

# The Analysis on the Students Brain Dominance and Learning Style Toward Their Reading Proficiency

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## The Analysis on the Students Brain Dominance and Learning Style Toward Their Reading Proficiency

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### ABSTRACT

Although based on the theory and research there is a strong correlation between left brain dominance students to their reading proficiency but the researchers were not to know are those was also having any correlation with their learning style? Then, the researcher was to intensely answer the following; 1. Was there a relationship between students' learning preferences and reading proficiency and their left-brain dominance? 2. Was there a relationship between a student's proficiency in reading and their right-brain dominance and learning style? The tools used a questionnaire to know the students brain dominance and learning style was administered to 111 of 3rd university students of Veteran Bangun Nusantara University, Sukoharjo, Indonesia. The students reading proficiency score were documented from the reading 2 teacher. The researcher analyzed the relationship among these variables with simple linear regression (SLR) and multiple linear regression (MLR) through SPSS 16 and interpreting the result. The word findings here become key was a correlation among students left brain dominance, visual learning style and reading proficiency of 24.2%. There was a slightly correlation among left brain dominance, auditory learning style and reading proficiency with 12.1%. There was a slight correlation among left brain dominance, kinesthetic learning style and reading proficiency with 0.2%. There was no correlation among right brain dominance, visual learning style and reading proficiency with 0%. There was only a slight correlation among brain dominance, auditory learning style toward reading proficiency with 2.4%. There was correlation among the right brain, kinesthetic and reading proficiency with 75 %.

**Keywords**— Brain dominance, learning style, reading proficiency.

### INTRODUCTION

According to (Nadimi, 2020) brain dominance is the natural tendency for an individual to process the information on one side of their brain. The ways that left and right brains process information differently depend on which hemisphere of the brain they are in (Almanea, 2021). There are two types of brain dominance. First, the left brain is for language and logic specialization, especially for a text, and secondly, the right brain is for speech and creativity for art especially for meaningful (Mc Carthy, Germain & Lippitt, 2006; Pink, 2009; Corballis, 2014).

Some researchers have investigated brain dominance have mutual correlated to the students' English skills such as writing (Nadimi, 2020; Weisi & Khaksar, 2015), vocabulary (Soleimani & Matin, 2012) and reading ability (Arabmofrad et al., 2021; Li & Waode, 2022; K k, 2010; Soleimani & Matin, 2012). Their findings showed that students left brained dominance significantly contribute to reading skills as their nature function of left brain explained above. So, the result researches above exposed that reading and left-brain dominance have tied and mutually related. Meanwhile, in speaking skill it doesn't show a significant correlation and effect (Mireskandari & Alavi, 2015; Li & Waode, 2022.) and also does not give a significant effect to listening (Buchweitz et al., 2013; Kershner & Micallef, 1991). It also shows that brain dominance potentially gives impacts on English teaching and learning in general (Kord, 2022a; Alibeigi, 2017; Li et al., 2022). The brain dominance trough the research has its own function to the skills. The researcher was

wondering will the brain dominance also correlated to their learning style? since there were researchers found there is a significant correlation on memory or brain and learning style (Duman, 2010; Akbar, 2012). The research was not updated and none of the research nowadays take research on the correlation of the learning styles and the brain dominance. The researchers consider this as a gap must do research.

**13** A learning style is a way that different students learn. A style of learning refers to an individual's preferred way to absorb, process, comprehend and retain information (Rodriguez, 2015). Somehow, the researcher believes that there is also a tied connection between brain dominance, learning style, and reading proficiency. The researcher fills the gap to conduct the role of brain dominance and learning style in students' reading. Since, the brain dominance theory support that reading ability may endorse by the left brain of the brain (Springer & Deutsch, 1997). The learning style that is divided into kinesthetic, visual, and auditory may tie one of the types to reading proficiency. But the connection of the three variables namely the student's right and left-brain dominance, the students learning style, and the student's reading proficiency were never been undergone researched before. The researcher would like to investigate whether those variables correlate.

## LITERATURE REVIEW

### *Left Brained Students in Reading*

The students' left-brain dominance is responsible for, logical thinking processes, based on reality, and the ability to interpret abstractly, and symbolically, analytical thinking is suitable for verbal tasks, writing, reading in detail, and facts, for example, when they read a text, they will analysis, observation, critical thinking, guessing the meaning of a word, and processing symbol to gain information (Handayani & Corebima, 2017). A larger left brain can predict better performance and average performance on basic measures of reading ability (Widaningsih, 2022). They found that when the location of each individual's most asymmetrical region was considered, greater left-brain asymmetry was related to better pseudo-word reading ability. This supports the cerebral lateralization hypothesis. At the same time, researchers found that greater left asymmetry in certain regions including a motor planning region called Brodmann Area 8, and a performance monitoring region called the dorsal cingulate was associated with greater average reading ability, which supports the canalization hypothesis (Almanea, 2021; Alibeigi, 2017; Husain, 2011; Faust, 2019; Li et al., 2022; Springer & Deutsch, 1997; Arabmofrad et al., 2021).

### *Right Brained students in Reading*

While, the students' right brain dominance is more random, irregular, intuitive, holistic, and non-verbal, towards feelings and emotions, awareness regarding feelings, recognition of shapes, patterns, music, color sensitivity, creativity, and visualization, for example, a student remembers or image by using their prior knowledge by just reading the title of a text. The student process information in a text as a whole and globally. Memories will last longer if you use your right brain. To be able to remember well, it is necessary to train the brain to function optimally (Lararenjana, 2020). The right brain's function of random thinking (as opposed to the left brain's linear thinking), makes the students read by their imagination. The right hemisphere is the source of intuition, insight, metaphor and imagination. This right hemisphere is highly charged in its involvement in the reading process visually like reading picture or even reading while imagining to promote better result in reading (Mulyono, 2019)

### *Learning Style in Reading*

**37** Students have different learning styles to process information. The student has a different learning style and one of the determining factors is brain hemispheric (Oflaz, 2011). Classrooms consist of students who have different learning styles and these learning styles are related to the dominance of the right or left brain (Wei

& Sulaiman, 2018). Learning style also helps students to enhance their language skills when the environment is not conducive enough to escalate the learning process. A teacher can also treat the students' reading comprehension process appropriately and their learning style by understanding students' learning styles such as brain dominance. The previous researchers had claimed that the learning style and the reading may have significant boundaries in a positive way (Kord, 2022a; Carbo, 1983; Price et al., 1981; Rogowsky et al., 2015; Nurlaela et al., 2018; Özgen et al., 2011)

### ***Reading proficiency***

Reading proficiency implies a score on the statewide standards-based evaluation that's higher than the least level built up by the institution (Phillips & Sotiriou, 1992). Reading proficiency is assessing the individual in understanding a given written language. Reading proficiency involves two things: (1) Understanding abilities that empower student to examined a content, and (2) meaning-making or comprehension abilities that empower student to get it, lock in and get included with a content (Muschla, 2003). measuring reading comprehension of students is important after conducting reading comprehension in the class. As explained above, reading has mutual correlation with the brain dominance. Research proved that students reading proficiency have strong correlation with the students learning style (Huang et al., 2018; Rogowsky et al., 2015; Kord, 2022b). But then, another research needs to know the correlation brain dominance and learning style toward their reading proficiency

## **METHOD**

### ***Research Design***

The study employed the ex-post facto research design, especially correlation method to describe an occurred event accurately and relate among variables (Coral et al., 2018; Elyas, & Alghofaili, 2019; Arisman, 2020). The study accurately identified the brain dominance, learning style profile and reading proficiency of English as a Foreign Language (EFL) students. The study also investigated whether there is a relationship between the students' brain dominance, learning style profiles and reading proficiency or not. The data of brain dominance, learning styles, and reading proficiency were obtained through questionnaires and document.

### ***Subject***

The participants of this study were 110 students of 3th semester major English education of Veteran Bangun Nusantara University, Sukoharjo, Indonesia by random sampling. Gender and age were not required for these subjects. The students divided into two groups which were right brain and left brain, through brain dominance questionnaire. They also divided into three groups which were visual, auditory, and kinesthetic through learning style questionnaire. This study was no special treatment or manipulated among the variables (Coral et al., 2018; Elyas, & Alghofaili, 2019; Arisman, 2020) especially brain dominance and learning style because of the ex-post facto research design which the occurred event.

### ***Instruments***

For collecting the data, this study used two kinds instruments which were questionnaire and documents. The questionnaires were close-ended question form to investigate students' brain dominance and learning style. The document was the final test score of reading course to investigate students' reading proficiency. These instruments were discussed below as follow.

First, the brain dominance questionnaire was the Hemispheric Dominance Test which was revised by (Julieta, 2000) as a doctor student of philosophy in education especially English language teaching field



from Western Mindanao State University. The questionnaire was to determine whether a student was left-brained or right-brained in information processing. The test consists of 40 items including 20 standardized items adopted from Evelyn C. Davis of UP Open University and 20 standardized items adopted from (Brown, 1994). This questionnaire was translated into Indonesian language; thus, the students can easily understand the meaning of each illustration.

Second, the learning style questionnaire was adopted from the (University of Texas Learning Center, 2006) cited in (Ratih & Abidah, 2022). The questionnaire investigated student' learning style that consists of visual, auditory, and kinesthetic. This questionnaire on learning styles consists of 24 illustrations. Visual was measured in item 2, 3, 7, 10, 14, 16, 19, and 22. Auditory was measured in item 1, 5, 8, 11, 13, 18, 21, and 24. Kinesthetic was measured in item 4, 6, 9, 12, 15, 17, 20, and 23. Each illustration has three option which were often, sometimes, and seldom. This questionnaire was translated into Indonesian; thus, the students can easily understand the meaning of each illustration.

Third, the final test of reading courses was a document to determine the students' reading proficiency. The test was essay test which had 10 questions. The test consisted of 7 literal questions, 2 inferential questions, and 1 critical question. The test was made by one faculty, thus, the researcher assumed that the reliability of the test was reliable, and the validity of the test was valid. The final test was held the end of November 2022. The time allocation was 90 minutes in class.

### Data analysis

The brain dominance questionnaire was calculated based on the students' respond of each item. If the answer "a" was dominant, it indicated that the student tended to use left brain. If the answer "b" was dominant, it indicated that the student tended to use right brain. If the answer "c" was dominant, it indicated that the student tended to use both brains. In scoring, the researcher divided b's score minus a's score by three of each item (Julieta, 2000). The result score was fitted the attribute of brain dominance to determine whether a student was left- brain, right- brain or both brain (Julieta, 2000). The score  $-1 > x < +1$  is whole brain dominance, the score  $-1 < x < -11$  is left brain dominance, and the score  $+1 > x < +11$  is right brain dominance. For learning style questionnaire, the questionnaire has 3 options of each illustration that that determine the point. The 5 point is "a" for often, 3 points is "b" for sometimes, and 1 point is "c" for seldom. The total visual items, auditory items, and kinesthetic items was calculated based on the point. If the point was highest, the answer was visual, auditory, or kinesthetic learner (adopted from the University of Texas Learning Center, 2006 cited in (Ratih & Abidah, 2022).

Students' reading proficiency emphasized reading comprehension. Assessing their reading comprehension score, the faculty adapted rubric assessment for reading test from Pennsylvania Department of Education Bureau of Assessment and Accountability 2006–2007.

**Table 1. Rubric Assessment for Reading Test**

Grade	Score	Category	Description
A and B	70-100	Good and Excellent	<ul style="list-style-type: none"> <li>– Students are able to answer literal, inferential and critical questions with range 7 to 10 items.</li> <li>– Students are able to answer the questions based on their background knowledge toward the passage.</li> <li>– Students have corrected grammar and spelling errors.</li> </ul>

C	55-69	Enough	<ul style="list-style-type: none"> <li>- Students are able to answer literal, inferential and critical questions with range 5 to 6 items.</li> <li>- Some students did not answer the questions based on the information of the passage.</li> <li>- Some students have incorreceted grammar and spelling errors.</li> </ul>
D	<55	Poor	<ul style="list-style-type: none"> <li>- Students are able to answer literal, inferential and critical questions with range 0 to 4 items.</li> <li>- Some students' answers are incomplete and not support the passage.</li> <li>- There are many incorreceted grammar and spelling errors.</li> <li>- The students' answers are not relevant with the information of the passage.</li> </ul>

In the end, the researcher analyzed the relationship among these variables with simple linear regression (SLR) and multiple linear regression (MLR) through SPSS 16 and interpreting the result

**Procedures**

The students were required to answer the brain dominance questionnaire through google form in 30 minutes. After that, the students were also required to answer the learning style questionnaire through google form in 30 minutes. The research also listed their final test score of reading course from their faculty. Furthermore, the researchers assessed the results of the questionnaire through excel to determine types of students' brain dominance and learning style, and the researchers assessed the score result of their reading comprehension test through excel to determine their reading proficiency. Then, the researcher analyzed the relationship among these variables with simple linear regression (SLR) and multiple linear regression (MLR) through SPSS 16 and interpreting the result. (Myartawan et al., 2013; Kazemi & Soleimani, 2016; Kalantarypour & Modirkhamene, 2021).

**FINDINGS**

First question was to describe the students' brain dominance, learning style, and reading proficiency profile. The data was from two questionnaires and document which were gathered through google form. The students' brain dominance data was gathered through questionnaire, and the students' brain dominance score was calculated by using excel to determine which side the students that tended to use left brain or right brain. The result data of the students' brain dominance as shown in Table 2.

**Table 2. The Distribution of Respondents by Brain Dominance**

Brain Dominance	Students	Percentage (%)
Left brain	66	59.46
Right brain	45	40.54
TOTAL	111	100

Table 2 showed that the brain dominance of 3th semester students was left brain with percentage 59.46%. There were 66 students who tended to use left brain in processing information, while, the students that used right brain was just 45 students with percentage 40.54%. The student's learning style was gathered through questionnaire and calculated by using excel to determine which one the students that tended to use visual, auditory or kinesthetic in learning reading course. The result data of the students' learning style as shown in Table 3

**Table 3. The Distribution of Respondents by Learning Style**

Learning Style	Students	%
Visual	50	45.05
Auditory	51	45.95
Kinesthetic	10	9.01
TOTAL	111	100

Table 3 showed that the dominant learning style of 3th semester students was auditory with percentage 45.95%. There were 51 auditory learners in learning reading followed by visual learner and kinesthetic learner. The visual learners were 50 with the percentage 45.05%. The kinesthetic learners were 10 with the percentage 9.01%. It can be concluded that the 3th semester students in Veteran Bangun Nusantara University, Sukoharjo, Indonesia tended auditory learner, and they slightly used kinesthetic learning style. The student's reading proficiency was gathered through document which was the final test score of reading course. The data was calculated by using Excel. The result data of the students' reading proficiency as shown in Table 4.

**Table 4. The Distribution of Respondents by Reading Proficiency**

Reading Proficiency	Students	%
Good and Excellent	102	113.22
Enough	8	8.88
Poor	1	1.11
TOTAL	111	100

Based on Table 4, the student who had score between 70 to 100 categorized as good and excellent. There were 102 students who had good and excellent score with 113.22%. The student who had score between 55 to 69 categorized as enough score. There were 8 students who had enough score with the simply say 8.88%. Then, the student who had score between 0 to 54 categorized as poor score. There was a student who had poor score with 1.11%. Thus, the 3th semester students' reading proficiency in Veteran Bangun Nusantara University was dominant high score as categorized good and excellent. They slightly were low score. Second research question was to find out whether there was relationship between the students' brain dominance, learning style, and reading proficiency or not. The relationship was calculated with simple linear regression (SLR) and multiple linear regression (MLR) through SPSS 16. The result was analysed in the table below of the relationship between the students' brain dominance, learning style, and reading proficiency as shown in Table 5.

**Table 5. Regression Summary Model of Brain Dominance, Learning Style and Reading Proficiency**

Model	Brain dominance	Learning Style	Reading Proficiency	R	Sig	R Square	Percent	Note

1	SLR	Left brain	–	Reading Proficiency	0.087	0.661	0.007	0.7%	–
	MLR	Left brain	Visual	Reading Proficiency	0.499	0.028	0.249	24.9%	The effect of visual toward reading proficiency=24.2%
2	SLR	Left brain	–	Reading Proficiency	0.169	0.363	0.029	2.9%	–
	MLR	Left brain	Auditory	Reading Proficiency	0.388	0.102	0.150	15%	The effect of auditory toward reading proficiency=12.1%
3	RLS	Left brain	–	Reading Proficiency	0.232	0.616	0.054	5.4%	–
	RLG	Left brain	Kinesthetic	Reading Proficiency	0.237	0.891	0.056	5.6%	The effect of kinesthetic toward reading proficiency==0.2%
4	SLR	Right brain	–	Reading Proficiency	0.322	0.144	0.104	10.4%	–
	MLR	Right brain	Visual	Reading Proficiency	0.322	0.352	0.104	10.4%	The effect of visual toward reading proficiency==0%
5	SLR	Right brain	–	Reading Proficiency	0.329	0.157	0.108	10.8%	–
	MLR	Right brain	Auditory	Reading Proficiency	0.364	0.300	0.132	13.2%	The effect of auditory toward reading proficiency==2.4%
6	SLR	Right brain	–	Reading Proficiency	0.500	0.667	0.250	25%	–
	MLR	Right brain	Kinesthetic	Reading Proficiency	1.000	0.000	1.000	100%	The effect of kinesthetic toward reading proficiency==75%

Based on Table 5, In model 1, the correlation between left brain and reading proficiency was 0.087. It indicated that there was a correlation between left brain and reading proficiency, nevertheless, there was only a slight correlation. It was not significant between left brain and reading which is 0.661 because the index was above 0.05. Furthermore, the effect of left brain toward reading proficiency was 0.7%. Then, the correlation between left brain, visual and reading proficiency was 0.499. It indicated that there was a correlation between left brain, visual and reading proficiency. There was a significant among them with 0.028 because the index was below 0.050. The effect of left brain, visual toward reading proficiency was 24.9%. Thus, the effect of visual toward reading proficiency was 24.9% minus 0.7% equal 24.2%. Finally, can be concluded that the most effect toward reading proficiency was visual than left brain.

In model 2, the correlation between left brain and reading proficiency was 0.169. It indicated that there was a correlation between left brain and reading proficiency, nevertheless, there was only a slight correlation (not significant because sig 0.363 > 0.05). Furthermore, the effect of left brain toward reading proficiency was 2.9%. Then, the correlation between left brain, auditory and reading proficiency was 0.388. It indicated that there was a correlation between left brain, auditory and reading proficiency but there was only a slight correlation (not significant because sig 0.102 > 0.05). Furthermore, the effect of left brain, auditory toward reading proficiency was 15%. Thus, the effect of auditory toward reading proficiency was 15% minus 2.9%



equal 12.1%. It can be concluded that the most effect toward reading proficiency was auditory than left brain.

In model 3, the correlation between left brain and reading proficiency was 0.232. It indicated that there was a correlation between left brain and reading proficiency but there was only a slight correlation (not significant because  $\text{sig } 0.616 > 0.05$ ). Furthermore, the effect of left brain toward reading proficiency was 5.4%. Then, the correlation between left brain, kinesthetic and reading proficiency was 0.237. It indicated that there was a correlation between left brain, kinesthetic and reading proficiency but there was only a slight correlation (not significant because  $\text{sig } 0.891 > 0.05$ ). The effect of left brain, kinesthetic toward reading proficiency was 5.6%. Thus, the effect of kinesthetic toward reading proficiency was 5.6% minus 5.4% equal 0.2%. It can be concluded that the most effect toward reading proficiency was left brain than kinesthetic.

In model 4, the correlation between right brain and reading proficiency was 0.322. It indicated that there was a correlation between right brain and reading proficiency but there was only a slight correlation (not significant because  $\text{sig } 0.144 > 0.05$ ). Furthermore, the effect of right brain toward reading proficiency was 10.4%. Then, the correlation between right brain, visual and reading proficiency was 0.322. It indicated that there was a correlation between right brain, visual and reading proficiency but there was only a slight correlation (not significant because  $\text{sig } 0.352 > 0.05$ ). Furthermore, the effect of right brain, visual toward reading proficiency was 10.4%. Thus, the effect of visual toward reading proficiency was 10.4% minus 10.4% equal 0%. It can be concluded that the most effect toward reading proficiency was right brain than visual.

In model 5, the correlation between right brain and reading proficiency was 0.329. It indicated that there was a correlation between right brain and reading proficiency but there was only a slight correlation (not significant because  $\text{sig } 0.157 > 0.05$ ). Furthermore, the effect of right brain toward reading proficiency was 10.8%. Then, the correlation between right brain, auditory and reading proficiency was 0.364. It indicated that there was a correlation between right brain, auditory and reading proficiency but there was only a slight correlation (not significant because  $\text{sig } 0.300 > 0.05$ ). Furthermore, the effect of right brain, auditory toward reading proficiency was 13.2%. Thus, the effect of auditory toward reading proficiency was 13.2% minus 10.8% equal 2.4%. It can be concluded that the most effect toward reading proficiency was right brain than auditory.

In model 6, the correlation between right brain and reading proficiency was 0.500. It indicated that there was a correlation between right brain and reading proficiency but there was only a slight correlation (not significant because  $\text{sig } 0.667 > 0.05$ ). Furthermore, the effect of right brain toward reading proficiency was 25%. Then, the correlation between right brain, kinesthetic and reading proficiency was 1.000. It indicated that there was a correlation between right brain, kinesthetic and reading proficiency. There was a significant among them with 0.000 because the index was below 0.050. Furthermore, the effect of right brain, kinesthetic toward reading proficiency was 100%. Thus, the effect of kinesthetic toward reading proficiency was 100% minus 25% equal 75%. It can be concluded that the most effect toward reading proficiency was kinesthetic than right brain.

Therefore, the sequence effect of brain dominance toward reading proficiency based on SLR was right brain (25%, 10.8%, 10.4%). It was followed by left brain (5.4%, 2.0%, 0.7%). It can be concluded that right brain has a higher effect than left brain on reading. Nevertheless, there was no a significant correlation between right brain or left brain toward reading proficiency.

In addition, the sequence effect of learning style toward reading proficiency based on MLR from highest to lowest percentage was kinesthetic (75%) of the right brained students, visual (24.2%) of the left brained students, auditory (12.1%) of the left brained students, auditory (2.4%) of the right brained students,

kinesthetic (0.2%) of the left brained students, and visual (0%) of the right brained students. It can be concluded that the most effect of learning style toward reading proficiency was kinesthetic of right brained students. The effect of learning style toward reading proficiency was visual of right brained students. Nevertheless, there was a significant correlation between left brain, visual and reading proficiency, and there was a significant correlation between right brain, kinesthetic and reading proficiency.

## DISCUSSIONS

From the result, the brain dominance of 3th semester students were left brain with percentage 59.46%. There were 66 students who tended to use left brain in processing information. These results were in partial agreement with (Shooshtari et al, 2020) who investigated the brain dominance toward task-based reading comprehension. They found that EFL learner tended to use left brain in doing task-based reading comprehension (Li et al, 2022) also found that most left brained students of English department competed in doing International English Language Testing System (IELTS), especially in the reading section. It also supported by (Rowson & McGilchrist 2013) and (Babcock & Vallesi, 2015), left brained student is more suitable in learning to read and write. Left-brain dominant students usually process verbal and numerical information by means of analytical deductive, critical thinking or logical. This demonstrates that the left brain is responsible for breaking down information by focusing on a specific aspect of the whole and doing analysis and differentiation on that aspect. Students process information in a pattern that is sequential, linear, and orderly. Students not only gather information but also analyze and compile it as part of this process. As stated by (Brown, 2000), EFL learner that tended to use left brain is proficient in word production, gathering linguistic qualities, cycling functions, and employing conceptualization, classification, naming, and restructuring. For example, students can find detailed information in a text and they can critically analyze what is contained in the text.

The dominant learning style of 3th semester students was auditory students with the percentage of 45.95%. There were 51 auditory learners. These results were different with (Rujani, 2019) who investigated the learning style toward reading comprehension of university level students. He found that most learning style used by the students toward reading comprehension were visual. Nevertheless, the less learning style was kinesthetic. His results were the same as this study's result which was kinesthetic. This study's result of less learning style was just 10 kinesthetic learners toward reading with the percentage of 9.01%. Based on this study's result, auditory learners were most be used in learning reading. They like to read plays and dialogues, but they struggle to read silently and quickly without vocalizing. Auditory learners rely on hearing to succeed. Auditory learners can memorize faster by reading aloud and listening to tapes (Honey and Mumford, 1992). Auditory learners can learn faster through verbal discussions and listening to the teacher (Haggart, 2003). The teacher should always include auditory learners in classroom and extracurricular discussions.

The 3th semester students' reading proficiency in Veteran Bangun Nusantara University was dominant high score as categorized good and excellent with range 70 to 100. There were 102 students with the percentage of 113.22%. It, indicated that the students are able to answer literal, inferential and critical questions with range 7 to 10 items. Students were also able to answer the questions based on their background knowledge toward the passage. Furthermore, students have corrected grammar and spelling errors. The findings somewhat corroborated the findings of (Que & Wakim, 2020), who evaluated the usefulness of the read, ask, put strategy to increase reading comprehension in junior high school students. They found 42,85% students in 'excellent' level and 39,28% students standing in 'good' level. Many factors that give effect toward the students' reading proficiency such as brain dominance, reading strategies, learning styles, media, and method in teaching reading (Alibeigi, 2017; Özgen et al., 2011).

This study' result found that the left brain has a higher effect than right brain on reading. The findings

showed that students' brain dominance choices affected their reading proficiency, with right-brained students outperforming the others. Left-brain and right-brain students may be good at various things, according to the study. Left-brained students have been more analytical, organized, and structured in reading activities, whereas right-brained students may have been more synthesizing, fluid, and spontaneous (Brown, 2000), while, the right brain analyzes non-verbal, tangible, and spatial information, notices connections, and views things holistically. Students who tend to use the right brain are considered more creative, artistic, intuitive, emotional, imaginative, and visually oriented (Brown, 2007; Gunasinghe et al., 2020; Hamid et al., 2020). For example, students can find information about a text only by looking at the images in the text, so they already have background knowledge about the text before reading.

There was a correlation between right brain or left brain toward reading proficiency but it was not a significant. These results were in line with those of (Soleimani & Matin, 2012) there is not any significant relationship between the brain dominance and reading comprehension skill of EFL learners in Kish institute. (Arabmofrada et al, 2021) also found that there was correlation between students' hemispheric dominance and their reading strategies but it was not significant. No significant correlations were found between students' brain dominance and reading proficiency. Nevertheless, this study's result was partially in contrast with those of (Li et al, 2022)'s study. They found that there was a significant correlation between brain dominance and the IELTS reading skill. The significant correlation might be the IELTS which is more reliable and validity in measuring the students' reading skill.

There was a significant correlation between left brain, visual and reading proficiency, and there was a significant correlation between right brain, kinesthetic and reading proficiency. The study's results were in line with those of with (Papadatou-Pastou et al., 2017; Yazici & Sahin, 2018; Belecina & Ocampo, 2019). They found that kinesthetic learners had correlation with right brain dominant while visual learners had correlation with left-brain dominant. It was in line with those of Ali & Kor, 2007, right brained students need to learn kinesthetically to process learning, or they need to physically process what they are learning. Nevertheless, it was contrast with those of Felder and Solomon's Learning Styles (2001) and McCarthy's (1987), visual learners who make use of their right brain are best able to retain information presented in the form of drawings, diagrams, flow charts, timelines, videos, and demonstrations.

## CONCLUSION

The respondents of the research were 111 of 3 the semester students. The students who were left brain dominance were 66 students with 59.46%. The students with right brain, while, were just 45 students with 40.54%. Students who were auditory were 51 students with 45.95%. It was followed by visual learner that were 50 students with 45.05%. The kinesthetic learners were 10 with 9.01%. It can be concluded that the 3th semester students in Veteran Bangun Nusantara University tended auditory learner, rather than visual and kinesthetic learning style. There were 102 students who had excellent score with 113.22%. There were 8 students who had enough score with 8.88%. There was a student who had poor score with 1.11%. By the data of the respondents the researchers came to some conclusion as follows; (1). There was a correlation among students left brain dominance, visual learning style and reading proficiency there. The effect of visual toward reading proficiency is 24.2%. There was a significant correlation among them with value 0.028 the index was below 0.050. It can be concluded that the visual learning has significant correlation to the left-brain students. (2). Then, there was a slightly correlation among left brain dominance, auditory learning style and reading proficiency the score was 0.388. It indicated that there was a correlation between left brain, auditory and reading proficiency but there was only a slight correlation. The effect of auditory toward reading proficiency is 12.1%. There is still a correlation among them but it was not significant. (3). Then, there is a slight correlation among left brain dominance, kinesthetic learning style and reading proficiency was 0.237. It indicated that there was a correlation between left brain, kinesthetic and reading proficiency but there was only a slight correlation. The effect of kinesthetic toward reading proficiency is



0.2% It can be concluded that the most effect toward reading proficiency was left brain than kinesthetic. (4). There was no correlation among right brain dominance, visual learning style and reading proficiency. The effect of right brain, visual toward reading proficiency was 10.4%. Thus, the effect of visual toward reading proficiency was 10.4% minus 10.4% equal 0%. It can be concluded that the most effect toward reading proficiency was right brain than visual. (5). There was only a slight correlation a significant correlation among brain dominance, auditory learning style toward reading proficiency in 2.4% percentage. The correlation among right brain, auditory and reading proficiency was 0.364. It was not significant among them which was 0.300 because the index was above 0.05. It can be concluded that the most effect toward reading proficiency was right brain than auditory. (6). The effect of kinesthetic toward reading proficiency is 75%. Then, the correlation among the right brain, kinesthetic and reading proficiency was 1.000. It indicated that there was a correlation between right brain, kinesthetic and reading proficiency. There was a significant because  $\text{sig } 0.000 < 0.050$ .

## RECOMMENDATION

Hopefully after the research, students can recognize their dominant brain and their learning style to support reading proficiency. Students are expected to be able to learn using a variety of learning styles so that the right and left-brain function optimally, thereby increasing reading proficiency.

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