INVESTIGATING CORRELATION BETWEEN READING STRATEGIES AND READING ACHIEVEMENT ACROSS LEARNING STYLES

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ABSTRACT The study was aimed to analyze the interrelationship between metacognitive reading strategy and reading achievements, the correlation between cognitive reading strategy and reading achievement, and to know the effect between metacognitive and cognitive strategy used by learners across their learning styles. This study used correlation research. The number of populations was 315. The researcher chose 113 Senior High EFL students at MA Nurul Jadid. Questionnaire and reading comprehension test were used to collect data. The researcher used two questionnaires to measure reading strategies used by the students and students' learning styles. SPSS V. 20 was used to analyze questionnaires' data. Descriptive statistics was applied to calculate the mean and standard deviation of 40 individual reading strategies. The results were: metacognitive and cognitive strategies were used in high and medium level when students did the tests. Metacognitive strategy significantly correlated with reading achievement where correlation coefficient is greater than critical value of correlation coefficient while cognitive strategy does not relate mutually to reading achievements. Then, reading strategies significantly affected students' reading achievement.

Keywords: Correlation, Reading Strategies, Reading Achievement, Learning Styles.

A. INTRODUCTION

Some teachers face a serious problem because many foreign language learners are fighting to read well while their ability is low. Burns, Roe, Rose stated "the ability to read is vital to functioning effectively in a literate society" (Burn, Roe, & Ross, 1996). According to Wells, literacy levels include per-formative, functional, informational, and epistemic (Burn et al., 1996). At the per-formative level, people are able to read, write, listen, and speak with the symbols used. At the functional level, people are able to use language to meet the needs of daily life such as reading newspapers, manuals or instructions. At the informational level, people can access knowledge with language skills, while at the epistemic, people are able to express knowledge in the target language.

By reading, students will learn something new. Because reading is an active process of understanding the printed words, hence, they must know how to learn from reading. Reading is the basic knowledge of all. Textbooks and other reading materials give a thousand of vocabularies and phrases to readers. Those help them to develop their spoken language skill and writing ability. The students need to read many English sources to acquire new knowledge and information. The source here means not only English material in the school but also

English material outside the school. Nowadays, it is very easy to find it. They can find or search on the internet.

Students need to improve English reading ability. It aids effectively to obtain the latest information as it needs. For now, internationalization and globalization has been competition among industries and commercial world. Hence, English reading ability becomes important skill for students to master.

A number of studies (e.g., Brown, El-Dinary& Pressley, 1996; Fisher, Frey & Williams, 2002; Wold, 1996) maintain that comprehension strategy instruction has positive effects on students' reading comprehension. Teaching comprehension strategies, both explicitly and directly to language learners, help them to become more thoughtful and proficient readers. Booth and Swartz in Ya Li Lai state the following:

All children need effective comprehension strategies to become independent readers . . . Comprehension is about thinking and understanding, and is affected by each person's knowledge, experience, and purpose for reading a particular text. Proficient readers are aware of the strategies involved in making the most possible meaning with print; they make predications, make inferences, see images in their minds, draw conclusions, and revise hypotheses about the text (Lai, Tung, & Luo, 2008).

In addition, Burns, Roe, Rose stated that reading is a thinking process. It is related to the brain's work. Reading process implies an active cognitive system operating on printed material to arrive at an understanding of the message (Burn et al., 1996). Tanny (2014) said that "to understand the text, readers have to decode writer's words, apply their own background of knowledge, determine the important details and choose strategies to clearing up the confusion". A text does not carry meanings by itself; the reader brings information, knowledge, emotions and experiences to the printed word (Brown, 2001 cited by Reza, 2011, p. 53). Therefore, effective readers know that when they read, what they read is supposed to make sense. They always control their understanding, and when they lose the meaning of what they are reading, they often unconsciously select and use a reading strategy (such as rereading or asking questions) that will help them reconnect with the meaning of the text.

From the explanation above, the researcher wants to find out reading strategies used by senior high EFL learners across their learning styles. The researcher believes that the EFL learners have their own way to comprehend the text without lay aside their weaknesses on foreign language competence.

B. REVIEW OF THE LITERATURE

A main issue for second or foreign language learner in reading comprehension is they have insufficient language background when they bring to exercise of acquiring literacy. It is different condition where the exercise in their first language. Consequently, educators must teach technique or reading strategy by giving an example how to do task like proficient reader. Ediger stated, "Reading comprehension strategies must be taught directly with modeling to reveal how reading tasks can be accomplished (Ediger, 2001). A well-planned comprehension strategy for instruction that involves directly teaching reading strategies is especially recommended for second or foreign language readers". A significant outcome of the use of reading strategies resides mainly in the capability to achieve meaningful reading.

In order to help the students comprehend the text, reading strategy is really helpful. Researchers (O'malley & Chamot, 1990) believe that using strategies well can foster and lead to students' autonomous learning, especially for students who perform less well on academic fields. Caverly, Nicholson, and Radcliffe (2004) indicate that developmental students showed significant improvement in a teacher-made reading comprehension test and a standardized reading test, as well as a significant growth was found using cognitive, metacognitive, and affective strategies in their study.

According to Ellis (1985, p. 99), "language learners vary on a number of dimensions to do with personality, learning style, motivation, aptitude and also age". These are considered to be important factors which decide the success or not in acquiring English language learning. In accordance with learning style, Wang defines "learning style as an individual's preferred or habitual ways of processing the knowledge and transforming the knowledge into personal knowledge" (Wang, 2002). Learning style is not really affected to what learners learn but it is about the learners preferred how they learn. So, they have different way how to process and acquire knowledge. Some learners used to work with visual image, another choose to listen to music while the others need physical activities to learn.

The number study on correlation reading strategies and learning styles is decreasing than learning styles in general (Price, Dunn & Sanders, 1981). Pratiwi, Arifin and Novita (2011) Research findings of the correlation reading comprehension and learning styles indicate that they are positively correlated. In accordance with study of the correlation reading comprehension and learning styles indicate, Wang stated "Learning styles are found to affect the students' learning behaviors (Wang, 2002). Students who have different learning style preferences would behave differently in the way they perceive, interact with, and respond to the learning environment. Since the learners differ in their preferences to the

certain learning styles, it will be important for an educator to know the variations of students on the features of their learning styles because the information about students' learning style preference can help the teachers or lecturers become aware to the students' differences bring to the classroom''.

English language learners in an EFL context do not have much exposure to foreign language use. Therefore, reading English texts plays a vital role for EFL students to improve their English skills as a whole. EFL students in MA Nurul Jadid have the misconception that reading well means to recognize every word and figure out its meaning from the printed text, hence they look for every unfamiliar word up, and translate sentences word-by-word. With this misconception, struggling foreign language readers, often "make little sense of what they have been reading, or they choose to ignore meaning-making completely and give up in frustration" (Booth & Swartz, 2004, p. 22).

C. METHOD

The research design of this study was correlation research, because this study was designed to find out the relation between reading strategies and reading achievement toward students' learning styles. Therefore, quantitative method was used.

This research was conducted at MA Nurul Jadid. It is located in Karanganyar Village Paiton Probolinggo. This is one the institution in Islamic boarding house of Nurul Jadid. It was selected by two reasons. First, this school was former of international standardized school. Second, most of the students were also *santri* who have another subject outside the formal school. It was called *diniyah*. So, they not only read book from formal school but also from *diniyah* those were classical books.

The population of the research was senior high EFL learners. They were eleven graders students. Total of the eleven graders students were 315 students. They were divided into four programs, are IPA, IPS, PK and BAHASA. Male and female students were placed in different classes because of *pesantren* policy. IPA program consisted of five classes whereas other programs consisted of two classes respectively. In short, eleven graders consisted of 11 classes.

Since the population were too large to use sample in order to be subjects. So, due to the factors of expense, time, and accessibility, it was not always possible or practical to obtain measures from an accessible population (Latief, 2012). Dealing with this study, cluster random sampling was used because the unit chosen was not in individual but a group of individuals

who was naturally together. Cluster random sampling technique involved the random selection of groups that already exist (Latief, 2012).

There were 4 programs in the school. They are IPA, IPS, BAHASA and PK (Program Keagamaan). Each program was divided into 2, male and female class. Male class was indicated by number "1" and female class was indicated by number "2". The amounts of the students were 113. The sample was chosen by lottery. The lottery was carried out toward 8 classes because all classes had chance to be sample. The samples of the study were XI-IPA 1, XI-IPS 2, XI-Bahasa 1, and XI-PK 2.

The instruments of this study were questionnaire and reading comprehension test. The first, questionnaire for the students was about reading strategies used by the students and it was adopted from O'Malley and Chamot's classification of metacognitive and cognitive strategy (Sun, 2011). There were 40 items. 24 items were categorized as metacognitive reading strategy and other 16 items were cognitive reading strategies. The items of metacognitive reading strategy were grouped into six subcategories: advanced organization, selective attention, directed attention, self-management, monitoring, and self-evaluation. Cognitive reading strategy was classified into 10 subcategories. They were skimming, prediction, analyzing, inferring, translation, summarizing, elaboration, repetition, guessing and note-taking.

In order the participant understand the questionnaire clearly and thoroughly, the statements were translated into Indonesian. The 1-5 scale was used in the questionnaire based on frequency scale by oxford. The description of scoring reading strategies questionnaire was 1 means I never do this, 2 means I do this rarely, 3 means I sometimes do this, 4 means I usually do this, 5 means I always do this. For learning styles questionnaire was 0 means never, 1 means rarely, 2 means seldom, 3 means often and 4 means(Oxford, 1990). So, participants could elect the option which expresses their opinion.

The reliability of the questionnaire was .84. It meant the reliability was good. As Malhotra (1993) stated that the items of the question are reliable when it is more than .60. Then, item validity was analyzed using SPSS 20. The result showed that only one item was not valid. The range of item validity was .073 - .596.

The second questionnaire for the students was to investigate their learning styles. See appendix 2. It was adapted from Cohen's et al(Cohen, 2014). The questionnaire included 30 items. Each learning style had 10 items. The students were asked to fulfill the questionnaire that determined the students' motivation.

The second instrument was reading comprehension test. The reading comprehension test was a multiple choice type, having for option for each item with only one correct answer. The reason for using multiple choice formats was based on practical consideration. The test contained 20 items. It was administered with duration 30 minutes. In relation with to the research problem raised in the study, the test items had to represent the objective of reading comprehension test. The test specification was made. Scoring rubric was provided as well. The correct answer got score 1 and the wrong answer got score 0.

Before applying the test of reading to the subject of the research, the test needed to be reliable and sufficient in term of the validity. Thus, a test tryout was needed. The tryout test purposed to produce in the required data with relatively valid instrument. Further, the result of the try out was analyzed manual to get reliability of the test. Based on the result of the analysis, the reliability coefficient was .74. It meant that the scores were 74 % consistent or reliable with the 26 % measurement error. Since the reliability high enough, try out draft was not conducted. However, revising some of the test items was still needed.

When designing a test instrument, the researcher had to consider how to score and grade the result of the test. As Brown stated that your scoring plan reflects the relative weight that you place on each item in each section (Brown, 2000). Moreover, Sulistyo classifies scoring into two based on the test taker's response is viewed and treated (Sulistyo, 2011). The first type is dichotomous scoring. The number utilized in this kind of scoring is 0 (zero) and 1 (one). The test that commonly requires this dichotomous scoring is multiple-choice, true-false, correct- incorrect and any other formats that suggest a dichotomy in producing responses. The second type is continuous scoring. The test taker's response is considered as having a graduation or degree in it. In this way, a test taker's response may be scored as 0, 1, 2, 3, 4, or 5. Depending on the nature of the response according to the scoring scheme utilized. Since the multiple-choice was used in designing the test instrument, this research used dichotomous scoring which the number utilized is 0 and 1. 1 (one) was assigned to a correct answer and 0 (zero) to an incorrect answer.

The data collection procedure was described as follows; firstly, to measure students' reading comprehension, two texts (narrative and report) were used. The students were asked to accomplish the test within 30 minutes. Then, the teacher delivered the questionnaire and it was required to finish within 30 minutes.

Data analysis is process organizing the data. The data collected from the questionnaire were analyzed carefully. The first step was to check the completeness of responders and identify of each responders.

The data was obtained from the questionnaire about the students' reading strategies and reading comprehension test. The step in analyzing the data was the analyzed data from the questionnaire. The questions in the questionnaire were divided in two types. They were reading strategies and learning styles questionnaire. For the reading comprehension test, the maximum score was 20 while the minimum score was 0.

SPSS 20.0 was used to analyze the data of questionnaire. It presented descriptive statistics. The mean and standard deviation were included. Its function was to draw the frequency of students' reading strategies. For more detail, see table 1.

Table 1: Frequency scale delineated by Oxford (1990)

Means score	Frequency scale	Evaluation
1.0 – 1.4	Low	Never or almost never used
1.5 – 2.4		Generally not used
2.5 – 3.4	Medium	Sometimes used
3.5 – 4.4	High	Usually used
4.5 – 5		Always used

In addition, SPSS was also used to compute correlations between the use of reading strategies and the participants' reading achievements and correlation between reading strategy and learning style.

D. FINDINGS AND DISCUSSION

Findings

Before displaying the correlation between reading strategy and reading comprehension toward learning styles, the researcher would display reading strategies that were more frequently used by senior high EFL learners in MA Nurul Jadid Paiton. Researcher used SPSS v 20.0 to answer. The researcher got the data from the questionnaire. And the result was displayed in Table 2.

Table 2 Descriptive Statistics about 16 Subcategories of Reading Strategies

Strategy	Subcategory	Mean	Frequency scale
Metacognitive	Advance organization	3.5	High
	Selective attention	3.2	Medium
	Directed attention	3.6	High
	Self-management	3.1	Medium
	Monitoring	4.0	High
	Self-evaluation	3.4	Medium
Cognitive	Skimming	2.9	Medium
	Prediction	3.1	Medium

Analyzing	3.7	High
Inferring	3.4	Medium
Translation	3.5	High
Summarizing	3.2	Medium
Elaboration	3.5	High
Repetition	4.5	High
Guessing	3.3	Medium
Note taking	3.1	Medium

To summarize the mean of cognitive and metacognitive strategy, all means of subcategory was divided by the amount of subcategory. The result is shown in Table 3.

Table 3 Descriptive Statistics about Two Major Classes of Reading Strategies

Strategy	Number of participant	Mean	Frequency scale
Metacognitive	113	3.5	High
Cognitive	113	3.4	Medium

Based on Oxford (1990), the frequency of those two strategies were high and medium. For metacognitive strategy was usually used and cognitive strategy was sometimes used.

Correlation between Metacognitive Strategies and Students' Reading Achievement

The first question is "Do metacognitive strategies correlate with students' reading achievement?" The researcher computed the correlation by using SPSS v 20.0. at the 0.05 level (2-tailed). The result is shown in Table 4.

Table 4: Correlation between Metacognitive Strategies and Reading Achievement

		Reading Achievement	Metacognitive Strategy
Reading Achievement	Pearson Correlation	1	.247**
	Sig. (2-tailed)		.008
	N	113	113
Metacognitive Strategy	Pearson Correlation	.247**	1
	Sig. (2-tailed)	.008	
	N	113	113

The table showed that correlation was significant at the 0.05 level (2-tailed) .247. From the table above, among reading strategies and reading achievement were correlated. It was greater than critical value correlation coefficient on the table was .187 at .05 of significance with 111 degree of freedom (.247 >.187).

Correlation between Cognitive Strategies and Reading Achievement

The second question is "does cognitive strategy correlate with reading achievement?" The researcher computed the correlation by using SPSS v 20.0 at the 0.05 level (2-tailed). It was obtained r = .092.

Table 5: Correlation between Cognitive Strategy and Reading Achievement

		Reading Achievement	Cognitive Strategy
Reading Achievement	Pearson Correlation	1	.092
	Sig. (2-tailed)		.331
	N	113	113
Cognitive Strategy	Pearson Correlation	.092	1
	Sig. (2-tailed)	.331	
	N	113	113

The Effect of Metacognitive and Cognitive Strategy toward Reading Achievement

The third question was "Do metacagonitive and cognitive strategy affect students' reading achievement?" the result was shown as follows:

1. $R^2x12.y = \dfrac{r^2x1.y + r^2x2.y - 2(rx1.y)(rx2.y)(rx1.x2)}{1 - r^2x1.x2}$

$R^2x12.y = \dfrac{(0.247)^2 + (0.092)^2 - 2(0.247)(0.092)(0.593)}{1 - (0.593)^2}$

$R^2x12.y = \dfrac{0.061 + 0.008 - 0.027}{1 - 0.352}$

$R^2x12.y = \dfrac{0.069 - 0.027}{0.648} = \dfrac{0.042}{0.648} = 0.065$

2. $R = \sqrt{R^2} = \sqrt{0.065} = 0.255$

3. $F = \dfrac{R2/k}{(1 - R2)/(N - k - 1)}$

$F = \dfrac{0.065/2}{(1 - 0.065)/(113 - 2 - 1)} = \dfrac{0.033}{0.935/110} = \dfrac{0.033}{0.008} = \mathbf{4.125}$

Discussion

Regarding the findings of SPSS v.20.0, it was found the mean of metacognitive and cognitive were 3.5 and 3.4 respectively. Based on Oxford (1990), the frequency of those two strategies were high and medium. For metacognitive strategy is "usually used" and cognitive strategy is "sometimes used".

From 6 sub-categories of metacognitive, monitoring had the highest mean, 3.9. It showed that most of the students tried to understand the reading material and verify with his/her understanding. Second was directed organization (3.57). The students focused on the important points in a reading test to gain a comprehensive understanding and ignored

inappropriate information. The third rank was advance organization (3.53). The students determined what the aim of a particular reading test was and design a plan on how to accomplished it. The fourth rank was self-evaluation (3.36). Self-evaluation was divided into two. First, performance evaluation was deducing how good they have worked on the reading test and problem evaluation. Second, problem identification was to determine on what problems they still had with the reading test.

Next rank was selective attention. The students were pointing to specific details which correlate to the reading comprehension test. The last was self-management. The students attempted to comprehend essential conditions for reading and managed their own motivation for test as well as setting reading rate.

In short, in metacognitive strategy the students created the meaning from text. This condition is equal to bottom-up theory. As Sulistyo stated that the reader recreates the meaning through hierarchical and analytical process (Sulistyo, 2011).

From 10 sub categories of cognitive strategy, repetition was in the first rank (4.48). It worked when the students misunderstood about finding a meaningful language sequence. "Analyzing" was in the second (3.75). The students implemented rules to comprehend or generate the second language or do the part they do not understand. "Elaboration" was in the third (3.49). The students utilized their prior knowledge to make personal association. Next was translation (3.47). Students' first language interfered as a foundation to comprehend and generate the second language. The last was inferring. The students used available information to guess meaning.

Next was guessing (3.31). The students tried to answer a question or form an opinion when they were not sure whether they will be correct. The seventh rank was summarizing (3.17). The students summarized of new information they got. Prediction was placed in eighth rank (3.14). And it was continued by note taking as the ninth rank (3.07). The students wrote down key words or concepts. And the last was skimming (2.9).

From the description above, it showed that the highest and the lowest mean were 4.48 and 2.7 respectively. It indicated participants sometime applied metacognitive and cognitive reading strategy (Oxford, 1990). Metacognitive strategies was lightly more constant than cognitive strategies by the mean score 3.5 and 3.4 respectively.

The slightly difference between those two strategies happened because some students tried to connect the material with his/her understanding. It was supported by the mean in metacognitive subcategory, monitoring is the highest (4.0). In cognitive subcategory,

repetition was the most frequently used by the learners. It indicated that they always missed the understanding of the text.

Pearson's correlation coefficient was used to discover correlation between metacognitive strategy and reading achievement. It had three description; positive, negative and zero correlation. Positive correlation means the two variables fluctuate in the same direction. Negative correlation means the two variables fluctuate in different direction. And zero correlation means the two variables have no correlation at all. Sig. (2-tailed) in level .05 .01 was used to indicate correlation coefficient is significant. .05 level of significant means the confidence level is 95 % while .01 means the confident level is 99%.

The finding showed that correlation was significant at the 0.05 level (2-tailed) .247. It showed metacognitive strategies and reading achievements were correlated. The result reflected that the correlation between metacognitive strategy use and reading achievements was significant. Correlation Coefficient was greater than critical value correlation coefficient on the table is .187 at .05 of significance with 110 degree of freedom (.247 >.186). It further indicated that reading strategies played an important role in the students' English reading achievement.

It indicated that students who use metacognitive reading strategy more frequently have better reading achievement. This finding was similar to study by Ryan (1981) which compared students who use metacognitive reading strategy and those who don't. His finding stated that proficient readers use strategies more effectively and they often adapt their reading rate for confusing words in a text and may reiterate unpredictable sentences several times to examine in contrast within the text. In accordance with this, Yang and Zhang (2002) study found that there is positive correlation between students' metacognitive and their reading achievement. And also, it was supported by Liu's study (2002). He found that a good reader used metacognitive strategy more frequent than those who don't.

Metacognitive strategy was really needed for learning process. As Oxford (1990) stated that metacognitive strategy is very important for learning a language. Cognitive strategy was not significantly correlated with reading achievement (.092<.186).

This finding is in line with Zare generated a research on correlation between cognitive and metacognitive strategy and reading achievement (Zare, 2013). The result showed that metacognitive strategy and reading achievement was significantly correlated while cognitive strategy was insignificant correlated with reading achievement.

Metacognitive and cognitive strategies affected students' reading achievement. It can be seen from the result of F is 4.125 while critical value of F is 3.09 at the level of significance .05

and degree of freedom is 100. It means null hypothesis was rejected because value of F is greater than critical value of F (4.125 > 3.09). This finding was supported by Meng (2004) found that reading strategy was required to improve students' English reading skill.

Even though cognitive strategy was not correlated with reading achievement, but it also affected reading achievement. In this study, cognitive strategy was sometime used in the reading process.

E. CONCLUSION

Firstly, according to the result, the frequency scale was high and moderate. It was found that the frequency of using cognitive strategies used by the students is almost equal to the use of metacognitive where the means were 3.5 and 3.4 respectively. From 6 sub categories in metacognitive strategy, monitoring was the most frequently used. Direct organization and advance organization were also frequently used by the students. Whereas, self-evaluation, selective attention and self-management were sometime used by the students.

In cognitive strategy, repetition is in the first rank with the mean score 4.48. It meant the students was always used this category. Analyzing and elaboration were usually used. Translation, inferring, guessing, summarizing, Prediction, note taking and skimming were sometimes used by the students.

Secondly, metacognitive strategies were significantly correlated with reading achievement. While cognitive strategies were not correlated with reading achievement. It indicated that reading strategies had an important role in the students' English reading achievement.

Next, reading strategies were significantly affected toward reading achievement. It was proven by the result of computation that F is greater than F critical (4.125 > 3.09).

Teachers should increase their attention on the essential of teaching reading strategies at school to upgrade students' reading skill. Educators must comprehend reading strategy use comprehensively. They not only educate reading strategy but also how to apply it. For instance, the teachers stimulate the students' prior knowledge by giving text which related to their daily life, such as traditional market, the story where they live, etc.

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