INCREASING CRITICAL AND CREATIVE THINKING (CCT) SKILLS IN READING THROUGH THE MODIFIED SYNTAX OF INQUIRY SOCIAL COMPLEXITY (ISC) LEARNING MODEL

A Thesis

By
ARRI ALFIANTHO

MASTER IN ENGLISH LANGUAGE TEACHING STUDY PROGRAM
LANGUAGE AND ARTS EDUCATION DEPARTMENT
TEACHER TRAINING AND EDUCATION FACULTY
LAMPUNG UNIVERSITY
BANDAR LAMPUNG
2023

**INCREASING CRITICAL AND CREATIVE THINKING (CCT) SKILLS
IN READING THROUGH THE MODIFIED SYNTAX OF INQUIRY
SOCIAL COMPLEXITY (ISC) LEARNING MODEL**

**By
ARRI ALFIANTHO**

A Thesis

**Submitted in a Partial Fulfillment of
The Requirements for S-2 Degree**

in

**Language and Arts Education Department
Teacher Training and Education Faculty**

**MASTER IN ENGLISH LANGUAGE TEACHING STUDY PROGRAM
LANGUAGE AND ARTS EDUCATION DEPARTMENT
TEACHER TRAINING AND EDUCATION FACULTY
LAMPUNG UNIVERSITY
BANDAR LAMPUNG
2023**

ABSTRACT

INCREASING CRITICAL AND CREATIVE THINKING (CCT) SKILLS IN READING THROUGH THE MODIFIED SYNTAX OF INQUIRY SOCIAL COMPLEXITY (ISC) LEARNING MODEL

By

Arri Alfiantho

One of the basic skills that students must have in the 21st century is students can develop interests, talents, and potential to increase critical and creative thinking skills. This research aims to determine any significant increase in students' critical and creative thinking skills in reading through the modified syntax of inquiry social complexity learning model and which aspect of CCT skills is the most influent. This research was conducted at SMA Bina Mulya with one class as the sample of 30 students. This research used a quantitative method. To collect those quantitative data, the researcher used both pre-test and post-test. Paired Sample T-tests were used to analyze the data. The analysis showed that there was an increase in students' mean scores from 63,17 to 79,83 with sig 2 tailed $0.000 \leq \alpha$ 0.05, which means that the inquiry social complexity learning model effectively increased the student's critical and creative thinking skills in reading. It was also found that the most influent aspect of CCT skills was the analysis aspect, with mean scores 3,5 is higher than others skills. From those findings, the student's critical and creative thinking skills increase after being taught through the modified syntax of inquiry social complexity learning model.

Keywords: CCT Skills, Reading, ISC learning model.

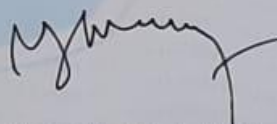|		
Research Title	:	**INCREASING CRITICAL AND CREATIVE THINKING (CCT) SKILLS IN READING THROUGH THE MODIFIED SYNTAX OF INQUIRY SOCIAL COMPLEXITY (ISC) LEARNING MODEL**
Student's Name	:	**Arri Alfiantho**
Student's Number	:	2023042002
Study Program	:	Master in English Language Teaching
Department	:	Language and Arts Education
Faculty	:	Teacher Training and Education

APPROVED BY
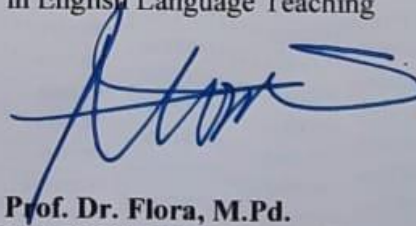Advisory Committee

Advisor

Co-Advisor

Dr. Tuntun Sinaga, M.Hum.
NIP 19600622 198603 1 002

Hery Yufrizal, M.A, Ph.D.
NIP 19600719 198511 1 001

The Chairperson of Department
of Language and Arts Education

The Chairperson of Master
in English Language Teaching

Dr. Nurlaksana Eko Rusminto, M.Pd.
NIP 19640106 198803 1 001

Prof. Dr. Flora, M.Pd.
NIP 19600713 198603 2 001
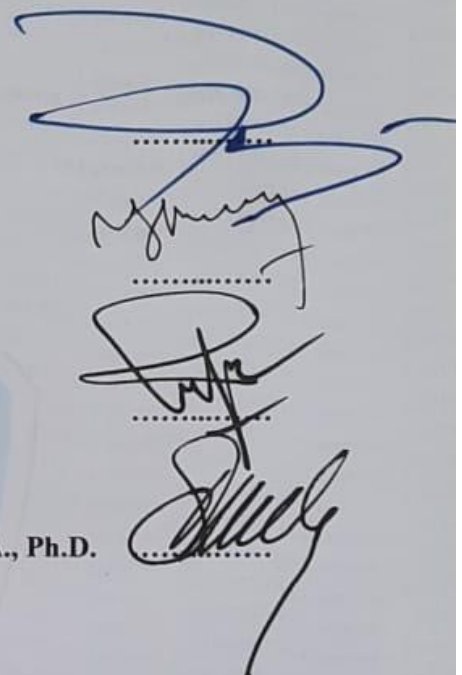
ADMITTED BY

1. Examination Committee

    Chairperson   :   **Dr. Tuntun Sinaga, M.Hum.**

    Secretary   :   **Hery Yufrizal, M.A, Ph.D.**

    Examiners   :   **1. Ujang Suparman, M.A., Ph.D.**

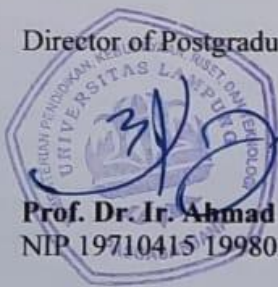   **2. Prof. Ag. Bambang Setiyadi, M.A., Ph.D.**

2. Dean of Teacher Training and Education Faculty

    Prof. Dr. Sunyono, M.Si.
    NIP 19651230 199111 1 001

3. Director of Postgraduate Program

    Prof. Dr. Ir. Ahmad Saudi Samosir, S.T., M.T.
    NIP 19710415 199803 1 005

4. Graduated on : **February 13th, 2023**

DECLARATION

I hereby declare that:

1. The thesis entitled "Increasing Critical and Creative Thinking (CCT) Skills in Reading Through the Modified Syntax of Inquiry Social Complexity (ISC) Learning Model" is my own work and I do not plagiarize or quote the work of other authors in a way that is inconsistent with academic ethics.

2. This intellectual right is entirely left to Lampung University.

Regarding this statement, if it turns out that there is untruth in the future, I am willing to bear the consequences and sanction based on the prevailing law.

Bandar Lampung, February 13th, 2023

Arri Alfiantho
NPM. 2023042002

CURRICULUM VITAE

Arri Alfiantho was born in Pringsewu on February 27th 1994. He is the first child of two siblings of Mr Turahman and Mrs Daryanah.

He started his education at SDN 2 Blitarejo and then graduated in 2006. After graduating from elementary school, he continued his study at SMP N 2 Gadingrejo in 2009. The next stage of his education was spent in SMA Bina Mulya Gadingrejo, and he graduated in 2011. In 2012, he was accepted as a student in the English Education Study Program of the Teacher Training Faculty at the University of Muhammadiyah Pringsewu. He got his bachelor's degree in 2017. Then he continued his study at the Master in English Education Study Program at the University of Lampung in 2020.

DEDICATION

The writer dedicates this work to:

1. His beloved parents – Mr Turahman and Mrs Daryanah
2. His younger sister – Dhita Humdana
3. His alma mater – University of Lampung
4. His friends in the Master in English Education Study Program
5. English Teachers.

MOTTO

"Strong minds discuss an idea, Average minds discuss events, Weak minds discuss people."

(Socrates)

ACKNOWLEDGEMENTS

Alhamdulillahirobbil'alamin, first and foremost, the researcher would like to express his gratitude to the almighty Allah SWT, who has given his chance, guidance, and blessings. Therefore, the researcher could compose and finish this thesis. Peace and salutation may always be praised to our prophet Muhammad. Peace Be Upon Him who has brought us from the darkness to the brightness. By the grace of Allah SWT, the researcher could finish his thesis entitled "Increasing Critical and Creative Thinking (CCT) Skills in Reading Through the Modified Syntax of Inquiry Social Complexity (ISC) Learning Model". This thesis is submitted as one of the partial fulfillments of the requirements for an Master degree in the Language and Arts Education Department of Teacher Training and Education Faculty of Lampung University.

In doing this observation and composing this thesis, the researcher could not finish it alone. The researcher had many supports, help, advice, and prayers from people around him. Numerous people contributed, including their ideas and time to help the researcher complete his thesis. Therefore, the researcher would like to express the deepest feeling of his heart for people who always care for him, and he would like to convey thankfulness in depth to:

1. Dr. Tuntun Sinaga, M.Hum., as the first advisor for his patience and encouragement and who has been willing to spend his time to assist him in accomplishing this thesis.
2. Hery Yufrizal, M.A, PhD, as the second advisor who has contributed and given him endless support, evaluations, comments, and suggestions during the completion of this thesis.
3. Ujang Suparman, M.A., PhD, as his first examiner, for his encouragement and contribution during the seminar until this thesis finished.

4. Prof. Ag. Bambang Setiyadi, M.A., PhD, as his second examiner, has given his suggestions and criticism as well as his constructive ideas in improving the content of this paper.

5. My lecturers and administration staff of the English Education Study Program.

6. Special appreciation goes to SMA Bina Mulya Gadingrejo, especially to Mr Arica Imbardo S.Pd., as the English teacher, and the students of class X 1 for their cooperation during the research process.

7. My beloved parents, Turahman and Daryanah, thank you for your love, support, prayer, and everything you gave to me all the time.

8. My beloved young sister, Dhita Humdana, thank you for your prayer.

9. My beloved friends, Putri Elbalqis and Siti Sulastri. Thank you for the unlimited support you gave to me.

10. My friends in the Master Degree of English Department batch 2020. Thank you for the time we had together. I could not ask for better friends than you all.

Finally, the writer believes that his writing is still far from perfect. There might be weaknesses in this research. Thus, comments, critics, and suggestions are always open for better research. Somehow, the writer hopes this research will positively contribute to educational development, readers and those who want to conduct further research.

Bandar Lampung, 13 February 2023
The Writer

Arri Alfiantho

LIST OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER I
INTRODUCTION

This chapter describes the background of the problem, including the reason for conducting the research, the problems in teaching reading, and the suitable teaching technique needed to promote the students' critical and creative thinking skills in reading. This chapter also describes the research questions, the objective of the research, the uses of the research, the definition of terms, and the scope of the research.

1.1. Background of The Problem

The 21st-century learning system requires schools to create a generation that can think critically, creatively, and independently. The initial learning system was teacher-centred and changed to student-centred. Sajidan (2017) point out that students should be able to think critically, deductively, and inductively in the learning process. Based on the National System of Education in Indonesia, students must be active to develop their potential to be helpful in social life. In the globalization era, students can no longer learn by memorization, but learning must emphasize students' cognitive understanding. The students need to learn faster and acquire a lot of knowledge through direct experience, gain a more complex knowledge and have long-term memory.

The problem with students having low critical thinking ability is that the classroom learning process is ineffective in developing students' interests, talents, and potential. A teacher cannot create a learning model that can actively engage students. The learning activity only focuses on books without experience directly involved in problem-solving.

Critical and creative thinking are very important for students to master. The teacher needs a learning model that can improve students' critical and creative thinking combined with the learning material that students are learning in class. One of them is reading to comprehend the student's critical and creative thinking skills. Reading is one of the skills that should be mastered by students while learning English as a foreign language. According to Miller and McKenna (2016), based on a study by The World Most Literate Nations' World University at the Central of Connecticut State University, Indonesia ranks 60th among the 60 countries in Southeast Asia interested in literacy. This phenomenon describes the state of interest in reading among Indonesians, which is in a severe crisis, especially among schoolchildren. It is associated with several problems regarding learning strategies that educational institutions apply less effectively so that students have no interest in reading.

Understanding texts is fundamental in language learning. During the reading process, students should understand the content of the passage. The students need to master this reading skill; the emphasis is not on learning to read but on reading to learn. A teacher generally gives exercises that emphasise students answering questions such as correct and incorrect answers. That will not encourage students to think critically and creatively when reading a text or book.

Abd Kadir N *et al.* (2014) stated that learners are not analytical or critical when they read and tend to use surface-level processing of text, which suggests they are not ready to cope with academic literacy. They tend to use the dictionary if they cannot understand the text instead of trying to make an effort to use contextual clues or read between the lines for deeper meaning. This indicates that the teachers in schools have not prepared them to be critical readers, or in other words, they lack critical reading skills. If they possess critical reading skills, they can analyze, synthesize, and evaluate what they read and try to use critical thinking skills, such as accepting or rejecting. Therefore, students should master critical reading skills to prepare them for higher education.

Pourhosein & Sabouri (2016) stated the reading materials and activities should be highly engaging for students, make the text easier to understand and be relevant to student proficiency. It is a necessary stage of discovering the passage's meaning for the practice of reading. When reading, students receive a lot of information that can comprehensively expand their knowledge. When learning English, understanding the reading passages is imperative to understand a reading selection quickly. The students must be able to use the information to draw a conclusion, read critically, understand the symbol and the author, and determine the purpose of evaluating the presented ideas and applying the concepts to real situations. Reading aims to inform something or question our knowledge on specific topics. In other words, reading can help students expand their experience. In learning English, students generally use books to study, and teachers also use a book as a reference guide to teach or give students tests with text. If the teacher gives the students a text to answer some questions, they can't answer well if they do

not understand the reading passage well. They are like two aspects that cannot be separated.

The students should learn faster and have more knowledge through direct experience. The students will have more complex knowledge to understand, and encourage students to think critically and creatively to help them achieve higher achievement. In critical thinking, students require higher cognitive skills to receive information and transform it into new knowledge. Therefore, the ability to think needs to be developed and strengthened. Harizaj M (2017) discovered that one factor influencing a student's communication is the student's ability to think and act critically. Through critical thinking, students develop the ability to communicate well in English. A good language teacher uses methods according to the student's learning style. In this way, students are motivated to learn more and often engage in groups or teamwork. As a teacher, allowing students to reach that level is a challenge. The teachers should use the learning models that stimulate students to think critically and have the appropriate innovations and strategies to help them apply the lessons. So that the learning process in the classroom becomes more exciting and the learning objectives that allow students to think critically are achieved.

Critical and creative thinking skills are one of the high-order thinking skills domains (HOTS). Nourdad *et al.* (2018) stated that skills matter in the teaching and learning process. It is fundamental to the educational process. The student's thoughts can affect the ability to learn, speed and effectiveness of learning. Critical and creative thinking is the highest level in cognitive processes. It helps students to solve the challenges of a large amount of information with a short response time.

According to Ataizi & Donmez (2014), Critical and creative thinking skills are essential and must be enabled by all students to succeed in the 21st century. Most teachers fail to learn optimally and strengthen students' critical and creative thinking (CCT) skills during the learning process. Teachers use PowerPoint, teacher-centred is dominant, and the tasks and exercises given by teachers are not optimally focused on developing students' critical and creative thinking skills (CCT). In addition, Siburian *et al.* (2019) stated that enhancing critical and creative thinking skills by using appropriate learning strategies should be the focus of attention of educators, researchers and education developers. The teacher has not implemented Bloom's domain, such as analyzing, evaluation and creation. It has not been implemented optimally in the classroom. The teacher should push the students to socialize actively to solve problems and find their discoveries thoroughly.

Developing the Critical and Creative Thinking (CCT) Skills of students optimally takes a teacher's activity and hard work to provide a learning model in the classroom to make it more engaging and accessible to all students. Several gaps make understanding critical and creative thinking (CCT) skills difficult for students with low cognitive abilities. Inquiry Social Complexity (ISC) is a learning model that can make students develop critical and creative thinking patterns by collaborating with their environment or peers. Building knowledge with a social system will be broader, more obtained, and more understandable, becoming knowledge that will be long-term. Trif, L. (2015) stated that learning with a social system carried out with adult and peer assistance is very significant.

Inquiry Social Complexity (ISC) is one model that assists government policies in implementing HOTS-oriented learning (Perdana. R, 2020). Through the

Inquiry Social Complexity (ISC) learning model, students can gain hands-on experience to explore their Critical and Creative Thinking (CCT) Skills. The students are not only recipients of information but also information managers and can apply the concepts they are learning and using in life. By developing the Inquiry Social Complexity (ISC) learning model to empower Critical and Creative Thinking (CCT) Skills. The syntax of ISC threat the students to be more active in learning, construct knowledge, build concepts learned, develop intellectual skills, solve problems better, and learn more meaningfully.

1.2. Identification of the Problems

In line with the background of the problems above, the researcher identifies the problems as follows.

1. Students' reading ability is still poor.

2. Students lack Critical and Creative thinking.

3. Few comprehensible learning models have been done for increasing critical and creative thinking through reading.

1.3. Research Questions

From the background of the problem, the writer sets the research questions as follows:

1. Is there any significant increase of students' Critical and Creative Thinking (CCT) Skills in reading who are taught through the modified syntax of Inquiry Social Complexity (ISC) learning model?

2. Which aspects of Critical and Creative Thinking Skills are the most influent after applying the modified syntax of Inquiry Social Complexity (ISC) learning model in reading?

1.4. The objective of the research

This research focused on the following objectives:

1. To find out whether is there any significant increase in students' Critical and Creative Thinking (CCT) Skills in reading who are taught through the modified syntax of Inquiry Social Complexity (ISC) learning model.

2. To find out which aspects of Critical and Creative Thinking Skills are the most influent after applying the modified syntax of Inquiry Social Complexity (ISC) learning model in reading.

1.5. The Uses of the Research

Theoretically

1. Hopefully, this research can contribute to the teachers' knowledge about optional variations of teaching reading in the classroom.

2. The research hopefully can be used as verification of the previous theories.

Practically

1. It can enlarge the teachers' point of view in teaching reading.

2. This research is a reference for English teachers to increase the students' Critical and Creative Thinking (CCT) Skills in reading through modified syntax of Inquiry Social Complexity (ISC) learning model.

1.6. **Definition of Terms**

This research has the definitions of the terms:

1. Reading

   Reading is about understanding written texts. It is a complex activity that involves both perceptions and thought. Reading consists of two related processes: word recognition and comprehension.

2. Critical and Creative Thinking (CCT) Skills

   Critical and Creative Thinking (CCT) Skills is how students can have aspects such as problem sensitivity, analysis, inferences, make elaboration, evaluation, and novelty.

3. Inquiry Social Complexity (ISC) learning model

   The Inquiry Social Complexity (ISC) learning model combines inquiry learning that requires students to find their work and learn in groups (social). This modified syntax of ISC Learning model can help students who find it difficult to follow the inquiry learning model and students with low cognitive abilities.

1.7. **Scope of the Research**

This research focused on increasing students' critical and creative thinking in reading through the modified syntax of inquiry social complexity. The variables involved are Critical and Creative Thinking Skills (CCT) and the modified syntax of Inquiry Social Complexity (ISC) learning models. In this study, the researchers will apply the modified syntax of Inquiry Social Complexity (ISC) learning model and determine whether the learning model can significantly improve students' critical and creative thinking through reading.

CHAPTER II

LITERATURE REVIEW

This chapter presents the theories related to the research. It covers the definition of reading, reading comprehension, teaching reading, critical reading, critical and creative thinking skills, inquiry learning model, and inquiry social complexity.

2.1. Definition of Reading

Reading is about understanding written texts. It is a complex activity involving perception and thought (Pang *et al*., 2003). Reading consists of two related processes: word recognition and comprehension. The written word is meaningless if you don't understand what the author says. It is an active process that depends on an author's ability to convey meaning using words and our ability to create sense from them. To read successfully, you need to constantly connect what you already know about your written information. This process is to understand from printed forms such as books, magazines, novels, or online texts via the internet.

Reading is an activity that students must do to understand the material being taught. It is an interactive process between readers and writers in exchanging ideas through text (Etfita, 2018). The students must comprehend or understand the information in written material. Students should understand the vocabulary and

arguments and find the meaning, topic sentence, and main idea based on the text. Students are usually required to read various texts in completing academic assignments. These skills must be mastered well to gain new information, access alternative explanations and interpretations, and initiate critical evaluation skills. Based on the theories above, reading is getting knowledge, understanding the material's content, and getting some information from the text and appropriate context.

2.2. Reading Comprehension

Before discussing the meaning of reading comprehension, it is necessary to know the meaning of comprehension itself. Comprehension is an intentional thought process that occurs when we read by bringing our life experiences into the act of reading. It can be seen that comprehension is an important part of reading. This process requires deliberate thinking. Students as readers, need to focus more on understanding the text. Furthermore, ESRC's (2021) successful understanding enables readers to acquire information, experience, and realize meaning to communicate successfully and achieve academic success.

The purpose of reading comprehension can be achieved if the reader has good interaction with the text. It is influenced by many factors, one of which is the reader's background knowledge about the text to be read, students who already know the background knowledge of the text will more easily understand the text. Therefore, providing information and background knowledge about the text to students is necessary so that they can understand the meaning of what they read and understand the text well. Based on the statements above, it can be seen that reading comprehension is a process of deep interaction between the reader and the writer to

communicate successfully to get what the writer means in the text. Students as readers can understand the text based on their ability to recognize it. Brown (2000:306) suggests that teachers, namely as follows, can use several reading comprehension strategies.

1. Identifying the purpose of reading

2. Using graphemic rules and patterns to aid in bottom-up decoding (especially for beginning-level learners)

3. Using efficient, silent reading techniques for relatively rapid comprehension (intermediate to advanced levels)

4. Skimming the text for main ideas

5. Skimming the text for specific information

6. Use semantic mapping or clustering

7. Guessing when you aren't certain

8. Analyzing vocabulary

9. Distinguishing between literal and implied meaning

10. Capitalizing on discourse markers to process relationships.

The teachers are advised to use strategies in teaching reading comprehension. The suitable learning model will help the students to understand the author and communicate successfully to get what the author means in the text and achieve the purpose of reading, which is to make students understand the text easily.

2.3. Teaching Reading

Teaching guides and facilitates the students to learn, enables learners to learn and sets conditions for learning. It means teaching is an activity to help

someone or students to understand more about knowledge and as a means to facilitate learning. Teaching transfers knowledge to students and is also expected to change students' attitudes. Setiyadi B *et al.* (2018:77) stated that one of the essentials to choosing the correct reading text depends on the purpose of the reading topic.

Teaching reading should teach comprehension skills, develop background knowledge, and expand vocabulary and spoken language. The teachers must understand how to approach all types of texts to help students know the meaning of the texts. Teaching reading is the process of facilitating, guiding, and assisting the students in comprehending the text and acquiring the meaning and information from the writer in the text. In addition, Critical discrimination in reading needs a comprehensive background of knowledge concerning the subject being read. Critical reading involves making comparisons and judgments (Setiyadi B et al. 2018:97). The ability to think critically while reading is evaluated by the topic discussed, such as:

    a) Distinguishing between fact and opinion.

    b) Telling what is real and what is fanciful.

    c) Deciding whether propaganda is being spread.

    d) Examining critically the generalizations made

Based on the theories of teaching reading, it can be used as guidelines. Teaching reading requires more than just reading texts, and we must know how to teach reading to teach students. Students and teachers can become partners to make the teaching process effective in teaching reading.

2.3.1. Selecting Material in Teaching Reading

One of the essential factors for foreign language teachers is how to make their reading class interesting and relevant to their students. It is certainly not an easy problem to tackle because our students have diverse interests, and choosing a material that can satisfy everyone seems impossible. Consequently, the teacher must adapt the learning material to achieve the learning objectives. One of the more complex tasks facing English as a Foreign Language (EFL) reading teachers is choosing the suitable material to use in the classroom (Setiyadi *et al.*, 2018).

It must be recognized that it is essential for teachers to take the time to think about the materials and texts they will teach students. It is because the material can support and improve the techniques and strategies teachers will use in the learning process. Even though students already have a learning module, the teacher must adjust the material to the learning objectives. In reading, it is crucial to choose the proper reading. There are many factors a teacher needs to consider when choosing classroom reading material. Day cited by Setiyadi (2018), summarizes at least seven sequence elements that reflect their relative importance in the material selection process. The seven factors are:

1. Interest;
2. Exploitability;
3. Readability (lexical knowledge, background knowledge, syntactic appropriateness, organization, discourse phenomena, length)
4. Topic;
5. Political appropriateness;

6. Cultural suitability,

7. Appearance (layout, type size, and font)

2.3.2. Materials in Teaching Reading

Teachers who use supplementary reading should consider carefully obtaining appropriate material. Teachers are encouraged to create materials to support learning objectives. There are at least two types of reading that a teacher needs to consider when preparing material, namely intensive reading and extensive reading.

a. Intensive reading

It is a reading activity carried out carefully and thoroughly on the read text. Intensive reading is applied to find information in detail or applied to information seeking as the discussion material. Intensive reading is the careful study, scrutiny, and detailed treatment that the reader makes of a short reading of about two to four pages. At the same time, understanding intensive reading ability is an ability to completely, accurately, and critically understand the contents of the reading on a fact, concept, opinion, idea, experience, feeling, and message. Multiple readers often read only one or only a few passages when reading. It aims to grow and improve the ability to read critically.

b. Extensive reading

Extensive reading is reading long texts with interesting content and easy-to-understand vocabulary. Extensive reading involves the students reading texts for enjoyment and developing general reading skills. When students read extensively, they read relatively easy and enjoyable books. That activity is

helpful for students to build speed and fluency in reading. In other words, students learn to read by actually reading rather than analyzing text by studying vocabulary, grammar, and phrases.

Intensive Reading and Extensive Reading are complementary, and teachers should use both. Reading activities should be balanced by using Intensive Reading to introduce a new language, and Extensive Reading increases awareness of the language and will lead to a student's reading fluency.

Reading is a complex process and a challenge for teachers to teach in the classroom. It is not a general skill but a combination of many specific skills. Based on Dallmann et al. (cited by Setiyadi, 2018:90), assistance must be provided to students in acquiring the skills to search for main ideas and assess the authenticity of a choice. Specific skills can be classified according to (1) the purpose of the reader and (2) the length and nature of the reading selection. The following skills are classified according to the purpose of the reader.

1. reading to find the main idea;

2. reading to select significant details;

3. reading to follow directions;

4. reading to answer questions;

5. reading to make summaries and organize materials;

6. reading to arrive at generalizations and conclusions;

7. reading to predict outcomes;

8. reading to evaluate critically;

9. reading to develop skills in acquiring word meaning.

One of the most important aspects that students must master is critical reading based on the reading above. In addition to critical reading can improve cognitive abilities, it is also necessary for students to better understand and identify the facts and opinions contained in reading materials so that students can synthesize new ideas after getting valid information.

2.4.   Critical Reading

The teachers want their students to be positive and critical, but Indonesian students are generally less interested in improving their critical thinking skills. These skills can improve and develop, and teachers should try to incorporate them into their classroom experience. High school students developed critical reading in the last two decades, but there has been little progress in developing critical reading in EFL classrooms. There is some concern about their poor thinking skills. It happens to the lack of inattention to reading and critical thinking in the school curriculum. Helping EFL students develop critical reading can be challenging for a teacher to find the literature related to critical reading to be used to teach students about critical reading.

When reading, there is a gap between the reader's knowledge and the writer's intended meaning. At this point, readers need to take action to fill in the gaps by using strategies that help them to understand the meaning of the text they are reading. Students do not develop skills automatically in utilizing reading strategies. Moreover, Friesen & Haigh (2018) stated intermediate and advanced language skills do not guarantee that readers will be able to use strategies skillfully. That is why students as readers should be instructed on how to use and apply critical

reading strategies to overcome the difficulties encountered in developing reading comprehension.

Critical reading is understanding deeply and thoroughly. The reader can process the text at a higher level of thought process. Readers can apply Benjamin Bloom's taxonomy level and make meaning at higher levels, such as reading for evaluation, synthesis, analysis, and interpretation levels. Tankersley K (2003) states that good readers have good comprehension. Effective readers use world knowledge and background information to make valid inferences from texts, use comprehension monitoring and improvement strategies during reading comprehension, and recognize possible pronunciations of words they encounter while reading. Using knowledge of spelling patterns can help deepen understanding. Finally, good readers can understand and discuss what they have read in depth.

Critical reading as part of academic study is a very active process. Wallace, M., & Wray, A. (2021) stated that expectations, prejudices, and previous knowledge greatly affect how to conclude understanding of the text being read. It's important to realize that writers also have prejudices, assumptions, and beliefs. Therefore, the main critical reading skill is to identify the author's background, goals, and agenda, and it can consider the students in making conclusions about the reading. Therefore, a teacher needs to teach students the concepts of critical and creative thinking so that students are helped to understand the concept of critical thinking and conclude a problem with their concept through classroom learning.

2.5.   Critical and Creative Thinking (CCT) Skills

One of the basic skills that students must possess in the 21st century is thinking critically and creatively. A good learning model that will direct students to think critically and creatively will support the achievement of higher learning achievements. As educators, the main goal is to make students better critical thinkers. Bailin S (1987) points think more effectively in understanding learning materials, being able to judge independently and appropriately, solving problems effectively, improving thinking skills in dealing with real-life problems in assessing information and arguments in social contexts, and making life decisions are the goals of critical and creative thinking.

Thinking means students can apply the skills and knowledge they have developed while learning a new topic. According to Heong et al. (2011), teachers must develop higher-order thinking skills possessed by students who need to think broadly to find new challenges. Higher-order thinking skills (HOTS) are one component of creative and critical thinking skills.

Higher-order thinking skills are thinking processes that help students relate information meaningfully and use those connections to solve problems. This thought process is sometimes innovative because it applies knowledge in new ways. Using higher-order thinking skills can help students tackle complex problems with creative solutions. Consider making connections between pieces of information when solving a complex problem. Critical thinking is one example of higher-order thinking skills, synthesis, and meta-cognition.

In Indonesia, critical and creative thinking skills have been emphasized since the preparation of Curriculum 2013. Pratama and Retnawati (2018) show that

HOTS has become one of the main goals of the Indonesian education system. However, they also argue that teachers' familiarity and knowledge of HOT may still be limited. They say that HOTS needs to be developed systematically through tasks and activities.

The students know how to use critical and creative thinking skills, and they have applied higher-order thinking skills. All students can think, but most need to be encouraged, taught and helped to think in higher order. Ghanizadeh, A. et al. (2020) confirm that some types of learning require more cognitive abilities in processing, such as critical thinking, analysis, and synthesis. One of the most widely used taxonomies is Bloom's purpose of conceptualizing and improving forms of thinking in education, including analyzing and judging, the continuation of the learning process that relies on memorizing and remembering facts (memorization learning).

In the mid-nineties, Lorin Anderson, a former student of Bloom, and David Krathwohl re-examined the cognitive domain and made several changes, such as modifying names in six categories from nouns to verbs; rearrangement of creation and evaluation, creating a knowledge matrix level (Ghanizadeh, A. *et al.*,2020;6). Fig. 1 presents the original taxonomy with the revised one, and Fig. 2 shows a revised taxonomy with examples of verbs. This taxonomy version aims to give a more active and precise form of thinking.
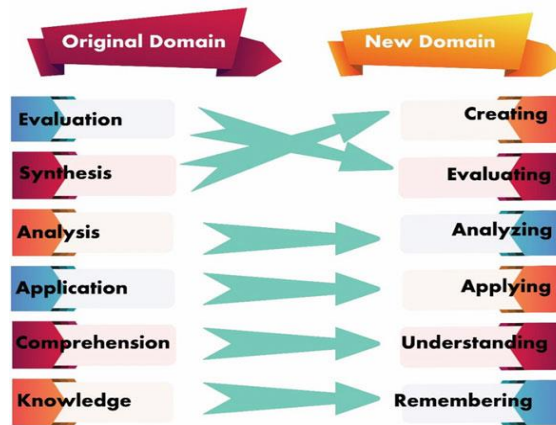
Figure 1. Bloom's revised taxonomy
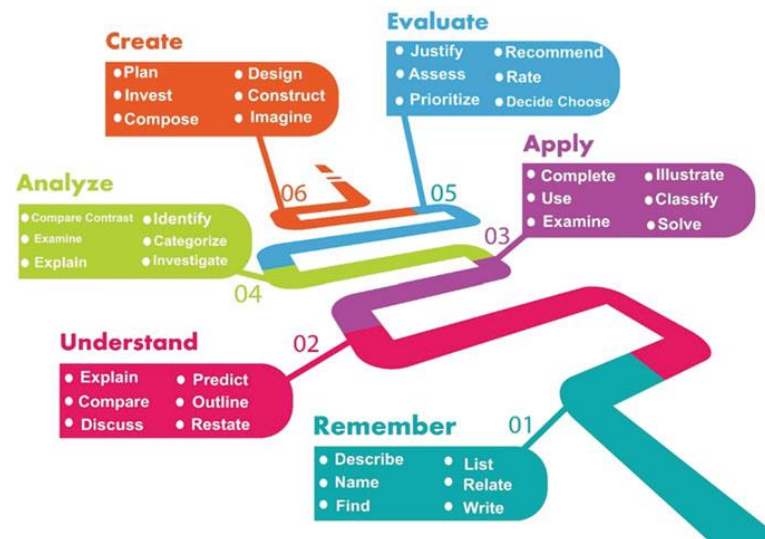
Figure 2. Bloom's revised taxonomy with examples

Lewis and Beth (2020) explained that *remembering* refers to recalling or retrieving previously learned information in the revised taxonomy. At this level, students asked questions to see if they had gained insight from the lesson. (What is? Where is it? How would you describe it?). *Understanding* is comprehending the meaning, translation, and interpretation of the problem. Students interpret facts they learned during this level (What is the main idea? How would you summarize it?).

The third domain, *Applying*, refers to using concepts in action spontaneously. The students apply or use the knowledge learned during the lesson. (How would you use it? How would you solve it?). *Analyzing* separates an idea to make it easier to understand and distinguish fact from opinion. At the analysis level, The students must go beyond knowledge and see if they can analyze a problem. (What is the theme? How would you classify it?). *Evaluating* represents making judgments about the value of an idea. The students be able to assess the information learned and conclude it. (What is your opinion? how would you evaluate? How would you select? What data use?). And *creating* refers to constructing a structure or pattern from different elements by combining parts to create a new meaning or structure.

Baker M *et al.* (2001) stated only by understanding if there is a relationship between these two important constructs will educators be able to enhance their students' capacities to utilize critical and creative thinking. The teachers must deeply understand the relationship between the two skills to determine a suitable learning model in the classroom.

2.5.1. Critical Thinking Skills

Critical thinking (C.T.) has long been recognized as a life skill for personal, academic, and social success. Ghanizadeh, A. (2017) stated in his research that critical thinking and all components of reflective thinking had a positive impact while predicting achievement with habitual actions had the lowest impact. In the field of education, as Schafersman (1991) points out, C.T. is one of the most important and essential topics in modern education. There is broad agreement among educators that developing C.T. skills should be a core goal of the higher education agenda.

Critical thinking is a general term for various cognitive skills and intellectual characteristics. The purpose is to identify, analyze, evaluate arguments, claim truth effectively, find/overcome biases, formulate/present convincing reasons to support conclusions, and make rational decisions about what to believe and do. Bassham G. et al. (2011;2) states that critical thinking is governed by intellectual standards such as clarity, precision, accuracy, relevance, consistency, logical correctness, completeness, and fairness. In other words, critical thinking is disciplined thinking governed by clear intellectual standards.

In critical thinking in the classroom, students learn various skills that can improve their abilities in school (Bassham, G. *et al*., 2011;7), such as students should *Understand* the learning material being studied. Critical thinking does not merely make complex material easy. Still, critical thinking teaches various skills through practice significantly to increase students' ability to understand arguments and problems discussed in class. *Critically evaluating* the statements and beliefs can help improve critical thinking. The teacher will often provide material to be discussed "critically." Indirectly, these activities can make students accustomed to critical thinking and able to evaluate arguments critically. Students are analyzed and evaluated and must *develop their opinions* about the material being studied in class. With such activities, students' critical thinking can be greatly improved.

The ability to think critically is not the only thing students must master. Students must also have creative thinking skills, which are part of higher-order thinking. Creative thinking skills will make students have different ideas from others so that students can have their thinking products.

2.5.2. Creative Thinking Skills

All students tend to think critically and creatively from childhood. This tendency is seen in situations where young children curiously observe and try everything out. The development of creative thinking should be promoted for students from early childhood to preparing for their next adult life, and also develops their human habit of being open-minded. However, students' creative thinking skills were still low at this time. Students tended to learn to imitate teacher explanations and learn problem-solving from the textbooks.

Creative thinking will be defined here as novel thinking that produces valuable ideas. Sternberg R.J. (2009) stated Creativity requires the confluence of six distinct but interrelated resources: intellectual ability, knowledge, style, way of thinking, character, motivation, and environment. Also, teaching creative thinking in schools can improve students' academic achievement. It helps the students be more aware of their abilities and helps students be less creative in correcting weaknesses. Harris R (2020) defines creativity as imagining or creating something new. Creativity is not the ability to create from nothing but generate new ideas by combining, modifying, or reapplying existing ideas.

One of the goals of educators is to encourage students to think productively and creatively with their imaginations. Creativity means "thinking, solving problems, discovering, reinventing, and exercising imagining" (Cremin, 2009). Language learning is considered a rewarding learning experience that includes all skills and is a creative process that requires students to use creative thinking skills. Language itself, as an aspect of communication, has a creative character. Therefore,

students must think and act critically, imaginatively, and creatively when learning a new language.

Therefore, one of the most important goals of an English teacher is to promote learners' creative thinking through effective training with creative activities. Read C (2015) states, "By incorporating creative thinking into English lessons. Students can develop relevant cognitive skills such as observing, questioning, comparing, contrasting, imagining, and hypothesizing that are required in all curriculum areas." While creativity is still considered a talent and proficiency, students' creative thinking is considered a higher thinking ability and luxury in language learning classes. Tomlinson (2015) states that promoting creativity in ELT classrooms is important because it provides opportunities for "the necessary affective and cognitive engagement of learners essential for language acquisition."

2.5.3. Indicator Critical and Creative Thinking Skills

In general, indicators of thinking skills and critical thinking, according to experts, can be grouped into six aspects, as shown in Table 1. The following is the construct of critical and creative thinking skills (CCT), *Problem Sensitivity, Analysis, Inference, Make Elaboration, Evaluation, and Novelty (PAIMEN)* (Perdana, 2020:83).

Table 1 Indicators of Critical and Creative Thinking (CCT) Skills

Aspect	Description	Indicators
Problem Sensitivity	The ability to detect and generate a unique idea from a question or situation	1. Have a unique idea from the question they read
		2. Predict the view of a problem from various perspectives
Analysis	Analysis The ability to identify the truth between questions and concepts and can state decisions with the correct information	1. Identify evidence based on available data
		2. Linking the reasons for or against decisions made based on facts
Inferences	The ability to explain the truth between the data and the applicable theory and be able to defend his opinion to be accepted by others	1. Explain the meaning of the terms used
		2. Understanding to be able to communicate with others
Make Elaboration	The ability to describe something in more detail to be understood by others	1. Develop something to be better understood by himself or others
		2. Reviewing an issue based on a different perspective or the same as other people so that it can be understood
Evaluation	The ability to assess the credibility of a question or presentation by describing a person's perceptions, experiences, situations, decisions, beliefs and assessing the logical strength of actual inferential relationships or other forms of representation.	1. Awareness of the thought process in understanding the abilities it has
		2. Thoroughly re-examine the decisions taken
Novelty	The ability to make or finish something differently but has the value of truth and usefulness	1. Produce or complete something differently and originally from itself because most people rarely use it

2.6.   The Inquiry Social Complexity (ISC) Learning Model

Inquiry can be interpreted as a process of asking and finding answers to scientific questions posed. Andrini (2016) points out that the main objective of inquiry learning is helping students to develop intellectually disciplined thinking skills by providing questions and getting answers based on curiosity. It is acquiring and building knowledge by observing and experimenting to find answers or solve problems to questions. This learning model can make students learn more actively to find the knowledge created through discovery. This learning is oriented towards guidance and instructions from the teacher so that students can understand the lesson's concepts.

The conceptual Inquiry Social Complexity (ISC) learning model is based on learning theory: behaviourism, cognitive theory, constructivism theory, social constructivism theory, and social complexity theory as learning outcomes. The Inquiry Social Complexity (ISC) model was developed based on an inquiry learning model that has been analyzed for its shortcomings. Ontology inquiry social complexity (ISC) considers the pattern of linkages in the learning flow to match expectations and reality in achieving learning objectives.

The student's ability is influenced by the ability to solve problems and exchange information with others who know more about it. In this case, the teacher can be used as a source to guide and provide opportunities for students to determine to what extent students understand studying the lesson. In addition, Perdana R (2020) states that social complexity is a force that encourages a person to socialize and exchange ideas with people around him so that his cognitive abilities are expected to develop in harmony with the exchange of information. The ISC learning

model is expected to harmonize cognitive and social abilities in a straight line, and all students can be actively involved and understand the objectives of learning carried out in the learning activity.

The stages of the Inquiry Social Complexity (ISC) learning model are the development of inquiry by adding elements of Social Complexity and modifying the syntax to become Conceptual ISC. Implementing the Inquiry Social Complexity (ISC) stage in learning is expected to empower critical and creative thinking skills. The following is the learning syntax for the Inquiry Social Complexity (ISC) Learning model.
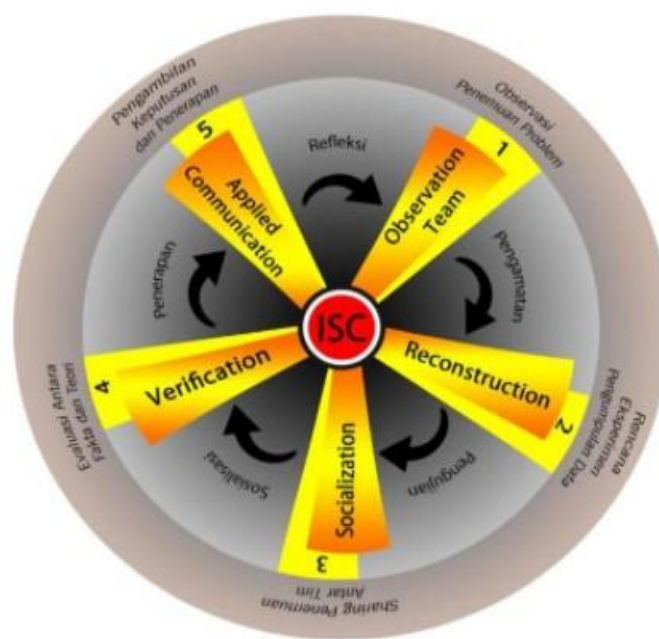

Figure 3. Inquiry Social Complexity (ISC) learning syntax

The Inquiry Social Complexity (ISC) developed from the inquiry, which has five syntaxes: Observation, Manipulation, Generalization, Verification, and Application. Then modified and developed to create five syntaxes (learning steps) in the Inquiry Social Complexity (ISC) model, namely: *Observation Team,*

Reconstruction, Socialization, Verification, and Applied Communication (Perdana R., 2020).

There are five original syntaxes of the Inquiry Social Complexity Model (ISC) Learning Model, carried out in sequence and gradually in science scope.

1. Observation team: students work together in teams to observe phenomena that the teacher has provided in the form of videos/demonstrations of events to bring up problems that will be researched and studied in learning.

2. Reconstruction: students in their respective teams create ideas and collect qualitative and quantitative data. Data collection is carried out by preparing practicum tools and materials made by students in groups.

3. Socialization: students in small groups express ideas between groups on the data collected. One member of their group stays in the group, then the other group members play a role in finding results from other groups through sharing presented by other groups, then explain back to his group mates. Each student has an important role in participating effectively in the group.

4. Verification: students in their group do the test and analyse the truth of the facts they find by connecting them with the theoretical basis they have known from the previous syntax.

5. Applied communication: students in the group express their opinions orally and write through the medium of presentation from the results of group discussions alternately, then agree on the truth with the direction of the teacher, which is correct and can be applied in life.

2.7. **The Modified Syntax of ISC Learning Model in Teaching English**

To achieve learning objectives in teaching English, the researcher tried to modify the ISC syntax to increase the student's critical and creative thinking skills in reading.

1. Observation team: students in groups together to read, discuss and analyze the descriptive text they receive from the teacher to find problems that will arise from the text, and they create ideas from the text.

2. Reconstruction: after students have obtained a ideas from the descriptive text, they collect the data to support the ideas they found.

3. Socialization: after the student finds data to support his ideas. All group members randomly socialize independently in class without leaving members in the group. All group members need the same opportunity to socialize to get direct experience. The purpose of this activity is that students can share the hypotheses they find and get additional data to enrich their hypotheses. Then the students returned to their respective groups and discussed the additional data they found.

4. Verification: Students in a group re-analyze the data they found in the previous syntax and make conclusions.

5. Applied communication: students together in groups present the conclusions they make.

In the modified syntax above, there are several changes from the original. In the syntax *Observation team,* while the students read, discuss and analyse descriptive texts, students directly analyze to find hypotheses of the texts they read. In the original syntax, students only discuss the phenomena provided by the teacher.

Finding hypotheses moved into the first syntax, at the original one that activities in the second syntax. In *Reconstruction's* syntax, students only focus on finding and analyzing the data to support the hypothesis they set in the previous syntax.

Furthermore, in the *Socialization* syntax in the original, some students are left in their groups and do not participate in socialization activities. In this case, there is a gap between students who do Socialization and who do not. Students who do not engage in socialization activities do not get the opportunity to obtain information directly only receive information from other group members. Wati, M. (2018) stated the student learning activities can be built by accommodating direct learning experiences. Because learning experience is closely related to the development of process skills. Meanwhile, learning activities using ISC emphasize socialization activities carried out by students so that students gain knowledge through direct experience to eliminate the gap between low cognitive and high cognitive skills. In modified *Socialization* syntax, groups break down, and students move randomly to socialize in the classroom with anyone free. The aim is to present what they find and obtain additional data to enrich their hypotheses through direct experience.

In syntax *Verification*, when the students re-analyse the data they found in the previous syntax, they also make conclusions. Next, in Applied *Communication* syntax, students with their group present the conclusions they have discovered and apply the principles they have learned in life. For more details about the modified syntax of the ISC learning model can be seen in the table 2.

Table 2 The Modified Syntax of ISC Learning Model in Teaching English

ISC Learning Model	Original Syntax	Modified Syntax
1. Observation Team	1. Students work in teams. 2. Observe phenomena.	1. Students work in teams. 2. Read, discuss and analyze the descriptive text. 3. create ideas from the text.
2. Reconstruction	1. Students in teams create ideas. 2. Collect qualitative and quantitative data. 3. Based on the practice.	1. Students in teams collect the data to support the ideas they found.
3. Socialization	1. Students in small groups express ideas between groups on the data collected. 2. One member of their group stays in the group. 3. The other group members play a role in finding results from other groups. 4. Back to his group mates.	1. The groups were randomly split. 2. All group members randomly socialize independently in class without leaving members in the group. 3. share the hypotheses they find in previous syntax and get additional data to enrich their hypotheses. 4. the students returned to their respective groups and discussed the additional data they found.
4. Verification	1. Students in group do the test and analyze the truth of the data.	1. Students in a group re-analyze the data they found in the previous syntax. 2. Make conclusions.

	2. Connecting the data with the theoretical.	
5. Applied Communication	1. Students in group express their opinions orally and write alternately. 2. Agree on the truth with the direction of the teacher. 3. Which is correct and can be applied in life.	1. Students together in groups present the conclusions.

The modified syntax of ISC learning model facilitates cooperative learning to establish interactions between students and between students and teachers. In the ISC learning model, the teacher is a facilitator and motivator during the learning process. The teacher provides materials at the beginning of learning, which students in groups observe. Through this activity, students are motivated to investigate through experimentation or material exploration using the internet and other sources to solve the phenomena they are studying.

2.8. Theoretical Assumption

Applying the modified syntax of Inquiry Social Complexity (ISC) Learning model, it is hoped that it can improve Critical and Creative Thinking (CCT) skills through reading. The ISC learning model facilitates students to solve problems by socializing with friends or teachers. So, this learning model can cover the problems of students who have low cognitive abilities will be helped. This learning model can help the students build critical thinking and confidently to create their discoveries to apply in life.

2.9.   Hypothesis

Based on the rationale above, the hypothesis can be assumed that there will be a significant increase in the student's Critical and Creative Thinking (CCT) skills after being taught by Modified syntax of Inquiry Social Complexity (ISC) Learning model through reading.

CHAPTER III

RESEARCH METHOD

In this chapter, the researcher presented the research design, population, sampling and sample, instrumentation of the research, validity and reliability testing, normality and homogeneity testing, the technique of data analysis, and hypothesis testing.

3.1.   Research Design

To answer the research questions, researchers conduct quantitative research using pre-experimental designs. The researcher used the quantitative method to answer the research question about the effect of the ISC learning model on the student's critical and creative thinking skills in reading. To collect those quantitative data, the researcher used both pre-test and post-test. Experimental research is the testing of an idea or procedure to determine whether the idea affects the outcome or the dependent variable (Cresswell, 2012:295). From the statement above, the researcher uses a quasi-experimental design to know the students' critical and creative thinking skills in reading using the ISC learning model. Quasi-experimental included the assignment of the participant to a group and giving the treatment, but not using random subjects.

In this research, the researcher selected one class. The researcher used the pretest and posttest group designs.

The design was presented as follows :

G1 =   T1 X T2

Notes :

G1= Subject

T1 = Pre-Test. This test was given to see the students' critical and creative thinking skills before treatments

T2 = Post–Test. This test was given after the treatment to see the result after applying the treatment

X = treatment with the modified syntax of ISC learning model

In this research, the researcher used one class as the research sample. The class was taught using the modified syntax of ISC learning model as a treatment (X). In this research, the subject was given a pre-test before treatment to know the students' early achievement in critical and creative thinking skills. After that, they were given a posttest after treatment.

The researcher figured out the students' difficulty in critical and creative thinking skills in reading. Especially to find out the difficulties of the students in mastering critical and creative thinking skills in the text, finding specific information from the passage, determining the implicit main idea of the passage, determining pronoun referent used in the passage, finding inference from the passage, and evaluating person's character. Their answer represented their ability in critical and creative thinking skills, mostly related to understanding the text and information implicitly and evaluating a person's character. Their answer represented their critical and creative thinking skill, mostly related to understanding the information in the text both implicitly and explicitly.

Using the modified syntax of ISC learning model, the students followed the steps. The first step was the *Observation team.* The student worked in teams to read, observe and discuss the topic of descriptive texts about tourism. In the *Reconstruction* syntax, the students in each group create ideas and collect qualitative and quantitative data. *In socialization*, the student expresses ideas between groups on the data collected. Next, in the *Verification* syntax*,* the student in groups analyze the truth of the data they found in the previous stage. *Applied Communication,* the students The group presents their findings in turn, then it is agreed with the teacher's direction which is correct in the next lesson.

3.2. The variable of the Research

The variables in this research consisted of two. The ndependent variable "cause" is the modified syntax of ISC learning model, and the dependent variable was students' critical and creative thinking skills.

3.3. The Population and sample of the Research

Cresswell (2003:156) said that a population as a group of individuals with the same characteristics. This research population was learners of the tenth grade of SMA Bina Mulya Gadingrejo. There were 61 students in the tenth grade divided into two classes.

The sample is part of the target population that the researcher wants to explore to generalize about the target population (Creswell, 2012:142). It means that a good sample must be as representative of the entire as possible to generalize the sample as valid as the population. To take a sample, the researcher used

purposive sampling where the researcher chose X.1 class to be a sample that consisted of 30 students that believed that this class could give sufficient information.

3.4.   Data Collection Technique

Following the research design of this research, the process of data collection generally carried out in this research was categorized into four stages. Those were tryouts, pre-test, treatment processes, and post-tests. In this research, the researcher collected the data by administering the test.

In this research, the researcher applied the test to collect quantitative data. The processes were able to be explained as follows:

1. Pre-test

The pre-test was conducted before giving treatment. In the pre-test, the subject was given a test consisting of five texts (5) with twenty (20) multiples choice questions to know the students' critical and creative thinking skills before treatments. The time allotment is 60 minutes. There were 30 students in subject class.

2. Post-Test

Post-test was conducted after the students got treatments using the modified syntax of ISC learning model. The researcher gave an multiple choice test to know the students' critical and creative thinking skills after receiving the treatments. The researcher informed the purpose, procedure, and time allocation test. In this case, the researcher gives 20 items, and the items are in the form of multiple choices. This post-test was used to determine whether the class outperformed after using the ISC learning model.

3. Social Complexity Assessment

This assessment is done by asking students to rate their friends. The assessment was given to students after the researcher finished doing the treatment. Knowing the students' responses when using the modified syntax of ISC learning model is useful. (See Appendix 3 for detail on the assessment sheets)

3.5. Research Procedures

Researchers referred to the following procedures to perform treatments and to collect data:

1. Review Literature

The researcher reviews some literature from syllabus and books used to get important information as sources to drafting instruments that relate to the materials of critical and creative thinking skills in reading text. Students learn three types of reading: Narrative, Descriptive, and News Item.

2. Drafting Instrument

After getting some information from the syllabus and book used, the researcher started to draft an instrument related to descriptive text because the first reading type in the first year that students should master is descriptive text.

3. Expert Validating

After finishing the drafting instrument, the instrument was validated by an expert like an English teacher who mastered the reading materials to increase critical and creative thinking skills, especially descriptive text. The purpose of the expert validating was to know how valid the instrument was related to

constructing validity, content validity, or criteria-related validity. So, in this step, the researcher got feedback and a validation guide from the expert.

4. Revising Draft

    In revising a draft of the instrument, the researcher used feedback collected from expert validation. The feedback was to correct the questions should be appropriate to measure the students' critical and creative thinking skills.

5. Conducting the Try-Out

    After revising the draft of the instrument, the researcher conducted a try-out for the tenth-grade students (X.2 class) who shared common characteristics with the subjects of this research. The result of the try-out was analyzed using Cronbach's Alpha. It is used to revise the draft to be a valid instrument because the reliability and validity of the instrument can be objectively computed using the formula of Cronbach's Alpha.

6. Revising

    The researcher revised the instrument again based on the feedback from conducting try out to get the final draft instrument. So, the researcher revised the instrument to make the questions ideal or not easy or too easy or difficult.

7. Final Draft Instrument

    The last step was the final instrument meant that the instrument had good or best quality where the instrument was appropriate. After that, the researcher conducted the instrument pre-test and post-test.

    In this research, the researcher applied pre-test and post-test before and after teaching using the ISC learning model. In this pre-test, students were given tasks for 60 minutes. Post-test was given after teaching the ISC learning model. In this

post-test, the students were given tasks 60 minutes after the last meeting of three times treatments.

3.6. Validity of the Instrument

The validity of the test is the extent to which it measures what it is supposed to measure and nothing else (Heaton, 1989). To measure whether the test has good validity, the researcher analyzed the test from content and construct validity.

a. Content validity

A test is said to have content validity if its contents constitute a representative sample of language skills and structures, it is being tested. To judge whether or not the test has content validity, we need a specification of the skills or structure being tested. A comparison of test specification and content is the basis for judgment for content validity. The researcher made this test based on the course objective in the English syllabus in the 2013 Curriculum.

b. Construct Validity

The construct validity of a test is capable of measuring certain specific characteristics following a theory of language behaviour and learning. Based on the theory above, in the test, the researcher asked the students to answer multiple choices based on the descriptive text to measure the student's critical and creative thinking skills in reading to fulfilled the construct of the reading test. The researcher adopted the CCT indicator based on Perdana's (2020) *Problem Sensitivity, Analysis, Inference, Elaboration, Evaluation And Novelty (Perdana 2020:83).*

Table 3 Table of Specifications of Reading Test

Aspect	Item Number	
	Number of Items	**Total**
Problem Sensitivity	1,18,20	3
Analysis	15,16,17	3
Inferences	3,4,8,12	4
Make Elaboration	2,6,7	3
Evaluation	5,10,14	3
Novelty	9,11,13,19	4
Total		**20**

SPSS Cronbach Alpha can measure the validity and reliability of the test. If the result shows alpha > 0,05, the reliability is sufficient, while if the alpha < 0,05 means that the reliability is not sufficient or unreliable. Besides, after trying out the instrument, the researcher tried to check the empirical validity using SPSS 25.0. In this research, the researcher used SPSS 25.0 for windows to know the validity of test instruments.

3.7.   Reliability of the Instrument

Reliability is the consistency of a measuring instrument. The extent to which the measuring instrument can measure the same subject at different times but shows relatively the same results (Setiyadi, 2006:16). The researcher used reliability testing to measure accuracy, consistency, dependability, or fairness of scores resulting from administration or particular examination. Reliability is a necessary characteristic of any good test: for it to be valid, a test must first be reliable as a measuring instrument (Heaton, 1989:162). Reliability is concerned with the effect of such random measurement errors on the consistency of scores.

The reliability of the test is calculated by using SPSS 25.0. The criteria of reliability instruments can be divided into five classes as follows:

1. If the *alpha Cronbach* score is 0.00 – 0.20: less reliable

2. If the *alpha Cronbach* score is 0.21 – 0.40: rather reliable

3. If the *alpha Cronbach* score is 0.41 – 0.60: enough reliable

4. If the *alpha Cronbach* score is 0.61 - 0.80: reliable

5. If the *alpha Cronbach* score is 0.81 – 1.00: very reliable

The result of reliability testing by using SPSS 25.0 can be seen in table 4:

Table 4 Result of Reliability

Reliability Statistics	
Cronbach's Alpha	N of Items
.947	22

Whether the items are reliable or not can be seen from Cronbach's Alpha column. The Cronbach's Alpha score = 0,947 means that it is very reliable.

3.8. Normality Testing

The researcher conducted normality testing to determine whether the gotten data is a normal distribution or not. The computation of normality testing in this research used SPSS 25.0. *One- Sample Shapiro-Wilk test* by the value of significance (α) = 0.05 rules as follow:

a. H0: If the value of significance > 0.05, means data is normal distribution

b. Ha: If the value of significance < 0.05, means the distribution data is not normal.

The hypotheses for the normality test were formulated as follows:

Ho: the data are normally distributed

Ha: the data are not normally distributed

Table 5 The Statistical Correlations of pre-test and post-test score with One-Sample Shapiro Wilk Test

Tests of Normality							
		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Test	Statistic	df	Sig.	Statistic	df	Sig.
Subject Class	Pre Test	.148	30	.094	.935	30	.067
	Post Test	.142	30	.128	.948	30	.146
a. Lilliefors Significance Correction							

Based on Table 5 above from the Shapiro-Wilk normality, it showed that the test gives to test that consists of 30 students. It also showed that the score test result found that the test level of significance of the pretest was (sig-value .067 > α.0.05) consist of and for the posttest, it was (sig-value .146 > α.0.05). The normality test of the test >α.0.05 means both the pretest and posttest are normal.

3.9. Homogeneity Test

After the researcher concluded the normality test, the researcher determined the homogeneity test to know whether the data was homogenous. In this research, the researcher used statistical computation using SPSS (Statistical Program for Social Science). The test of homogeneity employs Levene's Test.

While the criteria for acceptance or rejection of the homogeneity test were as follows:

Ha is accepted if sig $\geq \alpha = 0.05$

Ho is accepted if sig $< \alpha = 0.05$

The hypotheses for the homogeneity test were formulated as follows:

Ha = the variances of the data are homogenous

Ho = the variances of the data are not homogenous

Table 6 The Statistical Correlations of pre-test and post-test score

with One Way Anove

Test of Homogeneity of Variances			
Levene Statistic	df1	df2	Sig.
.251	1	58	.618

Based on table 6 above is known that the sig/p value is 0.618. A higher than 0.05 means Ha is accepted and Ho is rejected. So, it can be interpreted that the data is homogeny.

3.10. Hypothetical Test

Social Sciences (SPSS) used the 25.0 windows version to test the first hypothesis. The researcher analyzed the data of students' scores in the pre-test and post-test by using statistical calculations. If the result of the t-table is higher than the t-obtained at the significance level of 0.05, the null hypothesis is rejected. Meanwhile, if the t-obtained is higher than the t-table at a level of significance 0.05. It means that the hypothesis alternative is accepted. The hypotheses were drawn related to the research question in chapter one of this research, the hypothesis:

a. H_0: There is no difference in students' critical and creative thinking skills in reading after they are taught by using the ISC learning model.

b. Ha: There is a difference in students' critical and creative thinking skills in reading after they are taught using the modified syntax of ISC learning model.

CHAPTER V
CONCLUSIONS AND SUGGESTIONS

This chapter provides conclusions and suggestions from the result of the research. The conclusion summarizes the implementation of the modified syntax of ISC learning model to increase students' critical and creative thinking. The suggestion given is expected to give both theoretical and practical contributions for a better implementation of the modified syntax of ISC learning model for English teachers and further research.

5.1. Conclusion

Based on the data analysis presented in the previous chapter, this study's conclusion is drawn based on the results. The result of this research is that there is a significant increase in students' critical and creative thinking skills after they are taught by using the modified syntax of ISC learning model. It can be seen that the modified syntax of ISC learning model can affect students' critical and creative thinking skills in reading. The faithfulness of the treatment and the quality of the ISC learning model instruction is believed to be contributing to the positive effect of increasing students' critical and creative thinking skills. The researcher found that students in class X.1 scored higher after being taught using the modified syntax of ISC learning model. It can be concluded that the modified syntax of ISC learning model can increase students' critical and creative thinking skills in reading.

The modified syntax of Inquiry Social Complexity (ISC) Learning Model helps students increase their enthusiasm and attention in the teaching and learning process of English, especially in improving their critical and creative thinking skills. Their understanding of reading also improved. Regarding their understanding of a descriptive text, students can identify the hidden meaning in the reading text. It helps students make predictions about the text, arouse their interest, and increase their motivation to read. In addition, the modified syntax of ISC Learning Model can improve students' critical and creative thinking skills by using syntaxes that are easy to remember students, namely observation team, reconstruction, socialization, verification, and applied communication. In other words, the modified syntax of ISC Learning Model is presented as a group learning model for students. This model is a learning unit in which students actively study various activities in groups to improve critical and creative thinking skills in the reading process.

5.2. Suggestions

This research provides a practical contribution to institutions (SMA Bina Mulya Gadingrejo), teachers, and other researchers. The findings of this study can be considered for institutions to establish policies on using the modified syntax of Inquiry Social Complexity (ISC) Learning Model in teaching reading. The learning model effectively increases students' critical and creative thinking skills in reading and improves student achievement in school. It is also dedicated to the principal to provide several English language materials, such as English magazines, newspapers, and English tapes, which can be used optimally to increase students' critical and creative thinking skills. In addition, English teachers can use the

modified syntax of ISC Learning Model in the teaching and learning process on reading skills.

Further researchers interested in increasing critical and creative thinking skills for students in senior high schools can apply the model because it has been proven that the modified syntax of ISC learning model is effective for increasing students' critical and creative thinking skills. Researchers suggest having a different research design, with a larger number and different levels of students, still needs to be done. The author hopes there will be research to investigate teaching to increase critical and creative thinking in reading more deeply. The learning model should not only make students interested but also make them remember and understand the reading in detail. The author hopes that there will be research that explores this research in a wider field, with better research methodologies, so that the results are more applicable. For further research, the influence of the learning styles used by students can be investigated, whether learning styles can affect the students' critical and creative thinking skills.

REFERENCES

Abd Kadir, N., Subki, R., Jamal, F., & Ismail, J. (2014). The importance of teaching critical reading skills in a Malaysian reading classroom. In *International Academic Conference* (pp. 208-218).

Andrini, V. S. (2016). The Effectiveness of Inquiry Learning Method to Enhance Students' Learning Outcome: A Theoritical and Empirical Review. *Journal of Education and Practice*, *7*(3), 38-42.

Ataizi, M., & Donmez, M. (2014). Book review: 21st century skills-learning for life in our times. *Contemporary Educational Technology*, *5*(3), 272.

Bailin, S. (1987). Critical and creative thinking. *Informal logic*, *9*(1).

Bassham, G., Irwin, W., Nardone, H., & Wallace, J. M. (2011). *Critical Thinking A Student's Introduction Fourth Edition.* New York: McGraw-Hill.

Brown (2000). *Teaching By Principle: An Interactive Approach to Language* Pedagogy, California: Longman. pp.306-310

Cremin, T. (2009). *Teaching English creatively*. Learning to Teach in the Primary School Series. London: Routledge.

Creswell, John W. (2003). *Research Design: Qualitative, Quantitative, and Mixed Method Approach (Second Edition)*.Sage Publication Inc.p156

Creswell, John W. (2012). *Educational research: planning, conducting, evaluating, quantitative and qualitative research (Fourth Edition)*. United State of America: Pearson Education Inc.

Friesen, D., & Haigh, C. A. (2018). How and why strategy instruction can improve second language reading comprehension: A review. *Reading Matrix: An International Online Journal*, *18*(1).

Ghanizadeh, A. (2017). The interplay between reflective thinking, critical thinking, self-monitoring, and academic achievement in higher education. *Higher Education*, *74*(1), 101-114.

Ghanizadeh, A., Al-Hoorie, A. H., & Jahedizadeh, S. (2020). *Higher Order Thinking Skills in the Language Classroom: A Concise Guide.* Switzerland: Springer, Cham.

Haris, R. (1998). Introduction to creative thinking. [Online]:https://www.virtualsalt.com/introduction-to-creative-thinking/access on 2020.

Harizaj, M. (2017). Fostering learner's critical thinking skills in EFL: Some practical activities. *European Scientific Journal*, *13*(29), 126-133.

Heaton, J. B. (1989). *Writing English Language Test*. New York: Longman.p.159

Heong, Y. M., Othman, W. B., Yunos, J. B. M., Kiong, T. T., Hassan, R. B., & Mohamad, M. M. B. (2011). The level of marzano higher order thinking skills among technical education students. *International Journal of Social Science and Humanity*, *1*(2), 121.

Johansson, E. (2020). The assessment of higher-order thinking skills in online EFL courses: A quantitative content analysis. *Nordic Journal of English Studies*, *19*(1), 224-256.

Lewis, Beth. (2020, August 28). *Using Bloom's Taxonomy for Effective Learning. Retrieved* from https://www.thoughtco.com/blooms-taxonomy-the-incredible-teaching-tool-2081869

Miller, J. W., & McKenna, M. C. (2016). *World literacy: How countries rank and why it matters*. Routledge.

Mohseni, Fatemeh, Zohreh Seifoori, and Saeideh Ahangari. (2020). *"The impact of metacognitive strategy training and critical thinking awareness-raising on reading comprehension."* Cogent education. 7.1.1720946.

Nourdad, N., Masoudi, S., & Rahimali, P. (2018). The effect of higher order thinking skill instruction on EFL reading ability. *International Journal of Applied Linguistics and English Literature*, *7*(3), 231-237.

Pang, E. S., Muaka, A., Bernhardt, E. B., & Kamil, M. L. (2003). *Teaching reading* (Vol. 6). Brussels, Belgium: International Academy of Education.

Perdana, R. (2020). *Model Pembelajaran ISC (Inquiry Social Complexity) untuk memberdayakan Critical and Creative Thinking (CCT) Skills.* Klaten: Lakeisha.

Pourhosein & Sabouri (2016). How can students improve their reading comprehension skill. *Journal of Studies in Education*, *6*(2), 229-240.

Pratama, G. S., & Retnawati, H. (2018, September). Urgency of higher order thinking skills (HOTS) content analysis in mathematics textbook. In *Journal of Physics: Conference Series* (Vol. 1097, No. 1, p. 012147). IOP Publishing.

Read C. (2015). Making thinking visible in the English classroom: Nurturing a creative mind-set. *Creativity in the English language classroom*, 37-43.

Rudibyani R.B. (2020). "The Effectiveness of Inquiry Social Complexity to Improving Critical and Creative Thinking Skills of Senior High School Students." *International Journal of Instruction* 13.4 : 477-490.

Sajidan, S., & Afandi, A. (2017). Pengembangan Model Pembelajaran Ipa Untuk Memberdayakan Keterampilan Berpikir Tingkat Tinggi. In *Prosiding SNPS (Seminar Nasional Pendidikan Sains)* (pp. 15-27).

Sajidan, Saputro, et al. (2020). *"Development of science learning model towards Society 5.0: A conceptual model."* Journal of Physics: Conference Series. Vol. 1511. No. 1. IOP Publishing.

Schafersman, S. D. (1991). An introduction to critical thinking. Retrieved from https://facultycenter.ischool.syr.edu/wp-content/uploads/2012/02/Critical-Thinking.pdf.

Setiyadi, B. Sukirlan, M and Mahpul. (2018). *Teaching Language Skills: Preparing Materials and Selcting Technique.* Yogyakarta: Graha Ilmu.

Setiyadi. (2006). *Metode Penelitian untuk Pengajaran Bahasa Asing: Pendekatan Kuantitatif dan Kualitatif.* Yogyakarta. Graha Ilmu.p.16

Siburian, J., Corebima, A. D., & Saptasari, M. (2019). The correlation between critical and creative thinking skills on cognitive learning results. *Eurasian Journal of Educational Research*, *19*(81), 99-114.

Sternberg, R. J. (2009). The nature of creativity. *The Essential Sternberg: Essays on intelligence, psychology and education*, 103-118.

Sudarwati, R. B. R., & Perdana, R. A. (2020) *Conceptual of Teaching Models Inquiry Social Complexity (ISC)*.p.1713

Tankersley, K. (2003). *The threads of reading: Strategies for literacy development*. ASCD.

Tomlinson, B. (2015). Challenging teachers to use their coursebook creatively. In Maley, A., & Peachey, N. (Eds.), *Creativity in the English language classroom* (pp.24-28). London: British Council.

Trif, L. (2015). Training models of social constructivism. Teaching based on developing a scaffold. *Procedia-Social and Behavioral Sciences*, *180*, 978-983.

Wallace, M., & Wray, A. (2021). *Critical reading and writing for postgraduates*. Sage.

Wati, M. (2018). Pentingnya Pengakomodasian Pengalaman Belajar Pada Pembelajaran Ipa. *Jurnal Tunas Pendidikan*, *1*(1), 21-30.