

Applying the Cornell Note-Taking Method to Enhance Reading Comprehension for High School Students



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ABSTRACT: Reading comprehension requires simultaneous information extraction and meaning construction, involving active text engagement. However, most high school students have difficulty understanding and effectively remembering the text they have read. This study evaluated the impact of the Cornell note-taking method on the reading comprehension of 11th-grade students at Ngo Quyen High School. The research design included an experimental group applying the Cornell note-taking method on reading materials and a control group using conventional reading strategies. The methods were assessed through pre- and post-tests. The results indicated that the experimental group outperformed the control group in reading comprehension scores, showing a significant improvement. In addition, to analyze students' attitudes toward this method, the researcher surveyed questionnaires and interviews. It was concluded that the Cornell note-taking method should be integrated into instruction to help learners understand complex reading materials. The impact of this method on student achievement needs further study to understand its application in other subjects.

KEYWORDS: Reading; Reading comprehension; Cornell note-taking; High school students.

I. INTRODUCTION

The widely used global language is English, it is commonly applied in many fields such as technology, science, education, entertainment, economics, culture, etc. Countries worldwide prioritize English education to prepare students to become global citizens and enhance their competitiveness in the international labor market (Crystal, 2012) [1]. The need for effective reading comprehension teaching and learning is becoming increasingly urgent as Vietnam strives for global integration. Through teaching practices, researchers have found that many students have difficulty in reading comprehension, leading to low reading efficiency. This not only affects reading ability but also hinders the development of other language skills, especially writing and speaking skills (Nga, M. T. T., Huong, T. T. T., & Van, T. T. (2023) [2]. According to Van Van, H. (2022) [3], the 2018 education reform emphasizes the development of students' reading comprehension as part of English proficiency, which is now a compulsory subject from grades 3 to 12 (MOET). This reform acknowledges that understanding what we read is not something that happens naturally just by learning a language it's a core part of truly mastering it, shaping students' academic success and future careers. Nguyen, T. L. (2019) [4] stated that students often have difficulty understanding complex passages because they are not exposed to a variety of reading strategies and do not have the appropriate practice to apply the strategies accurately and effectively. To meet these requirements, effective teaching strategies are needed to develop reading comprehension. One such method is the Cornell note-taking system created by Dr. Walter.

The above context raises current needs and challenges in reading comprehension instruction. This study examines the English reading comprehension skills of 30 students from class 11A10 at Ngo Quyen High School, assessing their current level and progress after applying the Cornell method. The primary objective is to find out how useful this method is in improving the reading ability of students. The study is limited in scope, focusing solely on the effects of the Cornell note-taking method on reading comprehension, without addressing other language skills. Furthermore, the study also considers students' attitudes toward this method. The results of the study provide a realistic perspective on students' acceptance of the Cornell method. Thereby, helping to develop more effective reading comprehension teaching methods in Vietnam.

II. LITERATURE REVIEW

The concepts of reading

Reading constitutes one of the linguistic competencies used to assess the proficiency of EFL students. According to Yurko & Protsenko (2022) [5], the most common method to learn and memorize a language is reading, which is more effective because it allows people to acquire essential life skills. Ratna Sari & Fitrisia (2022) [6] stated that reading is the main activity in any language

Applying the Cornell Note-Taking Method to Enhance Reading Comprehension for High School Students

learning process because reading is the main source of information, it also helps students build vocabulary, understand language structures, and develop general language competence.

Reading comprehension

Aids & Lists (2021) [7] asserts that reading comprehension is grasping and understanding the meaning of what you are reading. It is not just about receiving surface information but also understanding and analyzing the ideas and messages that the author wants to convey. Elleman and Oslund (2019) [8] argue that reading comprehension plays an important role in helping readers deeply understand the content of the material. Comprehension is the result of the reading process, requires connection, and using appropriate vocabulary to create clear meaning. Without comprehension, reading cannot be considered a complete activity. Reading comprehension and the reading process are interdependent, just like social relationships. In summary, current research suggests that reading comprehension is understanding a text by recognizing the author's message and extracting relevant information. This requires familiarity with vocabulary, background knowledge related to the text, and motivation.

Attitudes

Morgan (in Maya, 2015:5) [9] defines attitudes as a tendency to respond positively or negatively toward certain objects, people, or situations. According to Ajzen, I., & Klobas, J. (2013) [10], attitudes influence how an individual perceives, feels, and acts toward a particular object or situation. These evaluations are formed through personal experiences, beliefs, and emotional responses, all of which combine to shape a person's actions and decisions. Thus, attitudes are a complex combination of three factors: beliefs, emotions, and behaviors that directly influence how students respond to specific learning methods. In this study, students' attitudes toward the Cornell approach serve as a key factor in evaluating its effectiveness in enhancing reading comprehension.

The Cornell note-taking method

“The Cornell note-taking method” or “Cornell method”, was developed by Walter Pauk, a prominent educator, and director of the Center for Reading and Learning at Cornell University. Pauk created this method in the 1950s in response to a desire to help students better organize and retain information. Al-Gazho (2023) [11] reported that the Cornell method was developed to allow students to organize their notes clearly and concisely. The method is built on a well-defined structure, divided into three sections—a keyword/question column, a main note column, and a summary section—which allows students to take notes and saves them time when reviewing notes. The Cornell note-taking method is a systematic approach to this study, an active learning method that enhances comprehension while reading.

Steps in the process of applying the Cornell note-taking method

The Cornell note-taking method has a process described by Pauk & Owens (2014) [12] which contains six steps.

Step 1 - Divide notes into two columns and write down key concepts in points.

Step 2 - Use the left column to track the questions or the main ideas to help you remember.

Step 3 - Recite by taking detailed notes and recording information using prompts.

Step 4 - Reflect on how to connect the new knowledge to previous learning and practical applications.

Step 5 - Summarize the notes. This should be about 2-3 sentences long and capture the core idea of the reading material.

Step 6 - Review regularly (at least once a week) and reread the summary to reinforce key concepts.

The advantages and disadvantages of applying the Cornell note-taking method

Sholikhah (2019) [13] states that the Cornell note-taking method provides many practical benefits, helping students not only retain information better but also gain a deeper understanding of the learning content. This structure helps students avoid feeling overwhelmed by long and complex texts. Students actively engage with the content by creating questions in the prompt column rather than passively taking notes. The summary at the end of each page encourages students to synthesize the material in their own words, increasing retention. This form of self-assessment helps students assess their understanding and focus on areas that need more attention. Writing summaries and constructing questions encourages higher-level thinking, where students not only memorize facts but also understand concepts, see relationships between ideas, and apply knowledge. Besides, the Cornell note-taking method also has certain limitations. One of the biggest disadvantages of this note-taking method is that it is not suitable for visualizing information. Dividing a page into columns, writing information in the main column, and then adding hints in the left column along with a summary at the bottom of the page requires time and effort. Sholikhah (2019) points out there are two main difficulties that students may encounter when applying this method. Firstly, students with limited vocabulary may not know the exact meaning of vocabulary in the text. Secondly, students with weak grammar may have difficulty forming grammatically correct questions in the keyword/question column. Furthermore, the Cornell method can also be considered quite rigid for some students because of its rigid structure, thus making learning quite difficult for them.

III. METHODOLOGY

Research objectives and procedures

A number of 30 students from class 11A10 at Ngo Quyen High School participated in the study and were divided into two groups. The treatment group consisted of 15 students, who were instructed to apply and practice the Cornell note-taking method, while 15 students in the comparison group continued to utilize the traditional method without applying Cornell notes, only focusing on

Applying the Cornell Note-Taking Method to Enhance Reading Comprehension for High School Students

answering questions and finding main ideas. The study was carried out over eight weeks. In week 1, the researcher assessed the initial reading comprehension of the two groups (experimental and control) through a 45-minute pre-test consisting of 25 questions, consisting of three levels: literal comprehension, inferential comprehension, and evaluative comprehension. From weeks 2 to 7, the experimental group applied the Cornell note-taking method, while the control group studied traditionally. Both groups used the same materials, but the experimental group was instructed to take systematic notes, summarize, and reflect weekly. The test lasted 45 minutes and was conducted during the last class period of week 8. All students from both groups took the same test to ensure objectivity and fair comparison.

Table 1: Design of the study

Control group	Pre-test: Conduct a test to help researchers assess students' current reading comprehension level.	No intervention	Post-test: measure learning outcomes without applying the Cornell note-taking method.
Experimental group	current reading comprehension level.	The Cornell note-taking method is applied in this stage.	Post-test: evaluate the impact of the Cornell note-taking method on reading comprehension.

Data collection instruments

Data were primarily collected through tests, interviews, and questionnaires.

A test is a structured mechanism that can be used in educational research to assess a student's aptitude, proficiency, or expertise in a particular subject area (Ali, M. M., & Hamid, M. O. 2020) [14]. Tests were the primary method of assessing a given outcome to assess participants' reading comprehension before and after the Cornell method intervention in this study.

Brinkmann, S., 2016 [15] assumes that an interview aims to generate rich, in-depth, and meaningful data from the participant through a conversational atmosphere in which the interviewee feels encouraged to speak freely. Interviews are particularly effective in capturing students' attitudes—what they feel, believe, and perceive when applying the Cornell method.

A questionnaire is a systematic tool for collecting data through a series of questions (Dörnyei, 2007) [16]. The main purpose of a questionnaire is to collect a record of respondents' opinions, attitudes, behaviors, or judgments concisely and efficiently.

Data analysis method

Normality test: It helps find out whether the sample data accurately describes a normally distributed population. The researcher employed the t-test with the following hypotheses: Alternative hypothesis (H_a), the Cornell note-taking method has a significant impact on reading comprehension. Null hypothesis (H_0), Cornell note-taking method does not affect reading comprehension significantly. If the p-value ≥ 0.05 , the alternative hypothesis is accepted and the null hypothesis is rejected; if the p-value < 0.05 , the alternative hypothesis is rejected and the null hypothesis is accepted, indicating that the method does not make a significant difference (Ade Saputri, 2020) [17].

Homogeneity test: It was conducted after determining that the figures collected from the pre-test and post-test in both groups followed a normal distribution. According to Agustian, M. F. 2023, if the p-value ≥ 0.05 , the variance between the two groups is homogenous; if the p-value < 0.05 , this indicates that the variance between the two groups was heterogeneous.

Paired samples t-test: This statistical method compares two related groups' means to see if there are any statistically significant differences between them. The null hypothesis (H_0) in this test asserts that the mean scores of the two groups do not differ significantly. The alternative hypothesis (H_a), on the other hand, asserts that a significant difference exists. "The null hypothesis (H_0) is accepted if the p-value (Sig.2-tailed) is higher than the significance level ($\alpha = 0.05$), suggesting that there is no discernible difference between the groups. If the p-value (Sig.2-tailed) is less than $\alpha = 0.05$, the alternative hypothesis (H_a) is accepted, demonstrating that the Cornell note-taking method effectively improved students' reading comprehension" (Larner, A. J. 2014) [18].

IV. FINDINGS AND DISCUSSIONS

Compare the test results

As stated in Figure 1, most students' scores improved after the post-test, demonstrating a positive impact of the intervention. In contrast, Figure 2 indicated there was no improvement in scores in any significant way between the tests, with some students even showing a decrease in scores.

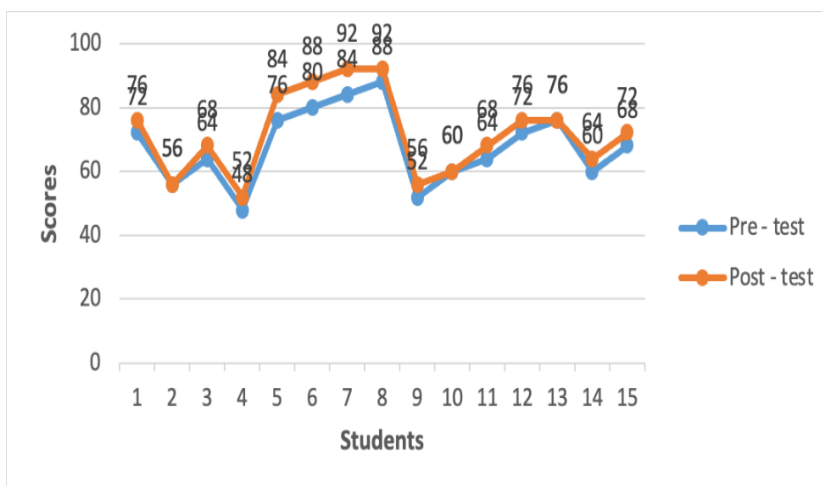


Figure 1. The outcome of the experimental group's students' scores

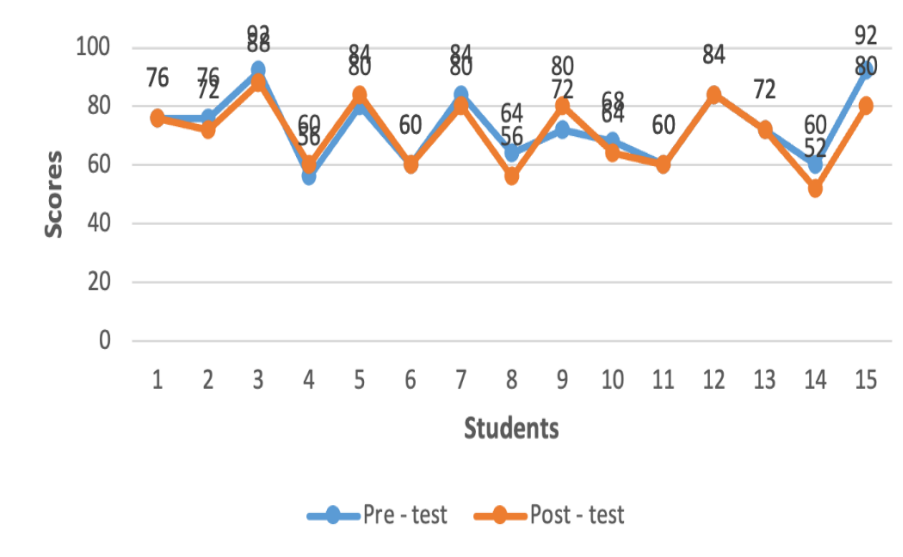


Figure 2. The outcome of the control group's students' scores

The bar chart compares the average scores of the pre-test and post-test for both the treatment and comparison groups. In the treatment group, the post-test score was significantly higher than the pre-test, demonstrating a clear improvement after the intervention. Conversely, in the comparison group, the post-test score was lower than the pre-test, suggesting no improvement or even a potential decline in learning outcomes.

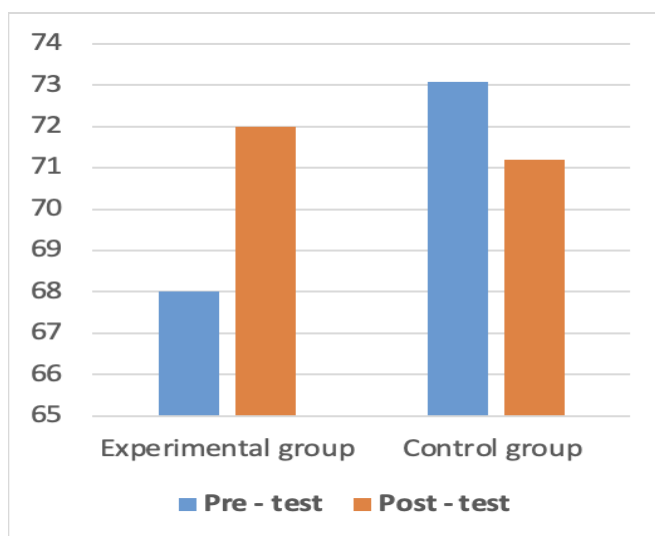


Figure 3. The average score of pre-and post-test

Applying the Cornell Note-Taking Method to Enhance Reading Comprehension for High School Students

Descriptive statistics regarding the reading comprehension of the pupils

In the pre-test, the experimental group's standard deviation (11.711) and the control group's (11.756) were nearly identical, as shown in Tables 2 and 3. This indicates that students in the two groups had comparable score differences before the intervention. In the post-test, the experimental group had a standard deviation of 13.093, indicating an increase in score dispersion. While the standard deviation of the control group reduced slightly to 11.632.

Table 2: The experimental group

Pre-test Experimental	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
Student scores	15	48	88	68	3.024	11.711
Valid N (listwise)	15					
Post-test Experimental	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
Student scores	15	52	92	72	3.381	13.093
Valid N (listwise)	15					

Table 3: The control group

Pre-test Control	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
Student scores	15	56	92	73.067	3.035	11.756
Valid N (listwise)	15					
Post-test Control	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
Student scores	15	52	88	71.2	3.003	11.632
Valid N (listwise)	15					

The results of the normality test, homogeneity test, and paired samples t-test

The experimental and control groups' score data were shown to be normally distributed (Sig. > 0.05) both before and after the test in Tables 4 and 5. This indicates that both classes' data were widely dispersed.

Table 4: Normality test when conducting the pre-test

Pre-test scores	Shapiro-Wilk		
	Statistic	df	Sig.
Experimental group	.947	15	.973
Control group	.924	15	.389

Table 5: Normality test when conducting the post-test

Post-test scores	Shapiro-Wilk		
	Statistic	df	Sig.
Experimental group	.947	15	.474
Control group	.924	15	.219

Applying the Cornell Note-Taking Method to Enhance Reading Comprehension for High School Students

The Levene test results showed that the variance between the two groups was homogenous. Both before and after the experiment, there was no discernible change in variance between the experimental and control groups, as indicated by the Sig. of the pre-test (0.975) and post-test (0.780), which were both greater than 0.05.

Table 6: Test for homogeneity of variance

	Levene Statistic	df1 (Experimental group)	df2 (Control group)	Sig.
Pre-test	.001	1	28	.975
Post-test	.080	1	28	.780

As stated in Table 7, the Sig. (2-tailed) value = 0.000 (< 0.05), the alternative hypothesis (H_a) was accepted, proving that the Cornell note-taking method effectively enhanced the reading comprehension of students in the treatment group. Conversely, the Sig. (2-tailed) value = 0.187 (> 0.05) indicated that the control group's test results did not differ significantly from one another.

Table 7: T-test for paired samples in the experimental and control groups

Paired Samples Test								
	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 Pre_test - Post_test	-4.00000	2.61861	.67612	-5.45014	-2.54986	-5.916	14	.000

Paired Samples Test								
	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 Pre_test - Post_test	1.86667	5.20805	1.34471	-1.01746	4.75079	1.388	14	.187

The results of the questionnaire

The pie chart shows the level of interest of students in using the Cornell method in the experimental group. The majority of pupils (66.67%) were interested in using the Cornell method. Meanwhile, 13.33% were very interested, 13.33% were moderately interested, and only 6.67% were not interested. This shows that this method is positively evaluated in supporting reading comprehension for high school students.

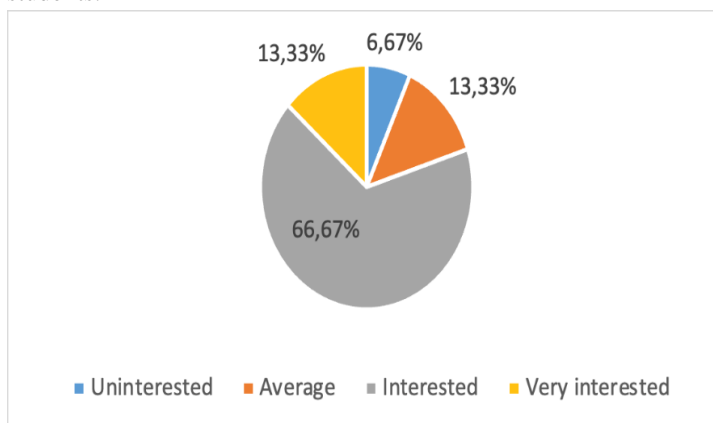


Figure 4: Students' interests in applying the Cornell method

From the survey, it was noted that a considerable number of students picked the options "Strongly Agree" and "Agree," with 3 and 5 students respectively, who also felt that this method helped them in organizing and recalling information efficiently. Moreover, 8 students strongly agreed that this method helped them connect new knowledge with previously learned knowledge, supporting vocabulary expansion. The majority of students also thought that this method was easy to use, with 10 students choosing "Strongly Agree". However, some students held a neutral view or did not see the impact of this method on their ability to understand lessons

Applying the Cornell Note-Taking Method to Enhance Reading Comprehension for High School Students

and learning outcomes, as shown by the percentage of students choosing "Neutral" in some questions. Notably, 3 students disagreed that this method helped them understand learning materials better.

Table 8: Evaluation table of improvement in reading comprehension when applying the Cornell note-taking method for the experimental group according to the Likert scale.

Statements:	Levels of agreement				
	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
1. The Cornell note-taking method helps me organize and remember information effectively.	3	5	5	2	0
2. The Cornell note-taking method helps me connect new knowledge to what I have learned previously and learn more new words.	8	4	2	1	0
3. The Cornell method enhances my comprehension of study materials.	2	4	5	1	3
4. The Cornell note-taking method is easy to apply.	10	1	2	2	0
5. The Cornell note-taking method reduces stress when reviewing for exams.	3	6	5	1	0
6. Applying the Cornell note-taking method has improved my learning outcomes.	4	3	6	2	0

V. CONCLUSION AND RECOMMENDATIONS

Conclusion

Pre-test data showed that the current reading comprehension level of 30 grade 11 students at Ngo Quyen High School was low when it came to understanding advanced text sources. A large percentage of them were not in the Very Good group, while the Fairly Good group dominated. Many students could not understand questions, summarize key points, and recall information due to poor reading techniques.

After six weeks of treatment, students inside the experimental organization making use of the Cornell method could summarize, recall key points, and analyze the textual content higher than the control group. On the contrary, students within the control group read and answered questions passively instead of actively participating in the text because they did not use a clear format and content structure for their notes. This illustrates that structured notes enhance reading comprehension.

Participants' opinions of the Cornell method were positive. Most learners in the experimental group felt that the Cornell method helped them organize and integrate information. In contrast, individuals inside the control group who did not use Cornell notes reported that they had more difficulty processing and retaining information.

Due to time constraints, the examination was performed on a small pattern of 30 students from a class at Ngo Quyen High School, making this finding may not be fully generalized at a broader level. The researcher hopes that in the future it can expand other aspects of language to consider the broader impact of Cornell's note-taking method on the general language level. Although there are some limitations, this study makes a meaningful contribution to the field of English education by providing evidence that structured notes can enhance reading comprehension in a non-native English-speaking environment like Vietnam. The results of this study can be an orientation for teachers who want to implement creative strategies to improve student's learning achievement. The study also offers treasured insights for educators and policymakers concerned with the application of organized learning methods in literate activities. To sum up, The Cornell note-taking method has been shown to significantly enhance reading comprehension in high school students. Compared to traditional techniques, this method greatly assists students in understanding and recalling information. Considering the benefits, the researcher recommends incorporating this method into the framework of

Applying the Cornell Note-Taking Method to Enhance Reading Comprehension for High School Students

regular reading instruction to further improve student achievement. Furthermore, the execution of the Cornell method may be very effective in improving students' overall English proficiency.

Recommendations

This leads to several recommendations made by the researcher. Firstly, educators should incorporate the Cornell method into their coaching and provide pupils with samples of how the Cornell method is applied. Traditional methods are not always sufficient to develop critical reading skills, so integrating the Cornell note-taking strategy may provide students with a more structured and effective way to approach complex reading materials. Secondly, teachers should select and structure reading topics that are appropriate to their students' levels to help them identify key points, summarize, and organize information systematically. Thirdly, because some students may have difficulty with a rigid note-taking format, it is recommended to combine different methods to accommodate different learning styles. Ultimately, more studies are necessary to examine the long-term effect of the Cornell note-taking method on academic achievement and compare its effectiveness with other note-taking strategies. Despite offering important findings, this study is important to recognize its limitations, and future research could focus on refining its applicability in different educational contexts. For example, expanded sample groups or varied student populations could enhance a more comprehensive insight into the advantages of this approach.

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Applying the Cornell Note-Taking Method to Enhance Reading Comprehension for High School Students

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