Identifying the Use of Reading Learning Strategies in Relation to Learning Styles

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Abstract: This research was aimed at finding out students’ learning styles in learning English as foreign language, the strategies used by students with different learning styles in learning English reading and the correlation between learning strategies and reading achievement. This research was conducted to 32 students in first grade of SMAN 3 Bandar Lampung. In collecting data, the researcher gave two questionnaires and a reading test to measure learning styles, reading learning strategies and reading achievement. The data were analyzed using ANOVA and Correlation. The results showed that (1) the students which were group under kinesthetic was found 15 students (46.88%), visual was 9 students (28.12%) and auditory was 8 students (25%), (2) kinesthetic students and auditory students mostly used social strategy, visual students mostly used cognitive strategy, in learning reading. (3) there was correlation between learning strategies and reading achievement. Thus, by identifying learning styles and strategies, the teacher and the students will be more selected to choose the best method in teaching and learning.

Keywords: Learning Strategies, Learning Styles, Reading

I. Introduction

Learning styles of students usually influence learning process. Based on DePorter and Hernacky (1999), learning style is the way in which a person learns and gains knowledge or skills. It is commonly recognized that people learn and process information in very different ways. For example, auditory students tend to attain information by discussing and listening. As another example, for visual style, the students learn by reading, seeing, interpreting charts, graph, and pictures. While in kinesthetic style, the students are more accepting learning based on behavior such as touch, feel, see, and listen.

Learning styles can be very helpful and beneficial to the students in becoming more focused and attentive students that will increase educational process. However, not all teachers considered their students’ learning style. After interviewed some English teachers at school, the teachers were lack of consideration to find out students’ learning style in their class. During the learning process, the teachers usually taught the students in many different ways, for example they explained the materials by reading the book, writing the explanation on the whiteboard, explaining orally, asking students to do activities like doing performance or role play and some of them sometimes used audio visual. The teachers only used the method in learning based on their styles without considering their students’ styles in processing the knowledge in learning process because they thought that as teacher they were freely to decide how the learning process in class would be. However, the learning process sometimes was not effective.

Not only learning styles, but also learning strategies are needed in order to learn more effectively in learning process. Wenden and Rubin (1990) stated that language learning strategy refers to language learning behaviors that students actually engage in to learn and regulate the learning of second or foreign language. She also points out that a learner who uses learning strategy becomes more effective learner. This could be inferred that using learning strategy in learning process could help the students to understand more and get higher comprehension about a lesson. Unfortunately, most of students at school do not use the strategies effectively in learning, so that sometimes students find the difficulty in the learning process. This happened in students’ achievement of reading.

Nuttal (1985) defined reading as the meaningful interpretation of printed or written verbal symbols. It means that in reading the readers activate the process of guessing and deriving meaning of information stated in the printed materials. Students mostly dealt with reading texts at school. However, students’ reading achievements were still low. Rkraku (2013) had emphasized the effect of the use of reading strategies can have on the improvement of foreign language reading skill. Then, he found that the study pointed to a noticeable improvement of students’ reading skills once they had used reading strategies to do their exercises. As a conclusion, the article pointed out that reading strategies are essential for the improvement of reading skills and they should be promoted in English language teaching. Since learning strategy is beneficial to help students learnt, therefore students need to use strategy during the learning process.

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In learning reading, many different learners may use different learning strategies. There are three main categories of language learning strategies that can be applied in learning reading: cognitive, metacognitive, and social (Setiyadi, 2011). The cognitive processes include all activities related to mental processing (Setiyadi, 2011). However, Wenden and Rubin (1990) quote that metacognitive learning strategies involve thinking about the learning process, planning for learning, monitoring of learning while it is taking place and self-evaluation of learning after the learning activity. Furthermore, O’Malley (1985) stated that social strategies are related to social-mediating activity and transacting with others. Cooperation and question for clarification are the main social strategies. Based on the explanations above, this present study was aimed at finding out students’ learning styles in learning English as foreign language, the strategies used by students with different learning styles in learning English reading and the correlation between learning strategies and reading achievement.

II. Research Design

This research was a quantitative study. The design of this research was ex post facto, since the data were collected after the fact. The researcher used one group and took the data in one time without giving treatment (Setiyadi, 2006). The population of this research was the first grade of SMAN 3 Bandar Lampung. There were 7 classes of the first grade in that school. The number of the students of each class was about 32 students. The researcher randomly chose one class as the sample. In collecting data, the researcher gave two kinds of questionnaires and a reading test. The first questionnaire was about learning styles and the second questionnaire was about learning strategies in reading. In analyzing the data, the researcher used One way ANOVA and correlation.

There were three kinds of learning strategies, cognitive, metacognitive, and social strategies. The means of each strategy was compared with the means of the three kinds of learning styles, visual, auditory, and kinesthetic style in order to determine whether each main effect and the interaction effect were statically significant. The validity of the questionnaire was seen from content and construct validity. This meant that between the items of the questionnaire and the theory of the expert must be the same. The first questionnaire, Perceptual Learning- Style Preference Questionnaire was developed by Obralic and Akbarov (2012). The questionnaire consists of 15 items. There are 5 questions for each learning category in this questionnaire. The questions are grouped below according to each learning style. The visual group was items number 3, 7, 8, 13 and 15; auditory group was items number 1, 4, 6, 10, and 12; kinesthetic group was items number 2, 5, 9, 11, and 14. Besides, each question you answer has a numerical value which were 5= Strongly agree, 4= Agree, 3= undecided, 2= disagree, 1= strongly disagree. This questionnaire would help to determine student’s major learning style preference(s), minor learning style preference(s), and those learning style(s) that are negligible. Then, the researcher used inter-rater to prove that the content, face, and construct were suitable with the questionnaire items.

Based on the result of validity judgment, the item questionnaires were modified according to the feedback acknowledged by the experts to translate the questionnaire into Indonesian language in order to make the research participants comprehend well. After that, the reviewers agreed if the questionnaire had good contain and construct validity. Although there were some statement should be revised but overall there were no deleted items. It was assumed that the questionnaire test is valid.

The second questionnaire, Language Learning Strategy Questionnaire or the LLSQ was developed by Setiyadi (2011). There were 20 items in LLSQ. The content validity of the LLSQ was partly determined by professional judgment. Five language teaching experts matched the LLSQ items, with agreement at 94%. Then LLSQ was constructed based on the theories of cognitive, metacognitive and social strategy in Oxford and Burry-Stock’s measurement: the Strategy Inventory for Language Learning (SILL). The items nos. 1-11 measured cognitive strategy, nos. 12-17 measured metacognitive strategy and nos. 18-20 measured social strategy (Setiyadi, 2011). Reading test which was used in this research had good content and construct validity. The materials given were suitable with the curriculum. The topics chosen were procedure, report and biography texts. The test was constructed by the theory of Nuttal (1985). The table of specification of reading test was presented below.

<table>
<thead>
<tr>
<th>No</th>
<th>Reading Specification</th>
<th>Item Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Determining main idea</td>
<td>1, 6, 11, 16, 26</td>
<td>22%</td>
</tr>
<tr>
<td>2</td>
<td>Inferences</td>
<td>17, 23, 27</td>
<td>13%</td>
</tr>
<tr>
<td>3</td>
<td>References</td>
<td>3, 8, 13, 18, 23, 28</td>
<td>26%</td>
</tr>
<tr>
<td>4</td>
<td>Finding detail information</td>
<td>19, 19, 24, 29</td>
<td>17%</td>
</tr>
<tr>
<td>5</td>
<td>Vocabularies</td>
<td>5, 10, 15, 25, 30</td>
<td>22%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>23</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 1. Reading Specification
In addition, every item in learning styles and strategies questionnaire was analyzed to make sure that the items consists of good unity. To find whether the test was reliable or not, the writer used Cronbach Alpha. The alpha ranges between 0 and 1. The higher the alpha, the more reliable the questionnaire would be (Setiyadi, 2006). The result of the computation were .633 (see Tabel 2) and .778 (see Table 3). These meant that the questionnaires had high reliability.

**Tabel 2: Reliability of Learning Style Questionnaire**

<table>
<thead>
<tr>
<th>Cronbach's Alpha</th>
<th>Cronbach's Alpha Based on Standardized Items</th>
<th>N of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>.633</td>
<td>.602</td>
<td>15</td>
</tr>
</tbody>
</table>

**Tabel 3: Reliability of LLSQ**

<table>
<thead>
<tr>
<th>Cronbach's Alpha</th>
<th>N of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>.779</td>
<td>20</td>
</tr>
</tbody>
</table>

The reading test was analyzed by using Spearman Brown Formula to measure its reliability. From the analysis, the result of the computation was 0.98. By considering the criteria of a reliable test, it was concluded that criteria of the test had a very high reliability. From the result of discrimination power, it was shown that there were eighteen poor items, ten satisfied items, and two good items. At last, there was 7% of items omitted, 11% of items revised, and 12% of items administered from 30 items. Finally, the researcher took 23 items as using for reading test.

**III. Findings**

Referring to the result of PLSP questionnaire, the researcher divided the students into three types of learning styles. By analyzing the data of questionnaire, the researcher could classify the students into three kinds of learning styles. The result of first research question was the students whose major learning styles preference belonged to kinesthetic students were found 15 learners (46,88%), 9 visual learners (28,12%) and 8 auditory learners (25%) from 32 samples.

Furthermore, to answer the second research question the result of ANOVA was identified. Students, with visual learning style, auditory learning style, and kinesthetic learning style, used different kinds of reading learning strategies. After comparing the mean of learning styles and strategies, visual students mostly used cognitive strategy with mean 3.99. Kinesthetic students and auditory students mostly used social strategy with mean 3.86 and auditory students with mean 3.58. In addition, visual, auditory, and kinesthetic students used metacognitive strategy as the second preference (See Table 4).

**Table 4. Result of ANOVA**

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognitive</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Visual</td>
<td>9</td>
<td>3.9998</td>
</tr>
<tr>
<td>Auditory</td>
<td>8</td>
<td>3.1687</td>
</tr>
<tr>
<td>Kinesthetic</td>
<td>15</td>
<td>3.3099</td>
</tr>
<tr>
<td>Total</td>
<td>32</td>
<td>3.4687</td>
</tr>
<tr>
<td>Metacognitive</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Visual</td>
<td>9</td>
<td>3.9644</td>
</tr>
<tr>
<td>Auditory</td>
<td>8</td>
<td>3.4375</td>
</tr>
<tr>
<td>Kinesthetic</td>
<td>15</td>
<td>3.7120</td>
</tr>
<tr>
<td>Total</td>
<td>32</td>
<td>3.7144</td>
</tr>
<tr>
<td>Social</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Visual</td>
<td>9</td>
<td>3.2200</td>
</tr>
<tr>
<td>Auditory</td>
<td>8</td>
<td>3.5800</td>
</tr>
<tr>
<td>Kinesthetic</td>
<td>15</td>
<td>3.8640</td>
</tr>
<tr>
<td>Total</td>
<td>32</td>
<td>3.6119</td>
</tr>
</tbody>
</table>
Figure 1: Means Plot of the Use of Learning Strategy in Reading in Relation to Students’ Learning Styles

To answer the third research question, the researcher identified students’ strategy in learning reading and correlated the strategy used with their reading achievement. The result showed that cognitive strategy correlated to reading achievement with correlation coefficient .836 but it was not significant because the sig. (2 tailed) was .038 or more than 0.05. Then, metacognitive strategy and social strategy had high correlation and significant to reading achievement with correlation coefficient .945 and .852. The sig. (2 tailed) for metacognitive and social strategy was 0.00.

IV. Discussion

The students used their senses to take in information or knowledge. They seemed to have intention in how they learnt best. In this study on learning style, every learner had their own characteristics in learning process based on their style. The findings are discussed below.

There were 15 students found as kinesthetic learners. Generally kinesthetic learners learn best by experiencing and being involved physically in classroom experiences. Feinstein (2006) stated that kinesthetic learner needs to be actively (bodily) engaged in the learning process with real world activities and with activities that have meaning to the learner. In addition, the students were classified into kinesthetic learner if they had the characteristics such as like to write down or to take notes for visual review, preferred to make posters, physical models, or actual practice and some activities in class, remembered best by writing things down several times, felt very comfortable touching others, spoke with their hands and with gestures, and needed to be active and took frequent breaks (DePorter and Hernacky, 1999).

Supporting to the statements of DePorter and Hernacky (1999) above and identifying the questionnaire answers of learning styles, the researcher found that the kinesthetic students usually remembered information well when they actively participated in activities in the classroom. A combination of stimulation, for example an audiotape combined with an activity or a written direction combined with an activity, would help them understand new materials. As kinesthetic students, they better obtained the learning process, information, or knowledge if they did the activities directly such as writing things down to make it easier to them in understanding the lesson. Then, the students would learn best if join a role-play and participate in related activities.

Furthermore, there were 9 students found as visual. Visual students assimilated information most effectively by reading or seeing something (Feinstein, 2006). It means that generally students learn well from seeing visual aids such as words in book, on the whiteboard, and in workbooks. As DePorter and Hernacky (1999) cited that there were some characteristics of the visual students. The students preferred information to be presented using visual aids, required explanations of diagram, graphs, or visual directions, could better understand a news article by reading about it in the paper than by listening to the radio, and took numerous detailed notes.

Supporting to the statements of DePorter and Hernacky (1999) above and identifying the questionnaire answers of learning styles in this research, the researcher found that the visual students usually remembered and understood information and instructions better if they read the materials. They did not need as much oral explanation as auditory students, and they could often learn alone with a book. They should take notes of lesson and written directions if they wanted to remember the information. As visual students, they would study better if they used the materials or media that could be seen.

Moreover, there were 8 students found as auditory learners. The auditory students usually process information through sound, learn by listening to others, and learn by talking and hearing themselves (Leaver,
1998). It meant that generally students prefer to learn from hearing words spoken and from oral explanations. Furthermore, the students were classified into auditory learner if they had the characteristics such as being able to remember more about a subject through the lecture method with information, explanation, and discussion, did better at academic subject by listening to lectures and tapes as opposed to reading textbook, followed oral directions better than written ones, remembered things best by saying them aloud or repeating words and key points, prefer to listen what they were learning, and acquire knowledge by verbalizing lessons to themselves (DePorter and Hernacky, 1999).

Supporting to the statements of DePorter and Hernacky (1999) above and identifying the questionnaire answers of learning styles, the researcher found that the auditory students usually remembered information by hearing an instruction, explanation or direction. Reading aloud when they were learning new material could be an alternative because they could hear their own voice. They benefited from hearing audio tapes, lectures, and class discussions. They benefited from making tapes to listen to, by explaining to another partner, and conversing with the teachers. Besides, it could happen to the students because those students had a habit of listening something while processing or learning something. In state school the use of audio might not be really often. Thus, only some of students understood with oral explanation and the others might learn better by doing some activities or reading the text.

Every student had different style in learning something. The students might have all of the characters of visual, auditory and kinesthetic. However, there would be different intention of their learning styles. The kinesthetic learners were found the most in this research. The styles of processing or learning something could be influenced by some factors such as environment and habit. Ronald and Serbrenia (1995) stated that Individuals approach learning differently due to differences in their learning styles. A person’s approach to learning is a relatively stable indicator of how they perceive, interact with, and respond to the learning environment. The environment of students can make the students had intention of a kind of style, as example if the students mostly engage in real activity during their learning or doing a role play, they will have intention of kinesthetic style in learning. Even they actually had all of the characteristics of three styles in learning, the environment of their study can make the kinesthetic style became strong. Thus, it could be inferred that the students who belonged to kinesthetic learner in this study had strong intention of the characteristic of kinesthetic and the environment and habit of their study had built them into kinesthetic learners.

Related to the result of second research question, the result of ANOVA showed that the visual students, who usually assimilate information most effectively by reading or seeing something, more frequent used cognitive strategy in reading. The cognitive processes include all activities related to mental processing (Setiyadi, 2011). It could be inferred from the statement that the visual students used cognitive strategy by connecting what they have already known or seen with what they were reading. The students sometimes thought about what was going to happen, recalling the background knowledge and made predictions based on what they had already known and what they had read. As example of visual students, they tried to understand sentences by analyzing their patterns. They tried to translate word and sometimes try to understand the passage by using general knowledge and experience.

In addition, the auditory students, who usually process information through sound, learn by listening to others, and learn by talking and hearing themselves, more frequently used social strategy in reading. Based on auditory characteristics, the students usually learn reading by listening themselves or others. The students, in using social strategy in reading, might cooperate with other students to solve reading task or understanding about text. Besides, students could study reading by involving in social activities liked discussing or working together with peers. As the examples, the auditory students solved the reading passage by listening to teacher explanation and discuss with the teachers about the text, read aloud the text while trying to understand the passage or listen to friends who read aloud the passage, and sometimes join in a discussion with peers. Thus, the auditory students had preference of using social strategy in learning process.

Besides, same as auditory students, the kinesthetic students, who usually needs to be actively (bodily) engaged in the learning process with real world activities and with activities that have meaning to the learner, more frequently used social strategy in reading. Based on kinesthetic characteristics, the students usually used social strategies like cooperate with other students to solve reading task or understanding about text. Besides, students could study reading by involving in social activities liked discussing or working together with peers. Then, in understanding the reading task, kinesthetic students liked to move and join in the real activities. They liked to discuss a lot could be with peers or teachers. As the examples, the students solved the reading task by discussing in a small group, did the real activities while reading the procedure text, and solved the reading passage by discussing with teachers.

In addition, related to the result of third research question which found that cognitive, metacognitive and social strategy were correlated to reading achievement but only cognitive strategy which was not significant. Since all of the strategies used were correlated to reading achievement, the researcher compared the results of reading achievement between them. They were found that means score for students who used
cognitive strategy was 71.26, metacognitive strategy was 75.36 and social strategy was 71.49. It could be inferred that students who used metacognitive strategy in learning reading could be the best learner and got the highest achievement in reading rather than used cognitive and social strategy. In addition, Wenden and Rubin (1990) stated that metacognitive learning strategies refer to knowledge above cognition or executive control or self-management through such processes as planning, monitoring, and evaluating. Students with metacognitive learning strategies can make plan for their studies. Thus, the metacognitive strategy performed better to student’s reading achievement.

Students used planning before learning, it meant that in the earlier before reading a passage, students were able to mention what they should and wanted to know about the information stated on the passage. The next step of metacognitive was monitoring the learning process. In monitoring the learning process the students focused on their prediction and their comprehension in reading a passage. The last of metacognitive strategy was evaluating step. The students were required to evaluate what they had learned. If the students could not understand a reading passage, they tried to analyze what difficulty they actually had.

There were many studies which had investigated the use of metacognitive strategy in learning reading. Cubukcu (2008), Korotaeva (2014), Raku (2013), Mistar, Zuhairi and Yanti (2016), Aghaie and Zhang (2012), Takallou (2011), Pei (2014), Zhang and Sheepo (2013), Estacio (2013), Henia (2003), Alsheikh and Mokhtari (2011) have investigated this study. Then, the results showed that metacognitive strategy gives positive effect and can improve student’s ability in learning reading. Although, the students did not had any training about metacognitive strategy before, since there was no treatment in this research, but the students was subconsciously used the steps of metacognitive strategy in learning reading. They did not realize and did not familiar with the name of strategy itself but they usually used planning, monitoring and evaluating in learning reading.

If we see the result of learning strategy used based on student’s style before, we may see that all students used metacognitive strategy as their second preference. Although the kinesthetic and auditory learners tended to use social strategy, but the mean score of using metacognitive strategy in both of the styles were in the second position. Moreover, the mean scores between cognitive and metacognitive strategy in visual style were almost same. Since the students who used metacognitive strategy got the highest achievement, it would be possible to train this strategy to students.

V. Conclusion

Most of students belonged to kinesthetic learners who tended to learn best by doing and performing something. Learning styles are useful for overcoming problem in learning process, thus both of teachers and students should be aware about the importance of identifying learning styles, whether they were visual, auditory, or kinesthetic students. The intention of learning style could be influenced by environment and habit in learning process. Mismatches between an teacher’s style of teaching and a student's method of learning could cause as potential learning obstacles within the classroom and as a reason for using a variety of teaching modalities to deliver instruction. In addition, students with different learning styles have different strategies in learning reading. They may use cognitive, metacognitive or social strategy in learning. The characteristics of each style would decide their preferences in using learning strategies in learning reading. It is because they had different intention of some characteristics in learning. In the other words, the students’ styles may decide their preferences of strategies.

Moreover, there was correlation between learning strategy and reading achievement. After comparing the result of reading achievement to different kind of strategies, the used of metacognitive strategy in learning reading had performed better to student’s reading achievement. Although the students did not realize that they used metacognitive strategy during learning reading, their reading test showed that their habit of using the steps of planning, monitoring and evaluating made them got the highest achievement of reading in this research. Since the students who used metacognitive strategy got the highest achievement, it would be possible to train this strategy to students. Henia (2003), Spo’rer, Brunstein, and Kieschke (2009), COŞKUN (2010), Liu (2010), Takallou (2011), Aghaie and Zhang (2012), Rahimird (2014), Mansoor and Ebrahim (2014), Pei (2014), Lai and Lin (2014), Silva and Graham (2015), and Mistar, Zuhairi, Yanti (2016) have investigated training learning strategies to the students. They found that training learning strategy is beneficial to the students. Strategies as essential techniques are consciously used by students for effective understanding, remembering, and using information.

The researcher hopes by identifying learning styles and learning strategies used by the students, the teacher and the students will be more selected to choose the best method in teaching and learning. Then, since the use of metacognitive strategy was found as the most beneficial strategy in reading, the teacher may train the students about metacognitive strategy explicitly or implicitly to improve student’s reading achievement.

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