

The Effect Between Right-brain and Left-brain Dominance on Reading Achievement

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Abstract: this research showed that the finding that the effect between right-brain and left-brain dominance on reading achievement is positive result means that there is difference between right-brain and left-brain dominance on reading achievement. The level sig. (2 tailed) was greater than the level of significant ($.00 < 0.05$), then H_0 was rejected H_1 was accepted. It can be said that all students of English Department use left-brain dominance in learning English especially reading skill. Meaning that the students who use left-brain dominance have good score and students who lowest score also use right-brain dominance but it is not suitable with them. These finding imply that student who learn language with left-brain dominance it will be good in achievement then who learn with the other brain dominance.

Keywords: Right-brain dominance, Left-brain dominance, Reading Achievement

1. Introduction

As we know, English is one of the international languages in the world and in Indonesian English is as a foreign language. In English there are four important aspects that must be known, that is listening, reading, writing and speaking. Each person has different levels of difficulty, including difficulty in communicating, difficulty understanding grammar, or limited the vocabulary. Everyone experiences the same thing when learning English, starting from memorizing vocabulary, understanding grammar and other language structures, even though it is easy to achieve during practice but most quickly to forget it.

Learning style must be owned by students. Students have various learning style in the classroom or outside the classroom. Every student has different learning styles to comprehend or understand the material. Doncel (2015) said that "learning style don't deal directly with the fact of "what" students learn, but "how" students prefer to learn. It means that learning style focuses on how students learn".

Left brain focuses on human's Intelligence Quotient (IQ). For example, students prefer reading, and speaking. Also, left brain dominance is knows as students who like multiple choice questions. Left brain dominance concentrates with logical, analytical thought, with

mathematical and linear processing of information (Niknam&Sabeti, 2017). It can be concluded that left brain dominated students prefer doing mathematics than other subjects.

On the other hand, right brain is a brain that is always used by people whose hobby is drawing, singing, and etc. Right brain is also considered at the center of Emotional Quotient (EQ). Right brain dominance is responsible for controlling the functions related to intuition, emotion, music, rhythm, physical coordination and activity (Tendero, 2000). Based on the explanation above it is clear that right brain is the opposite of left brain. For example, right brain dominated students do not prefer mathematics, but they like doing something that is related to art.

Reading is the ability to process text, understand meaning and connect with what the reader already knows. Reading is very important. With reading, the reader can improve the knowledge and can add the vocabulary. As well as the reader will know what happens in other countries without going there.

This chapter investigates the influence of learning style on academic achievement in reading at second semester English Department Students of Unisma. Syaroof, Jokar, Razavizadegan and Morovar (2014) article entitled *The Effect of Learners' Brain Hemisphericity on Their Degree of Vocabulary Retention: A Case Study of Iranian High School Students* is the main reference in this chapter. The basis argument of Syaroof et al.(2014) is that the learning style is more influenced their learning. Not only the learning style but also the hemisphericity affect their learning.

The importance of Knowing Learning Style

There is some problem in learning reading one of them is learning style. Some teacher does not aware with their students learning style. They only focus to the material as the result the students with different learning style difficult to understand the material. Learning style can be helpful and beneficial to the student in becoming more focused on an attentive student that will increase learning process. Discovering the learning style will allow the student to determine their own personal strengths and weaknesses and learn from them. Teachers can incorporate learning styles into their classroom by identifying the learning styles of each student, matching teaching style to learning style for difficult tasks, strengthening weaker learning styles through easier tasks and drill, teaching students, and learning style selection Kartika et al., (2014). Another benefit it will help the learners to be a problem solver, because the learners can control and solve problem that they faced while learning process. Identifying students learning styles also provides information why each student has different learning styles. Every student has

different learning style by identifying students' learning style, the teachers can organize classroom based on their individual needs.

The difference between left brain and right brain

Left brain dominance

Left brain dominance is the way students tend to learn or think the material using left brain. Sometimes they do not realize that she or he uses their left brain continually. Usually student who is categorized as left brain dominated, she or he is easy to comprehend about grammar and structure. Singh (2015) said that:

Characteristics of left brain dominance are intellectual, remember names, verbal response to instructions and explanations, experiments systematically and with control, makes objective judgments, planned and structured, prefers established certain information, analytic reader, reliance on language in thinking and remembering, prefers talking and writing, prefer multiple choice test, control feelings, not good at interpreting body language, rarely uses metaphors and favours logical problems solving.

From the explanation above, it is clearly stated that left brain dominated students are not good in interpreting body language, but they are good in writing and talking. The left-brain hemisphere concentrates on task requiring verbal strength such as speaking, reading and thinking and reasoning (Khaibiri&Heidari, 2011). Kok (2014) stated that left brain dominant learners use their logic more their intuitions, they are more detail oriented, they are reality-based learner and they learn better with facts and rules, they have a very strong sense of time. They learn with orders and patterns, thereby acquiring the grammatical rules of the language. They can remember names of object; therefore, they are better in vocabulary and retention of the lexis, they can form strategies and are practical in finding solutions. They always like feel to safe. Brown (1994) said that “the left hemisphere is associated with logical, analytical thought, with mathematical and linear processing of information” (p.125). Smith (2012) revealed that left brain dominated student has strength in language and logical thinking. It means that left brain dominated students are good in a language and they often think logically in solving the problems. Fleming (2017) conveyed that someone who is clever in history class (she or he is easy in remembering dates, Math class, and English class (she is clever in grammar and structure lesson) is categorized as left brain dominated student.

Diffen LLC (n.d) and Pesonality buzz (2018) stated there are some charecteristics of left brain dominated students shown in the following table:

Table 2.1: Characteristic of left brain dominated students

Functions	Speech and language, logical analysis and reasoning, mathematical computations.
Traits	Linear thinking, sequential processing, logical-decision-making, and reality-oriented
Perceived personality traits	Analytical, logical, pay attention to detail
Overall thinking	Linear, detail-oriented-“details to whole” approach
Thought process	Sequential; verbal (process with words), prefer multiple choice test
Problem – solving	Logical – order or pattern perception; emphasis on strategies.
Controls muscles on	Right side of body
Strengths	Mathematics, analytics, reading, spelling, writing, sequencing, verbal and written language

Table 2.1 shows that left brain dominated students relates with language and computation. It can be concluded that left brain brings positive side for students. Not all students use their left brain to think and learn, but also, they use their right brain to think and learn. There are some weaknesses for left brain dominated students. First, left brain dominated students are difficult to catch a lesson relating with visualization. Second, they are hard in abstract thinking. Lastly, left brain dominated students have difficulty in remembering faces. Therefore, it is obligated for teachers to know the students’ learning style whether they are left brain dominated students or right brain dominated students.

Right brain dominance

Right brain dominance is the way students tend to learn or think the material using right brain. This kind of brain is called as challenging brain. Student who is categorized as right brain dominated is students who prefer writing. Therefore, they like doing essay questions than multiple-choice questions. Singh (2015) stated that there are some characteristics of right brain dominated students, they are intuitive, remember faces, respond to demonstrated, illustrated or symbolic instruction, experiment randomly or less restraint, make subjective judgments, fluid and spontaneous, prefer elusive, uncertain information, synthesizing reader, reliance on imaging in thinking and remembering, prefer drawing and manipulating objects, prefer open ended (essay) questions, more free with feelings, good at interpreting body language, frequently uses metaphors, and favours intuitive problem solving. The right brain is responsive to information about the environment, focusing on the relationships of people. Non-verbal social information

gets a lot of attention in the right brain such as tone of voice, hand gestures, eye contact, and facial expression. The right brain relates with the body. If someone has good feeling and makes good decision, it means that she or he uses their right brain (Eddy, 2011). Brown (1994) said that “the right hemisphere perceives and remember visual, tactile and auditory images; it is more efficient in processing holistic, integrative, and emotional information” (p.125). Right brain dominance is great in recognizing faces, places and objects (Daymut, 2009). It is known that right brain dominated student is related with cognitive skills such as creativity, emotion, and intuitiveness. Daniels (2014) that right brain dominated student is someone who always remembering faces, making subjective statement, thinking intuitively, respond well to open-ended activities, prefer doing essay test.

Diffen LLC (n.d) and Pesonality buzz (2018) stated there are some characteristics of right brain dominated students shown in the following table:

Table 2.2: Characteristic of right brain dominated students

Functions	Spatial awarness, intuition, facial recognition, visual imagery, music awarenesss, art, rhytm
Traits	Holistic thinking, random processing, intuitive decision-making, non-verbal processing, fantasy-oriented
Perceived personality traits	Creative, artistic, open-minded
Overall thinking	Holistic, big-picture oriented- “whole to details” approach
Thought process	Random; non-verbal (process with visual), comfortable with essay questions
Problem – solving	Intuitive – spatial or abstract perception; emphasis on possibilities
Controls muscles on	Left side of the body
Strengths	Multi-dimensional thinking, art, music, drawing, athletics, remembering faces, places, and events

The table 2.2 shows that right brain dominated students related with art, music, the big pictures, remembering faces, non-verbal, drawing and etc. Those are all the positive sides or the characteristics of right brain dominated students. There are some weaknesses of right brain dominated that must be known by all people. First, right brain dominated students are complicated to follow in sequence. Second, understanding parts of things is the weakness of

right brain dominated students. Next, they are difficult to organize large body information. Lastly, right brain dominated students are hard to remember names. From those explanation, it can be seen that right brain dominated students have positive side and negative sides. Therefore, it is important for them to learn how to behave as left brain dominated students in order that their brains are balanced.

Research Questions

1. Is there any significant difference in reading achievement between students who learn using right brain and left brain?

Research Method

Participants

The participants of this research are English department students of second semester at UNISMA. The English lecturer of UNISMA gave the researcher one class who have equal ability. They were class II A, II B and II C consist 74 students as sample of this research. In this case, the sample is determined by the English lecturer. The researcher gave them questionnaire and categorized them as left and right brain dominated students.

Research Instruments

To gain data accurately, the researcher used two instruments as follow:

Questionner

In this learning style questionnaire is adapted from Brown (2000). The researcher used this questionnaire to know whether students are left brain dominated, right brain dominated or no brain dominance. The questionnaire consists of 20 items. In this questionnaire, each item has two contrasting statements. Each question consists of 5 choices they are 1-5 boxes. They can choose one box for each item. Boxes 1 and 5 indicates that the sentence is the best for their personalities. Boxes 2 and 4 indicates that the sentence is suitable with their personalities, and box 3 indicates that the sentence is no their characters at all.

Test

In this instrument, the researcher asked students to do a test of reading about reading text adapted in Flynn, Mackey, and Trites (2006). The type of the questions was objective test. The objective test consisted of 20 questions. Each question consisted of 4 answer choices. They answered the questions based on the passage that they had already read.

Data Analyse

There are two scoring directions in this questionnaire as follows: first, the scoring direction is ascending for number 1,2, 5,6,8,10,11,14,15,19, and 20. Second, the scoring direction is descending for number 3,4,7,9,12,13,16,17, and 18. The total score is used in categorizing the students whether they are left brain dominated, right brain dominated, or there is no brain dominated. The score starts from below 57 is categorized left brain dominated. If the score starts from 57-66, it means that there is no brain dominated. The score above 66 is categorized as right brain dominated.

The second data were obtained through test. The test was used to make sure that the student achievement is change. In this case, the researcher uses reading test with 20 items consist of Multiple choice. The writer was using the same test for two group (left and right) to find out whether students who are using the right brain is better that students who are learned using the left brain in reading achievement. each item of the test is having as same score, for multiple choice item 5 score, so total score is 100.

After collecting all data, the researchers analysed the data using descriptive statistical procedures or Statistical Package for the Social Science (SPSS) as well as Independent t-test. This application is aimed to calculate whether left brain dominated student's achievement significantly higher in answering multiple choice test of reading two than right brain dominated students and right brain dominated students achieve significantly higher achievement in answering essay test of reading two than left brain dominated students. The first step, the researcher categorized the group statistic in the SPSS v22 whether it is left or right brain group. Then the researcher put the score of reading test into SPSS. Lastly, researchers compared the means and analyse the data using independent sample t-test to know the final result.

Result and discussion

In what follows, firstly various statistical calculations are presented followed by the discussion as a separate section.

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	Df	Sig. (2- tailed)	Mean Differe nce	Std. Error Differe nce	Lower	Upper
Academic Achievement	Equal variances assumed	.574	.453	9.242	38	.000	21.250	2.299	16.596	25.904
	Equal variances not assumed			9.242	37.269	.000	21.250	2.299	16.593	25.907

The results of the Influence of Learning Style on Academic Achievement in Reading at Students of UNISMA tests support the above findings as non-normality of the data on multiple choice. All of the statistics have significance values less than .05.

Group Statistics

Brain		N	Mean	Std. Deviation	Std. Error Mean
Academic Achievement	left	20	84.50	7.763	1.736
	right	20	63.25	6.742	1.508

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relationship between the brain dominance and academic achievement in reading at student of UNISMA?

Results obtained from the normality test indicated that the tests are needed here; so, two- independent samples test was run to investigate any significance between the brain dominance and academic achievement in reading at student of UNISMA. The statistic was .574, which was a significant one ($P = .00 < .05$). According to the mentioned results, it might be concluded that there is any significant relationship between the brain dominance and academic reading achievement at student of UNISMA. Therefore, the answer to the question is that there is any significant difference between the brain dominance on reading achievement. Meanwhile,

the means for the left-brain students is 84,50 and for the right-brain is 63.25 which verify the support of question answered.

Conclusion

It can be concluded that the students have different learning style are related with the dominance of right or left brain. This has a great impact during the learning process. Therefore, they having an idea about the brain dominance of the students is important. If the teacher knows his or her students well, he or she can use the methods, techniques and material suitable. This research will provide the teachers to find out the dominant part of their students' brains and use the appropriate classroom, methods and tools according to them. It will also give the opportunity of finding out the teachers' brain dominance to help him/her to be aware of his/her teaching style. For the next researcher I suggest try to investigate by using another instrument/design like classroom observation or interviewing the participants so you will get deeper result.

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