

INCREASING STUDENTS' READING COMPREHENSION THROUGH COGNITIVE STRATEGIES OF SENIOR HIGH SCHOOL OF SIDENRENG RAPPANG REGENCY

Elihami

English Department, STKIP Muhammadiyah of Enrekang
Jln. Jendral Sudirman No. 17 Enrekang, South Sulawesi
elihamid@ymail.com.

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ABSTRACT

This research was a quasi-experimental research at the objective of finding the increasing students' reading comprehension achievement through cognitive strategies (rehearsal, organization, and elaboration). It also aimed to find the extent to which these cognitive strategies influence the students' reading comprehension achievement. The subject of the research was the Senior High School of Sidenreng Rappang Regency consisting of 50 respondents of two classes from 11 schools in Sidenreng Rappang. Each class consisted of 25 respondents; one class was the control and another class the tentative one. The data were collected through the reading comprehension test in pretest and posttest, and the observation checklist during the teaching and learning process. The test consisted of 45 items of the test from three kinds of text (news item, descriptive, and narrative). The observation checklist consisted of four statements for rehearsal strategies, three statements for organization strategies, and one statement for elaboration strategy. The research findings show that the students' reading comprehension is increased for both groups from pretest to posttest. The experimental group is higher than the control one (60,6 > 50,1) and the t-test is greater than the P-Value (0,05 > 0,007), which means that there is a significant difference after giving treatment to the experimental group. The application of cognitive strategies also positively influences the increasing students' reading comprehension achievement. Thus, it is concluded that the use of cognitive strategies is useful to increase students' reading comprehension in teaching and learning words.

Keywords: cognitive strategies, the students' reading comprehension, achievement

INTRODUCTION

Language teaching acts as a central role in academic, social, and emotional progress that support students' success in learning all of the scientific knowledge. Instructional practices in language are often teacher-centered and focused on direct knowledge transmission (Lau, 2006). Through language teaching, students are projected to give their culture and receive other cultures as well. It is also expected to help students convey their initiative and emotion, participate in society, and even find the use of their analytical and imaginative ideas.

In terms of language teaching, English teaching plays an important role in Indonesia for the time being. English as the tool of communication both spoken and written is very important to learn because it is used throughout the world. English is also used to communicate with any other people whose culture and country background are different. In order to do that, students should take part by learning the

subject as they are demanded to master English actively or passively. Consequently, they are able to read English books or to access the information on the internet that is mostly in English. In the National Education Standard (BNSP), English for Senior High School or Madrasah Aliah (SMA/MA) aims at giving the students skills on communication competence in the forms of spoken and written, in the level of functional literacy (Depdiknas, 2006). One of these competences coverage is the students' ability to comprehend a course which is implemented in four skills, namely listening, speaking, reading, and writing. Unfortunately, in fact, it is still far from the expected achievement of competence. Most of the students still get difficulties in learning English. It is proven by the low summative tests' mean score of the students from Senior High School in Sidenreng Rappang regency district where this research is conducted.

The low level of students' mean may be caused by their lack of strategies in learning, such as cognitive. Therefore, the researcher formulates the research questions

as; (1) Can cognitive strategies (rehearsal, organization, and elaboration) increase students' reading comprehension achievement? And (2) to what extent do the cognitive strategies (rehearsal, organization, and elaboration) influence the students' reading comprehension achievement both apart and collectively?

The students' interviews are done to examine the validity of the questionnaires about the cognitive strategies. The structure interviews are developed based on a study by Li & Qin (2006). The competence in the cognitive strategies is one of teaching objectives that must be taught through summarizing, deduction, imagery, and transfer. They need improvement continually.

The division of cognitive strategies is rehearsal, organization, and elaboration. Rehearsal cognitive strategy is when the learners memorize the important ideas or concept by means of learning, underlie the important ideas, or write some parts of the text. Organization cognitive strategy is when learners arrange materials into frame order, which is a stock of words remembered by learners and ordered into meaningful categories. Sahrul (2014) has defined that cognitive strategies are practicing, receiving, and sending message strategies along with analyzing, reasoning, and creating the structure for input and output. These cognitive strategies are applied in order to achieve students' improvement on the reading comprehension test. The relationship between facts on text is arranged into tables. The other ways are to underline the main ideas or concept of each paragraph, then arranging them into the new organization. Lastly, elaboration cognitive strategy is when students connect anything that is going to be learned with other things which are available.

The application of these cognitive strategies seems suitable in teaching reading comprehension. These three categories give students the opportunity to maximize their capability in reading comprehension process. Rehearsal strategies, for example, may help students to internalize a text by underlining the important ideas of it. At the same time, utilizing the organization strategies gives students many ways to understand the text by arranging materials of the text based on the order of what way they think is easier to understand. This can be done by separating the main idea from the supporting ideas or arranging the relationship between the facts into the table. Other than that, students may also do the elaboration strategies in order to be able to understand the text at their best. This strategy extensively explains the facts or details of the text either by connecting between the facts in the text or by integrating the main idea and supporting details, which have been organized using their prior knowledge. This is done on the development of the paragraph. This has the connection with applying the strategies in reading such as making inferences, separating main ideas from the supporting details, and predicting.

Based on the three cognitive strategies mentioned, this research is focused on how to increase students' achievement in reading comprehension by applying those cognitive strategies. The objective is to find out whether or not cognitive strategies (rehearsal, organization, and elaboration) can increase students' reading comprehension achievement. Another objective is also to figure the extent to which these cognitive strategies influence the students' reading comprehension achievement apart and collectively.

The significance of this research is expected to be useful for teachers as practitioners in education and a reference for the researchers who are interested to know more about cognitive strategies' role in teaching and learning

process. It is also especially expected to help develop students' reading comprehension by applying cognitive strategies (rehearsal, organization, and elaboration) in teaching and learning process. Lastly, the scope of the research is applying the cognitive strategies (rehearsal, organization, and elaboration) to increase students' reading comprehension achievement.

METHODS

This research applies quasi-experimental method with two sample groups. One group is the experimental group, and the other is the control group. The subject of the research is Senior High School of Sidenreng Rappang regency, consisting of 50 respondents from 11 schools of the regency; both the experimental and control group each consist of 25 respondents. This research applies the purposive sampling technique because of certainly consider.

The experimental group and control group consisted of three classes of the sample of the research because of the three kinds of texts; news item, descriptive, and narrative. The criteria for selecting the members of those groups are how suitable they are with the curriculum content for tenth-grade students. It is also because these classes are assumed homogeneous.

The placement of the students to their class is not based on their intelligence level, but it is random. There are no classes with only high level or low-level students. Consequently, one class can have students with high level, middle level, and low level of achievement, depending on the two other classes. So forth, determining two classes as the sample group of the research are done randomly. That random technique results in class X2 and X3 being chosen as the sample group, and class X1 as the try-out class to validate the instrument of the research. The experimental group is treated with cognitive strategies (rehearsal, organization, and elaboration) in the Teaching and Learning Process (PBM) to see whether or not these strategies can increase students' reading comprehension achievement. The control group is taught with the expository or conventional strategies in ongoing PBM.

Each of the groups is given pretest and posttest. Posttest is administrated to assess the prior knowledge of the students on reading comprehension. The posttest is administered to measure the effects of the treatment. The main purpose of this test is to find out whether or not the application of cognitive strategies (rehearsal, organization, and elaboration) is effective in increasing students' reading comprehension achievement.

RESULTS AND DISCUSSIONS

Studies to improve students' reading comprehension have been conducted by many researchers in Indonesia, especially for the implementation of strategies to the reading comprehension combined with cooperative learning. They are Students Team Assistant Division (STAD), Team Assisted Individualization (TAI), JIGSAW; which is named by its type on learning processes like a saw, Think-Pair-Share strategy (TPS), or Directed Activity Related to Texts (DARTs). Regarding the effectiveness of strategic instruction on achievement, results of present studies demonstrate that students generally increase their frequent use of reading strategies, especially using cognitive strategies to manage the learning and overcoming the

deficiency in English reading. They further obtain more improvement in comprehension after strategy instruction. Such results support findings by Shang (2007), suggesting that it is more effective for students to improve their reading comprehension if they have a higher frequency of employing cognitive strategy in their reading process.

Reading is defined as an inter-energetic progression that goes on between the reader and the text, resulting in the judgment, the text in attendance, correspondence, words, sentences, and paragraphs that predetermine meaning. It is also defined as an active fluent process which involves the reader and reading material in building meaning. Meaning does not reside on the printed page, instead, synergy occurs in reading. It combines the words on the printed page with the readers' background knowledge and experiences (Karakas, 2006). Students will develop better reading comprehension skills on their own if the teacher gives them explicit mental tools for unpacking texts (Pressley & Allington, 2006).

Understanding a language needs processes that are related to certain ways or techniques, whether top-down or bottom-up (Fromkin, Rodman, & Hyams, 2007). Therefore, learners may apply some of these techniques or ways to a certain text in a reading comprehension.

The bottom-up model refers to a process of decoding a message that the reader reads via the analysis of sound, words, and grammar. To comprehend the written language, a reader relies on his or her ability to recognize words, phrases, and sentences. Reading process with modeling is seen as one of the most useful techniques to explain strategies for reading achievement (Houtveen & van de Grift, 2007). According to them, the bottom-up process of reading is viewed as the process of meaning interpretation, in which the language is translated from one form of symbolic depiction to another.

The cognitive strategy is the strategy that involves mental manipulation or information of materials or tasks, and it is intended to enhance comprehension, acquisition, or retention (Wernke et al., 2011). Cognitive strategies are divided into three categories which are presented as follows; (1) rehearsal strategies refer to underlining important ideas, writing down some important ideas in the dictionary. (2) Organization strategies refer to arranging materials into an outline order. (3) Elaboration strategies refer to explaining extensively the facts or details of text content.

Jabu (2008) has stated that cognitive domains are the objectives that emphasize on remembering and reducing something which has perhaps been learned. It is like the objective used for solving several intellectual tasks where the individual has to decide the indispensable problem. Then the given substance which has been learned before is reordered or collected with ideas, methods, or procedures. The precognitive objectives may vary from the simple recall of material learned to highly original and creative ways of combining and synthesizing new ideas and materials.

The cognitive domains of low-level thinking are: (1) Remembering, indicates recalling information. (2) Understanding signifies explaining ideas or concepts. (3) Applying conveys information from another familiar situation. On the other hand, the cognitive domains of high-level thinking are as follows: (1) Analyzing, denotes using information as parts to explore understandings and relationship. (2) Evaluating justifies a decision or course of action. (3) Creating refers to generating new ideas, products, or ways of viewing things. The cognitive strategies are the use of basic and complex strategies for the processing of information from text and lectures (Wernke et al., 2011).

Cognitive domains are mainly about the recalling and recognition of knowledge as well as the development of higher intellectual skills and abilities. Knowledge refers to the recalling of specific information, comprehension refers to the converting of abstract content to concrete situation, analysis refers to the comparison and contrast of the content to personal experiences, synthesis refers to the organization of thoughts, ideas, and information from the content, and Evaluation refers to the judgment and evaluation of characters, action, outcome, and others, for personal reflection and understanding.

The expository method of coaching, sometimes called the expository instruction, is a method in which a teacher presents the scientific concepts to the students verbally. This method can also be secondhand to teach facts, skills, the concepts as stated before, and principles which compass on teacher-centered learning or teacher conquered approaches to instruction. Teacher controls the flow of the lesson by presenting information and demonstrating solutions to problems.

Melillo (2009) has stated that the expository teaching is an instruction method of the scriptures that can be taught two different ways; verse by verse or topically. The expository teaching takes one genesis through revelations, section by section, and verse by verse. An example of this is teaching about Bible. The researcher confirms its own stories through repetition of the statement, as a verse in revelations may not be as clear unless it was referred to in an older statement. Flint (2009) has stated that expository teaching takes a specific passage and breaks it down, finding topics to discuss. The teaching process is a style of preaching, where the method of instruction presents clear and comprehensive meaning to the biblical text.

The explanation of the data is unruffled through the test, as explained in the preceding subdivision shows that the students' reading comprehension has improved significantly. It is supported by the mean score rate of the students' pretest and posttest of the experimental group. The mean score of pretest and posttest of the experimental group was 38,2 and has increased to 60,6, while the mean score of pretest and posttest of the control group was 37,2 and has increased to 50,1.

Both cognitive strategies and conventional (expository) way can be used in training reading, and it can improve the students' achievement. However, the cognitive strategy develops the students' reading comprehension more evocatively than the conventional way. These strategies are gifted to improve the students' reading comprehension. Thus, it can be inferred statistically based on the t-test value making an allowance for between P-Value 0,007 that was smaller than t-table 0,05. It means that cognitive strategies are more effective in increasing students' reading comprehension.

The students' mean score is higher in the experimental group than the control group (60,6 > 50,1) in the posttest. Moreover, the standard deviation for experimental group is 15,6 and 7,9 for the control group. In the pretest, the students' mean score is more advanced in the experimental group than the control group (38,2 > 37,2). Furthermore, the standard deviation for the experimental group and the control group is 9,7 and 6,9 respectively. However, it does not mean that there is a noteworthy difference between both groups. In the t-test section, it is showed that the P-Value (0,686) is greater than t-test (0,05), which means that there is no significant difference between both groups. For that reason, between the two groups, the researcher was free to choose which one

to be the experimental group. Unlike the pretest, the P-Value in the posttest is lower than t-test (0,007-0,05), which means that there is a significant difference between both groups.

The findings of students' comprehension achievement on reading through the distribution score of pretest are described in Table 1 and the distribution score of posttest in Table 2.

Table 1 The Frequency and Percentage of Students' Pretest Score of Control and Experimental Group

Classification	Range of Score	Control Group		Experimental Group	
		F	%	F	%
Excellent	80-100	0	0	0	0
Good	66-79	0	0	0	0
Fairly Good	56-65	1	4	2	8
Fair	46-55	2	8	2	8
Poor	0-45	22	88	21	84
Total		25	100	25	100

Table 1 shows that most of the students in control group are in the poor category with the score ranging from 0 to 45. Specifically, only 1 student (4%) is in fairly good, 2 students (8%) in fair, and the remaining 22 students (88%) in the poor category. The same result is found in the experimental group. Only 2 students (8%) are in fairly good, 2 students (8%) in fair, and the remaining 21 students (84%) in the poor category.

Table 2 The Frequency and Percentage of Students' Posttest Score of Control and Experimental Group

Classification	Range of Score	Control Group		Experimental Group	
		F	%	F	%
Excellent	80-100	0	0	4	16
Good	66-79	1	4	4	16
Fairly Good	56-65	9	36	9	36
Fair	46-55	8	32	2	8
Poor	0-45	7	28	6	24
Total		25	100	25	100

Table 2 illustrates the frequency and rate percentage of the control and experimental group in the posttest. It also indicates that the students' achievement from the two sample groups is increasing.

In the control group, only 1 student (4%) is in the good category, 9 students (36%) in the fairly good category, 8 students (32%) in fair category, and the remaining 7 students (28%) in the poor category. Thus, it can be concluded that most of the students' score range is in the fairly good category.

Differently, in the experimental group, there are 4 students (16%) in the excellent and good category, but the rest of them have the same score range as in the control group. There are 9 students (36%) in the fairly good category,

2 students (8%) in the fair category, and the remaining 6 students (24%) in the poor category.

Further results of the students' achievement in their reading comprehension are compiled in a tabulation data showed in Table 3.

Table 3 The Mean Score and Standard Deviation of the Students' Pretest and Posttest

Paired Samples Statistics	Mean	N	Std. Deviation
Pair 1 Pair Control	37,212	25	6,8920
Posttest Control	50,112	25	9,7524
Pair 1 Pair Control	38,180	25	9,7088
Posttest Control	60,592	25	15,5944

Table 3 shows that the total number for both the control and experimental group are 25 students. The mean score and standard deviation show differences in pretest and posttest of both groups. From the data shown in Table 3, the mean score of the control group and experimental group is mostly the same before and after the treatment. After being given the treatment, the posttest score of both groups shows a difference in mean score. This means that there is an improvement after being given the treatment.

Before the treatment is conducted, both the control group and the experimental group are given the pretest to know the students' achievement on their reading comprehension. The purpose of the test is to find out whether both groups are at the same level or not. The standard deviation is meant to know how close the scores are to the mean score. Table 3 shows that the mean score of the students' pretest in the control group is 37,2 and the experimental group 38,2. The standard deviation for the control group is 6,9 and the experimental group 9,7. Table 3 also shows that the mean score of both groups are different after the treatment is executed. The mean score after treatment is 50,1 for the control group and 60,6 for the experimental group.

The hypothesis is tested by using inferential analysis. The researcher uses t-test (test of significance) for independent results of students' mean scores in pretest and posttest, in control and experimental group. Assuming that the level of significance (α) = 0,05 and the only thing needed is the degree of freedom, (df) = 48, where $N_1 + N_2 = 48$; then the result of the t-test is presented in the following table.

Table 4 The P-Value of t-test of the Students' Achievement on Control and Experimental Group

Variables	P-Value	(α)	Remarks
Pretest of Control and Experimental Group	0,686	0,05	Not significantly different
Posttest of Control and Experimental Group	0,007	0,05	Significantly different

The result of the data analysis on Table 4 shows that in the pretest of control or experimental group, it is known that P-Value (0,686) is greater than the level of significance at t-table (0,05) and the degree of freedom 48. It means that the null hypothesis (H0) is accepted and the alternative hypothesis (H1) is rejected. In other words, there is no significant difference between the control group and the experimental group before the treatment, in terms of the students' reading comprehension.

In contrast, the data on posttest of the control and the experimental group shows that the probability value is smaller than α ($0,0007 < 0,05$). It indicates that H1 is accepted and H0 is rejected. It means that cognitive strategies (rehearsal, organization, and elaboration) have significantly increased the students' reading comprehension. The data of posttest as the final result shows significant improvement. It can be concluded that the use of cognitive strategies (rehearsal, organization, and elaboration) are able to give greater contribution in teaching and learning reading comprehension.

Based on the result of the students' further answer in the control and the experimental group before and after treatment, the researcher has noticed that the students often do not understand the question for the text. When they try to understand the text, they sometimes completely miss the point of the question which they want to answer. From analyzing students' difficulties on reading comprehension, the researcher has surmised that they have an underlying lack of linguistic competence in English due to vocabulary memorizing that affects their reading competence. As a matter of fact, it leads them not to recognize the ideas of the reading and to be weak in interpreting the text given. Consequently, they find it difficult to read the multiplicity and structure of the text professionally. The same thing happens during the conduct using the cognitive strategies. They have the same problem in understanding the reading text. These problems that the students faced are discussed as follows based on the treatment process as it also happens in the posttest.

CONCLUSIONS

Based on the research findings and discussion, the researcher concludes that the application of cognitive strategies (rehearsal, organization, and elaboration strategies) can increase the reading comprehension achievement of Senior High School students in Sidenreng Rappang regency more significantly than non-cognitive strategies. The mean score of pretest of the experimental and the control group is not significantly different. The mean score of posttest of the experimental group is higher than the control group ($60,6 > 50,1$) and the t-test is greater than the P-value ($0,005 > 0,007$). This means that there is a significant difference after philanthropic treatment to the experimental group. This leads to the conclusion that the use of cognitive strategies is useful in increasing students' reading comprehension in teaching and learning process.

The authority of cognitive strategies (rehearsal, organization, and elaboration) to students' reading comprehension achievement is in positive correlation with the increase of students' achievement. With every increase of student's summit in the independent variable follows a point increase in the dependent variable and vice versa.

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