EEJ 13 (3) (2023) 422-429

English Education Journal

http://journal.unnes.ac.id/sju/index.php/eej

Metacognitive Think-Aloud Strategy for Reading Comprehension in Vocational High Schools with Varying Student Anxiety Levels

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Article Info

Article History:
Accepted 30 March 2023
Approved 8 June 2023
Published 15 September 2023

Keywords:
metacognitive think aloud, reading comprehension, students' anxiety

Abstract

Implementing effective strategy to teach reading comprehension is a must in order to overcome students' obstacles in comprehending text. This study focuses on the effectiveness of Metacognitive Think a Loud Strategy in reading comprehension with different students' anxiety. This study used quantitative research with a quasi experimental design. The data collection was done by using test and questionnaire to the students and conducted the pre-test and post-test. Then, to measure the data was analysed by using t-test in SPSS. The result of this study was that there was a significant effect of Metacognitive Think a Loud Strategy in teaching reading comprehension. There is a significant different between pre-test and post-test score of experimental class that using Meacognitive Think a Loud Strategy and there is significant different between experimental class and control class. Based on the data, it can be concluded that Metacognitive Think a Loud Strategy is effective in teaching reading comprehension with different students' anxiety.

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p-ISSN 2087-0108
e-ISSN 2502-4566

INTRODUCTION

Students' reading comprehension is currently not in line with expectations. In reading, students should understand the meaning of the text both implicitly and explicitly. Reading comprehension is an important element in reading because readers who lack reading comprehension skills are unable to understand what they read because they are unable to synthesize the message in the text (Burhansyah et al., 2022). Gilakjani and Sabouri (2016) stated that a primary objective of reading comprehension aid students in improving their skills Reading comprehension is developed once a person decodes information, making it understandable to others (Perfetti & Stafura, 2014). While, Oakhill et al. (2014) defined reading comprehension are complex activities that include reading skills and understanding them.

There are severals factors that make student cant achieve their goal. One of them is anxiety. As described in Oxford (1998) cited in Pratiwi and Analido (2018), the students' anxiety can be identified from the physiological symptoms and students' behavioural responses when the learner learns a foreign language. Students sometimes unconfident to read English text do not understand the content of reading text because of lack of vocabulary, they afraid to ask the teacher if they don't understand. If students do assignments or tests, students can understand the core of the text; can not determine main idea of the text, difficult to find further information of the text. So that, the students can not makes conclusions of the text. The students' competency influences the cognitive and emotional process that occurs during the students learning English. The students' anxiety makes them like to underestimate themselves, due to feeling afraid, frustrated, shy, worried, and nervous to do the interaction in English classes. These things are classified as psychological problems that provoke students' anxiety Umisara et al. (2021). If anxiety occurs in the learning process at school, such as doing tests, school assignments. Some students who have good cognitive abilities are able to absorb lessons well. Students with poor cognitive abilities still try to learn as much as possible with their competencies. Activities like this ignore the process and behavior of students during learning at school. Hence, teacher should be creative and selective to choose appropriate strategy that will be applied in learning process to improve students' skill Yunilita et al. (2019). Teaching strategy that aim to actively involve students in class, it can be increased students' participation and make student enthusiastic in learning process Crookes et al. (2013).

One of the strategies that can be used in reading comprehension is the Think-Aloud strategy. The think-aloud strategy had been firmly attached to the reading aspect, and many researchers have written about the effectiveness of this strategy. Darling-Hammond et al. (2015) have clarified that reading Aloud strategy helps hard readers understand the text. According to Sönmez and Sulak (2018), the think aloud strategy is a strategy in which the teacher vocally expresses their thought to students while reading a text in order to improve their awareness during the comprehension process. Meanwhile, Richards and Vacca (2011), there are five key steps involved in implementing the Think-Aloud Strategy once a group has been formed. Firstly, students are encouraged to develop hypotheses by making predictions about the text they are reading. Secondly, they should strive to create mental images based on the information presented in the text. Thirdly, students are advised to establish connections between their prior knowledge and the new information they encounter, employing analogies to aid in comprehension. Moreover, students should actively monitor their understanding of the material by providing explanations for any points of confusion or contradiction. Finally, students are encouraged to organize their comprehension by employing various strategies. These steps collectively form a comprehensive framework for utilizing the Think-Aloud strategy in teaching metacognitive skills. The thinking-aloud strategy, which includes both teachers' and students' thinking-aloud processes, helps to develop

individual comprehension skills. This also stated by Cabinda (2019) think a loud is reliable and trusted research tool in the context of SLA and FL to investigate and identify students' reading comprehension.

Several studies have been conducted about the implementation of the Think Aloud Strategy. A study conducted by Barjesteh (2010) on the reading comprehension skills of Iranian EFL readers found that the think-aloud strategy improved students' ability to monitor their comprehension during the reading process and developed student's fix-up strategy when they encountered difficulty comprehending the text. In addition, Xiao (2016) found that the think aloud strategy successfully increased students' vocabulary deficiencies as well as their metacognition knowledge when she investigated the impact of the think aloud strategy on improving poor readers' vocabulary in China. Mockel (2013) investigated the effect of using the Think Aloud protocol on students' ability to learn from the text in a secondary science classroom, while reading an informational text. The participants are high school students. The findings provided evidence that the Think Aloud protocol improved the students' ability to read and understand a scientific text. This study was considered different from those previous studies mentioned in the matter of the materials used and of the test instruments used during the data collection process.

The objective of this study is to analyze metacognitive think a loud strategy in students' reading comprehension. Using metacognitive think aloud strategy in teaching reading comprehension has many benefits for vocational high school students with different levels of anxiety. This strategy helps students to monitor and improve their own comprehension process by verbalizing their thoughts while reading. It also teaches students to use various metacognitive strategies, such as making predictions, creating mental images, establishing connections, observing contradictions, and demonstrating understanding. Furthermore, this strategy reduces students' reading anxiety by increasing their confidence and motivation in reading challenging texts. Lastly, this strategy enhances students' reading achievement and performance by developing their critical thinking and problem-solving skills. Metacognitive Think a Loud Strategy as alternative strategy in learning process particularly dealing with reading comprehension. And hopefully, this strategy can build students confident and student can more critical and contribute during learning process because this strategy encourage students' thinking.

METHOD

This study belonged to quantitative research with a quasi-experimental design. Broadly, this study is categorized as quantitative by using mathematically based methods in particular statistic Muijs & Reynolds (2004). Meanwhile, the experimental design becomes research methodologies that might be used to establish a cause and effect relationship among variables (Fraenkel, 2012). Subject of this study is the first grade of PUI Gegesik Senior Vocational High School in Cirebon. Specifically in Visual Communication Design class. They are VCD 2 & VCD 3 that consist of 29 students in each class.

This study used two instruments to collect the data. They are test and questionnaire. The test was conducted to measure students' reading comprehension and the questionnaire was used to classify students' anxiety level. The test is divided into two parts namely, pre-test and post-test from two groups. The pre-test was done to know students' achievement in reading comprehension before the treatment was given and the post-test proposed to know whether think a loud strategy was effective or not to teach reading comprehension. The test was in form of multiple choices questions followed by reading passages which genres were in line with the curriculum served. The questionnaire was designed to figure out students' anxiety level and students' perception toward metacognitive strategies and reading comprehension. The questionnaires consist of a question or a statement in which the students respond by selecting one or more choices, such as: always,

very often, often, seldom, and never. The Questionnaire consists of 10 question items. Each item has a numerical value according to Likert scale, for example: 1 = Always, 2 = Very Often, 3 = Often, 4 = Seldom, 5 = Never.

In this present study to find a range that is included in the high and low categories using statistical method. The statistical method used to find out the size of the Hypothetical Mean and Standard Deviation is based on the number of items, the maximum score, and the minimum score for each answer. The categories used in this study use categorization based on the normal distribution model. The normal distribution is divided into six parts or six standard deviation units. According to Azwar (2003), research data analysis was carried out with the help of statistics from the data that has been analyzed, which includes the number of subjects (N) in the group, Mean scale score (M), minimum score (Xmin), maximum score (Xmax) and other statistics deemed necessary in research.

The following is a general overview of statistical calculations to determine high and low ranges. According to Azwar (2012).

Table 1. High and Low Categories

Low	$X < M - 1SD$
High	$M + 1SD \leq X$

Explanation:
X = total score
M = mean
SD = standard deviation
Calculation as follow:

Xmin = 10
Xmax = 50
Range = $X_{max} - X_{min}$
= 50-10
= 40
Mean = $(X_{max} + X_{min}) / 2$
= 50 + 10 / 2
= 30
SD = Range / 6
= 40 / 6
= 6,7 (rounded up to 7)

Thus, after obtaining Mean and Standard Deviation values. The following is categorization based on the guidelines.

Tabel 2. Result of High and Low Categorization

Low	$X < M - 1SD$
	$X < 30 - 7$
	$X < 23$
High	$M + 1SD \leq X$
	$30 + 8 \leq X$
	$\leq X$

To collect the data required for the study, the experimental class underwent a pre-test and a post-test of reading comprehension. The students also answered questionnaires to measure their anxiety levels. Between the tests, the students learned and applied the Metacognitive Think Aloud strategies by Richards and Vacca (2011). These strategies involved making predictions based on titles and sub-headings, visualizing the text information, using analogies to connect prior knowledge, controlling, and verifying doubtful or difficult information, and continuing to read despite confusion. The post-test was used to compare the students' reading comprehension before and after the intervention.

Broadly, the whole process of numerical data analysis was conducted with the assistance of SPSS v23.0. Firstly, to measure the validity, Pearson Correlation statistical formula was applied. Using significance level 5% (0.05), the test item is categorized to be valid if t-count > t-table or sig (2-tailed) < 0.05, Sundayana (2005). Secondly, in dealing with reliability, the researcher used Cronbach's Alpha. A test item is said as reliable if the score of alpha significance is at least of preferably > 0.70 . Then to categorize the criterion of reliabilities, the classification of reliability coefficient proposed by Guilford in Rusffendi (2005) as cited in Sundayana (2005) was also used. Thirdly, the practicality test was conducted and analyzed after the validity and reliability of the instruments were investigated. Hatch & Farhady (1981) suggest some practical considerations as follows; the test needs to be easily administered, the test also needs to be as

inexpensive as possible, and it needs to be scored and the score needs to be easily interpreted.

Moreover, after administering a test, there were normality, homogeneity, T-test. Firstly, the normality was analyzed by using a one-sample Shapiro-Wilk. The standard normality is 0.05. the distribution is normal if sig (2-tailed) > 0.05. on the contrary, if sig (2-tailed) <0.05, the distribution is not normal. Secondly, to analyze the homogeneity of the data, Lavene's for Homogeneity Variance was used. In this case the data is homogeneous if sig (2-tailed) >0.05 (Sundayana, 2005). Thirdly, the T-test was used to analyze the result of the pre-test and post-test in each group. The mean of both tests is compared to see a significant difference between them.

In line with objectives through several step that applied in learning process.

1. The pre-test be given to students in experimental and control class, to know students' ability reading comprehension.
2. Questionnaires are distributed to all students to analyzed students' level of anxiety.
3. The students in control class learn the text with the strategy but in experimental class were gi Value the steps of Metacognitive Think a Loud Strategy adopted by Richards and Vacca (2011).

a. Students try to make predictions depending on the chapter titles and sub-headings observed.
b. Students try to draw a mental picture of the extracted information of the text.
c. Students use analogies to bridge the information they have with their background knowledge.
d. Students should control and verify information that is difficult and which they doubt or unsure of.
e. Students try to keep reading and skip their confusion and find out if futher information can clear up their confusion.

4. All students were given the post-test, employed in the end of the study to compare students before and after getting the treatment especially in experimental class.
5. Distribute questionnaires to all students are employed to investigate the students' perception upon the learning process.

Test Hypothesis:

H0 = is the value is probability or sig, (2-tailed) < 0,05, there is a significant difference with the application strategy of metacognitive strategy students' reading comprehension.

H1 = if the value is probability or sig, (2-tailed) > 0,05, there is no significant difference with the application strategy of metacognitive students' reading comprehension.

RESULTS AND DISCUSSIONS

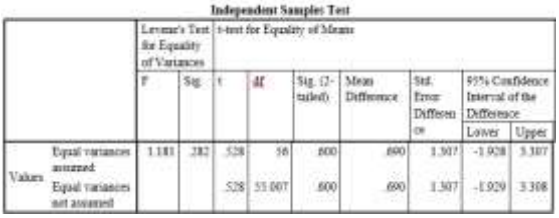
This present study used SPSS 21 to determine whether there were differences in the averaged two samples that were paired or related. This test was conducted to determine whether Metacognitive Strategies is effective in improving students' writing. The basis for decision-making in the Paired Sample t-test based on the significance value with SPSS 21 were:

Table 3. Pre-test score of Experimental and Control Class

Group Statistics

Class	N	Mean	Std. Deviation	Std. Error Mean
Control	29	65.69	5.299	.984
Experimental	29	65.00	4.629	.860

The table above shows group statistics of pre-tests of both classes. As it presented on the table, the experimental class resulted mean score 65, while its standard deviation is 4.6. The control class resulted mean score is 65.69 while its standard deviation is 5.2. Their scores do not have any significant difference. However, to measure the difference, it needed to do homogeneity, normality, and T-test. The data becomes one of the valuable components to do the tests.



Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Values	Equal variances assumed	1.181	.282	.528	56	.600	.690	1.307	-1.928	3.307
	Equal variances not assumed			.528	55.007	.600	.690	1.307	-1.929	3.308

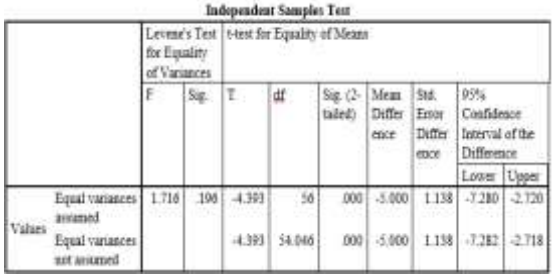
Figure 1. T-test of Pre-test score of Experimental and Control Class

Based on the table above, the significant value is 0,600 > 0,05. It means that there is no differences between the two treatments, in other word, the two treatments have the same initial ability because the mean value of pre-test are the same that are 65,69 and 65.

Table 4. Statistics Post-test score of Experimental and Control Class

	Class	N	Mean	Std. Deviation	Std. Error Mean
Value	Control	29	77.93	3.900	.724
	Experi-mental	29	82.93	4.728	.878

The table shows statistics of post-test of both classes. The experimental mean score is 82.93, while the standard deviation is 4.7. Meanwhile, in the control class, the result mean score is 77.9, while standard deviation is 3.9. It can be seen that their score have significant differences. However, the data will be analyzed with homogeneity, normality, and t-test.



Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Values	Equal variances assumed	1.716	.196	-4.393	56	.000	-5.000	1.138	-7.280	-2.720
	Equal variances not assumed			-4.393	54.046	.000	-5.000	1.138	-7.282	-2.718

Figure 2. T-test of Post-test score of Experimental and Control Class

Based on the table above, the significance value is 0,000 < 0,05. It is means that the treatment has a significant difference. In other words, post-test of experimental class is better than the control class because the post-test average of experimental class is 82,93 and for control class is 77,93. It can be concluded that metacognitive think aloud strategy was effective to be applied in teaching reading comprehension because the mean score of post-test in experimental class was higher than the mean score of pre-test.

Based on experimental class, there are 15 students who have a low level of anxiety. Judging from the students' pre-test and post-test scores after the implementation of the Think a Loud Strategy, student scores experienced a significant increase of around 10-20 points. Thus, students who have low anxiety are more stable in receiving learning. They have more self-confidence and understand the learning material so they can get better grades, especially in reading comprehension. Students who have low anxiety focus more on learning so when the Think Aloud Strategy is applied, students understand reading more easily in finding the main idea, detailed information, content of the text, and making a conclusion. It can be concluded that the Metacognitive Think Aloud Strategy is effective at low levels of students' anxiety.

Based on other experimental class, 14 students have high anxiety. The pre-test and post-test also experienced an increase after the Think Aloud Strategy was implemented. Even though students have high anxiety with the Metacognitive Think Aloud Strategy, student scores have increased quite significantly. Students find the right formula in learning and working on reading comprehension questions even though they have a high level of anxiety. So it can be concluded that both students who have low and high anxiety, experience an increase in their scores.

As has been stated before, the data collected was not only from the test, but also from the questionnaire as supported the second question. It was because treatment was given by researcher to students. The following table shows

the difference in the result of students' scores with different level student's anxiety.

The increase in students' reading comprehension after applying the think aloud strategy is influenced by the students' anxiety such as getting pressure from friends, having conflicts, feeling afraid, and not being confident to appear in class. Based on the results, if the value of the questionnaire shows a high number then the level of anxiety is in the low category. Meanwhile, if the value of the questionnaire shows a low number then the level of anxiety is in the high category. So, students who have high learning anxiety when applying learning strategies in reading comprehension improve students' ability less significantly compared to students who have low learning anxiety the increase in reading comprehension is more significant so that they get better scores.

CONCLUSION

This study investigated the effectiveness of the metacognitive think-aloud strategy in teaching reading comprehension at a vocational high school, particularly among students with varying levels of anxiety. Data were collected from both experimental and control classes. The findings reveal several key conclusions. Firstly, the application of the metacognitive think-aloud strategy in the experimental class effectively enhanced reading comprehension, with an observed interaction between reading comprehension and students' anxiety levels. Specifically, students with low anxiety demonstrated greater improvements compared to their high-anxiety counterparts. Secondly, the strategy had a significant positive impact on students with low anxiety in the experimental class, boosting their reading comprehension and confidence. However, no significant effect was observed for high-anxiety students, although some improvement was noted. Thirdly, the control class, which received no treatment, still showed improvements in reading comprehension. Finally, a notable difference was found between the experimental and control classes, supported by a significant increase in the mean post-test scores, demonstrating that the metacognitive think-aloud strategy significantly improved reading comprehension outcomes.

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