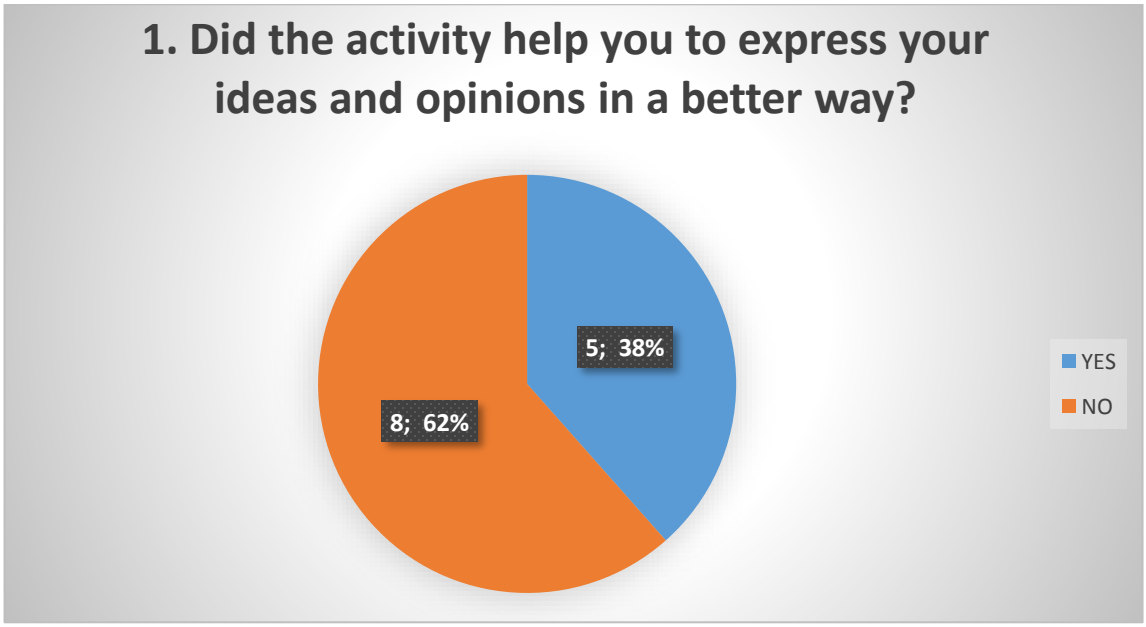

Figure 18 shows if the activity helped students to express opinions.

Source: Researcher's creation.

This graph depicts the students' responses about the activity. Five students out of thirteen, (38%), stated that the activity did help them to express their opinions and ideas about the topic and reading whereas eight students, (62%), indicated that the activity did not help them and mentioned as a main reason that the story was too long or boring for them and did not want to express about it. According to Israel S.E (2007), a think aloud activity helps students to express their thoughts

and opinions orally when reading. However, in this case, the majority of students did not find helpful the activity.

Figure 19

Figure 19 shows if the activity helped students be aware of their thinking.

Source: Researcher's creation.

This graph shows that seven students, (54%), indicated that the activity did help them to be aware of their thinking process because they expressed their opinions and doubts about the reading by asking questions while six students, (46%), indicated the activity did not make them aware because it was too long and boring for them and did not want to think about it or ask questions. With this data, the researcher was able to assure that self- monitoring and self-evaluating helped the majority of students to be aware of their thinking as was stated by Oxford (1990) and Israel S.E (2007).

Figure 20

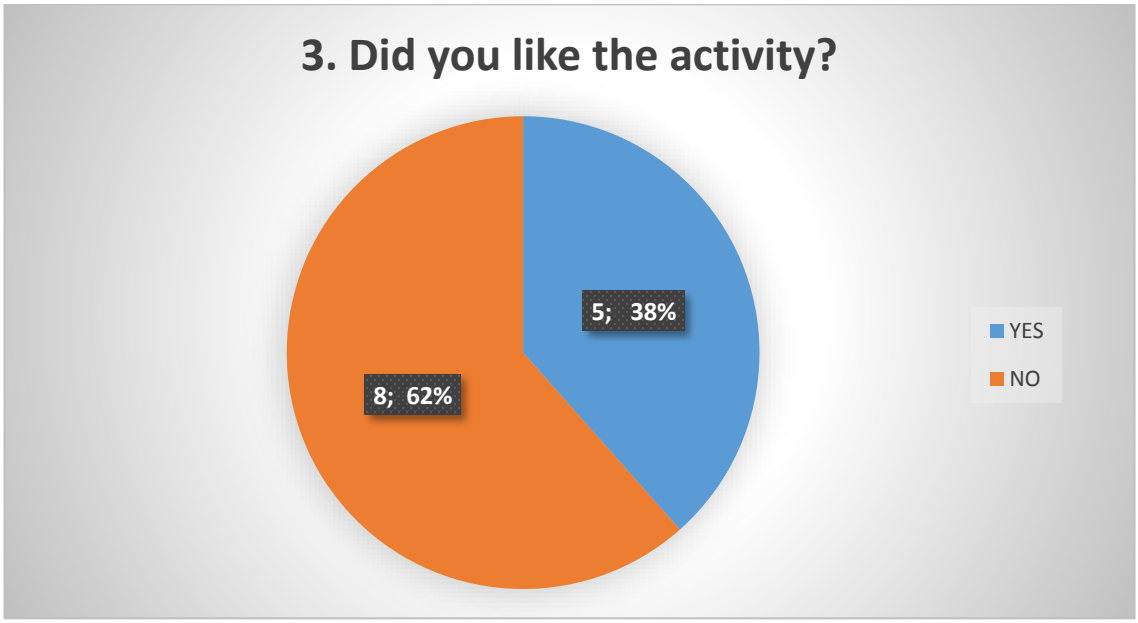

Figure 20 shows the students' reaction towards the activity.

Source: Researcher's creation.

In the third question, students were asked if they liked the activity and why. Five students, (38%), mentioned that they did like the activity for it help then to raised questions or clarify vocabulary, and express what they were thinking. On the contrary, eight students, (62%), stated that they did not like the activity and commented that they did not like to read, and the passage was not interesting. The researcher included this question to receive feedback from the students regarding how they enjoy or not the activity in other to use similar activities or for using other activities more suitable for them. As in this case, the think aloud was not well received, but mostly for the chosen passage and not the activity itself.

Figure 21

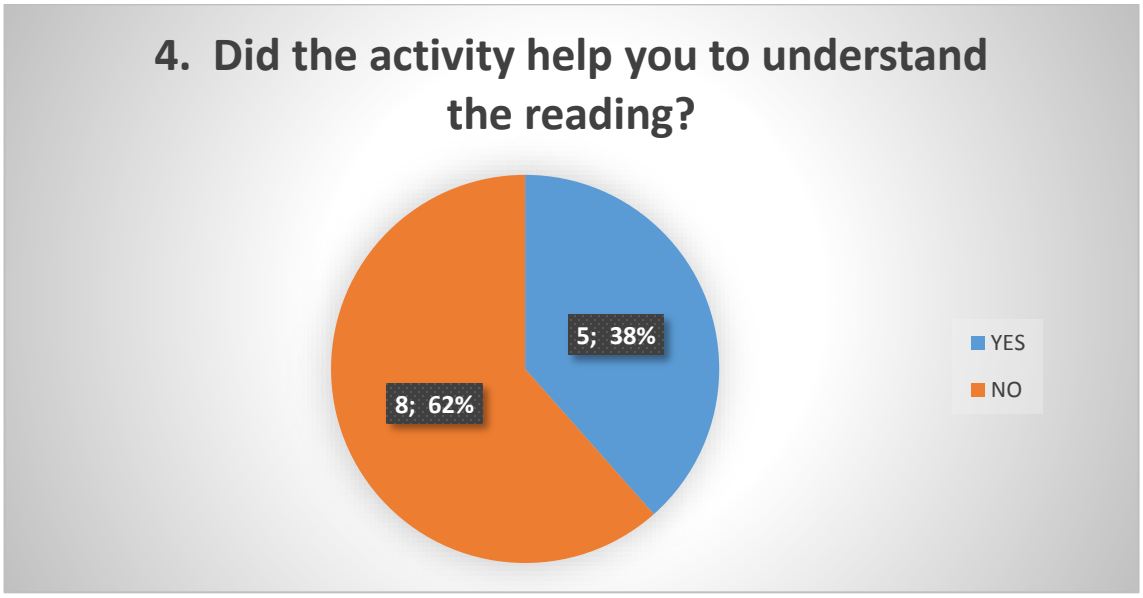

Figure 21 shows students' opinion about the helpfulness of the activity to understand the reading.

Source: Researcher's creation.

In the fourth question, students were asked if the activity helped them to understand and comprehend the reading passage. The figure depicts that five students, (38%), answered yes, the activity helped them to understand since they were thinking about the passage and expressing opinions whereas eight students, (62%), indicated that the activity did not help them because it was boring, uninteresting and did not understand some words. According to Israel S.E (2017), a think aloud activity helps students to achieve good comprehension skills. However, in this case the majority of the students indicated that the activity was not helpful since the chosen passage was not appealing for them.

Figure 22

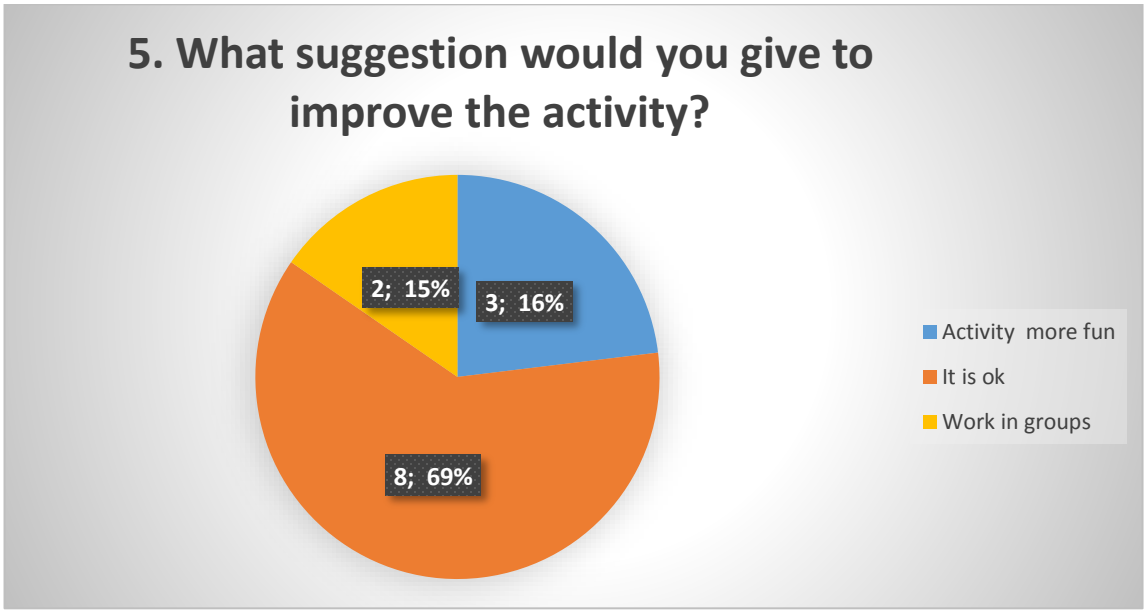

Figure 22 shows the suggestions students stated to improve the activity.

Source: Researcher's creation.

This graph depicts the suggestions students gave to improve the activity or make it better. Three students, (16%), suggested to make the activity more fun by using more interesting and short stories. Eight students, (69%), indicated that the activity was ok like that so it did not need changes while two students, (15%), suggested to work in groups to read the passage.

By taking these suggestions into account the researcher could determine that this activity needs improvement or changes to be used in the classroom in order to make it more appealing and effective.

Table 3

Think aloud observation checklist

Statement	Yes	No
Students show interest in the activity.		x
Students participate actively during the activity.	x	
Students follow instructions.		x
Students give rational ideas, opinions, arguments.	x	
Students support their opinion with valid reasons or evidence.		x
Students respect their classmates' opinions and ideas.	x	

Note: Source: Researcher's creation

The table indicates the criteria students met while working on the activity as observed by the researcher. This observation list was filled according to the overall behavior of the students as a group and not individually. Students did not follow instructions because have trouble raising their hand to participate or talk while other students were expressing ideas. Moreover, students were struggling to follow the reading and finding evidence and reason to support their opinions and seemed bored throughout the reading. The other criteria were met. Students, expressed valid ideas and opinions and respect or agreed to their classmate's opinions.

K- W- L chart

This activity was implemented with sixteen students; the group was complete. Students work in pairs to read a non- fiction article about "Google".

Figure 23

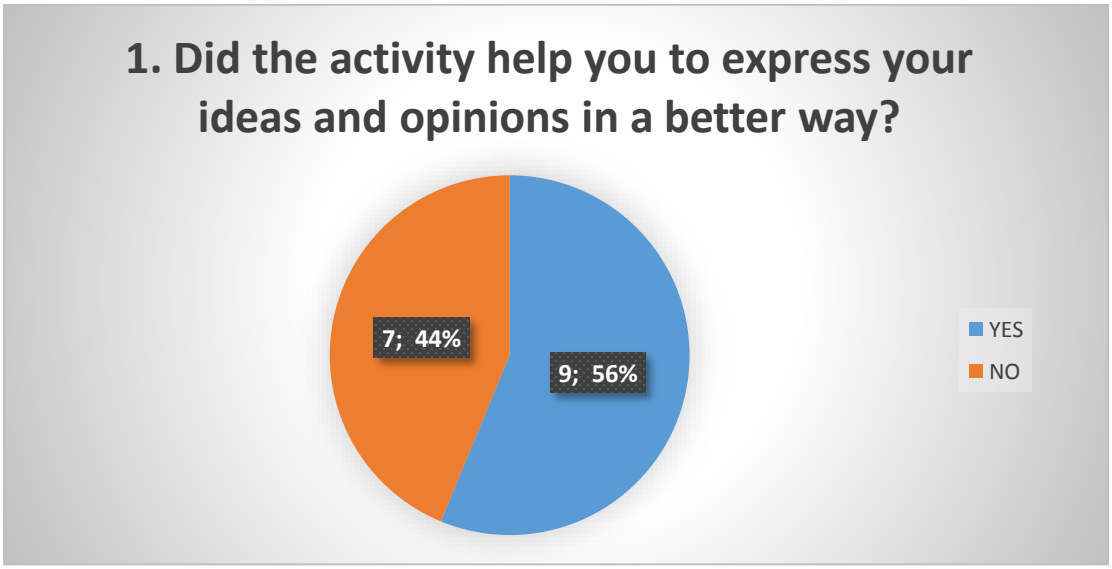

Figure 23 shows if the activity helped students to express opinions.

Source: Researcher's creation.

In the first question students were asked if the activity did help them to express their ideas and opinions about the passage. Nine students, (56%), assured that the activity indeed helped them to express ideas because they could share information and discussed with a classmate while seven students, (44%), stated that the activity did not help them because they already knew some facts about the reading and did not learn or answered their questions. According to Ritchhart (2014), active thinking routines can help students to support their thinking process and allowed them to reason and discuss ideas. In this case, the majority of students did find helpful the activity to discus and express their ideas. Moreover, according to Ogle (1986) as cited in Tompkins (2014), K-W-L

chart allows students to activate their prior knowledge about a topic as it was stated by seven graders during the activity.

Figure 24

Figure 24 shows if the activity helped students be aware of their thinking.

Source: Researcher's creation.

The graph shows that eleven students, (69%), assured the activity did make them aware of their thinking process since they needed to indicated what they already knew, their prior knowledge about the topic and wrote their own questions while five students, (31%), indicated that the activity did not make them aware since they already knew some facts about "Google" and did not need to think about it, and some questions they wonder were not stated it in the text. As mentioned in the previous graph's description the K-W-L chart as an active thinking routine based on self-monitoring and self-evaluation metacognitive strategies helped students to be aware of their thinking and guide their thinking process.

Figure 25

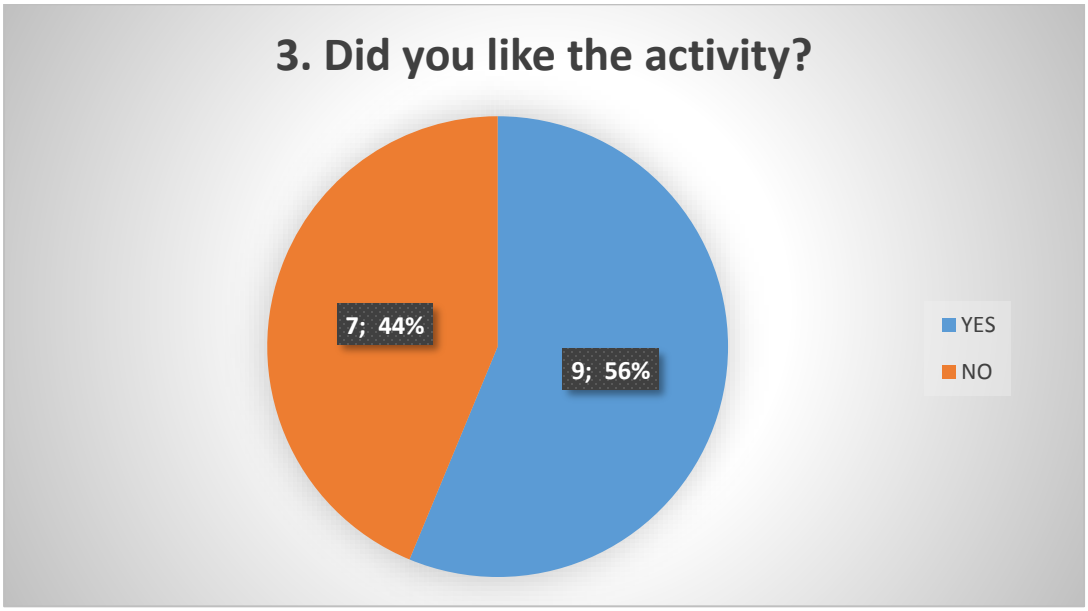

Figure 25 shows the students' reaction towards the activity.

Source: Researcher's creation.

In the third question, students were asked if they liked the activity. The figure shows that nine students, (56%), assured they really liked the activity because they could share information with classmates, learn about the topic and they were able to write their own questions and wonderings. On the contrary, seven students, (44%), did not like the activity because they did not need to discuss information because they already knew it or prefer to read fiction passages that non- fiction. The researcher included this question to receive feedback from the students about how they enjoy or not the activity in other to use similar activities or using other activities more suitable for them. As in this case, the K-L-W chart was well received and enjoyed by the majority of students.

Figure 26

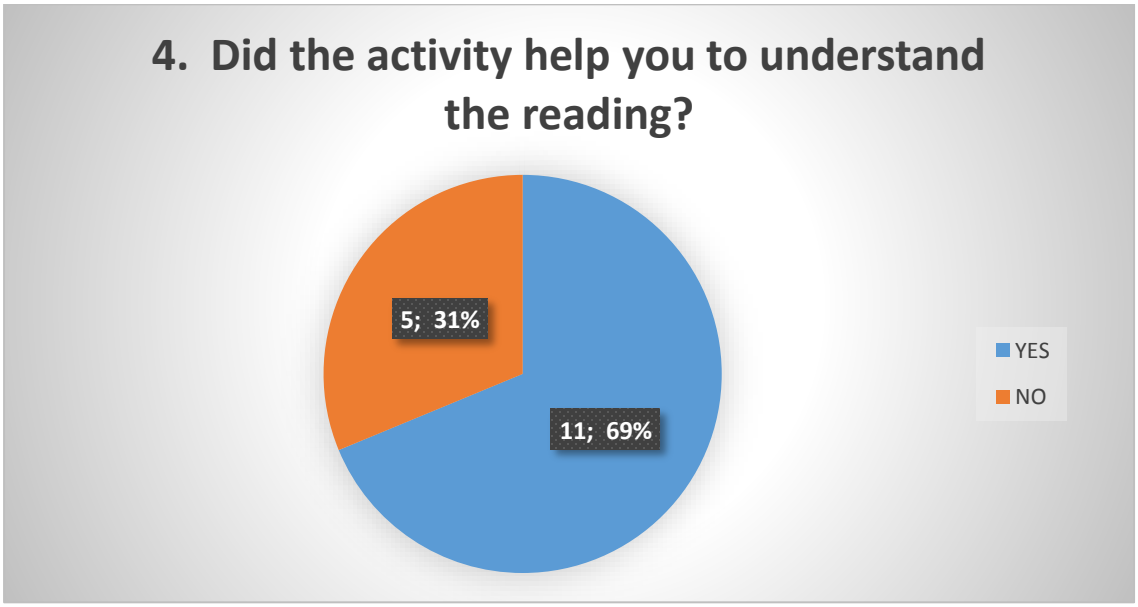

Figure 31 shows students' opinion about the helpfulness of the activity to understand the reading.

Source: Researcher's creation

This graph shows that eleven students, (69%), stated that the activity did helped them to comprehend the text for they could compare and share answers with classmates and find the answers to their own questions and inquiries whereas five students, (31%), stated that they did not like the activity because did not need to discuss information because they already knew it or did not like to read non -fiction material. As it was stated by Ogle (1986) as cited in Tompkins (2014), K-W-L charts help students to guide their thinking by decoding and organizing information a raising questions. In this case, the researcher was able to assure that the activity was useful for the majority of the students to guide their thinking process to understand and comprehend the passage.

Figure 27

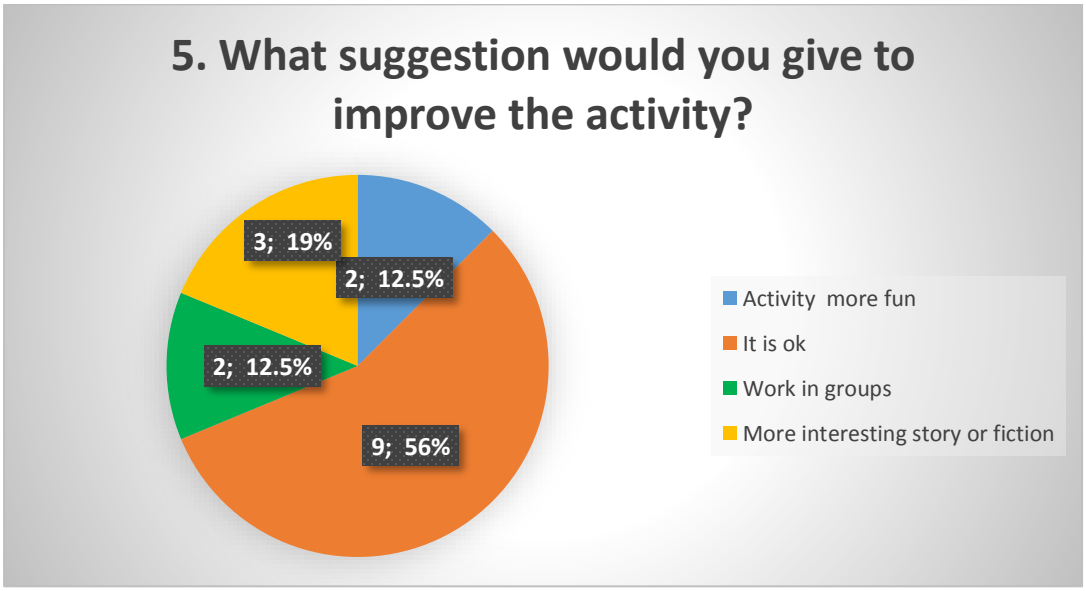

Figure 27 shows the suggestions students stated to improve the activity.

Source: Researcher's creation.

This graph depicts the suggestions students gave to improve the activity. Two students, (12.5%), suggested to make the activity more fun by letting them choose their partner to work with. Nine students, (56%), mentioned that the activity was ok and did not need any changes. Two students, (12.5%), recommended to work in groups and three students, (19%), suggested to choose more interesting stories or fiction passages to read.

By taking these suggestions into consideration, the researcher could determine that the activity was well received and helpful for students; nonetheless, it can be enhanced by choosing more interesting stories or working in groups.

Table 4

K-W-L chart observation checklist

Statement	Yes	No
Students show interest in the activity.	x	
Students participate actively during the activity.	x	
Students follow instructions.	x	
Students give rational ideas, opinions, arguments.	x	
Students support their opinion with valid reasons or evidence.	x	
Students respect their classmates' opinions and ideas.	x	

Note: Source: Researcher's creation

In this table the researcher shows that students as a whole group did meet the criteria, they showed interest in the Google reading, they followed instruction to work with classmates. In addition, they express rational ideas and opinions and support the with evidence from the text, finally, they respect their classmates' opinions, agreed with them and share ideas. By analyzing these results, the researcher was able to assure that using active thinking routines based on Oxford's strategies, self-questioning, self- monitoring and self -evaluating, had an effective and positive outcome to improves students' critical thinking.

Think -Pair -Share

This activity was carried out with sixteen students. They worked in pairs to read a fiction passage called "The Lottery Ticket".

Figure 28

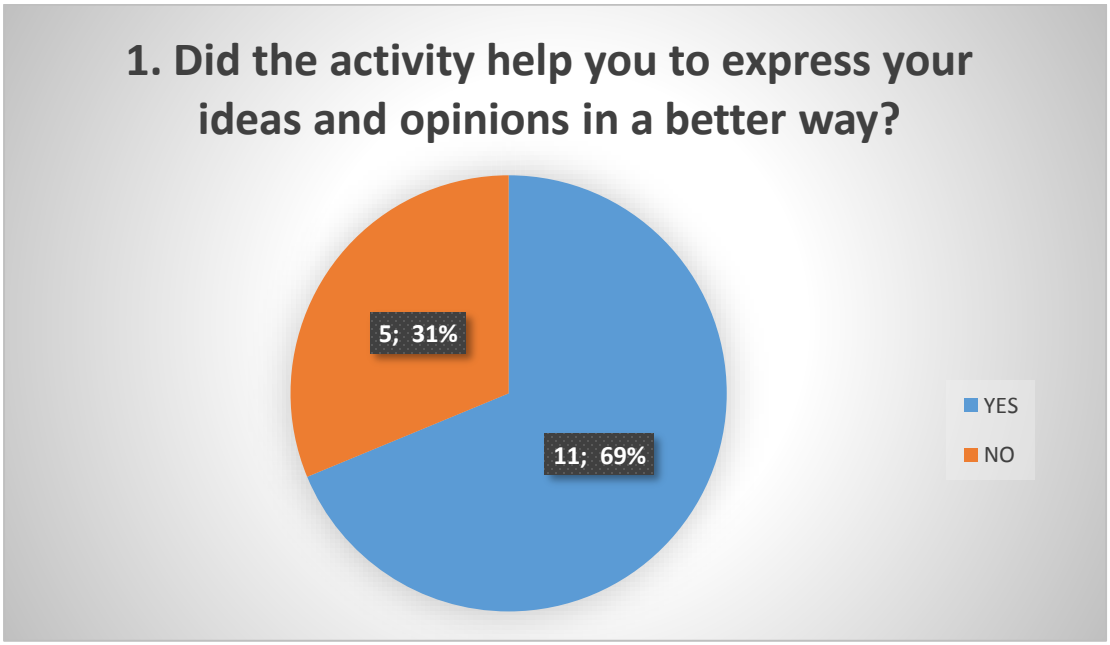

Figure 28 shows if the activity helped students to express opinions.

Source: Researcher's creation.

In the first question, students were asked if the activity help them to express their ideas and opinions. Eleven students, (69%), assured that the activity did help them because they share and discuss their viewpoints with a classmate and then to the rest of the class and listened different opinions from the others. On the other hand, five students, (31%), indicated that he activity did not help them because the story was predictable and boring for them, so they did not want to express ideas even though they did. According to Lyman (1981) as cited and updated by Harvard School of Education (2015), the main objective of this thinking routine is to encourage students to discus

and share ideas to enrich their thinking process and this objective was met by students during the activity.

Figure 29

Figure 29 shows if the activity helped students be aware of their thinking.

Source: Researcher's creation.

This graph depicts that half of the students, that is eight students, (50%), assured the activity helped them to be aware of their thinking process since they had to think to analyze the story and identify the pros and cons of the situation. The other half, indicated that the activity did not help them because they considered the reading was predictable and did not think that much.

By analyzing this data, the researcher found that the active routine was effective on half of the group since they needed to discuss pros and cons about an event or fact within the passage while the other half did not consider it helpful to be aware of their thinking. Nonetheless, it was not considered effective because students considered the passage was boring or predictable, not the activity itself. The researcher will make reference to this situation in the recommendations.

Figure 30

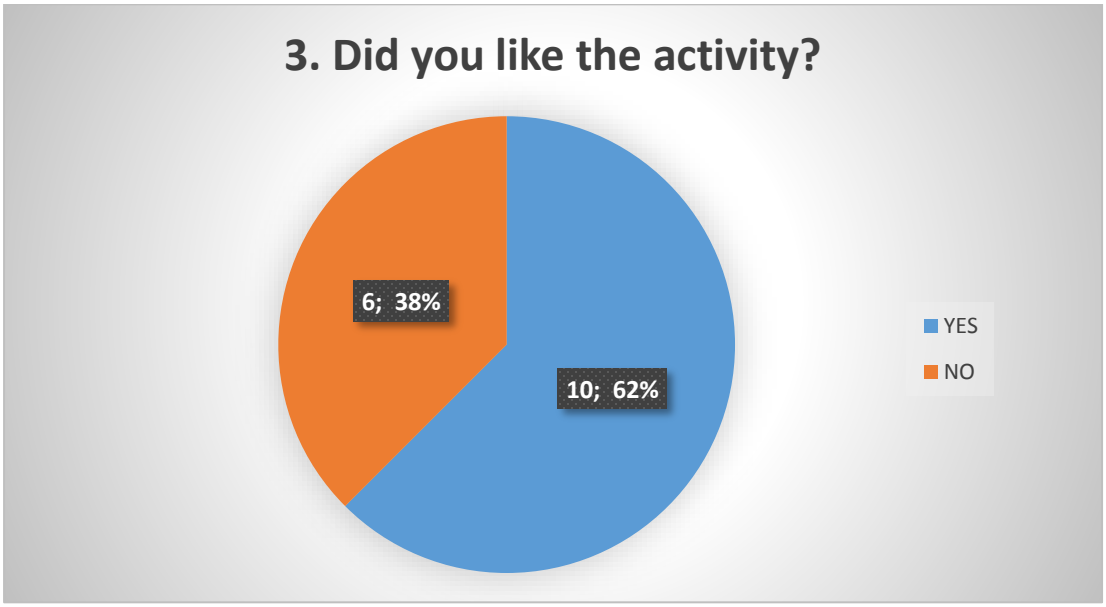

Figure 30 shows the students' reaction towards the activity.

Source: Researcher's creation.

In this question, students were asked if they like the activity. The figure shows that ten students, (62%), stated that in fact, they did like the exercise because they were able to discuss the reading and compare ideas with a classmate and also because they learnt about pros and cons of a situation and the reading has a moral whereas six students, (38%), indicated that the activity was similar to the previous one and the reading was uninteresting for them.

The researcher included this question to receive feedback from the students regarding how they enjoy or not the activity in order to use similar activities or other activities more suitable for them. As in this case, the think-share-pair activity was well received by the majority of students.

Figure 31

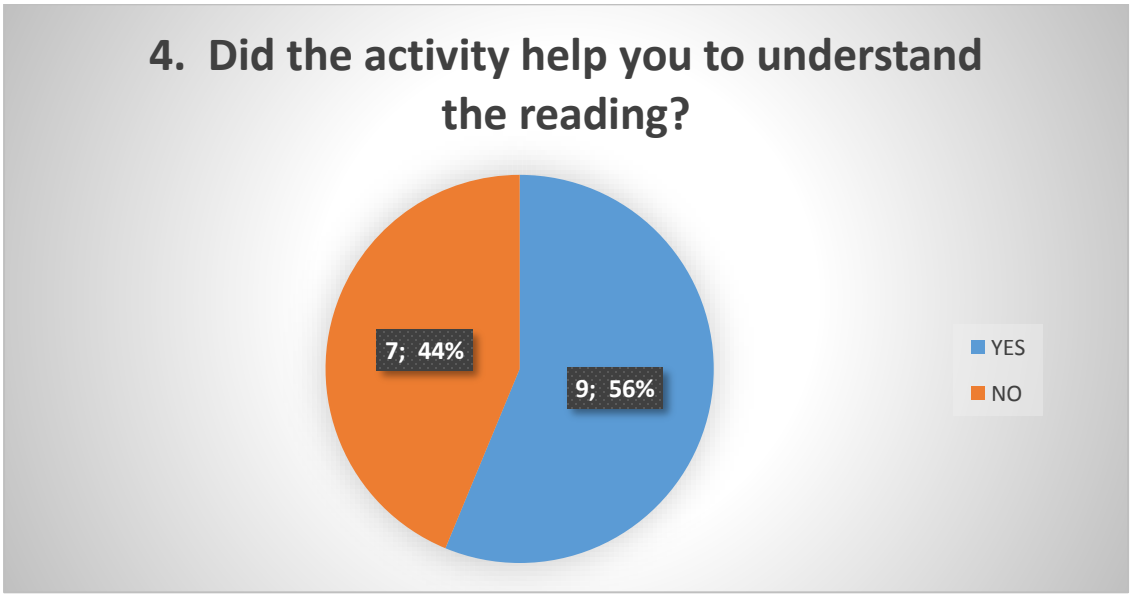

Figure 31 shows students' opinion about the helpfulness of the activity to understand the reading.

Source: Researcher's creation.

This graph shows that nine students, (56%), considered that the Think -Pair -Share activity helped them to comprehend the passage in a better way because they could discuss and share ideas and also recognized pros and cons of the situation while seven students, (44%), informed that the activity did not help them because they already understood the reading. As mentioned in the previous descriptions of figures, the objective of active thinking routines is to encourage students to discus and share ideas while their thinking is being guided through metacognitive strategies in order to improve their thinking and reading comprehension. In this particular case the researcher could determine that the majority of students considered helpful the activity and the purpose was accomplished.

Figure 32

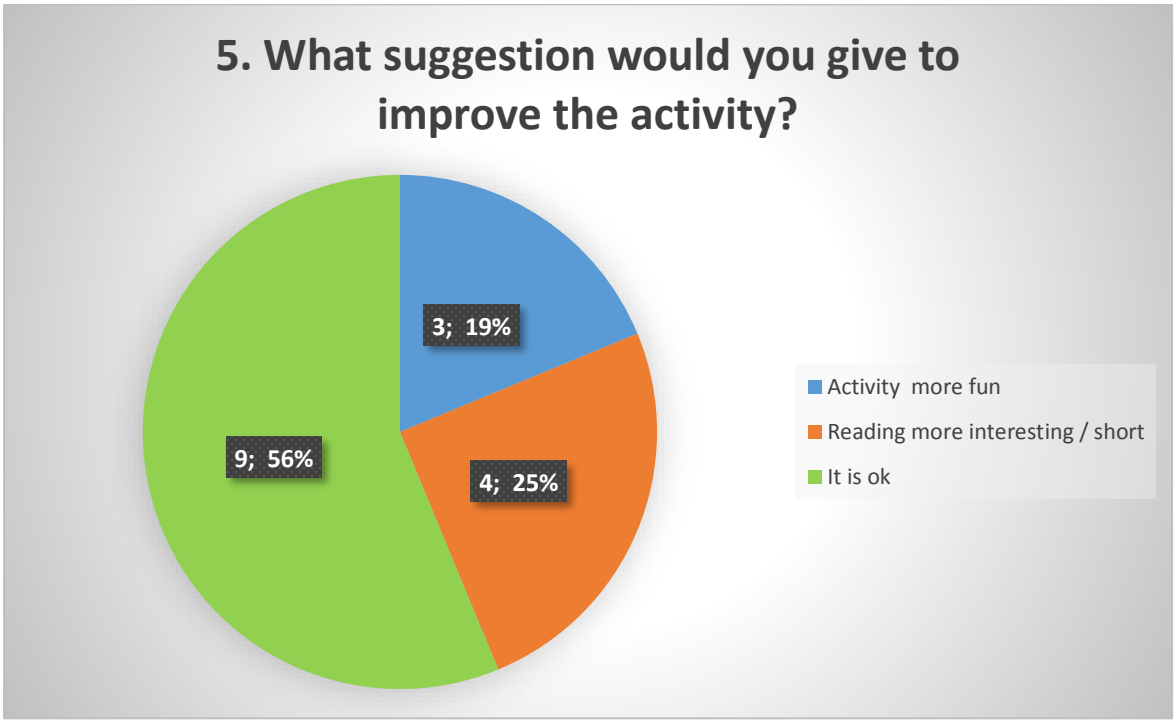

Figure 32 shows the suggestions students stated to improve the activity.

Source: Researcher's creation.

This figure depicts the suggestions students gave to improve the Think -Pair -Share activity. Three students, (19%), recommended to make the activity more fun. Four students, (25%), suggested to choose more interesting and shorter stories to discuss in class. Finally, nine students, (56%), mentioned the activity was ok and did not need any changes. By taking this data into account, the researcher could assure that the activity was well received by the majority of students. However, the suggestions can be included in upcoming applications to improve the activity. These suggestions will be addressed in the recommendations of the investigation.

Table 5

Think Pair Share observation checklist

Statement	Yes	No
Students show interest in the activity.	x	
Students participate actively during the activity.	x	
Students follow instructions.		x
Students give rational ideas, opinions, arguments.	x	
Students support their opinion with valid reasons or evidence.	x	
Students respect their classmates' opinions and ideas.		x

Note: Source: Researcher's creation

This table indicates if students met the criteria as a group, according to the researcher, students showed interest in the reading, winning the lottery sounded appealing to them and they expressed their opinions and ideas, besides they supported their opinions with evidence from the text and also they were able to identify and analyze pros and cons and the moral of the story.

By taking into account these statistics, the researcher was able to determine that using active thinking routines based on Oxford's strategies, self-questioning, self- monitoring and self - evaluating, had an effective and positive outcome to improve students' critical thinking.

Nonetheless, students had trouble following instructions when they needed to pair up to work and some of them did not respect the opinion of their classmates or disagreed with it showing exasperation when they were telling the class what they would do if they won the lottery. The researcher considers that students were too excited about this topic and she had some trouble to manage the class since she does not know the student's usual behavior very well.

Heuristics and concept maps

This activity was implemented with sixteen students and work in four groups or four students. At the beginning of the investigation, the researcher planned that students read a story called "That Spot by Jack London", discuss the reading and compare opinions to identify the elements of a literary analysis (conflict, resolution, characters, causes, consequences, major events and personal opinion) and create a heuristic with the information. However, she took into account the feedback and suggestions about the previous activities from the students and she decided to make some changes in the las activity to make it more effective for students. In the new plan of the activities, students were asked to write their own story and including literary elements to make an analysis by designing a heuristic or concept map.

Figure 33

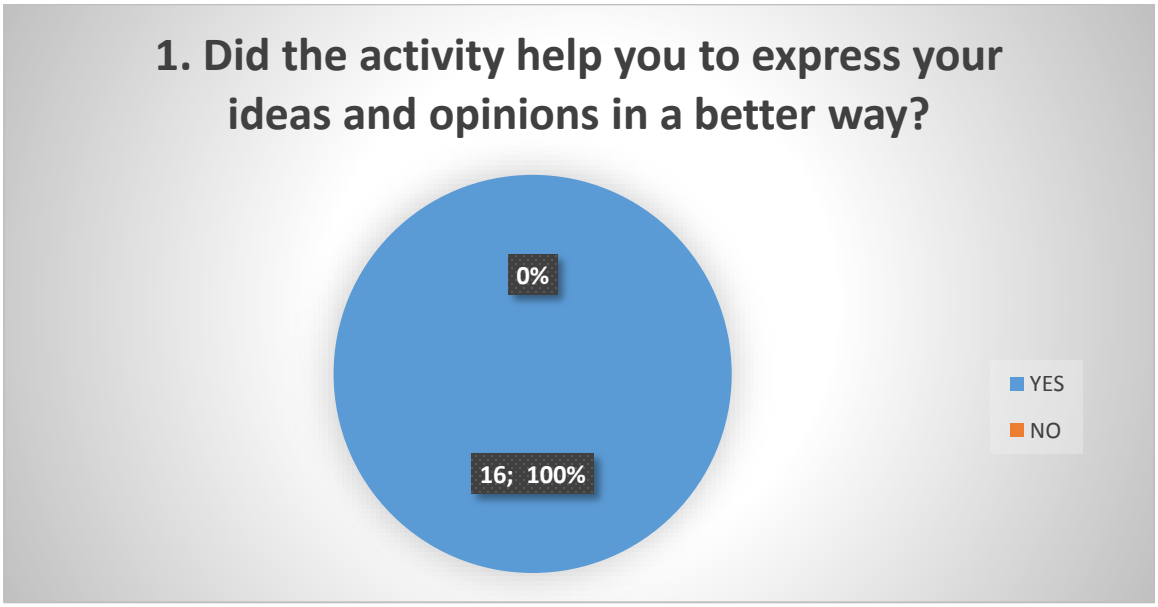

Figure 33 shows if the activity helped students to express opinions.

Source: Researcher's creation.

This graph shows that all sixteen students of the group, (100%), of the students assured that the activity did help them to express their ideas and opinions because they needed to think and share and discuss ideas with classmates in order to create their own story and fulfill the required elements, such as characters, theme, plot, causes, consequences, pros and cons.

According to Armstrong (2017), heuristics are considered great metacognitive tools to help students to organize information and guide their thoughts to come up with solutions, conclusions, and discoveries. In this case, students were able to organize their ideas, opinions, thoughts to discuss and share them with their classmates to reach an agreement and create their story.

Figure 34

Figure 34 shows if the activity helped students be aware of their thinking.

Source: Researcher's creation.

This figure depicts the opinion of the students regarding if the activity made them to be aware of their thinking process. Eleven students, (69%), stated that they activity did make them aware of their thinking because they needed to organize their thoughts to create the story and think beyond to be creative and write their own story and analyze it. On the other hand, five students, (31%), indicated that did not think too much or be aware to create a story.

By analyzing these results, the researcher could assure that the majority of the students accomplished the purpose of the activity while elaborating the heuristics since they were encouraged to activate their thinking process, monitor and evaluate their own ideas and also their classmates' ideas and opinions to create their story.

Figure 35

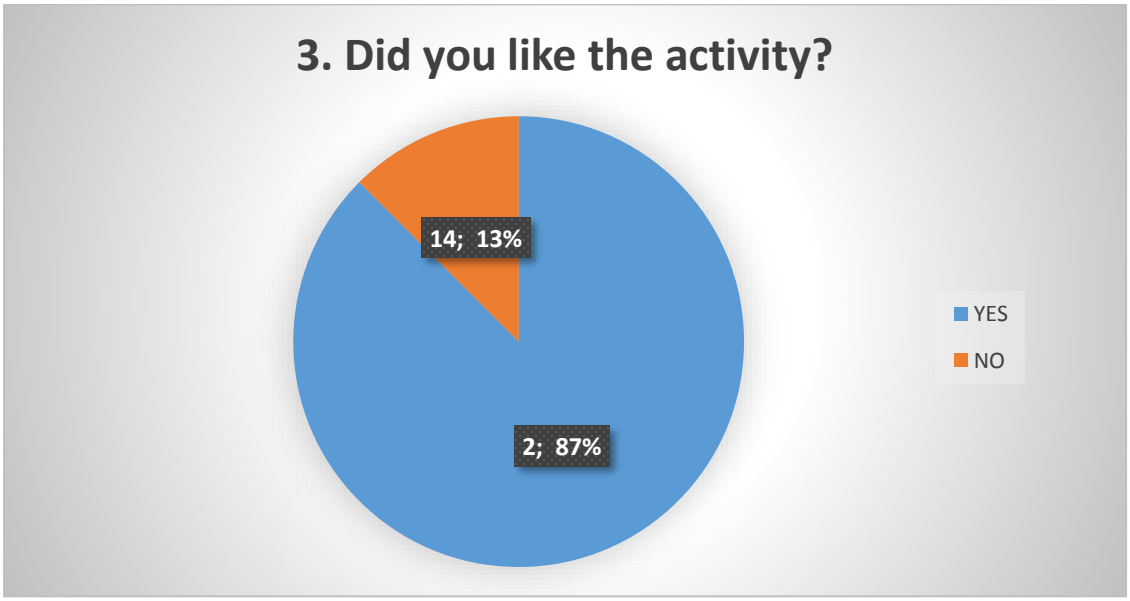

Figure 35 shows the students' reaction towards the activity.

Source: Researcher's creation.

This graph shows that fourteen students out if sixteen or 87% liked and enjoyed the activity because they were able to work in groups and create their own story according to their interests and ideas and the activity was fun while two students did not like it because they don't like to write or read that much. The researcher included this question to receive feedback from the students about whether they enjoyed or not the activity since in this case, the researcher had already changed the activity and had taken into consideration their previous suggestions. Regarding the implementation of the elaborating heuristics and concept maps activity, the researcher found that the activity was well received and enjoyed by almost all of the students of students.

Figure 36

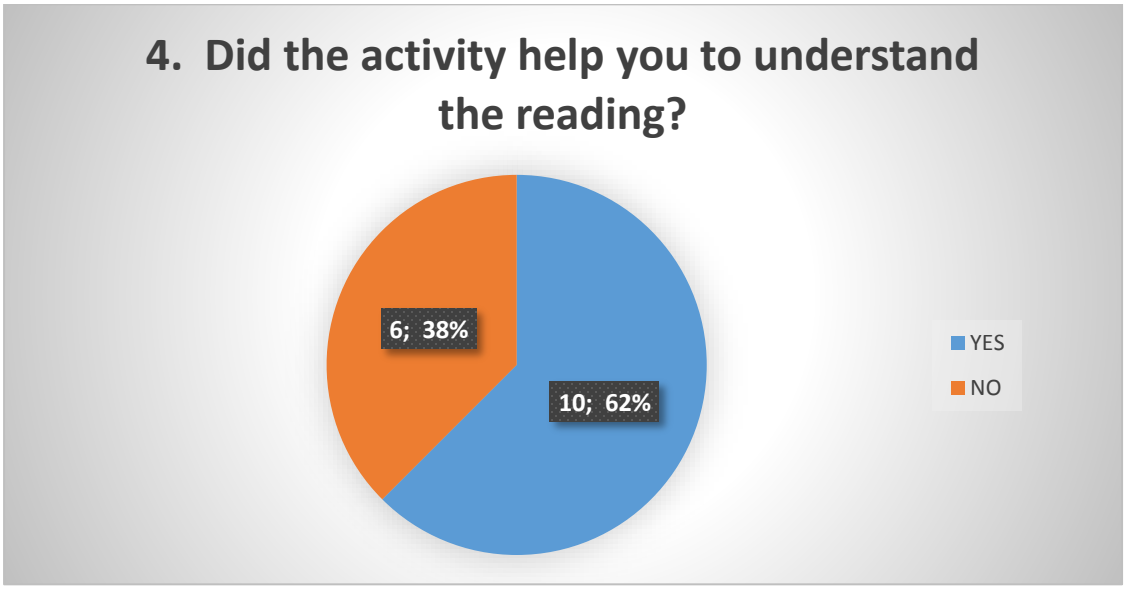

Figure 36 shows students' opinion about the helpfulness of the activity to understand the reading.

Source: Researcher's creation.

This figure shows that when students were asked if the activity helped them to understand the reading or in this case the story. Ten students, (62%), assured they activity did help them to create the story because they included all the required literary elements whereas six students, (38%), commented that some of the other stories of their classmates were easy to understand. In this particular activity students did not need to understand a given passage or story but to create a new one according to their interests, in which they needed to include the required literary elements. As a result, the researcher found that the majority of students find helpful the activity to organize their thoughts and ideas in order to create a story that was easy to understand and where the elements were easily identified by others which proves that Oxford's metacognitive strategies of self-monitoring and self- evaluating could be applied not only to improve language acquisition skills but also to improve critical thinking skills.

Figure 37

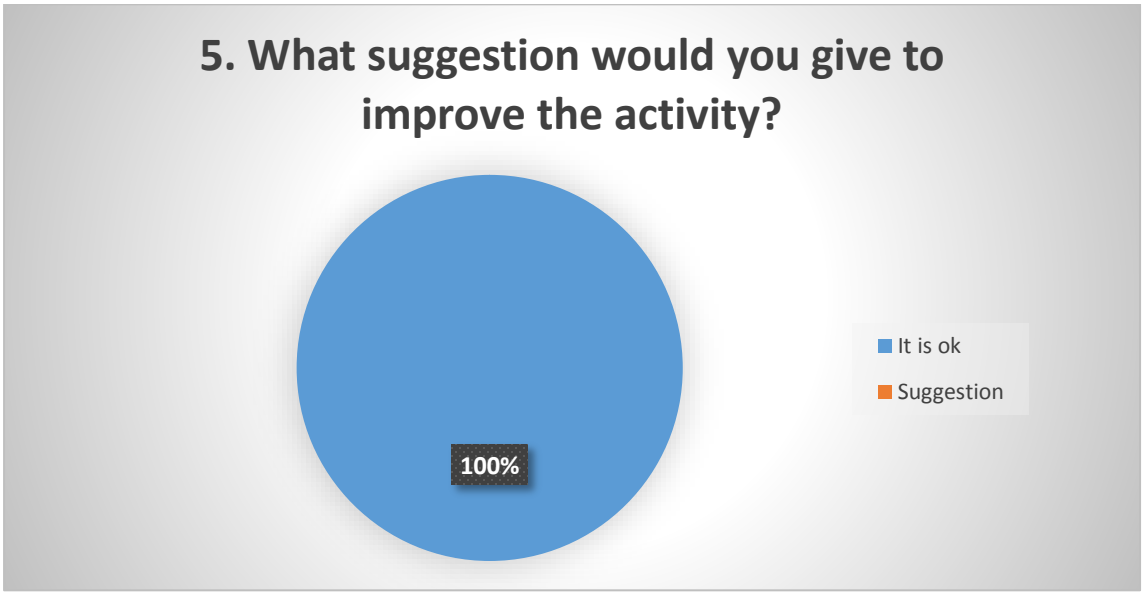

Figure 37 shows the suggestions students stated to improve the activity.

Source: Researcher's creation.

This graph depicts that 100% of the students or the all sixteen students of the group considered the activity was ok, it was fun and interesting and did not need any changes. Due to this fact, the researcher determined that changing the instructions of the activity and including the suggestions of students such as working in groups, using interesting stories, or in this case, writing their own stories according to given parameters and implementing the same metacognitive strategies resulted effective to improve students thinking skills.

Table 6

Heuristics and concept maps observation checklist

Statement	Yes	No
Students show interest in the activity.	x	
Students participate actively during the activity.	x	
Students follow instructions.	x	
Students give rational ideas, opinions, arguments.	x	
Students support their opinion with valid reasons or evidence.	x	
Students respect their classmates' opinions and ideas.	x	

Note: Source: Researcher's creation

This table indicates that students met all criteria; they showed interest and enthusiasm in the activity. Students followed instructions and worked in groups, respected and took into account their classmates ideas and opinions to create the story. They included all the required literary elements. When there were asked to explain an element, they supported with valid reasons an evidence from their story. To sum up, Oxford's metacognitive strategies implemented in the elaborating heuristics and concepts maps activity demonstrated a positive outcome in student's behavior during the activity and in the improvement of critical thinking skills.

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

This chapter thoroughly explains the conclusions and recommendations made by the researcher according to the obtained results and outcomes of the implemented strategies and activities during the intervention with seventh grade students at Methodist High School. In addition, this chapter makes reference to the purpose of the current investigation, unexpected results and the restatement of the research question which was stated on the first chapter.

Purpose of the conclusion

In order to meet the general and specific objectives of this investigation, the researcher followed a series of steps or stages throughout the investigation. The first stage consisted of making observations to determine the possible problems or issues students faced in the classroom and determine the population that was going to be benefited from the research. A group of sixteen seventh grade students at Methodist High School was established as the population involved in the investigation and whom were going to benefit from it.

In the second stage, the researcher established the research question, the general objective which was to analyze the effects of metacognitive strategies to improve critical thinking in seventh grade students, and the specific objectives of the investigation that were to identify the drawbacks on critical thinking, to apply metacognitive strategies to improve critical thinking and to evaluate the effectiveness of the implemented metacognitive strategies in a group of seventh grade students al Methodist High School.

During the third stage, the researcher focused on studying critical thinking theory, metacognition and metacognitive strategies with the purpose of determining the activities she was

going to carry out in the school to fulfill the objectives of the research. She also, consulted several authors and previous related investigations to gather valuable information regarding critical thinking and metacognition.

In the fourth stage, the researcher created the instruments that she was going to use to collect relevant data from the participants. She utilized an interview to an experience teacher, pre and post- tests observation checklists, a self-assessment critical thinking questionnaire, pre and post- reading questionnaires, activity observation checklists, and she built a feedback board in the classroom. All these instruments were explained in detail in previous chapters; they were made to identify the drawbacks on students critical thinking and evaluate if after the implementation of the activities their critical thinking was improved.

During the fifth stage of the current investigation, the researcher determined the metacognitive strategies and activities that she was going to implement in the interventions with the students. The main strategies were self-questioning, self- monitoring and self-evaluating while the activities derived from these strategies were *think aloud, K-W-L chart, think –pair-share and elaboration of heuristics and concept maps*. These strategies and activities were widely described in previous chapters. Finally, in the last stage of this work, the researcher analyzed and commented the collected data and its results through several figures and tables. These figures showed the obtained results and will be the foundation in which the researcher will base on to draw her conclusions regarding each specific objective and recommendations about the whole investigation.

Conclusions

In the following paragraphs the researcher will indicate and comment the conclusions for the three specific objectives of the investigation.

To identify the drawbacks of critical thinking on a group of seventh grade students at Methodist High School. The researcher carried out an interview to an experienced teacher of the school, a self- assessment critical thinking questionnaire, a pre-test reading questionnaire and a pre-test observation checklist as instruments in order to achieve the first specific objective. According to the interview, the researcher was able to gather information about the behavior and critical thinking skills of the seventh grade students. Specifically, on questions number three, four and five, the teacher was asked about the more evident and common difficulties students have during critical thinking. He mentioned that expressing opinions orally about a text was a drawback for at least half of the group. Another drawback was that many students do not like to read, so they do not like to refer to texts or have trouble reading in their second language which is English. He also mentioned that guessing or inferring ideas from written material were difficult for half of the students. The researcher took these drawbacks into account to address them in the implemented strategies and also used some recommendations from the teacher about how to address them.

By analyzing the self- assessment critical thinking questionnaire CP2, the researcher was able to identify the difficulties students had in the substantive and dialogic dimensions of critical thinking when reading and addressed them in the implemented activities. Regarding the substantive dimension (questions from 1 to 12), an average of six students had difficulties when identifying relevant and irrelevant information, recognizing facts and opinions, analyzing possible solutions to problems while an average of ten students were able to do these activities. According to the dialogic dimension, an average of eight students, that is, half of the class had trouble admitting they are wrong or mistaken about an issue, collecting evidence or analyzing opposing ideas or reason when they agreed or disagree with a statement or argument, questioning

if the information is valid or current, and finally, when they need to accept or analyze other alternative interpretations or solutions referring a text besides their own interpretation. The other half of the students stated that they are able to do it. Students struggled more in the dialogic dimension than in the substantive dimension of critical thinking. It is worth to mention, that this questionnaire was written in Spanish in order to assure that students were able to understand it and avoid the language barrier to interfere with the results.

In reference to the pre-test reading questionnaire, the researcher could identify that students, in general, had more difficulties in the open or essay questions where they needed to express opinions, make inferences, discuss ideas and support their answers with valid reasons and evidence from the reading. Additionally, students struggled to recognize main ideas of paragraphs and relevant or irrelevant information; also they had a hard time identifying when the authors agreed or disagreed with a statement according to the text. Nonetheless, after addressing these issues and implementing the strategies, students' grades improved eight points in the average overall grade. The pre- test average overall grade was fifty-four and in the post-test was sixty-two. The improvement was more evident in the open or essay questions, the students enhanced their answers by supporting them with evidence and valid reasons.

Finally, according to the pre-test observation list, the researcher was able to identify which intellectual traits of critical thinking were not reached during the observation. As Elder and Paul (2014) stated, there are eight main intellectual traits or characteristics that a good critical thinker should have. These traits are humility, courage, empathy, autonomy, integrity, perseverance, confidence in reason and fair-mindedness. Humility is achieved when an individual recognizes ignorance or lack of understanding which leads him or her to be willing to learn new information. Courage is developed when the thinker stands true to his or her beliefs, opinions and

arguments even though other individuals do not approve them or disagree with them. Intellectual empathy is shown whenever thinkers consider others' opinions and viewpoints besides their own. Autonomy is reflected when individuals control their thinking process in order to validate if their reasoning, thoughts, beliefs, insights and opinions are rational and based on evidence. Integrity is developed when thinkers are honest with their own thinking, recognize if their ideas are clear or present contradictions or confusion and validate other's ideas or opinions the same ways they validate their own. Perseverance is shown when thinkers evaluate the rationality of their ideas and overcome confusion and difficulty to achieve the purpose. Thinkers demonstrate confidence in reason when they give others opportunities to reason and encourage them to think to reach higher standards. Lastly, fair-mindedness is achieved whenever thinkers treat all arguments and ideas fairly, avoiding their assumptions or feelings interfere with the received information.

The intellectual traits where students struggled the most were humility, courage, autonomy and perseverance. Humility was difficult for students because they did not want to admit they lacked knowledge, but they assured they already knew some information or understood correctly all the passages. Nonetheless, some of their answers were incorrect. They had trouble with courage because when the researcher debated with them or disagreed with their responses some of them seemed confused and not very sure of their reasons to defend them. In autonomy, students had complications in their thinking process; they were confused in expressing ideas, reasons or opinions, supporting their answers with evidence from the text, identifying causes, effects, pros or cons, and organizing their thoughts to express them orally. Lastly, students struggled to show perseverance since they gave up too easily when the researcher differed from their viewpoints. On the other hand, according to results, during the post-test observation students improved these traits. Moreover, intellectual integrity in critical thinking

and intellectual fair-mindedness improved too since students evaluated and analyzed their classmates' ideas similarly as they validated their own; they were able to identify whether their ideas or opinions were clear or had inconsistencies. On the contrary, confidence in reason remain the same. Students did not show improvement for they did not encourage their classmates to reason or think.

To apply metacognitive strategies in order to improve seventh grade students' critical thinking at Methodist High School. In order to achieve this objective, the researcher planned four activities based on the metacognitive strategies of self-questioning, self- monitoring and self-evaluating. The activities were *think aloud, K-W-L chart, think- pair-share and elaborating heuristics or concept maps*; each activity was implemented during each intervention, in a period of two lessons corresponding to eighty minutes. In these activities the researcher used one or two page readings with simple vocabulary or with a list of words and its meaning at the end of the page to avoid confusion with some vocabulary in the text and facilitate their comprehension. The researcher also implemented a feedback board and an activity observation list to evaluate the process of each activity and received feedback from the students about the activities if they liked it or not, if the activities helped them or gave suggestions to improving the activity.

According to the analysis of collected data and the results shown in the graphs, the researcher has determined that almost half of students do not like to read, or they like to do it but just material they find interesting; some students prefer non- fiction passages and others rather fiction stories. Despite that, the analysis of the data collected by the feedback board and the activity observation checklists shows that almost half of the students actually liked the activities and felt that they helped them to understand the passages in a better way and also helped them to

express their opinions and viewpoints since they were able to discuss the reading with classmates in all the activities. Additionally, students mentioned that writing their own questions, stories, looking for pros and cons, causes and effects, problem and solutions really made them be aware of their thinking in order to identify those elements and agreed or disagreed with their classmates' opinions. Students also mentioned in the suggestions that they want shorter stories or more interesting stories to analyze and hopefully do it in groups. Because of these suggestions, for the last activity which was elaborating heuristics or map concepts, the researcher decided to modify the activity as it was already planned. She did not give students a story; instead, she asked them to get in groups and create or write their own story by taking into account the elements of a literary analysis and including them in the heuristic or map to identify them and present to the class. According to the feedback board, the most effective, fun and helpful activity for students was *creating their own story and heuristic*, and the least helpful or fun was the *think aloud*. The *K-W-L chart and think-pair-share* activities were similar and considered average.

After analyzing the activity observation checklists, the researcher realized that students had difficulties following instructions in two activities when they need to work in pairs (*think aloud and think-pair-share*) and also struggled in one activity (*think-pair-share*) to respect their classmates' opinions or ideas. After the implementation of the activities, the researcher considered that in general, the process and outcomes of the activities were positive and helpful for students since they actively participated and showed interest in the discussed topic and also they were able to express reasonable and valid opinions, viewpoints and supported them with evidence once the researcher modeled or taught them how to do it.

To evaluate the effectiveness of metacognitive strategies on seventh grade students' critical thinking at Methodist High School. This objective was met through the application of

the post-test reading questionnaire and the post-test observation checklist. Once the drawbacks on critical thinking were identified and addressed in the implemented strategies; the researcher analyzed the results of the post-test instruments to evaluate the outcomes. As mentioned previously in the conclusions of the first objective. The average overall grade in the pre-test was fifty-four and in the post-test was sixty-two; as a result, the average overall grade slightly improved in eight points. Although this is not a huge improvement, the data showed that students' critical thinking skills were enhanced and some of the drawbacks were overcome. The students' improvement was more evident or significant in expressing opinions and ideas and supporting them with valid reasons and evidence from the passages. Furthermore, in order to have another point of view and feedback, after the implementation of activities and the analysis of data, the researcher talked to Mr. Temple, with the purpose of asking him about the behavior of students or if he has perceived any change or improvement in students' critical thinking; Mr. Temple stated that after the activities, he noticed that students slightly improved in expressing opinions and supporting them with valid reasons and evidence when they discuss literary passages. It is relevant to mention that the researcher worked with the students for two weeks, which is a short period of time to develop more significant changes or improvements on students' critical thinking; the researcher will include this statement in her recommendations.

According to the post-test observation checklist analysis, the researcher determined that the intellectual traits of a good critical thinker were also slightly improved. At least one student improved in empathy, autonomy, integrity, perseverance and fair-mindedness while in courage two students showed an improvement. On the other hand, humility was the trait where students improved the most, five students, and confidence in reason remained the same. Due to these results, the researcher can conclude that the metacognitive strategies do help students to improve

their intellectual traits or characteristics hence their critical thinking also improves. Once again this improvement was accomplished in just two weeks. Probably in a long period of time the students' critical thinking would improve significantly.

Restatement of the problem statement and research question

The general objective established by the researcher at the beginning of this investigation was to analyze the effects of metacognitive strategies to improve critical thinking in seventh grade students at Methodist High School during the III Trimester of 2018. This objective was determined by the researcher after asking herself the following questions: Why study critical thinking in teenagers? Why study how to improve critical thinking in teenagers? These questions were asked after the researcher observed ninth grade students during a four-month teaching practicum at Methodist High School in 2016. She observed these ninth graders in class when discussing literature and expressing opinions and ideas. More recently, she reinforced these questions through the pre-test observations to the seventh grade group at Methodist High School in 2018.

In order to meet the general and derived specific objectives, and answer the research questions, the researcher studied and consulted critical thinking theories and metacognitive approach and its strategies to develop instruments and activities that could help students to improve their critical thinking which would lead them to grow academically, professionally, socially ad emotionally during their entire life.

The researcher applied eight instruments to collect data: an interview to an experienced teacher, a self -assessment critical thinking questionnaire, a pre-test reading questionnaire, a pre-test observation checklist, a feedback board, and activity observation checklist, a post-test reading questionnaire and a post-test observation checklist. These instruments allowed the researcher to

identify the drawbacks on students' critical thinking to address them and to evaluate the whole process of the implementation of the activities and acknowledge students' feedback. Moreover, these instruments allowed the researcher to evaluate the effectiveness of the implementation of metacognitive strategies and drew the conclusion that these strategies and activities helped to improve students' critical thinking.

The implemented activities were *a think aloud, a K-W-L chart, a think-pair-share and heuristics*. These activities were based on the metacognitive strategies: self-questioning, self-monitoring, self-evaluating, active thinking routines. According to the collected data and results, these strategies were in general well accepted by the students and helped them to be aware of their thinking, to express opinions and ideas based on valid reasons and evidence; they also helped students to identify literary elements, relevant information, problems, solutions, cons, pros, causes and effects on fiction and non-fiction reading passages.

After the application of the instruments and the implementation of the strategies and activities, the researcher could answer how to help students to improve their critical thinking and meet the general objective of the investigation that was to analyze the effects of metacognitive strategies to improve critical thinking in seventh grade students at Methodist High School during the III Trimester of 2018. To sum up, the researcher obtained a positive outcome from the investigation, and she was able to assure that using metacognitive strategies could help students to improve their critical thinking.

Unexpected results

Before carrying out the investigation and during the implementation of the instruments, strategies and activities, the researcher determined that the seventh grade students did not like to read or just read and analyze texts that were appealing to them. Due to that fact, the researcher

tried to use readings that were interesting to the students and changed the last activity (heuristics) to asking students to write their own stories and this activity was well received by the students. All of the students or 100% of them liked the activity and admitted it was helpful for them to express ideas, opinions and to identify literary elements since they need to be aware of their thinking to create their story and agreed or disagreed with their classmates' ideas. They also mentioned that writing their own questions and inquiries in the second activity (K-W-L chart) helped them to be aware of their thinking and it was easier to obtain information and learn from the reading passage. As a result of these outcomes or findings, the researcher identified the following unexpected result: these seventh grade students do not like to read so much, but they like and find helpful to learn and improve their thinking to write their own questions, insights and stories about a topic or theme.

Recommendations

After the analysis of the collected data from the application of instruments and implementation of metacognitive strategies and activities, the researcher made her conclusions about her investigation and established five important recommendations for further investigation or for other researchers that want to investigate about critical thinking and reading comprehension improvement through metacognitive strategies.

The first recommendation corresponds to time in the implementation of strategies. The researcher was certain that these strategies were effective and helped students to improve their critical thinking skills; however, students slightly improved their thinking in two weeks in an academic trimester or term, that was the time to apply all the activities and interventions. Due to that fact, the researcher recommends to work with the students for a longer period of time, perhaps during a whole school year if the researcher is the current teacher of the group or for a

semester or quarter if the researcher is a student who is carrying out an investigation. The pre-test could be done at the beginning of the year or semester in order to identify the drawbacks or difficulties that students might have and determine the proper metacognitive strategies to help them continually throughout the year or semester during their lessons as a routine. In this way, the researcher can evaluate the process and effectiveness of the activities as well as make changes or improvements on them on time. Finally, the researcher could perform the post- test at the end of the year or semester to evaluate the improvement which probably will be more significant than the results of just working with the strategies for two weeks.

The second recommendation involves the reading material used in the interventions. The researcher found that students do not like to read or they just want to read what is appealing to them or simple short stories. For this reason, the researcher suggests to choose carefully the material students will read, that the passages are short or according to their level and English proficiency of the students. Nonetheless, the school syllabus usually has a variety of readings that are not always appealing to students, but reality is that in order to learn and develop certain skills students need to read not only what they want but what they must. However, it would be a good idea to use fiction and non-fiction passages to present different types of texts to keep students interested and make their learning more meaningful.

The third recommendation is about the age of students and the use of metacognitive strategies. The researcher carried out her investigation on teenagers with ages of twelve or thirteen years old, and she obtained positive outcomes when enhancing students' critical thinking; so she suggests to use these strategies in younger students or kids in elementary school or even in preschool to guide students through the development of critical thinking in early stages of life and help students to become good critical thinkers while they are growing up.

The fourth recommendation consists of encouraging students not just to read but to write too. The researcher realized that the participants in the investigation liked to write their own questions to be aware of their thinking process and helped them to look for information that they required. Moreover, students liked to write their own stories to state their ideas, insights and opinions about a topic. The students showed this ability in the *K-W-L chart and elaborating heuristics*; as a result, the researcher recommends to develop students' writing interests and skills to improve their critical thinking too and not only practicing critical thinking skills through reading passages.

The last recommendation corresponds to interview Mr. Temple again to get feedback regarding students' critical thinking in upcoming months to evaluate if the implemented strategies they learned would have helped students to improve their critical thinking skills or if he has been using these or similar strategies to continue with the process to enhance their critical thinking. This interview could be done by the researcher of the current investigation as wells as other researchers that want to continue studying critical thinking improvement in teenagers or related topics.

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APENDIXES

1.Chronogram of Application of Instruments and Activities

Instrument/ Activity	Application Date
1. Interview to an experienced teacher.	September 19th
2. Pre-test reading questionnaire, pre-test observation checklist, self- assessment critical thinking questionnaire	September 26th
3. Think aloud activity, feedback board, activity observation checklist.	September 27th
4. K-W- chart activity, feedback board, activity observation checklist.	October 1st
5. Think-Pair- Share activity, feedback board, activity observation checklist.	October 4th
6. Create a story and heuristics or concept maps activity, feedback board, activity observation check list.	October 5th
7. Post-test reading questionnaire and post-test observation checklist.	October 8th
8. Phone conversation to the students' English teacher.	October 31rd

2. Interview to an experienced teacher

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Data Collection Instrument

Interview to an experienced teacher

The researcher will ask the following questions to an experienced teacher at Methodist High School and current English teacher of the seventh grade group.

1. How many years of teaching experience do you have?

2. What are the most common drawbacks or difficulties you have noticed in students' critical thinking skills?

3. Where are these difficulties more evident, in reading literature, writing or expressing ideas orally?

4. Do you think that the language barrier could interfere when students attempt to express their thinking in a written or spoken way?

5. Do you consider students have a proficient level of critical thinking?

6. Do you consider it is important to help students to improve their critical thinking strategies? Why?

7. What are some strategies you use or would use to improve students' critical thinking?

8. Do you use metacognition and metacognitive strategies in your lessons? Which ones?

9. Do you think that using metacognitive strategies in class will help students to improve their critical thinking? Why?

10. Is the current syllabus and methodology of the school encouraging teachers to work in the development and improvement of students' critical thinking skills?

3.Pre- test reading questionnaire

Directions: Mark with an (X) the corresponding answer according to the reading "Garbage".

1. Which best explains why the author begins the text by talking about magical garbage fairies?

   a. He is putting a common misconception to rest.
   b. He is trying to get the reader's attention.
   c. He is addressing his concern in a serious way.
   d. He is supporting his argument with evidence.

2. Which best defines the meaning of *incineration* as it is used in the text?

   a. To bury waste materials in a large hole
   b. To allow waste products to decompose and become fertilizer
   c. To burn waste materials and harvest the energy
   d. To turn waste materials into products like book covers

3. Which was **not** cited in the third paragraph as an issue with landfilling?

   a. Landfills are smelly.
   b. Usable materials are wasted in landfills.
   c. Landfills may pollute the water supply.
   d. It is difficult to find locations for landfills.

4. Which conclusion could best be supported with text from the passage?

   a. Each method of waste management has its drawbacks.
   b. Recycling is without a doubt the best way to handle waste.
   c. Incineration is the best way to process waste.
   d. All large cities should create massive compost piles.

5. Which best expresses the main idea of the fourth paragraph?

   a. Landfills take up a lot of space.
   b. Composting is good for the soil but it can be hard to do.
   c. The process of composting is very complicated and scientific.
   d. There is a lot of plastic garbage in landfills.

6. Which best expresses the meaning of the word *compacted* as it is used in the third paragraph?

   a. Garbage is burned before it is thrown in a hole.
   b. Garbage is put in trucks before it is thrown in a hole.

c. Garbage is crushed smaller before it is thrown in a hole.
d. Garbage is put in a can before it is thrown in a hole.

7. Which best expresses the author's main purpose in writing this?

a. To convince readers to recycle and compost
b. To persuade readers that recycling is a waste of resources
c. To compare and contrast recycling and landfilling
d. To inform readers of methods of waste management

8. Which is **not** included in this text?

a. A description of how trash is collected
b. A description of the uses of compost
c. A description of the two methods of incinerating trash
d. A description of how landfills have advanced over time

9. Which best explains why composting is not feasible on a large scale?

a. People wouldn't want to touch all of that gross rotting food.
b. It would smell too bad in densely populated cities.
c. It would attract rodents that would spread disease.
d. Plastic would get into the compost and turn it into a pollutant.

10. Which title best expresses the main idea of this text?

a. The Magic of Recycling: Bringing Back What Was Once Lost
b. Methods of Waste Management: Pros and Cons
c. Recycling, Landfilling, or Composting: Which is Best For You?
d. Do Your Part: How to Save the Earth by Recycling and Composting

1. Which two methods of waste management do you believe are best for society? Support your argument with text.

2. Which two methods of waste management do you believe are worst for society? Refer to the text in your argument.

Reading and questions were taken from the webside E Reading Worksheets
https://www.ereadingworksheets.com/browse-worksheets-by-grade-level/reading-worksheets-by-grade-level/7th-grade-reading-worksheets/

4. Pre- test observation checklist

Pre –Test Observation Check List

The following observation list is based in on the universal intellectual traits and characteristic of a good critical thinker stated by Paul and Elder (2014).

Intellectual Trait	Yes	No	Comments
Humility: Student accepts ignorance or lack of understanding.			
Courage: Student stands true to his/her beliefs, opinions, arguments			
Empathy: Student considers others 'point of view and opinions.			
Autonomy: Student controls his/her thinking process and reasoning, recognizes his/ her ideas, thoughts, assumptions.			
Integrity: Student is honest and true with his/her own thinking, Student validates others' ideas and opinions the same way he/ she validates his/her own.			
Perseverance: Student evaluates the rationality of his/her ideas and overcomes confusion and difficulty to achieve the purpose.			
Confidence in reason: Student gives others opportunities to reason and encourage them to think.			
Fair mindedness: Student treat all arguments and ideas fairly avoiding his or her assumptions or feelings interfered with the information received.			

4.Self- assessment critical thinking questionnaire

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Instrumento de Recolección de datos

Instrumento basado en Cuestionario del Pensamiento Crítico 2 (CPC 2) por Santiuste 2001

Instrucciones: Estimado estudiante favor leer detenidamente las siguientes 16 afirmaciones y marcar una equis "X" en la casilla que mejor corresponda a su respuesta.

Afirmación	**5 Total Acuerdo**	**4 Acuerdo**	**3 A veces**	**2 Desacuerdo**	**1 Total Desacuerdo**
1.Cuando leo algo en lo que no estoy de acuerdo, busco razones contrarias a las que se expones en el texto.					
2.Sé diferenciar los hechos y las opiniones en los textos.					
3.Cuando leo un texto, identifico claramente la información relevante.					
4.Cuando leo un texto, identifico claramente la información irrelevante.					
5.Cuando leo un texto argumentativo, identifico claramente los argumentos que corroboran o refutan una tesis.					
6.Sé extraer conclusiones fundamentales de los textos que leo.					
7.Cuando un autor expone varias posibles soluciones a un problema, valoro la utilidad de cada una de ellas.					
8.Cuando un autor expone varias posibles soluciones a un problema, valoro si todas ellas son igualmente posibles de poner en práctica.					
9.Cuando un autor expone varias posibles soluciones a un problema, valoro si ha expuesto también todas las condiciones necesarias para ponerlas en práctica.					

Afirmación	5 Total Acuerdo	4 Acuerdo	3 A veces	2 Desacuerdo	1 Total Desacuerdo
10.Cuando leo un texto sé si el autor trata de dar una opinión, exponer un problema y sus soluciones, explicar hechos, etc.					
11.Verifico la lógica interna de los textos que leo.					
12.Me planteo si los textos que leo dicen algo que esté vigente hoy en día,					
13.Cuando leo algo con lo que no estoy desacuerdo, considero que puedo estar equivocado y que quizás el autor tenga razón.					
14.Cuando leo una opinión, no tomo partido en ella hasta que dispongo de suficiente evidencia o razones que la justifiquen.					
15.Cuando le una opinión que está de acuerdo con mi punto de vista, tomo partido por ella sin considerar otras posibles razones contrarias a ella.					
16.Cuando leo la interpretación de un hecho, me pregunto si existen interpretaciones alternativas.					

5. Pre- test reading questionnaire

Directions: Mark with an (X) the corresponding answer according to the reading "Koko".

1. Which best expresses the main idea of this article?

a. Bees, whales, and apes like Koko all use language to communicate.
b. Koko uses sign language but some think it's just a trick.
c. It is natural for gorillas and house cats to live together.
d. If you want a lot of "likes" on Facebook, get a talking gorilla.

2. Which best describes how the **second** paragraph is organized?

a. Chronological order
b. Cause and effect
c. Compare and contrast
d. Problem and solution

3. Which best expresses the author's purpose in writing the **second** paragraph?

a. The author is describing the environment in which Koko lives.
b. The author is informing readers how Dr. Patterson developed her skills.
c. The author is persuading readers that Koko should be freed.
d. The author is telling readers about Koko and Dr. Patterson's background.

4. Which happened last?

a. Koko got a stuffed cat for Christmas.
b. Koko lost All Ball.
c. Koko began living with the Gorilla Foundation.
d. Dr. Patterson began teaching Koko to sign.

5. Which statement would the author most likely agree with?

a. Koko has mastered sign language without a doubt.
b. Everybody likes how Dr. Patterson has raised Koko.
c. Koko doesn't really know sign language.
d. Some people are troubled by how Koko was raised.

6. Which best defines the word *duplicated* as it is used in the sixth paragraph?

a. To dispute a fact or disagree with someone.
b. To lie to someone or to fool them.
c. To copy or recreate something.
d. To be disproven through debate

7. Which event happened first?

a. Koko moved onto the Stanford University campus.
b. Koko picked All Ball out for her birthday.
c. Koko began living with the Gorilla Foundation.
d. Koko got a stuffed cat for Christmas.

8. Which best describes the main idea of the **sixth** paragraph?

a. Dr. Patterson has treated Koko very cruelly.
b. Dr. Patterson and Koko have a beautiful, pure, and unconflicted relationship.
c. Some people think that Koko should not have been treated like a human.
d. Some people are working very hard to prove that Dr. Patterson is wrong.

9. Which statement would the author most likely **disagree** with?

a. Dr. Patterson has worked hard to teach Koko sign language.
b. Some people think that Koko only signs to get food.
c. The Gorilla Foundation would like to move Koko to an ape preserve.
d. Dr. Patterson has no regrets about working with Koko.

10. If a book were being written about Koko and All Ball, which title would best summarize their story?

a. Long Wanted, Short Lived: A Tale of Strong Loves Lost
b. Happy Ending: The Gorilla Who Got What She Wanted
c. A Tale of Two Kitties: A Stuffed Cat Versus a Real One
d. Plushy Love: How A Gorilla Fell in Love with a Stuffed Cat

1. Does Koko really understand sign language? Support your position with quotes from the text. Explain your quotes clearly.

2. Make an inference. Describe how Dr. Patterson feels about her relationship with Koko. Use evidence from the text to support your response.

Reading and questions were retrieved from the website E Reading Worksheets https://www.ereadingworksheets.com/browse-worksheets-by-grade-level/reading-worksheets-by-grade-level/7th-grade-reading-worksheets/

6.Post-test observation checklist.

Post –Test Observation Check List

The following observation list is based in on the universal intellectual traits and characteristic of a good critical thinker stated by Paul and Elder (2014).

Intellectual Trait	Yes	No	Comments
Humility: Student accepts ignorance or lack of understanding.			
Courage: Student stands true to his/her beliefs, opinions, arguments			
Empathy: Student considers others 'point of view and opinions.			
Autonomy: Student controls his/her thinking process and reasoning, recognizes his/ her ideas, thoughts, assumptions.			
Integrity: Student is honest and true with his/her own thinking, Student validates others' ideas and opinions the same way he/ she validates his/her own.			
Perseverance: Student evaluates the rationality of his/her ideas and overcomes confusion and difficulty to achieve the purpose.			
Confidence in reason: Student gives others opportunities to reason and encourage them to think.			
Fair mindedness: Student treat all arguments and ideas fairly avoiding his or her assumptions or feelings interfered with the information received.			

7.Feedback board

Source: Picture taken by the researcher.

Source: Picture taken by the researcher.

8.Activity observation checklist.

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Data Collection Instrument

Activity Observation Check List

Activity Observation Checklist

Name of the activity: _____

The students will be observed as a group during the activity.

Statement	Yes	No	Comments
Students show interest in the activity.			
Students participate actively during the activity.			
Students follow instructions.			
Students give rational ideas, opinions, arguments.			
Students support their opinion with valid reasons or evidence.			
Students respect their classmates' opinions and ideas.			

9. K-W-L chart.

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Activity No. 2 K-W-L CHART

K -W-L CHART

Topic: Non- fiction reading: Google

What I Know	What I Want to Know	What I Learned

10. K-W-L chart.

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Activity No. 3 Think - Pair – Share

Think - Pair - Share

Topic: Fiction: The Lottery Ticket by Anton P. Chekhov

Situation / text	Pros	Cons	What would you do if won the lottery?

11. Heuristics

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Activity No. 4

Heuristics

Topic: Fiction: That Spot by Jack London (version 1)

Instructions: Elaborate a heuristic, schema or concept map where you include relevant aspects of the That Spot reading such as characters, problem or conflict, resolution, important events, causes, consequences and your personal opinion about the story.

Topic: Fiction: Literary analysis (version 2)

Instructions: 1) Create a short fiction story. 2) Elaborate a heuristic, schema or concept map where you include the elements of the literary analysis of your story such as: setting, characters (at least 3), conflict or plot, resolution, theme, important events, causes, consequences or pros and cons, a moral and your personal opinion about the story. 3) Present your work to the class.

12. Lesson plan 1.

Universidad Internacional de las Américas
Lesson Plan

Lesson Plan Day 1

Objectives	Contents	Strategies /Activities/ procedures	Materials and Instruments	Evaluation
1.Thesis objective: To identify the drawbacks of critical thinking on a group of seventh grade students at Methodist High School. 2.To evaluate students' critical thinking and reading comprehension. 3.To measure students critical thinking skills	Reading: "Garbage"	1 -2. Students will read a non-fiction passage and answer a questionnaire. 1-2. Teacher will call students in pairs and ask them questions about the reading and some specific passages of the text. 3. students will fill out a questionnaire (CPC 2) about critical thinking skills. 4.Teacher will fill out an observation list while students work. **Metacognitive Strategies:** Self-monitoring, self – evaluating.	Reading: "Garbage" Pre - test questionnaire CPC 2 questionnaire Pre- test observation checklist	Monitor students' work. Ask questions related to the topic to check students' understanding. Teacher will assess the instruments to get the results.

13. Lesson plan 2.

Universidad Internacional de las Américas

Lesson Plan

Lesson Plan Day 2

Objectives	Contents	Strategies /Activities/ procedures	Materials and Instruments	Evaluation
1.Thesis objective: To apply metacognitive strategies in order to improve seventh grade students' critical thinking at Methodist High School. 2.To engage students in metacognition and metacognitive strategies. 3.To express opinions, viewpoints and ideas.	Reading: "Gilray's Flower-Pot By J.M. Barrie"	1 -2. Teacher will model and explain a read aloud activity. 1-2. Teacher will guide students in a read aloud activity. Students will read aloud the text, one by one will read a short passage aloud. During the reading student will make pauses to express ideas, opinions, arguments, and clarify meaning. Teacher will ask them questions. 3. Students will discuss the reading in pairs. 4.Teacher will fill out an observation list while students work. 5. Students will answer questions about the activity in post – it notes and paste them on the feedback board. **Metacognitive Strategies:** Self-monitoring, self–evaluating.	Reading: "Gilray's Flower-Pot By J.M. Barrie" Activity observation checklist Post –it notes	Monitor students' work. Teacher will assess the instruments to get the results.

14. Lesson plan 3.

Universidad Internacional de las Américas

Lesson Plan

Lesson Plan Day 3

Objectives	Contents	Strategies /Activities/ procedures	Materials and Instruments	Evaluation
1.Thesis objective: To apply metacognitive strategies in order to improve seventh grade students' critical thinking at Methodist High School. 2.To engage students in metacognition and metacognitive strategies. 3. To activate student's previous knowledge about the topic. 4.To express and compare opinions, viewpoints and ideas.	Reading: "Google"	1 -2. Teacher will model and explain a K-W-L chart activity. 1-2.-3-4 Students will think about what they Know about Google individually. then, they will work in pairs to discuss what they know, and want to know, after that their will read the text and discus what they learned and write it in the chart and share with the class. 5.Teacher will fill out an activity observation list while students work. 6. Students will answer questions about the activity in post – it notes and paste them in the feedback board. **Metacognitive Strategies:** Self-monitoring, self – evaluating, activating previous knowledge.	Reading: "Google" KWL chart Worksheet Activity observation checklist Post –it notes	Monitor students' work. Ask questions related to the topic to check students' understanding. Teacher will assess the instruments to get the results.

15. Lesson plan 4.

Universidad Internacional de las Américas

Lesson Plan

Lesson Plan Day 4

Objectives	Contents	Strategies /Activities/ procedures	Materials and Instruments	Evaluation
1.Thesis objective: To apply metacognitive strategies in order to improve seventh grade students' critical thinking at Methodist High School. 2.To engage students in metacognition and metacognitive strategies. 3.To express and compare opinions, viewpoints and ideas. 4. To identify pros and cons about a situation. 5. To encourage students to think about a hypothetical situation.	Reading: "The Lottery Ticket By Anton P. Chekhov"	1 -2. Teacher will explain a Think- Pair-Share activity. 1-2.-3-4 -5-Students will read the text individually, then they will work in pairs to discuss the reading, compare ideas and identify the situation, pros, and cons about the story and what would they do in that situation. Finally, they will share their findings with the class. 6.Teacher will fill out an activity observation list while students work. 7. Students will answer questions about the activity in post – it notes and paste them in the feedback board. **Metacognitive Strategies:** Self-monitoring, self – evaluating.	Reading: "The Lottery Ticket By Anton P. Chekhov" Think- Pair - Share Worksheet Activity observation checklist Post –it notes	Monitor students' work. Ask questions related to the topic to check students' understanding. Teacher will assess the instruments to get the results.

16. Lesson plan 5.

Lesson Plan Day 5

Objectives	Contents	Strategies /Activities/ procedures	Materials and Instruments	Evaluation
1.Thesis objective: To apply metacognitive strategies in order to improve seventh grade students' critical thinking at Methodist High School. 2.To engage students in metacognition and metacognitive strategies. 3. To make a literary analysis and represent it in a heuristic. 4. To encourage students to guess an identify different aspects of literary text and summarize them. 5.To guide thinking process and information.	Reading: "That Spot by Jack London"	1 -2. Teacher will model and explain how to create a heuristic, concept map or schema. 1-2.-3-4 -5-Students will read the text in pairs, then they discuss the reading and compare opinions to identify the elements of a literary analysis (conflict, resolution, characters, causes, consequences, major events and personal opinion) and create a heuristic with the information. 6.Teacher will fill out an activity observation list while students work. 7. Students will answer questions about the activity in post – it notes and paste them in the feedback board. **Metacognitive Strategies:** Self-planning, Self-monitoring, self – evaluating.	Reading: "That Spot by Jack London" Heuristic Worksheet Activity observation checklist Post –it notes	Monitor students' work. Ask questions related to the topic to check students' understanding. Teacher will assess the instruments to get the results.

17.Lesson plan 5.1.

Lesson Plan Day 5

Objectives	Contents	Strategies /Activities/ procedures	Materials and Instruments	Evaluation
1.Thesis objective: To apply metacognitive strategies in order to improve seventh grade students' critical thinking at Methodist High School. 2.To engage students in metacognition and metacognitive strategies. 3. To make a literary analysis and represent it in a heuristic. 4. To encourage students to guess an identify different aspects of literary text and summarize them. 5.To guide thinking process and information.	A story written by the students Literary analysis	1 -2. Teacher will model and explain how to create a heuristic, concept map or schema. 1-2.-3-4 -5-Students will create and write a story in groups, the story must include the elements of a literary analysis (conflict-plot, resolution, characters, setting causes, consequences, major events, theme and personal opinion), Then, they will identify the elements and create a heuristic with the information and share it with the class. 6.Teacher will fill out an activity observation list while students work. 7. Students will answer questions about the activity in post – it notes and paste them in the feedback board. **Metacognitive Strategies:** Self-planning, Self-monitoring, self – evaluating.	Heuristic Worksheet Cardboard paper Activity observation checklist Post –it notes	Monitor students' work. Ask questions related to the topic to check students' understanding. Teacher will assess the instruments to get the results.

18.Lesson plan 6.

Universidad Internacional de las Américas

Lesson Plan

Lesson Plan Day 6

Objectives	Contents	Strategies /Activities/ procedures	Materials and Instruments	Evaluation
1.Thesis objective: To evaluate the effectiveness of metacognitive strategies on seventh grade students' critical thinking at Methodist High School 2.To evaluate students' critical thinking and reading comprehension.	Non-fiction Reading: "Koko"	1 -2. Students will read a fiction reading and answer a questionnaire. 1-2. Teacher will call students in pairs and ask them questions about the reading and some specific passages of the text. 3.Teacher will fill out an observation list while students work. **Metacognitive Strategies:** Self-monitoring, self – evaluating.	Reading: "Koko" Post - test questionnaire Post- test observation checklist Activity Observation list	Monitor students' work. Ask questions related to the topic to check students' understanding. Teacher will assess the instruments to get the results.ac