THE EFFECTIVENESS OF COGNITIVE LEARNING STRATEGIES IN IMPROVING STUDENTS’ READING ABILITY AT THE FIRST SEMESTER STUDENTS OF ENGLISH DEPARTMENT OF KALIMANTAN ISLAMIC UNIVERSITY BANJARMASIN IN THE ACADEMIC YEAR 2014/2015

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Abstract

Students are expected to have good comprehension to deal with all reading aspects and difficulties in academic context. Furthermore, as the teacher we should prepare students with learning strategies so that the students can used their learning strategies to improve their reading comprehension which could not be taught optimally in the class. The comprehension process draw on many cognitive and linguistic abilities, especially vocabulary, recalling background knowledge, sentence processing, verbal reasoning, and working memory. Therefore, reading comprehension is an area where cognitive strategies are important. The objectives of this research are to find out the effect of cognitive learning strategies in teaching reading in improving students reading comprehension, and reading difficulties faced by students.

This research applied quasi-experimental design by using non-equivalent control group design pre test and post test. The experimental class is students of morning class and the controlled class is students of night class, each class consists of 35 students. Both experimental and controlled classes are given pretest and post test. However, the treatment was only given to the experimental class. The data are collected through pretest, post test and questionnaire and were analyzed by using SPSS 17.0.

The research results are: 1. The cognitive learning strategies are effective in improving reading comprehension; 2. The cognitive learning strategies help students to improve their reading comprehension by themselves both inside and outside the classroom, with or without the teacher assistance; 3. the cognitive learning strategies provide students with interesting, challenging, and enjoyable classroom activity. It also contributes to help students to comprehend the material more easily.

Keywords: Effectiveness, Cognitive learning strategies, Students’ reading ability
INTRODUCTION

Reading is considered as important aspect because of its valuable benefits in developing knowledge. Reading is also considered as important skill for second language learning. Therefore, students are expected to have good comprehension to deal with all reading aspects and difficulties in academic context.

Based on those reasons, reading is very important. Furthermore, as the teacher we should prepare students with learning strategies so that the students can used their learning strategies to improve their reading comprehension which could not be taught optimally in the school.

Generally, Grabe and Stoller (2002: 120) define reading as the ability to draw information from a text and to form an interpretation of the information. Commonly, people read for general comprehension, whether for information or for pleasure, the objective is not to memorize most of specific detail but to have a good comprehension of the main ideas and to relate those main ideas to background knowledge as appropriate.

Specifically, in academic context occurs reading to learn. In this context a person needs to learn a significant number of information from a text. This purpose of reading requires abilities to remember the elaboration of main and supporting ideas from the text, recognize and build rhetorical frames that organize the information in the text, and also link the text to the reader’s background knowledge. Furthermore, to comprehend, readers have to use the information they already have to filter, organize, and reflect the upcoming information. In addition, the comprehension process draw on many cognitive and linguistic abilities, especially vocabulary, recalling background knowledge, sentence processing, verbal reasoning, and working memory. In addition, Rosenshine as cited in Jordan (2005) states that reading comprehension is an area where cognitive strategies are important.

Based on the explanation, the writer tries to apply the cognitive learning strategies to improve students’ reading comprehension. Therefore, this study is intended to investigate the effectiveness of cognitive learning strategies in improving students’ reading ability and it is expected that this research will contribute to the practice of reading teaching in the future.

LITERATURE REVIEW
1. Cognitive Principles of Language
Learning

According to Brown (2000:54) there are at least three principles in language learning such as cognitive principles, affective principles, and linguistic principles. Each of principles has different concern. The cognitive principles mainly relate to mental and intellectual function. While affective principles categorized by a large proportion of emotional involvement. Moreover linguistic principles focus on language itself and how learners deal with these complex linguistic systems. However, since this research is about cognitive learning strategies the further explanation will be about cognitive principles.

There are five principles of cognitive principles such as automaticity, meaningful learning, the anticipation of reward, intrinsic motivation, and strategic investment (Brown, 2000:25). The first principle is automaticity; this principle believes that language acquisition can automatically happen just like children acquire language subconsciously without overly analyzing the forms of language themselves (Brown, 2000:26).

The second principle is meaningful learning. Meaningful learning will lead towards better long-term retention than rote learning. There are some classroom implications of this principle. For example, the teacher should capitalize on the power of meaningful learning by appealing to students, academic, goals, and career goals. Moreover, whenever a new topic or concept is introduced the teacher should attach it in students existing knowledge and background knowledge so that it becomes associated with something they already know. Furthermore, the teacher should avoid the pitfalls of the rote learning such as too much grammar explanation, too much drilling/memorization, etc (Brown, 2000:30).

The third principle is the anticipation of reward. In accordance with this, Brown (2000:57) states “human being are universally driven to act or behave by the anticipation of some sort of reward – tangible or intangible, short term or long term- that will ensue as a result of the behavior”. As classroom implication the teacher can provide an optimal degree of immediate verbal praise and encouragement to them as a form of short term reward or the teacher can encourage students to reward each other with compliment and supportive action.

The fourth principle is intrinsic motivation. Brown (2000:58) states “the most powerful rewards are those that are intrinsically motivated within the learner because the behavior stem from needs, wants, or desire within oneself, the behavior itself is self
rewarding”.

The last principle is strategic investments. This principles are more focused on the role of the learner in the process, the “method” that employed by the learners to learn and to perform in the language are as important as the teacher method. Moreover, successful mastery of second language will be due to a large extent to a learners own personal investment of time, effort, and attention to the second language in the form of an individualized battery of strategies for comprehending and producing the language (Brown, 2000:61). Therefore, in the present study the researcher used the last principle as the basic principle. Since the students “method” is as important as teacher method, the researcher tried to implement cognitive learning strategies in improving students reading comprehension so that students can use the strategy even without the teacher.

2. Cognitive Learning Strategies

Cognitive theory viewed students as mentally active participant in the teacher-students interaction. The mental activity of learners is described by the application of prior knowledge to new problems, the search for meaning in incoming information higher level thinking and the developing ability to adjust one’s own learning (Chamot, 1995:78). Cognitive theories differentiate three functions of memory: long term memory, short term memory, and working memory. According to Abhakorn (2008) cognitive theories indicates the most important information that is stored in long term memory, whether it is declarative knowledge or procedural knowledge. Declarative knowledge learned best by elaboration, in which new information is linked with existing knowledge or schemata and by building in previous knowledge. This fact is in line with the theory by Chamot and O’Malley (1994:56) that cognitive indicates greater linkage and pathway to existing memory frameworks will lead to enhanced learning and recall.

According to Olson and Land (2007) cognitive strategies are general method of thinking that improves learning across the variety of subject areas. Cognitive strategies go beyond the strategies that are required for carrying out a task. Characteristically, cognitive strategies are considered as the most popular strategies with language learning.

Furthermore, another strategy is using resources for receiving and sending message is useful for both comprehension and production. Therefore, it helps take advantage from variety of resources and to understand and produce messages in the new language (Oxford, 2000).
Alternatively, the strategies for creating structure for input and output including note taking, summarizing, and highlighting. Those strategies are necessary for both comprehension and production in the new language. In summary, of the four sets of cognitive learning strategies the most useful strategies for improving reading comprehension are receiving and sending message strategies and also strategies for creating structure for input and output.

The other cognitive strategies are analyzing and reasoning including reasoning deductively, analyzing expression, analyzing contrastively, translating, and transferring. Reasoning deductively is a common and very useful type of logical thinking; furthermore the strategies are useful for the fourth language skill if the strategies are implemented correctly. However, sometimes the strategy of reasoning deductively results in overgeneralization errors.

Furthermore, there is also translating strategy; it allows learners to use their own language as the basis of understanding what they hear or read in the new language. The last strategy is transferring which means directly, applying previous knowledge to facilitate new knowledge in the target language. This strategy relates to all four skills.

3. Reading Comprehension

Generally, reading can be defined as an activity or process of getting information. Furthermore, reading is also defined as a conversation between readers and author (Chao, 2007). When people read they construct and search for meaning based on their own perception to the text and what the text brings to them. This theory is in line with Collins and Adams that state that reading is the ability to extract the meaning, both implicit and explicit, from the written text. There are many definitions of reading. Simply, Grabe and Stoller (2002) define reading as the ability to draw meaning from the printed and interpret this information appropriately.

From cognitive view, reading comprehension defined as construction of meaning from printed or written message, in other word reading can be defined as a conversation between readers and author, there are many factors influencing reading such as readers’ characteristic, the nature of reading material, and reading tasks, etc (Chao, 2007). As stated by Rosenshine (cited in Jordan, 2005) reading comprehension is an area where cognitive strategies are important. In addition, he states that reading comprehension is an active process where the reader contracts the meaning to form a deeper understanding of a concept and information presented in a text.
Therefore, to comprehend, readers have to use the information they already have to filter, organize, and reflect the upcoming information.

RESEARCH METHODOLOGY

1. Research Design

This research applied quasi-experimental design by using non-equivalent control group design pre test and post test since the goal of the study is to find the effectiveness of certain strategy. The quasi experimental research is used when random assignment of subject to experimental and control group is possible. Therefore, this used quasi experimental because of limitation time and school regulation.

2. Variables

The independent variable in this study is the implementation cognitive learning strategies. And the dependent variable in this study is students’ reading comprehension.

3. Population and Sample

The population of this study is the first semester students of English Department of Kalimantan Islamic University Banjarmasin in the Academic Year 2014/2015, two of which have been assigned to experimental and control group. The experimental class is students of morning class and the controlled class is students of night class. Those classes were chosen because each class consists of 35 students. Both experimental and controlled classes are given pretest and post test. However, the treatment was only given to the experimental class.

4. Technique for Analyzing Data

a. Scoring Technique

There are two types of formulas that can be used in the process of scoring and data previously obtained. The formulas were formula with or without punishment. This study used formula without punishment. The formula is stated as follows: $S = R$ In which $S$ is Score and $R$ is Right Answer

b. Pre test data analysis

The procedures to analyze pre test data are: The first, normality test to analyze the normality of the score, Kolmogrov – Smirnov formula was used in this study. The Kolmogrov – Smirnov test was performed by using SPSS 17.0 for windows. The hypotheses used were as follow: 

- $H_0$: Sample is from population with normal distribution
- $H_1$: Sample is from population with not normal distribution

The table of the data output from SPSS 17.0 simply concluded as follow; by using 5% level of significance ($\alpha$), the criteria of normality test is $H_0$ is rejected if significance value (Sig.) $< 0.05$, meanwhile if the significance value (Sig.) $> 0.05$, $H_0$ is accepted.
The second is Variance Homogeneity Test. After the result of normality test was found, the researcher conducted variance homogeneity test. The hypotheses used were as follows: H0= the variance of pre-test of experimental and control group are homogenous. H1= the variance of pre-test of experimental and control group are not homogenous. To analyze the homogeneity of variance of the score, Levene’s test formula was used in this study. The test was performed using SPSS 17.0 for windows. The criteria of the test are H0 is rejected if the significance value more than the level of significance (Sig < 0.05). Meanwhile if significance value is less than the level of significance (Sig > 0.05), therefore H0 is accepted.

And the last is Analysing of t-test. Independent t-test is used to analyze a causative relationship between the independent variable and dependent variable that is measured on both groups. Furthermore, it is used to compare the means from two different groups. The independent t-test is conducted when the normality distribution and homogeneity of variance of each scores has been proven. However, if the data do not fulfill the requirements, formula in non-parametric statistics can be used to compare two means of experimental and control group.

c. Post test data analysis

Post test was conducted to find out whether there is any difference between students’ score of experimental group and control group after treatments. The procedures of post test data analysis were exactly same as pre test data analysis. Besides calculating t-test, paired t-test in SPSS 17.0 for windows was also calculated. It was aimed to find out the differences between pre test and post test score in each group.

d. Questionnaire Analysis

The formula of percentage is used to analyze the questionnaire. The data will be interpreted based on frequency of students’ answer. The formula of percentage for calculating the questionnaire as follows: \[ P = \frac{Fo}{n} \times 100\% \] Note: P = percentage Fo = frequency observed n = number of sample.

FINDINGS AND DISCUSSIONS

1. Research Findings

a. Pretest Scores Analysis

The pretest was administered to both experimental and control group before the treatments given. The test was given to find out initial differences between students of experimental group and students of control group. Furthermore the pretest scores of both groups were analyzed by using SPSS 17 for
windows, and showed that the mean of the experimental group was 78.36, while the mean of control group was 76.85. However, it cannot be assumed that the means of both of groups were significantly different. Therefore, independent t-test was performed to compare the means of both of groups. Furthermore, before the independent t-test was performed the data of both experimental and control group must be normal and homogeneous. The normality test was conducted to find out whether the data were normal and homogeneous.

The independent t-test was conducted to see whether there was a significant difference between experimental and control group pretest scores. In calculating the normal distribution The Lavene’s Test for quality of variance with level of sig. α = 0.05 was used. The result of the computation is the probability (equal variance assumed) is higher than the level of significance (0.487 > 0.05). Since the probability is higher than the level of significance, it can be concluded that the experimental and control group are homogenous in term of their initial ability.

b. Post Test Score Analysis

Based on the post test score, the mean for experimental group is 80.84 and the mean for control group is 73.03. It can be seen that the mean of the experimental and control group are different. However, to prove that the means of both of groups are different, several tests were conducted. The tests include the normal distribution test, the homogeneity test, the independent t-test, and also the dependent test. Furthermore, to find out the effect of independent variable upon the dependent variable, the calculation of effect size was measured.

The independent t-test was conducted to see whether there was a significant difference between experimental and control group post test scores. In calculating the normal distribution The Lavene’s Test for quality of variance with level of sig. α = 0.05 was used. The hypothesis used was as follow: H0 = the two samples are from the same population; there is no significant difference between the two samples H1 = the two samples are from the same population; there is a significant difference between the two sample. The result shows that the probability (equal variances assumed) is lower than the level of significance (0.001 < 0.05). Since the probability is less than the level of significance, the null hypothesis of no difference is rejected. There is a significant difference between the two groups’ post-test scores. The finding support the research hypothesis that cognitive learning
strategies are effective in improving student’s reading ability.

c. The Computation of the Control Group Scores

The result of the statistical computation is the probability is less than the level of significance \((0.000 < 0.05)\). Since the probability is less than the level of significant means that H0 was rejected. Therefore, it can be concluded there is significant differences between students’ pretest and post test score in control group.

d. The Computation of Experimental Group Scores

The result of the statistical computation is the probability is less than the level of significance \((0.000 < 0.05)\). As a result, the null hypothesis of no difference is rejected. After receiving several treatments, the experimental group’s reading ability improves. This finding supports the research hypothesis that cognitive learning strategies are effective in improving students’ reading ability.

e. The Findings of the Questionnaire

The questionnaire was conducted to find out what are reading difficulties faced by students. For instance, limited vocabulary knowledge (difficulty 1), lack of fluency (difficulty 2), lack of familiarity with subject matter (difficulty 3), difficulty level of the text (readability) (difficulty 4), inadequate use of effective reading strategies (difficulty 5), weak verbal reasoning (difficulty 6), problem with processing information (difficulty 7), and problem in recalling information after reading (difficulty 8).

There are 24 students who has difficulty 1 (limited vocabulary knowledge) and also 21 students face difficulty 2 (lack of fluency). Besides there are 9 students face difficulty 3 (lack of familiarity with subject matter). Additionally, there are 23 students face difficulty 4 (difficulty level of the text). Furthermore, there are 9 students face difficulty 5 (inadequate use of effective reading strategies) and also 14 students face difficulty 6 (weak verbal reasoning). Moreover there are 20 students face difficulty 7 (problem with processing information) and also 12 students face difficulty 8 (problem in recalling information after reading).

2. Discussion

a. The Difference of Students’ Score

Statistical computation result of pretest scores of experimental and control group shows that the data gained from pretest were normally distributed. The test of homogeneity shows that the variances of the two groups were homogeneous. It can be seen from the probability of the variance test which is higher
than the significance level (0.913 > 0.05). Furthermore the independent t-test result show that the probability (equal variance assumed) is higher than level of significance (0.487 > 0.05). Therefore, it can be concluded that the experimental and control group are homogenous in term of their initial ability. Meanwhile, the statistical computation of post test scores of experimental and control group show that the data gained from the post test were normality distributed. The test of homogeneity shows that the variances of the two groups were homogenous. It can be proven from the of the homogeneity of variance test which is higher than the level of significance (0.706 > 0.05). Furthermore, in order to find out whether or not there is difference between experimental group scores and control group scores the independent t-test was conducted. Furthermore, the result shows that in term of mean students in experimental group (M=80.24) and the control group (M=73.03) are different. It is also supported by the probability (equal variance assumed) is lower than level of significance (0.001 < 0.05). Therefore, the null hypothesis is rejected. The cognitive learning strategies are effective in improving students reading comprehension.

b. The Effectiveness of Cognitive Learning Strategies

Based on statistical computation it is shown that students who had been taught the cognitive learning strategies experienced some improvement in their reading comprehension. The improvement can be seen from the mean of students’ score of experimental group before and after the treatment. The mean of students score before the treatment was 76.36 and the mean of students score after the treatment was 80.84. On the hand, students in control group experienced deterioration. The deterioration can be seen from the mean of students score in pretest and post test. Since there is no treatment for students in control group, the mean of students score in pretest was 76.85 while students score in post test was 73.03. In summary, it can be concluded that cognitive learning strategies can improve students reading comprehension. Furthermore, the use of strategy by students plays important role in language learning.

In term of reading as a complex process that is dependent upon the individuals’ language development, experiential background, cognitive ability, and attitude towards reading. In addition, reading is considered as cognitive process, which very much reliant on other basic processes such as attention and memory. It will helpful if students can implement cognitive learning
strategies in reading. Furthermore, the implementation of cognitive learning strategies in reading classroom is proposed by Oxford (2000). There are four sets of cognitive strategies that are: Practicing, Receiving and Sending Message, Analyzing and Reasoning, and Creating Structure for input and Output (Oxford, 2000). Additionally, the implementation of those is really helpful in improving reading comprehension. Since reading comprehension is an active process where the reader contracts the meaning to form a deeper understanding of a concept and information presented in a text. Therefore, to comprehend readers have to use the information they already have to filter, organize, and reflect the upcoming information. This fact is in line with meaningful learning proposed by Brown (2000:55) which states “wherever a new topic or concept is introduced the teacher should attach it in students existing and background knowledge so that it becomes associated with something they already know”. In addition, the implementation of cognitive learning strategies is also effective in helping students improving their level of reading comprehension. Therefore, the students are not only able to reach literal comprehension but also able to achieve higher level of reading comprehension. Therefore, it can be proven that cognitive strategies are effective in improving students reading comprehension. Furthermore, the improvement can be seen based on statistical computation and also the increasing of students scores before and after the treatment.

c. Reading Difficulties Faced by Students

As reading is considered as a complex process that is dependent upon the individuals’ language development, experiential background, cognitive ability, and attitude towards reading, students might face some difficulties when they read. There are two levels of reading difficulties such as difficulties in word level and difficulties in text level. The difficulties at words level mostly faced by beginning readers and students with learning difficulties because they have limited range option of available words. There are at least eight factors causing reading difficulties at text level. For instance, limited vocabulary knowledge, lack of fluency, lack of familiarity with subject matter, difficulty level of the text (readability), inadequate use of effective reading strategies, weak verbal reasoning, problem with processing information, and problem in recalling information after reading. The researcher used questionnaire to find out which difficulties mostly faced by the students. The
questionnaire was given to 35 students of experimental group. The result of the questionnaire can be seen in the following chart: Reading difficulties Difficulty 1 9% 15% Difficulty 2 18% 16% 11% Difficulty 3 Difficulty 4 7% 7% Difficulty 5 17% Difficulty 6 Difficulty 7 Chart 4.2 The percentage of reading difficulties faced by the students As can be seen from the chart the questionnaire found that there are 24 students with limited vocabulary knowledge. This was the highest number of reading difficulties faced by the students. Studies confirmed that reading comprehension is closely related to a students’ competence of language competence.

There are 21 students think that their lack of fluency was their reading difficulties. As student don’t speak English in their daily life and they are not used to read English text. Moreover, there are 23 students think that their difficulty was the difficulty level of the text. Since text that is complex in terms of concepts, vocabulary, sentence length and structure is difficult for readers to process. The next difficulty face by the students is problem with processing information. students who think that this was their difficulty. Because individuals differ in their working-memory capacity, with some able to process and accommodate much more information than others. Therefore, the teacher should encourage students to re-read material, several times if necessary, in order to process the information successfully. As the students were taught to use cognitive strategies, the strategy of practicing naturalistically can help student with this difficulty.

Furthermore there are 9 students with lack of familiarity with subject matter and inadequate use of effective reading strategies. However, the students were taught several reading strategies related to cognitive strategies. Thus, it can help students with this difficulty. In addition, there are also 12 students who think that their difficulty was problem in recalling information after reading. And the last there are 14 students with verbal reasoning difficulty. Actually, the ability to reason is determined by an individual’s level of intelligence; but guided reading activities in which a teacher uses effective questioning to challenge students to think more deeply about the text they are reading are helpful in developing their ability to reason from the information given. In conclusion, the difficulty mostly faced by students is the lack of vocabulary knowledge. And the less faced by the students is the lack of familiarity with subject matter and inadequate use of effective reading strategies. It was caused by the use of cognitive learning strategies in reading that had
been taught to the students.

CONCLUSION

There are some conclusions that can be drawn from the present study. First, the cognitive learning strategies are effective in improving reading comprehension. The improvement can be seen by the result of t-test on students score. The independent t-test shows that there is a significant difference between the mean of students’ scores in the experimental group and the control group. The significant difference is also supported by the result of t-test which is larger than critical and the probability which is lower than the level of significances. Also shows that there is a large effect of independent variable upon dependent variable. Therefore, it indicates that cognitive learning strategies have major effect in improving students reading comprehension. Second, the cognitive learning strategies help students to improve their reading comprehension by themselves both inside and outside the classroom, with or without the teacher assistance. Since there are some implementations of cognitive learning strategies in reading students can choose which strategy is more suitable for them. Third, the cognitive learning strategies provide students with interesting, challenging, and enjoyable classroom activity. It also contributes to help students to comprehend the material more easily. As a result, based on the research findings it can be concluded that cognitive learning strategies are effective in improving students reading comprehension and it can be applied by both the teacher and the students inside or outside the classroom.

REFERENCES


