THE CORRELATION BETWEEN PERCEIVED CRITICAL THINKING AND READING COMPREHENSION ABILITY

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ABSTRACT

This study aims to find out students' critical thinking skill, students' reading comprehension ability, and the correlation between students' critical thinking and reading comprehension ability. Data were collected from 90 students from the 7th grade of SMPN 1 Ajung, selected from three different classes. To examine the relationship between students' perceived critical thinking skills and their reading comprehension ability at Junior High School 1 Ajung the researcher used quantitative method, specifically survey design. The researcher utilized a questionnaire developed by Mincemoyer and Perkins (2005) to assess students' perceived critical thinking, while the reading comprehension scores were obtained with the assistance of the classroom teacher. The data collected were analyzed using descriptive statistics and the Pearson Product Moment correlation in SPSS 19. The purpose of using the Pearson Product Moment correlation was to determine the relationship between students' critical thinking and their reading comprehension abilities. The findings indicated that students' critical thinking skills were at a moderate level, with scores ranging from 52 to 67. Additionally, the students' scores in reading comprehension were classified as good, falling within the range of 61 to 85. The finding shows that the Pearson Correlation Coefficient between variable students' critical thinking and variable students' reading comprehension, denoted by ($r = 0.542$), indicates a moderate correlation between the two variables. Statistically, there is a correlation between critical thinking and reading comprehension of the seventh-grade students of SMPN 1 Ajung. Overall, this finding has implications for educators who may want to consider incorporating critical thinking skills into reading comprehension instruction to improve students' performance in this area. It also highlights the need for further research to investigate the relationship between perceived critical thinking and reading comprehension in other populations and contexts.

Keywords: correlation, critical thinking, junior high school students, reading comprehension

INTRODUCTION

With the current era of blazing fast technology, information can be delivered to one another in a lot faster way than it ever could. To keep up with it, a set of skills have been initiated and made prioritize, known for the 4Cs. There four aspects

on the 21st century, namely Critical Thinking, Creativity, Collaboration, Communication skills can be included in the field of learning. Learning and innovation skills, as advocated by the Partnership for the Twenty-First Century (2009), are increasingly being recognized as those that distinguish pupils who are prepared for a more complicated life and work environment in the twenty-first century from those who are not. To prepare students for the future, a focus on creativity, critical thinking, communication, and teamwork is required (Frerejean et al., 2019).

The ability to think critically and solve problems allows students to assess the information they encounter on a daily basis, whether it is from the internet, media, or their surroundings such as homes or workplaces. This skillset empowers students to determine the reliability and significance of information, examine and assess it, make logical decisions, and act with intention. (Saputra et al., 2019; Yusuf & Adeoye, 2012). In education, students are expected to critically evaluate information, think through complex problems, and apply innovative solutions to enhance their learning experiences.

One way to enhance the concept of reading comprehension is by utilizing and combining schema theory with principles of critical thinking (Norris and Phillips, 1987; Heidari, 2020). According to their explanation, critical thinking involves the ability to navigate through uncertain or unclear text by generating different possible interpretations, evaluating them based on personal experience and general knowledge, postponing final judgments until more information is obtained, and being open to considering alternative explanations. They conclude that critical thinking is the cognitive process that readers employ to understand the meaning of the text (Heidari, 2020; Paul & Elder, 2006).

The importance of prior knowledge cannot be overstated when it comes to forging links between critical thinking and the comprehension of written material. When readers have a strong foundation of knowledge on a particular topic, they are better equipped to evaluate and analyze new information presented in a text (Gustanti & Ayu, 2021). By using their existing knowledge, they can identify gaps in the text, question the validity of the author's claims, and make informed

judgments about the material presented. This ability to critically comprehend the text is essential in developing a deep understanding of the subject matter (Aloqaili, 2012). Without prior knowledge, readers may struggle to make meaningful connections between ideas, resulting in a superficial understanding of the material. Therefore, it is crucial to build a strong foundation of prior knowledge to enhance critical thinking skills and achieve a high level of comprehension when processing textual information.

In the academic realm, critical thinking is considered to be a fundamental skill that students must develop to achieve success. It is a process that involves the ability to analyze, evaluate, and interpret information in a rational and objective manner. The skill is essential in enabling students to explain their reasoning, solve problems, and make informed decisions. According to Thomas (2011), students cannot acquire critical thinking skills overnight. It is a gradual process that requires continuous practice and effort. The more students exercise their critical thinking skills, the better they become at applying them to various situations (Gray, 2012). Therefore, initiating critical thinking instruction and diagnosing students' critical thinking at the Junior High School level is important.

Forood and Farahani (2013) in their study found no substantial difference in the performance of individuals observed with high and low critical thinking when it came to responding to reading comprehension questions which demand for factual, referential, and inferential understanding. Similarly, Hosseini (2012) conducted research involving 70 Iranian university students, both male and female, who specialized in English Translation and English Literature. The findings demonstrated a correlation between critical thinking ability, reading comprehension, and reading strategy. Both studies underscored the importance of providing critical thinking training to students, particularly with the goal of enhancing their reading skills.

Upon reviewing the existing literature on the subject, it has been evident that studies have consistently demonstrated a connection between critical thinking and reading comprehension, particularly among adult learners. However, limited studies have been conducted to investigate the topic in young beginner learners.

While training critical thinking earlier would be an advantage to teachers and students, it is crucial to investigate this group of learners especially when learning a foreign language (Paul & Elder, 2006; Simanjuntak & Barus, 2020). Hence, the objective of the study was to explore if there exists a significant correlation between students' critical thinking and their reading comprehension at the Junior High School level. The study could help identify factors that contribute to students' reading comprehension, such as their ability to analyze and evaluate information presented in text. Additionally, the study could help educators develop strategies to enhance students' critical thinking skills and reading comprehension abilities, which are both essential for academic success and lifelong learning.

METHOD

The type of research used in this study is correlational descriptive research. Investigating the correlation between student's perceived critical thinking ability and their reading comprehension ability. To investigate the correlation between student's critical thinking skill and their reading comprehension ability at Junior High School 1 Ajung the researcher used quantitative method, specifically survey design. By using quantitative research, the finding was resulted in precise numbers to show the correlation between the two variables.

This research used cluster random sampling because cluster random sampling can be used in education research when it is not possible or practical to obtain a complete list of all elements in the population of interest. In this method, clusters of elements are randomly selected, and then all elements within those clusters are included in the sample. This can be more efficient and cost-effective than other sampling methods, particularly when studying populations that are geographically dispersed. Additionally, cluster sampling can also help to control for the potential effects of clustering on the outcome of interest. The sample size consists of three different clusters with each cluster having 30 students, resulting in total about 90 students total for the sample used.

In this study, a questionnaire based on the work of Mincemoyer and Perkins (2005) was employed to assess students' critical thinking skills. The researcher

adapted the original questionnaire from English to Indonesian language for better suitability. It is done to make it clear and easily understood for the participant. Some items include "1) I think of possible results before I take action, 2) get ideas from other people when having a task to do, and 3) develop my ideas by gathering information" these items are rated in Likert scale from Never to Always.

The data collection process consisted of several steps. Initially, the questionnaire was distributed to the students of SMP N 1 Ajung. The participants completed the questionnaire during a class session, which typically took around 15-20 minutes. Additionally, the researcher obtained the data for students' reading comprehension skills from the scores recorded by the instructor during the learning process.

In this research, two variables are examined: the independent variable, which is students' critical thinking skill, and the dependent variable, which is students' skill in reading comprehension. These variables are subjected to a correlation test to investigate the relationship between them. The correlation test specifically employs the Pearson product-moment correlation coefficient (r) to measure the strength and direction of the correlation between the two quantitative variables. Bivariate correlation analysis was performed to calculate the relationship of the two variables.

The resulting value, r, will be between -1 and 1, with -1 indicating a perfect negative correlation, 0 indicating no correlation, and 1 indicating a perfect positive correlation.

FINDINGS AND DISCUSSION

Critical Thinking

This section of the findings presents the data related to students' critical thinking abilities. The data was collected using a questionnaire designed to measure the perceived level of critical thinking among students.

Table 1.

Occurrences of Statistical Data Related to Students' Perceived Critical Thinking

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Mean	3.21	2.96	3.29	3.82	2.82	3.16	3.29	3.37	3.31	3.34
Median	3	3	3	4	3	3	3	3.5	3	4
Mode	4	3	3	5	3	3	3	4	3	4
	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
Mean	3.21	3.71	3.34	3.24	3.43	3.21	3.09	3.59	3.16	3.78
Median	3	4	4	3	4	3	3	4	3	4
Mode	3	4	4	4	4	3	3	4	4	5

Table 1 displays the mean, median, and mode values. The results obtained from the mean value indicate the existence of varying score ranges. From the table above the researcher was able to determine the strongest and the weakest point from the Critical Thinking Questionnaire. The outcome reveals that the highest mean recorded is 3.82 for question number 4 about students' ability to solve problems by identifying options. Which means on the average the students are good at solving their problems by identifying options first. Developing a strong ability to generate multiple potential solutions when faced with a problem is such a crucial skill in the problem-solving process, as it allows individuals to explore a wide range of possible solutions before selecting the best course of action.

The lowest mean score is 2.82 and can be found on question number 5 about expressing their thoughts on their problem, which means the students on average are having hard times expressing their thought about problems they are currently facing. It suggests that there may be a need to provide students with additional support and resources to help them develop their confident in expressing their thought. This could include offering opportunities for students to practice expressing their thoughts through structured activities or exercises, such as providing them a chance to have feedback at each other on their task from the class.

All things considered, the Critical Thinking in 7th grade students of SMPN 1 Ajung had a satisfactory result with a few notes. Considering the Mode across the questions were 3 to 5 it means that in general the students' capability on Critical Thinking can be considered enough to perfect. Although it is important to note that there are 2 questions that can be considered a little bit lacking and could use some

support. The 2 questions are about getting ideas from others and expressing their thoughts about their problem. Furthermore, the data presented in the histogram provides a visual representation of the distribution of critical thinking scores among the students.

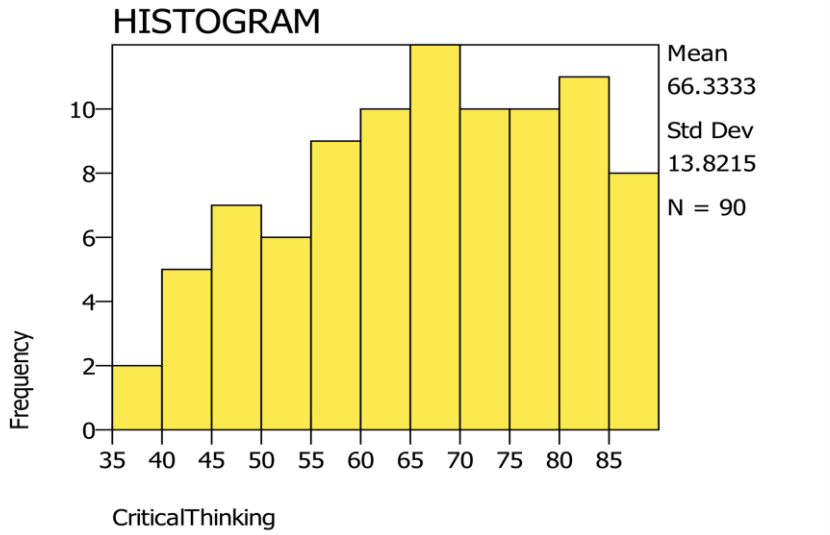

Figure 1.

A Graphical Representation in The Form of a Histogram Illustrating the Distribution of Average Scores for Students' Perceived Critical Thinking.

Figure 1 showcases the outcome of the average mean value for students perceived critical thinking. The result indicates that the average mean value for students perceived critical thinking at SMP Negeri 1 Ajung is 66.33, suggesting a moderate level of perceived critical thinking among the students. There were about 16 students (17.78%) who had a score less than 52 on the perceived critical thinking test which falls into category low and very low. While 28 students (31.11%) fall into the middle category and the rest about 46 students (51.11%) falls into High to Excellent.

While the vast majority of the 7th grade students of SMPN 1 Ajung can be considered capable of doing things in perceived critical thinking manners, the 16 students who fall into the category very low and low could use some help by providing them with a supportive and challenging learning environment that

encourages them to think critically, reflect on their learning, and apply their skills to real-world situations.

The results of this study suggest that the students have developed a strong ability to generate multiple potential solutions when faced with a problem. This is a perceived critical skill in the problem-solving process, as it allows individuals to explore a wide range of possible solutions before selecting the best course of action. The ability to generate multiple potential solutions is particularly important in today's rapidly changing world, where new challenges and problems arise frequently and require innovative and creative solutions.

Furthermore, the strong performance of the students in this study suggests that designing an activity to promote perceived critical thinking should focus on developing skills related to generating and evaluating potential solutions. For example, educators could design activities or assignments that encourage students to generate multiple potential solutions to a given problem and evaluate the pros and cons of each option.

Reading Comprehension

This section presents the data of reading comprehension in a table format, allowing for a structured and organized representation of the various scores and corresponding performance levels.

Table 3.

Students' Score of Reading Comprehension

Classification of students' scores in the area of reading comprehension	Frequency	Percentage
Excellent : 86-100	4	4.44
Good : 61-85	45	50
Satisfying : 50-60	39	43.33
Fair : <50	2	2.22
Total	**90**	**100**

The findings revealed that out of the total students assessed, two students (2.22%) obtained a fair score in reading comprehension, which is below 50. Additionally, thirty-nine students (43.33%) achieved a satisfying score in the range of 50-60. Furthermore, forty-five students (50%) attained a good score in the range of 61-85. Finally, four students (4.44%) demonstrated an excellent score in the range of 86-100 in the reading comprehension assessment. Furthermore, the data presented in the histogram provides a visual representation of the distribution of reading comprehension scores among the students.

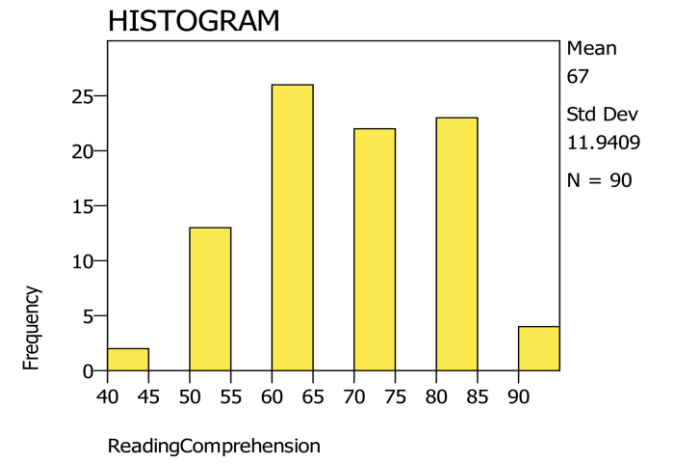

Figure 2.

Histogram of Average Score for Students' Reading Comprehension

The results indicate that a majority of the students achieved a good score in reading comprehension. This conclusion is supported by the mean value, which was

recorded at 67. According to the academic guide, scores falling within the range of 61-85 are classified as good in terms of students' reading comprehension performance. Based on the data, it can be inferred that the majority of the seventh-grade students who participated in the Reading Comprehension assessment demonstrated at least a Good level (above 60) of Reading Comprehension skills. However, there is still room for improvement, as 45% of the students received a grade lower than Good (less than 60).

It is worth noting that their Critical Thinking also plays a part in their Reading Comprehension achievement. Reading Comprehension is not just about comprehending texts, but it also involves critical thinking. This form of thinking process comprises meticulous understanding of information sources (i.e. reading sources), identifying key points, synthesizing, and eventually draw a new conclusion or interpretation. It is a crucial aspect of Reading Comprehension, as it allows students to go beyond the text and understand the deeper meaning and implications of the information presented.

For example, the task would ask about what is the text about, so the students would use their critical thinking process to comprehend reading the text provided. Additionally, they may also draw on their prior knowledge and experiences to make connections and interpretations, and then synthesize all of these elements into a cohesive understanding of the text as a whole. Overall, this process of critical thinking and comprehension is essential for effective reading and learning across a wide range of subjects and disciplines.

Based on Hassani, et al (2013), their study had similar results despite the different on English proficiency level between the two sets of participants (EFL Learners and Junior High School Students), the theory that Critical Thinking is part of Reading Comprehension is still the same across the different age based on the findings from this study.

This indicates that the relationship between critical thinking and reading comprehension appears to be consistent across different age groups, despite variations in their English proficiency levels. Therefore, this study highlights the importance of fostering critical thinking skills alongside reading comprehension

skills, as both are closely interrelated and contribute to effective language learning and cognitive development. The results of this study hold significance for educators and those involved in curriculum development, as they can design and implement instructional strategies that integrate critical thinking and reading comprehension activities to enhance the language learning outcomes of EFL learners.

Correlation between Students' Critical Thinking and their Reading Comprehension

Assessing the normality of the data collection instrument is a crucial step in the research process. It helps determine the extent to which the data deviate from a normal distribution curve in terms of asymmetry. In order to evaluate the normality of the instrument, the researcher employed the descriptive method, conducting three tests: the coefficient of variation, skewness ratio, and kurtosis ratio. The criteria for normality based on the descriptive method are outlined in Table 4.

Table 4.

Student's Perceived critical Thinking Statistics Data

Descriptive Statistics

	N	Mean	Std Dev	Kurtosis	S.E. Kurt	Skewness	S.E. Skew
CriticalThinking	90	66.33	13.82	-.83	.50	-.28	.25
Valid N (listwise)	90						
Missing N (listwise)	0						

The descriptive findings for the variable of students' perceived critical thinking are displayed in Table 3. To assess the normality of the data, various measures including the mean, standard deviation, skewness, standard error of skewness, kurtosis, and standard error of kurtosis were employed. These measures provide insights into the distribution of the data and help determine if it follows a normal distribution pattern. The normality score for the variable of students' perceived critical thinking is presented in Table 4.

Table 5.

Normality for Students' Perceived critical Thinking Data

No.	Parameter	Formula	Result	Normal Criterion	Category
1.	Variant Coefficient	$\frac{SD}{Mean}$ x 100%	20.83%	Variant coefficient <30%	Normal
2.	Skewness Ratio	$\frac{Skewness}{SE\ Skewness}$	-1.12	Ratio value in interval -2 to +2	Normal
3.	Kurtosis Ratio	$\frac{Kurtosis}{SE\ Kurtosis}$	-1.66	Ratio value in interval -2 to +2	Normal

The normality of the data for perceived critical thinking was assessed based on certain criteria. According to the guidelines, data is considered normal if the variant coefficient is less than 30%, and if the skewness and kurtosis ratios fall within the range of -2 to +2. After conducting tests using the variant coefficient, skewness ratio, and kurtosis ratio, it was determined that the data for perceived critical thinking met the criteria for normality. Specifically, the variant coefficient score was 20.83% (<30%), the skewness ratio was -1.12, and the kurtosis ratio was -1.66, indicating that all three scores fell within the acceptable range of -2 to +2.

Table 6.

Student's Reading Comprehension Statistics Data

Descriptive Statistics

	N	Mean	Std Dev	Kurtosis	S.E. Kurt	Skewness	S.E. Skew
ReadingComprehension	90	67.00	11.94	-.75	.50	-.08	.25
Valid N (listwise)	90						
Missing N (listwise)	0						

Table 5 presents the descriptive results for the variable "students' perceived critical thinking" with the measures as shown in the table. These measures were utilized to assess the normality of the data for the variable "students' perceived critical thinking". Table 6, on the other hand, presents the normality scores specifically for the variable "students' perceived critical thinking".

Table 7.

Normality for Students' Reading Comprehension Data

No.	Parameter	Formula	Result	Normal Criterion	Category
1.	Variant Coefficient	$\frac{SD}{Mean}$ x 100%	17.82%	Variant coefficient <30%	Normal
2.	Skewness Ratio	$\frac{Skewness}{SE\ Skewness}$	-0.32	Ratio value in interval -2 to +2	Normal
3.	Kurtosis Ratio	$\frac{Kurtosis}{SE\ Kurtosis}$	-1.5	Ratio value in interval -2 to +2	Normal

The normality of the perceived critical thinking data was assessed based on certain criteria, including a coefficient of variation score below 30% and skewness and kurtosis ratios within the range of -2 to +2. The results of the tests, including the coefficient of variation, skewness ratio, and kurtosis ratio, indicated that the data for perceived critical thinking met the criteria for normality. Specifically, the coefficient of variation score was 17.82% (below 30%), the skewness ratio was -0.32, and the kurtosis ratio was -1.5, all falling within the specified ranges.

The second analysis performed was a test of homogeneity using ANOVA (F test) to examine if the proportions for a variable were equal across multiple samples from different populations. Homogeneity was determined based on a p-value greater than 0.05. The following two tables present the results of the homogeneity test for both the learning environment and students' perceived critical thinking.

Table 8.

Homogeneity of Variances on Students' Perceived critical Thinking

Test of Homogeneity of Variances

	Levene Statistic	df1	df2	Sig.
CriticalThinking	1.08	2	87	.344

According to Table 7, the result of the homogeneity test for Perceived Critical Thinking (Sig) is 0.344. Since the criterion for normality is a p-value greater than 0.05, the obtained p-value of 0.344 indicates that the sampled group is homogeneous (0.344 > 0.05).

Table 9.

Homogeneity of Variances on Students' Reading Comprehension

Test of Homogeneity of Variances

	Levene Statistic	df1	df2	Sig.
ReadingComprehension	1.80	2	87	.171

According to Table 8, the result of the homogeneity test for Reading Comprehension (Sig) is 0.171. Since the criterion for normality is a p-value greater than 0.05, the obtained p-value of 0.171 indicates that the sampled group is homogeneous (0.171 > 0.05). To examine the correlation between students' perceived critical thinking and their reading comprehension at SMP Negeri 1 Ajung, the researcher conducted a statistical analysis in SPSS 19 using the Pearson Product Moment correlation coefficient (r). The scoring range, as defined by Creswell (2012), was divided into five categories: very weak (0.0 – 0.20), weak (0.21 – 0.40), moderate (0.41 – 0.60), strong (0.61 – 0.80), and perfect (0.81 – 1.00). The correlation findings are presented in the table below:

Table 10.

Correlations Result

Correlations

		CriticalThinking	ReadingComprehension
CriticalThinking	Pearson Correlation	1.000	.542
	Sig. (2-tailed)		.000
	N	90	90
ReadingComprehension	Pearson Correlation	.542	1.000
	Sig. (2-tailed)	.000	
	N	90	90

The Pearson Product Moment correlation was used to calculate the statistical relationship between students' critical thinking and reading comprehension. According to the data, the Pearson correlation coefficient between "students' perceived critical thinking" and "students' reading comprehension" is r = 0.542. According to Creswell (2012)'s criteria for evaluating and interpreting correlation coefficients, this correlation is moderate. As a result, the alternative hypothesis (Ha) that there is a statistically significant link between perceived critical thinking and reading comprehension among seventh-grade students at SMP Negeri 1 Ajung is accepted. The null hypothesis (H0), on the other hand, is rejected. The null hypothesis suggests that there is no significant beneficial link between critical thinking and reading comprehension among SMP Negeri 1 Ajung seventh-grade students.

Creswell (2013) defines a moderate connection as a correlation coefficient value of 0.542 between students' reported critical thinking and their reading comprehension. This indicates that a relationship exists between the two variables, but it is not as strong as it would be if the correlation coefficient was closer to 1.0.Finally, the findings of this study are important for educators and those interested in curriculum creation. Given the importance of perceived critical thinking in reading comprehension, educators must incorporate perceived critical thinking teaching into their reading comprehension curriculum. This can be accomplished by employing critical thinking-promoting teaching tools such as questioning, problem-solving, and analysis.

Based on the finding of a correlation between students' perceived critical thinking and their reading comprehension, it has been established that there is a statistically significant relationship between students' perceived critical thinking

and their reading comprehension. Hassani et al. (2013) have also found similar results in their study on this subject. They further emphasize that recent theories propose critical thinking as a crucial skill for effectively processing information and acquiring knowledge. Students who are more skilled at critical thinking tend to be better readers, and that this relationship holds across a variety of different texts, tasks, and contexts. They suggest that teaching critical thinking skills such as analyzing, evaluating, and synthesizing information can help students activate and adjust their existing knowledge frameworks, leading to deeper comprehension of texts.

According to Norris and Phillips (1987), critical thinking plays a crucial role in activating and constructing schema, as it involves contrasting ideas, engaging in reflective thinking, and filling in missing connections in texts. McNeil (1992) argues that schema theory, which emphasizes an interactive approach to reading comprehension, highlights how crucial teaching techniques are such as making inferences, activating prior knowledge, and using critical thinking skills. Tierney and Pearson (1986) state that schema theory has shifted the focus from reproducing ideas to a constructive view of reading, where the reader actively constructs meaning. Additionally, Yu-hui et al. (2010) and Aloqaili (2005b) note that schema theory recognizes the interactive process between readers' prior knowledge, critical thinking, and inference-making, which influences the comprehension of text. These studies collectively support the notion that critical thinking has a strong correlation to reading comprehension, as it aids in the activation and construction of schema to enhance understanding.

In order to improve reading comprehension, educators can focus on teaching critical thinking skills such as analysing, evaluating, and synthesizing information. These skills allow students to not only understand the literal meaning of a text but also to draw connections, make inferences, and evaluate the quality and reliability of the information presented. By activating and adjusting their existing knowledge frameworks, students can delve deeper into the meaning and implications of the text, leading to a more profound understanding.

Broek and Kremer (2000) established a link between inference-making, critical thinking, and the enhancement of reading comprehension. They proposed that skills related to making inferences and reasoning are intertwined with other characteristics and abilities that influence text comprehension. According to Broek and Kremer (2000), successful readers possess the ability to make inferences and use skills to reasoning to build meaningful links between the information presented in the text and their existing background knowledge. A key aspect of these skills involves understanding the nature of inferential or causal/logical relationships and identifying or constructing them if required to shape a coherent mental representation of the passage.

In conclusion, the ability to think critically is an essential component of reading proficiency. By teaching critical thinking skills, educators can help students improve their reading comprehension and develop the tools necessary to succeed in various contexts, both in and outside of the classroom. Overall, this finding has implications for educators who may want to consider incorporating critical thinking skills into reading comprehension instruction to improve students' performance in this area. It also highlights the need for further research to investigate the relationship between perceived critical thinking and reading comprehension in other populations and contexts.

CONCLUSION

The results of this study indicate that critical thinking plays a vital role in reading comprehension as it enables students to analyse, evaluate, and synthesize information, leading to a better understanding of the text. These skills are particularly valuable in today's global society, where individuals need to critically assess complex information to make informed decisions. However, it is important to note that this study has limitations, including its focus on a single school in a specific region and a limited sample size of 7th-grade students, which may restrict the generalizability of the findings. In conclusion, this study emphasizes the significance of perceived critical thinking skills in enhancing students' reading comprehension and suggests implications for educational practices and policies to

improve students' academic achievements and prepare them for success in the contemporary world.

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