The modified syntax of inquiry social complexity learning model to increase critical and creative thinking skills in reading

Arri Alfiantho[1], Tuntun Sinaga[2]
English Language Education Study Program, Faculty of Teacher Training and Education, University of Lampung
Correspondence author: arrialfiant@gmail.com

Received: 30 September 2023 Accepted: 26 October 2023 Published: 30 October 2023

Abstract

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 senior high school 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 ≤ α 0.05, which means that the modified syntax of 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. This study solely examines the effect of implementing the modified syntax of ISC learning model to increase CCT skills in reading. However, for future research, it would be beneficial to delve deeper into learning styles, gender, and student levels as well.

Keywords: CCT Skills, Reading, ISC learning model

Introduction

In the context of the 21st-century educational paradigm, schools are tasked with fostering a generation capable of independent, critical, and creative thinking. This aligns with the principles outlined in Indonesia's National Education System, which emphasizes the need for students to actively engage in developing their potential for the betterment of society. In this modern learning

environment, students are expected to accelerate their learning, amass knowledge through firsthand experiences, attain a deeper and more intricate comprehension of subjects, and commit information to long-term memory.

However, in practice, students face certain challenges that hinder the complete realization of the learning objectives. The problem of students lacking sufficient critical thinking skills can be traced back to the classroom learning process's inefficacy in fostering their interests, talents, and potential. Teachers struggle to devise a learning model that can genuinely captivate and involve students actively. The educational activities tend to concentrate solely on textbooks, without providing direct engagement in problem-solving experiences. Educators need a teaching approach that can boost both critical and creative thinking skills in students, all while being in sync with the content being taught in the classroom. An example of this is using reading as a means to assess and enhance students' critical and creative thinking abilities.

Comprehending texts plays a pivotal role in the process of language acquisition. When students engage in reading, it's essential that they grasp the content of the passage. However, many learners exhibit a lack of analytical or critical thinking while reading and often rely on a superficial approach to text comprehension. Abd Kadir et al., (2014) stated that behavior suggests that they may not yet be equipped for advanced academic literacy. Instead of making an effort to employ contextual clues or delve deeper into the text for a more profound understanding, they tend to resort to using a dictionary when faced with unfamiliar words or concepts.

This situation underscores that the educational system has not adequately prepared these students to become critical readers, meaning they lack the necessary critical reading skills. If students were equipped with these skills, they would possess the ability to analyze, synthesize, and evaluate the material they read. They could apply critical thinking skills, such as discerning what to accept and what to reject in the text. Fostering Critical and Creative Thinking Skills (CCT) in students necessitates a teacher's dedication and effort to create an engaging and inclusive classroom environment. Various obstacles can hinder the comprehension of CCT skills, particularly for students with limited cognitive capabilities.

The Inquiry Social Complexity (ISC) approach is an educational framework that promotes the development of critical and creative thinking skills in students by engaging them in interactions with their environment and peers. Knowledge constructed within a social context becomes more extensive, better retained, and easier to grasp, evolving into enduring knowledge. This method enables students to actively participate and acquire hands-on experience, transitioning them from passive knowledge receivers to skilled information managers capable of applying concepts in their daily routines. The modified

syntax of the Inquiry Social Complexity (ISC) learning model aims to elevate Critical and Creative Thinking (CCT) Skills.

Literature Review

Definition of Reading

Reading involves comprehending written texts and is a multifaceted undertaking that encompasses both perception and cognition (Pang et al., 2020). It involves an active effort, relying on an author's skill in conveying meaning through words and our competence in constructing comprehension from those words. Effective reading necessitates the continual connection of existing knowledge with the information presented in the text. It stands as an essential task for students seeking to grasp the material, constituting an interactive exchange of ideas through written communication between readers and writers (Etfita, 2018). Students must proficiently develop reading skills to acquire fresh information, access alternative viewpoints, and initiate critical evaluation capabilities. In light of these statements, reading emerges as a profound interaction between the reader and the writer, enabling successful communication and comprehension of the writer's intended message within the text.

Reading Comprehension

Prior to exploring the notion of reading comprehension, it's crucial to comprehend the importance of comprehension itself. Comprehension is a conscious cognitive process that occurs when we read, encompassing the integration of our life experiences into the act of reading. Furthermore, effective comprehension empowers readers to obtain knowledge, gain insights, and extract meaning, enabling successful communication and fostering academic achievement (ESRC, 2009). Achieving the goal of reading comprehension depends on the reader's active engagement with the text, which is influenced by various factors, including the reader's preexisting knowledge of the text's subject matter. Students who possess background knowledge related to the text are better equipped to grasp its content more effortlessly.

Teaching Reading

Instructing plays a pivotal role in fostering learning, enabling learners to acquire knowledge, and establishing conducive conditions for the learning process. A crucial consideration for foreign language educators, when conducting reading sessions in the classroom, is how to make these sessions engaging and pertinent for their students (Setiyadi et al., 2018). The selection of appropriate reading materials hinges on the specific objectives of the reading topic. The act of teaching reading encompasses the facilitation, guidance, and

support provided to students in comprehending the text and extracting meaning and information conveyed by the author. Furthermore, achieving critical discernment in reading necessitates a substantial foundation of knowledge pertaining to the subject under scrutiny. Critical reading entails the ability to make comparisons and judgments, as elucidated by (Setiyadi et al., 2018).

Critical Reading

Assisting EFL (English as a Foreign Language) students in cultivating critical reading skills can present a teacher with the difficulty of sourcing appropriate literature that pertains to critical reading instruction. Critical reading entails achieving a profound and comprehensive comprehension of a text, enabling readers to engage with the material at an elevated plane of cognitive processing. Readers can utilize Benjamin Bloom's taxonomy to explore advanced cognitive domains, such as levels involving evaluation, synthesis, analysis, and interpretation when reading. Proficient readers, as Tankersley (2003) asserts, possess a strong grasp of comprehension skills.

Skilled readers leverage their general knowledge and prior experiences to draw accurate inferences from texts. They employ strategies for monitoring and enhancing comprehension while reading, and they can also identify potential pronunciations of unfamiliar words encountered in the text. The utilization of spelling patterns can further enhance their understanding. The expectations, biases, and prior knowledge of readers significantly influence how they arrive at an interpretation of the text they are reading (Wallace & Wray, 2011). Consequently, it becomes imperative for teachers to impart the principles of critical and creative thinking to their students. This instruction assists students in grasping the concept of critical thinking and enables them to approach problems with their unique ideas through classroom learning.

Critical and Creative Thinking (CCT) Skills

One of the fundamental competencies demanded of students in the 21st century is the capacity for critical and creative thinking. Educators are tasked with nurturing the higher-order thinking abilities that students require to engage in expansive problem-solving and confront novel challenges (Heong et al., 2011). Higher-order thinking skills (HOTS) are an essential element of these creative and critical thinking abilities. In Indonesia, the focus on nurturing critical and creative thinking skills has been in place since the inception of Curriculum 2013, with Higher-Order Thinking Skills (HOTS) serving as a fundamental goal within the Indonesian educational system (Pratama & Retnawati, 2018). Nonetheless, they contend that teachers may still possess limited familiarity and knowledge of HOTS. As such, they advocate for the systematic development of HOTS through structured tasks and activities.

During the mid-1990s, Lorin Anderson, who had previously studied under Bloom, collaborated with David Krathwohl to undertake a thorough review of the cognitive domain. They made several changes, including converting the names of six categories from nouns to verbs and rearranging the positions of creation and evaluation. Moreover, they incorporated a knowledge matrix level as depicted in Figure 1 to link the original taxonomy with the revised version. Figure 2 illustrates the revised taxonomy, accompanied by examples of verbs. This updated taxonomy seeks to offer a more dynamic and accurate representation of thinking. (Ghanizadeh et al., 2020).

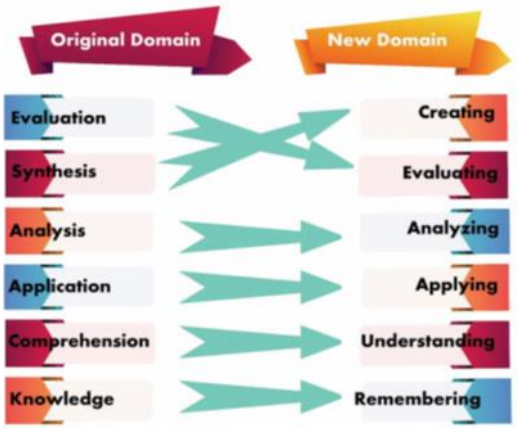

Figure 1. Bloom's revised taxonomy

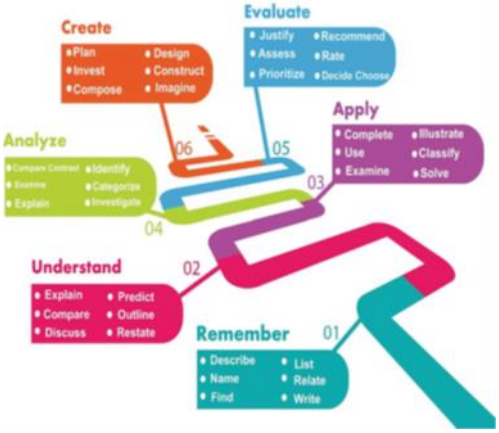

Figure 2. Bloom's revised taxonomy

In the revised taxonomy, "remembering" involves the act of recollecting or retrieving information learned previously, while "understanding" entails grasping the significance, translation, interpolation, and interpretation of instructions and problems. The third domain, “applying” refers to using concepts in new situations or spontaneously using abstractions. In other words, it is the application of what is learned in class to life. "Analyzing" involves breaking down an idea into its component parts to enhance the clarity of its organizational structure and distinguishing between facts and inferences. "Evaluating" entails forming judgments about the worth or merit of ideas, whereas "creating" involves constructing a framework or pattern from various elements by assembling parts to create a unified whole, with an emphasis on generating a novel meaning or structure. Teachers can improve their students' capabilities by grasping the connection between critical and creative thinking skills, as elucidated by Baker et al., (2001). It is essential for educators to comprehend how these two skills are interrelated in order to identify an appropriate instructional approach for the classroom.

Critical Thinking Skills

Critical thinking has been widely recognized as an essential skill for attaining success in personal, academic, and social spheres. When analyzing its different dimensions, it was discovered that critical thinking, along with all the elements of reflective thinking, exerted a substantial positive effect, whereas habitual predictive actions had the least impact on success (Ghanizadeh et al., 2020). In contemporary education, critical thinking is regarded as one of the most crucial and indispensable subjects, representing a broad term encompassing various cognitive skills and intellectual attributes (Schafersman, 2008).

Critical thinking adheres to a set of intellectual standards that encompass attributes such as clarity, precision, accuracy, relevance, consistency, logical correctness, completeness, and fairness (Bassham et al., 2011). Critical thinking is a structured mode of thinking governed by these explicit intellectual benchmarks. However, it's essential to recognize that students must not solely excel in critical thinking; they should also cultivate creative thinking capabilities, which are an integral facet of higher-order thinking. Creative thinking empowers students to conceive novel ideas, allowing them to create distinctive intellectual products that differ from those of others.

Creative Thinking Skills

Fostering creative thinking in students should commence during early childhood and continue throughout their preparation for adulthood. This process also cultivates their inclination toward open-mindedness. Creative thinking, in this context, refers to the generation of fresh and valuable ideas. The essence of creativity encompasses the synergy of six distinct yet interconnected elements: intellectual capacity, knowledge, personal style, thinking approach, character, motivation, and the surrounding environment, as articulated (Sternberg, 2006). Moreover, the introduction of creative thinking education in schools has the potential to enhance students' academic performance. Creativity is characterized by thinking beyond conventional boundaries, exploring potentialities, and establishing creativity as a foundational approach to thinking and problem-solving (Harris & de Bruin, 2018). It is not about conjuring something entirely new from scratch but rather generating novel concepts by amalgamating, modifying, or recontextualizing existing ideas.

Hence, a primary objective for English educators is to stimulate learners' creative thinking via efficient training involving imaginative tasks. By integrating creative thinking into English instruction, students can cultivate pertinent cognitive abilities like observation, inquiry, comparison, differentiation, envisioning, and theorizing (Maley & Peachey, 2016). Encouraging creativity within English Language Teaching (ELT) classrooms

holds great significance as it offers chances for the vital emotional and cognitive engagement of learners, which is crucial for language acquisition (Tomlinson, 2016).

Indicator Critical and Creative Thinking Skills

In general, Typically, experts categorize indicators of thinking skills and critical thinking into six aspects, as presented in Table 1. These aspects define the construct of critical and creative thinking skills (CCT), encompassing Problem Sensitivity, Analysis, Inference, Make Elaboration, Evaluation, and Novelty, frequently abbreviated as PAIMEN, as described by Perdana et al., (2020).

The Inquiry Social Complexity (ISC) Learning Model

The theoretical foundation of the Inquiry Social Complexity (ISC) learning model is built upon various established learning theories, including behaviorism, cognitive theory, constructivism, social constructivism, and social complexity theory, which collectively influence its learning objectives. In the ontology of ISC learning model, there is a consideration of how the connections within the learning process align with the anticipated outcomes and actual learning achievements. A student's capacity is significantly impacted by their problem-solving skills and their ability to engage in knowledge exchange with individuals who possess greater expertise. Moreover, social complexity acts as a catalyst that motivates individuals to engage in social interactions and share ideas with those around them, thereby facilitating the harmonious development of cognitive abilities through information exchange (Perdana et al., 2020).

The main goal of the ISC learning model is to integrate cognitive and social abilities seamlessly, ensuring that all students actively participate and comprehend the learning objectives during the learning process. This model is built upon the inquiry framework, which traditionally comprises five components: Observation, Manipulation, Generalization, Verification, and Application. To adapt and enhance this approach, the ISC learning model was devised with five modified components, or learning steps: Observation Team, Reconstruction, Socialization, Verification, and Applied Communication (Perdana et al., 2020).

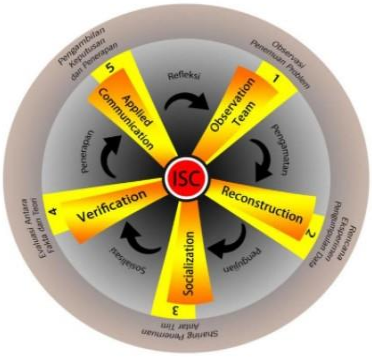

Figure 3. The syntax Inquiry Social Complexity (ISC) learning model

The five learning steps within the ISC learning model are systematically and progressively implemented during the course of the learning process.

1. *Observation Team:* Students collaborate in groups to collectively examine phenomena presented by the teacher, with the aim of identifying research topics and engaging in study during the learning process.
2. *Reconstruction:* Students within their designated groups generate concepts and gather both qualitative and quantitative data.
3. *Socialization:* In small groups, students exchange ideas with other groups regarding the gathered data. Each member contributes by examining the outcomes shared by other groups, which are subsequently rearticulated within their own group to convey what insights were gained through interactions with other groups. Each student plays a pivotal role in actively participating within the group.
4. *Verification:* In their respective teams, students verify and assess the accuracy of the information they've discovered by linking it with the theoretical foundation they have previously acquired from earlier stages.
5. *Applied Communication:* Students within their groups articulate their viewpoints through oral or written presentations based on the outcomes of their group discussions. They subsequently reach a consensus, guided by the teacher's direction, regarding what is accurate in the context of learning and applicable to daily life.

The ISC learning model encourages cooperative learning, nurturing interactions among students as well as between students and educators. Within the ISC learning model, the teacher serves as a facilitator and motivator throughout the learning process. At the start of the learning process, the teacher presents phenomena for students to observe collectively in their respective groups. This activity sparks the students' motivation to delve into the phenomenon through experimentation or by exploring various resources such as the internet. They work together within their groups to discuss their findings

and draw conclusions based on the material provided by the teacher, applying these conclusions to real-life situations.

Research Method

To address the research inquiries, the researchers employed a quantitative research approach utilizing pre-experimental designs. They gathered quantitative data by employing both pre-tests and post-tests. For this study, a single class was chosen as the research sample, and a one-group pre-posttest design was utilized.

The research population consisted of tenth-grade students from SMA Bina Mulya Gadingrejo. There was a total of 61 students distributed across two classes. The researcher opted to select the X.1 class as the sample, comprising 30 students, as it was deemed capable of providing adequate information for the study.

According to the research design of this study, the data collection process can be categorized into four main phases. These phases consist of the pre-test, the treatment phase, the post-test, and the utilization of ISC assessment sheets. In this research, an initial pre-test was administered to assess students' baseline proficiency in critical and creative thinking skills before the treatment began. In the subsequent phase, students received treatment via the ISC learning model for three sessions. Following this, a post-test was administered after the treatment had concluded. In the final phase, students completed ISC assessment sheets to evaluate their responses to the learning process facilitated by the ISC learning model.

To measure whether the test has good validity, the researcher analyzed the test from content and construct validity. The validity of the test is the extent to which it measures what it is supposed to measure and nothing else (Heaton, 1988). The researcher made this test based on the course objective in the English syllabus in the 2013 Curriculum. Also, the researcher adopted the six CCT indicator that is *Problem Sensitivity, Analysis, Inference, Elaboration, Evaluation and Novelty* (Perdana et al., 2020).

The researcher employed reliability testing to assess the accuracy, consistency, dependability, and fairness of scores derived from the administration of a particular examination. Reliability stands as an essential trait of any quality test because, in order to be considered valid, a test must first demonstrate reliability as a measuring tool (Heaton, 1988). Reliability is focused on understanding the impact of random measurement errors on the consistency of scores. Using SPSS 25.0 for analysis, the researcher obtained a Cronbach's alpha score of 0.947, indicating a very high level of instrument reliability.

Results

The pre-test was conducted to evaluate the students' critical and creative thinking abilities before any classroom instruction or treatment. Figure 4 displays the scores of student's abilities as measured in the pre-test.

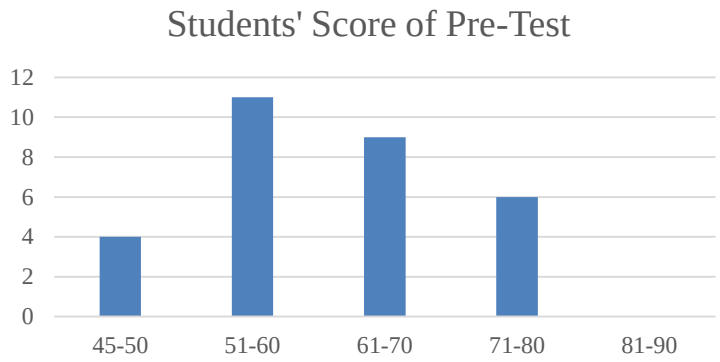

Figure 4. Result of Pre-test

From Figure 4, it is known that four students got scores ranked from 45-50 with a frequency of 13%, eleven students got scores ranked from 51-60 with a frequency of 37%, nine students got scores from 61-70 with the frequency of 30%, and six students got a score from 71-80 with the frequency 20%. For the statistics of the result of the pretest, the mean score is 63.17 with a minimum score of 50 and a maximum score of 80. Based on these results, there were still twenty-four students or around 80% of the total students in the class who got a score of less than 70-80.

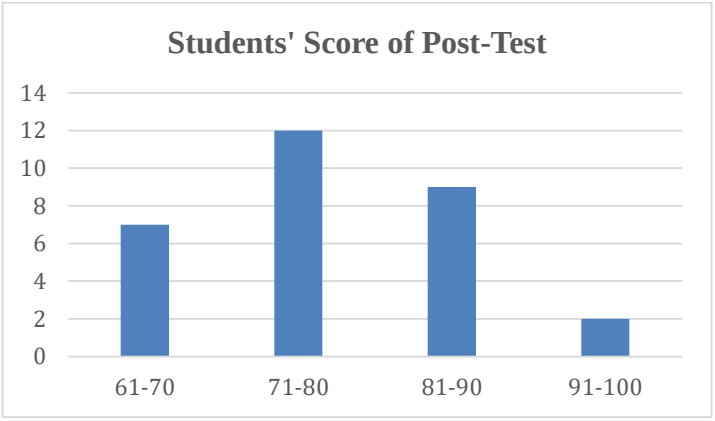

Figure 5. Result of Post-test

From figure 5, it is known that seven students got scores ranked from 61-70 with a frequency of 23%, there are twelve students got scores ranked from 71-80 with a frequency of 40%, there are nine students got scores of 81-90 with a

frequency 30%, and there are only two students who got score 91-100 with frequency 7%. The statistics of the result of the post-test, the mean score increase becomes 79.83 with a minimum score of 65 and a maximum score of 95.

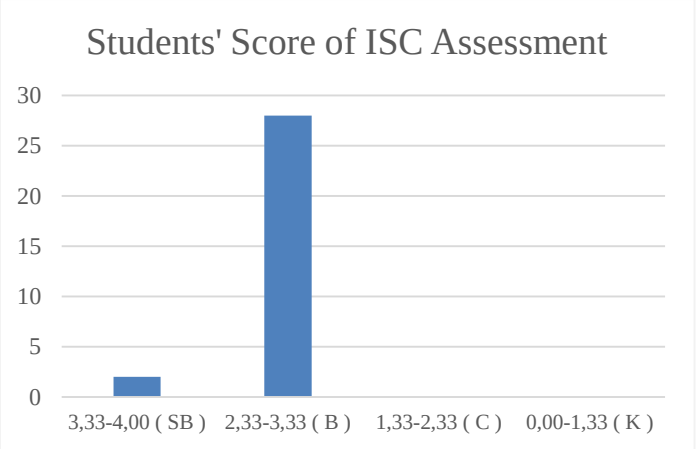

Figure 6. Result of ISC learning model assessment

Figure 6 shows that two students got scores ranked from 3,33-4,00 (very good) with a frequency of 7%, and some twenty-eight students got scores ranked from 2,33-3,33 *(good)* with a frequency of 93%. The mean score of the result of assessment sheets is 2,87 with a minimum score of 2,4 and a maximum score of 3,6. Based on the statement, the ISC learning model gets good responses from the students.

Through the implementation of the ISC learning model in the classroom to enhance critical and creative thinking skills in reading, we can identify the most influential aspects. A more comprehensive breakdown of scores is available in Figure 7.

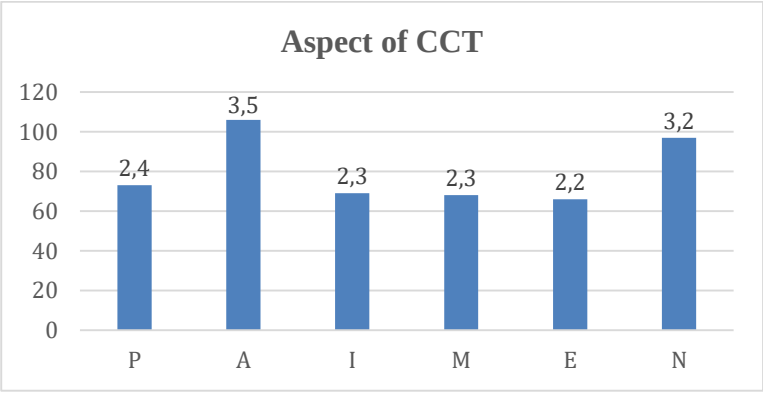

Figure 7. The most influential aspects of critical and creative thinking skills

Figure 7 shows that there were 3,5 mean scores that students chose in the *Analysis* aspect. 3,2 mean score in the *Novelty* aspect, 2,4 mean in the *Problem Sensitivity* aspect, 2,3 mean score in the *Inferences* aspect, 2,3 mean score in the *Make Elaboration* aspect, and 2,2 mean score in the *Evaluation* aspect. Based on this statement, it can be concluded the aspect that influences students the most during learning using the ISC learning model is the analysis aspect.

Discussion

The first research question is whether there is a significant increase in students' Critical and Creative Thinking (CCT) Skills in reading as a result of employing the Inquiry Social Complexity (ISC) learning model. As indicated by the results presented in the score, the t-test value is 11.229, which is greater than the t-table value of 2.048, with a corresponding significance value of 0.000. This significance value is less than 0.05, signifying a substantial improvement in students' critical and creative thinking abilities before and after receiving instruction via the ISC learning model in the context of tenth-grade students. The research findings demonstrate a significant disparity between the mean scores in the post-test phase.

During the pre-test phase, students encountered challenges in comprehending the text they were presented with, and they struggled to conclude the text. For instance, students who obtained lower scores in the pre-test indicated that they faced difficulties in grasping the text and lacked effective strategies for comprehension. However, following their exposure to the ISC learning model, students exhibited notable progress. They were able to comprehend the text and make meaningful conclusions. This transformation is evident in the research results, which show a significant improvement in the critical and creative thinking skills of Class X.1 students. The students experienced an augmentation in both critical and creative thinking after undergoing instruction with the ISC learning model. They became adept at understanding the text and identifying key elements such as main ideas, supporting details, vocabulary, phrases, and conclusions. In this context, students were guided through learning and practical exercises in alignment with the topics presented by the researcher.

In the "Observation Team" syntax, students engage in collective reading and group discussions to analyze text content, make observations, and extract ideas from the descriptive text provided. During this initial stage, students apply the problem sensitivity aspect, which is one of the critical and creative thinking indicators.

Moving to the "Reconstruction" syntax, students gather data to substantiate the ideas they identified in the preceding phase. In this second

stage, students employ analytical thinking processes, encompassing critical and creative thinking indicators. Next, in the "Socialization" syntax, students process the information they've obtained in previous steps. Subsequently, students individually engage in discussions to acquire additional ideas or express their thoughts to fellow group members, drawing from the experiences gained. In this phase, students effectively apply one critical and creative thinking indicator, namely "inferences".

In the "Verification" syntax, students reevaluate the accuracy of the data they've collected in light of previous steps and connect it to the topics they've read. Following this, students collectively arrive at conclusions within their team before presenting them to the entire class. In this stage, students successfully engage in the evaluation and elaboration of critical and creative thinking indicators. Finally, in the "Applied Communication" syntax, students reconvene in their groups after determining conclusions from the prior step. They take turns expressing their viewpoints in front of the class. During this phase, students incorporate the novelty aspect of critical and creative thinking indicators into their presentations.

The ISC learning model serves as a structured framework that aids students in comprehending the text they read and arriving at fresh conclusions. Consequently, the ISC learning model proves to be an effective tool in fostering the enhancement of critical and creative thinking among students. It achieves this by optimizing the learning outcomes of students through a collaborative social system that involves individuals at every stage of the learning process (Sudarwati et al., 2020).

The ISC learning model also ignites students' curiosity, enabling them to expand their knowledge and understanding. It empowers students to engage in logical reasoning about scientific concepts and effectively convey their conclusions. As a result, students become more intellectually and emotionally engaged in their learning activities. Additionally, the ISC learning model encourages students to socialize and exchange ideas with their peers, as observed by (Sajidan et al., 2020). This, in turn, is anticipated to harmonize students' cognitive development with the information exchange they engage in with their peers.

Moreover, previous research findings corroborate these outcomes, illustrating that the ISC model motivates students to actively participate and communicate effectively in their learning activities, as noted by (Rudibyani et al., 2020). Consequently, students experience meaningful learning as they acquire knowledge through firsthand experiences, promoting independent learning.

The application of the ISC learning model to students during instruction significantly facilitates the improvement of critical and creative thinking,

particularly when it comes to comprehending textual materials. Through the use of the ISC learning model's structured approach, students become adept at understanding the steps involved in comprehending and dissecting the text they are studying. They progress to analyze the text and formulate conclusions based on their own ideas.

This approach aligns with the assertion made by (Mohseni et al., 2020), which emphasizes that, to achieve understanding, students must possess the capacity for critical thinking. Engaging readers in critical analysis, synthesis, and evaluation of the material they read is crucial for gaining profound comprehension. Furthermore, given that the ISC learning model encourages collaborative activities, students who may have lower cognitive abilities can benefit from their peers who possess higher cognitive capacities. This cooperative aspect of the model fosters a learning environment where students can support and learn from one another.

The second research question aimed to identify the most influential aspects of Critical and Creative Thinking Skills (CCT) following the implementation of the ISC learning model in reading. After students completed the post-test, which was based on Higher-Order Thinking Skills (HOTS), it became evident that the most influential aspect of CCT skills was the analytical aspect, with students choosing correct answers with the mean score 3,5 higher than other aspect. Meanwhile, the novelty aspect has a mean score of 3.2, the problem sensitivity aspect has a mean score of 2.4, the inferences aspect has a mean score of 2.3, the make elaboration aspect has a mean score of 2.3, and the evaluation aspect has a mean score of 2.2.

The ISC learning model, as applied in reading, involves a significant amount of analysis from the outset. In the "Observation Team" syntax, students engage in analysis to identify ideas within the descriptive text they read. Subsequently, in the second syntax, "Reconstruction," students perform data analysis to support the ideas uncovered in the previous step. Finally, in the "Verification" syntax, students re-analyze the data they have collected to substantiate the ideas identified earlier before arriving at conclusions. In light of this information, it can be concluded that students tend to engage in a higher degree of analysis when utilizing the ISC learning model during the reading learning process.

Education in the 21st century places significant emphasis on fostering cognitive skills, including analytical thinking, among students. This aligns with the viewpoint expressed by (Johansson, 2020), which highlights that comprehending complex theories or literary works frequently necessitates high-level thinking, particularly analysis and evaluation. It is imperative for students to develop proficiency in analytical thinking as it not only aids them in attaining

their educational objectives but also equips them with the capability to apply these skills in their daily lives.

In conclusion, the ISC learning model proves to be well-suited for enhancing students' critical and creative thinking abilities, which, in turn, contributes to improved reading comprehension and overall achievements in their daily lives.

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 effectiveness of the treatment and the quality of instruction using the modified syntax of ISC learning model are considered key factors contributing to the observed positive impact on enhancing students' critical and creative thinking skills. The researcher noted a significant improvement in the scores of students in class X.1 after instruction with the modified syntax of the ISC learning model. This leads to the conclusion that the adapted syntax of the ISC learning model is effective in promoting the development of students' critical and creative thinking skills in the context of reading.

The modified syntax of ISC Learning Model proves to be a valuable tool for enhancing students' enthusiasm and focus within the English teaching and learning process, particularly when it comes to boosting their critical and creative thinking skills. It has a positive impact on students' reading comprehension abilities, including their capacity to discern underlying meanings in the text. This model empowers students to make predictions about the content, their interest, and enhances their motivation to engage in reading activities.

Moreover, the modified syntax of ISC Learning Model plays a significant role in enhancing the critical and creative thinking abilities of students by utilizing a set of easily memorable sequences: Observation Team, Reconstruction, Socialization, Verification, and Applied Communication. Essentially, the modified syntax of ISC Learning Model is structured as a collaborative learning model intended for students, providing a comprehensive framework where students actively engage in diverse group activities to enhance their critical and creative thinking skills during the reading process.

The findings of this research hold significant implications for educational institutions, as they can use these results to formulate policies and strategies for

the implementation of the ISC Learning Model in reading instruction. The research demonstrates the model's effectiveness in enhancing students' critical and creative thinking skills while concurrently improving overall student academic achievement.

In light of further research, the researcher recommends diversifying the study sample by including different groups of students and varying educational levels. This approach can help generalize and extend the findings to a broader population and provide insights into how the ISC learning model impacts students at different stages of their education.

Additionally, it is worthwhile to explore the intricate relationship between critical and creative thinking skills and students' learning styles and perceptions. Investigating how these cognitive skills align or interact with individual learning preferences and students' perceptions of their own learning experiences can offer valuable insights into effective teaching and learning strategies to diverse student profiles. This research could pave the way for more customized and adaptive educational approaches in the future.

References

Abd Kadir, N., Subki, R. N., Haneem, F., Jamal, A., & Ismail, J. (2014). The Importance of Teaching Critical Reading Skills in a Malaysian Reading Classroom. *The 2014 WEI International Academic Conference Proceedings*, 208–219. https://www.westeastinstitute.com/wp-content/uploads/2014/06/Norbaiyah-Abd-Kadir-Full-Paper.pdf

Baker, M., Rudd, R., & Pomeroy, C. (2001). Relationships between Critical and Creative Thinking. *Journal of Southern Agricultural Education Research*, *51*(1), 173–188.

Bassham, G., Irwin, W., Nardone, H., & Wallace, J. M. (2011). *CRITICAL THINKING: A Student's Introduction* (4th editio). The McGraw-Hill Companies, Inc.

ESRC. (2009). Reading comprehension: Nature, assessment and teaching. *ESRC Economic & Social Research Council*, 1–8. http://eprints.lancs.ac.uk/50134/

Etfita, F. (2018). Improving Students' Reading Comprehension of Descriptive Texts Through Cognitive Strategy At Grade Vii-2 of Smpn 1 Indra Praja Tembilahan. *Lingua Didaktika: Jurnal Bahasa Dan Pembelajaran Bahasa*, *7*(2), 75. https://doi.org/10.24036/ld.v7i2.10347

Ghanizadeh, A., Al-Hoorie, A. H., & Jahedizadeh, S. (2020). Higher order thinking skills in the language classroom: A concise guide. In *Second Language Learning and Teaching*.

Harris, A., & de Bruin, L. R. (2018). Secondary school creativity, teacher practice and STEAM education: An international study. *Journal of Educational Change*, *19*(2), 153–179. https://doi.org/10.1007/s10833-017-9311-2

Heaton, J. . (1988). *Writing English Language Test. New York Longman* (p.

192). Longman Inc.
Heong, Y. M., Othman, W. B., Yunos, J. B. M., Kiong, T. T., Hassan, R. Bin, & Mohamad, M. M. B. (2011). The Level of Marzano Higher Order Thinking Skillsamong Technical Education Students. *International Journal of Social Science and Humanity*, *1*(2), 121–125. https://doi.org/10.7763/ijssh.2011.v1.20
Johansson, E. (2020). The Assessment of Higher-order Thinking Skills in Online EFL Courses: A Quantitative Content Analysis. *NJES Nordic Journal of English Studies*, *19*(1), 224–256. https://doi.org/10.35360/njes.519
Maley, A., & Peachey, N. (2016). Creativity in the English Language Classroom. In *British Council* (Vol. 70, Issue 3). https://doi.org/10.1093/elt/ccw040
Mohseni, F., Seifoori, Z., & Ahangari, S. (2020). The impact of metacognitive strategy training and critical thinking awareness-raising on reading comprehension. *Cogent Education*, *7*(1). https://doi.org/10.1080/2331186X.2020.1720946
Pang, E. S., Muaka, A., Bernbardt, E. B., & Kamil, M. L. (2020). Teaching Reading. *Teaching Mindful Writers*, 151–162. https://doi.org/10.7330/9781607329374.c017
Perdana, R., Budiyono, Sajidan, & Sukarmin. (2020). Model Pembelajaran ISC (Inquiry Social Complexity) untuk memberdayakan critical and creative thinking (CCT) skills. In *Lakeisha* (pp. 1–108). https://b-ok.asia/book/11172046/445481
Pratama, G. S., & Retnawati, H. (2018). Urgency of Higher Order Thinking Skills (HOTS) Content Analysis in Mathematics Textbook. *Journal of Physics: Conference Series*, *1097*(1). https://doi.org/10.1088/1742-6596/1097/1/012147
Rudibyani, R. B., Perdana, R., Budiyono, Sajidan, & Sukarmin. (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. https://doi.org/10.29333/iji.2020.13430a
Sajidan, S., Saputro, S., Perdana, R., Atmojo, I. R. W., & Nugraha, D. A. (2020). Development of Science Learning Model towards Society 5.0: A Conceptual Model. *Journal of Physics: Conference Series*, *1511*(1), 0–9. https://doi.org/10.1088/1742-6596/1511/1/012124
Schafersman, S. D. (2008). *An introduction to critical thinking*. 1–13. http://www.freeinquiry.com/critical-thinking.html
Setiyadi, B., Sukirlan, M., & Mahpul. (2018). *TEACHING LANGUAGE SKILLS; Preparing Materials and Selecting Techniques* (1st ed.). Graha Ilmu.
Sternberg, R. J. (2006). The Nature of Creativity. *Kybernetes*, *21*(2), 62. https://doi.org/10.1108/eb005923
Sudarwati, Rudibyani, R. B., & Perdana, R. (2020). A Conceptual of Teaching Models Inquiry Social Complexity (ISC). *Journal of Xi'an University of Architecture & Technology*, *XII*(V), 1710–1715.
Tankersley, K. (2003). *Tankersley, K. (2003). The threads of reading: Strategies for literacy development. ASCD.*
Tomlinson, B. (2016). Challenging teachers to use their coursebook creatively. In *ELT Journal: Vol.* (Issue). https://doi.org/10.1093/elt/ccw040
Wallace, M., & Wray, A. (2011). Critical Reading and Writing for Postgraduates.

In *Sage Study Skills*.