

## CHAPTER I

### INTRODUCTION

This chapter discussed several key aspects, including the background of study, statement of problem, objective of study, assumption of study, hypotheses of study, significance of study, scope and limitation of study, definition of keyterm, previous study.

#### **A. Background of Study**

Language plays a crucial role in the daily lives of people, as it allow them to talk with each others.<sup>1</sup> The process of acquiring language itself is a complex phenomenon. The human brain plays an essential role in language acquisition, as it is responsible for processing and storing linguistic information. Sure thing, the first language that a person learns is known as their first language or L1. The native or first language (L1) is acquired in the first years of life.<sup>2</sup> An infant, gradually develops their speech. It is progresses from babbling at around age of 6 to 8 months, continue to the one-word stage at 10 to 12 months, then to the two-stage word at around age of 2 years.<sup>3</sup> The process of first language acquisition involves acquiring the linguistic knowledge and skills necessary to communicate.

In acquiring language, one of the most important factor is none other than vocabulary. For effective communication, it is essential to have a broad vocabulary that can help in conveying message or express different concepts

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<sup>1</sup> Howard Jackson and Peter Stockwell, *An Introduction to the Nature and Functions of Language*, Second Edition (New York: Continuum International Publishing Group, 2011), 3.

<sup>2</sup> Kuniyoshi L. Sakai, "Language Acquisition and Brain Development," *Science* 310, no. 5749 (November 4, 2005): 815, <https://doi.org/10.1126/science.1113530>.

<sup>3</sup> Kailash Nath Tripathi et al., "A Review on Brain Mechanisms for Language Acquisition and Comprehension," n.d., 2.

accurately. Vocabulary itself is a set of a several words of a particular language. It is essential part of learning a second language. McCarthy as cited in Maryam, argue that no matter how well the students learn grammar and no matter how good their speaking is, without words to express a wider range of meanings, the communication in second language is just cannot be meaningful.<sup>4</sup> Vocabulary is considered to be the most important factor of language proficiency; listening, speaking, writing and reading. Language processing or vocabulary itself is located mainly in left hemisphere.

The theory of hemisphericity, or also known as brain dominance is a term that refers to idea that people rely on one hemisphere of the brain (either left or right) more than the other one. Cem Alptekin explained that in processing different kind of task, each hemisphere is relatively more skilled than the other.<sup>5</sup> Logical, analytical, math and linear processing is associated with left-brained dominant people. While on the other hand, emotional and holistic processing is associated with right-brained dominant people.<sup>6</sup>

Vocabulary is an essential element of language processing that plays a vital role in language acquisition. When it comes to first language (L1), in most individuals, the left hemisphere of the brain is dominant for language

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<sup>4</sup> Maryam Alibeigi, "The Effect of Brain Dominance on Both L2 Vocabulary Production and Retention," *International Journal of Educational Investigations* 4, no. 6 (December 2017): 20.

<sup>5</sup> Cem Alptekin and Semiha Atakan, "Field Dependence-Independence and Hemisphericity as Variables in L2 Achievement," *Interlanguage Studies Bulletin (Utrecht)* 6, no. 2 (December 1990): 137, <https://doi.org/10.1177/026765839000600203>.

<sup>6</sup> Zahra Bavand Savadkouhi, Mohammad Taghi Hassani, and Ramin Rahmani, "The Effect of Hemispheric Dominance on Learning Vocabulary Strategies among Iranian EFL Learners," *European Online Journal of Natural and Social Sciences* 2, no. 2 (2013): 348.

processing.<sup>7</sup> This region contains several specialized areas that are critical for language processing, including Broca's area and Wernicke's area. In first language acquisition, the dominant hemisphere plays a critical role in vocabulary and language processing, while in second language acquisition, the relationship with brain dominance is less clear and might be different.

As mentioned, brain dominance plays a critical role in L1 vocabulary mastery, meanwhile its role in L2 acquisition is still a topic of debate and requires further research. Due to the limited research that discusses the relationship between brain dominance and vocabulary mastery in second language, the researcher is interested in conducting a study on this topic and composing a research with the title "The Correlation Between The Students' Brain Dominance and Their English Vocabulary Mastery as Their Second Language at The Sixth Semester Student of IAIN Madura".

The results of this research are expected to be able to provide a new insight and contribute to a more comprehensive understanding of the relationship between brain hemisphericity and vocabulary mastery. Additionally, this research may also fill a gap in existing studies, since the existing studies focuses just on vocabulary test formats and learning strategies. Thus, this research could also address the relationship of brain dominance with vocabulary mastery.

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<sup>7</sup> Alptekin and Atakan, "Field Dependence-Independence and Hemisphericity as Variables in L2 Achievement"; Michael C. Corballis, "Left Brain, Right Brain: Facts and Fantasies," *PLoS Biology* 12, no. 1 (January 21, 2014): e1001767, <https://doi.org/10.1371/journal.pbio.1001767>; Stéphanie K. Riès, Nina F. Dronkers, and Robert T. Knight, "Choosing Words: Left Hemisphere, Right Hemisphere, or Both? Perspective on the Lateralization of Word Retrieval," *Annals of the New York Academy of Sciences* 1369, no. 1 (April 2016): 111–31, <https://doi.org/10.1111/nyas.12993>.

## **B. Statement of Problem**

Based on the explanation in background of study, the problem investigated is stated as follows:

1. Is there any correlation between the students' brain dominance and their English vocabulary mastery as second language at sixth semester of IAIN Madura?
2. How is the significance of correlation between the students' brain dominance and their English vocabulary mastery as second language at sixth semester of IAIN Madura?

## **C. Objective of Study**

This section provides an overview of the objectives to be attained through the research.<sup>8</sup> Research objective is a statement that outlines the goals which a researcher aims to achieve in this research.<sup>9</sup> The research objective represents the answer to the research problems. Given the research problems above, the researcher has determined the following research objectives:

1. To investigate the correlation between the students' brain dominance and their English vocabulary mastery as second language at sixth semester of IAIN Madura.
2. To measure the strength of each students' brain dominance correlation with their English vocabulary mastery as second language at sixth semester of IAIN Madura.

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<sup>8</sup> Tim Penyusun et al., *Pedoman Penulisan Karya Ilmiah* (Pamekasan: IAIN Madura, 2020), 38.

<sup>9</sup> John W. Creswell, *Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research*, Fourth Indian edition (Boston: Pearson Education, 2012), 111.

#### **D. Assumption of Study**

Assumption are basic hunch regarding the research problem that has been believed by the researcher.<sup>10</sup> Assumption is used as the guide of the research process. Assumptions form the foundation of a research study. The assumption for this research is:

1. There is a correlation between students' brain dominance and their English vocabulary mastery as second language at sixth semester of IAIN Madura
2. Left brain dominant correlate stronger than their counterparts between students' brain dominance and their English vocabulary mastery as second language at sixth semester of IAIN Madura.

#### **E. Hypotheses of Study**

According to Creswell, hypotheses are the predictions made by the researcher which is about the result of relationship between variables.<sup>11</sup> Hypotheses is only a temporary answer that yet need to be tested empirically.<sup>12</sup> The hypotheses of this research are as follows:

1.  $H_0$  : There is no correlation between the students' brain dominance and their English vocabulary mastery as second language at sixth semester of IAIN Madura.

$H_a$  : There is a correlation between the students' brain dominance and their English vocabulary mastery as second language at sixth semester of IAIN Madura.

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<sup>10</sup> Penyusun et al., *Pedoman Penulisan Karya Ilmiah*, 17.

<sup>11</sup> Creswell, *Educational Research*, 111.

<sup>12</sup> Penyusun et al., *Pedoman Penulisan Karya Ilmiah*, 18.

2.  $H_0$  : The left brain has a weaker correlation than their counterparts in terms of the students' brain dominance and their English vocabulary mastery as second language at sixth semester of IAIN Madura.

$H_a$  : The left brain has a stronger correlation than their counterparts in terms of the students' brain dominance and their English vocabulary mastery as second language at sixth semester of IAIN Madura.

From the hypotheses above, the researcher use both alternative hypothesis ( $H_a$ ) which proposed that there is a correlation between students' brain dominance and their English vocabulary mastery as second language, and the left brain has a stronger correlation, due to reason that based on results from previous studies that indicate there are correlation and the left-brain hemisphere outperform its counterparts.

#### **F. Significance of Study**

This section explain about the significance or the urgency of the research, wether theoretical or practical.<sup>13</sup> This research is expected uses as follows:

##### **1. Theoretical Significance**

The results of this research are expected to be able to provide and expand the understanding of the relationship between language learning and brain function. Additionally, this research could provide a new insight of the role of brain dominance for second

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<sup>13</sup> Penyusun et al., 19.

language learners' vocabulary. The result of this research are expected to able to influence the way vocabulary taught based on students' brain dominance.

## 2. Practical Significance

### a. For Students

It is expected that through the result of this research, the students would be able to find their preferred way to learn vocabulary.

### b. For English Teacher

With the result of this research, it is expected for the English teacher to use the knowledge from this research and use it to create more effective teaching and learning process.

### c. For Further Research

This research can be used as a reference for other researchers to be developed into further research that related with the correlation between brain dominance and English vocabulary mastery as second language.

### d. For IAIN Madura

The results of this research are expected to be used as an additional literature in the library that provides information and insight for students, especially English Teaching Learning Program students at IAIN Madura.

### **G. Scope and Limitation of Study**

The scope of the research includes the variables studied, the population or research subjects, and the research locations.<sup>14</sup> This research is limited and focused only on the brain dominance and English vocabulary mastery as second language of sixth semester of English Teaching and Learning Program students at IAIN Madura in academic year 2021/2022. The researcher will choose class A, B, C and D as the sample of research.

### **H. Definition of Keyterm**

The definition of keyterms is needed to avoid misunderstanding and differences in understanding meaning, it is necessary to explain the keyterms that related to the research.

#### **1. Vocabulary Mastery**

Vocabulary mastery refers to the ability to understand and use a wide range of words effectively.

#### **2. Second Language Acquisition**

Second Language Acquisition (SLA) is a terms that refers to less conscious process of acquiring a second language.

#### **3. Second Language Learning**

Second Language Learning (SLL) itself is a conscious process of learning a second language.

#### **4. Brain Dominance**

Brain dominance is a theory that suggest one part of human brain is more dominant.

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<sup>14</sup> Penyusun et al., 19.



#### 5. Left-brain Dominant

Left-brain dominant means to use and rely more on the left side of their brain for tasks like logic, math, and language..

#### 6. Right-brain Dominant

Right-brain dominant means to use the right side of their brain more often. This is associated with creativity, imagination, and artistic abilities.

#### 7. Neutral or Whole-Brained

A neutral or whole-brained individual balances the use of both the left and right sides of their brain. They can perform well in tasks that require a mix of analytical and creative thinking, making them versatile in various situations.

### **I. Previous Study**

Previous study is used as comparison and reference materials. In addition, it is also used to avoid presumption of similarity with this research, as well as a guide in problem solving. The following are the previous study related to this research.

The first study is done by Zahra Kordjazi and Behzad Ghonsooly with title “Brain Dominance and Test Format: A Case of Vocabulary” in 2015. The research was conducted to investigate the relationship between examinees’ brain dominance and their performance on different vocabulary test formats. The result of this research revealed that the right-brained dominant outperform neutral and left-brained dominant on vocabulary picture test. While left-brained dominant outperform the other on word-for-

word and multiple-choice vocabulary test.<sup>15</sup> This research is more focused on brain dominance relationship with different vocabulary test formats and done with the first language learners.

The second study is conducted by Zahra Bavand Savadkouhi, Mohammad Taghi Hassani, and Ramin Rahmani. The research with title “The Effect of Hemispheric Dominance on Learning Vocabulary Strategies among Iranian EFL Learner” in 2013 is purposed to investigate the relationship of hemispheric or brain dominance with learning vocabulary strategies. The result of this research showed that left-brained dominant perform better in learning vocabulary after being taught with vocabulary strategies.<sup>16</sup> This research, while it is indeed done with second language learners, it is more focused on vocabulary learning strategies rather than vocabulary mastery.

In relation to this research, both of the previous studies investigate the relationship between brain hemisphericity/dominance and vocabulary among learners, with the second study also studied the EFL and ESL learners. The differences though, in the first study focuses on the relationship with different vocabulary test formats that is done with first language learner, then in the second study focuses on the relationship with vocabulary learning strategies, while in this research, the researcher focuses on vocabulary mastery among ESL learners. Since both of studies have

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<sup>15</sup> Zahra Kordjazi and Behzad Ghonsooly, “Brain Dominance and Test Format: A Case of Vocabulary,” *Journal of Language Teaching and Research* 6, no. 3 (April 28, 2015): 695, <https://doi.org/10.17507/jltr.0603.29>.

<sup>16</sup> Savadkouhi, Hassani, and Rahmani, “The Effect of Hemispheric Dominance on Learning Vocabulary Strategies among Iranian EFL Learners.”

limited focus on the relationship with vocabulary mastery among ESL learners, this research is important and needed to address this gap.

**Table 1.1**

**Similarities and Differences with Previous Research**

<b>Writer Name / Title</b>	<b>Title</b>	<b>Similarities</b>	<b>Differences</b>	<b>Result</b>
Zahra Kordjazi and Behzad Ghonsooly / 2015	<i>Brain Dominance and Test Format: A Case of Vocabulary</i>	Brain Dominance as Variable X.	Vocabulary Test Format as Variable Y. The object of this research is 53 Iranian language learners.	The right- brained dominant outperform neutral and left-brained dominant on vocabulary picture test. Left-brained dominant outperform the other on word-for- word and multiple- choice vocabulary test
Zahra Bavand Savadkouhi, Mohammad Taghi Hassani and Ramin	<i>The Effect of Hemispheric Dominance on Learning Vocabulary</i>	Brain Dominance as Variable X.	Vocabulary Learning Strategies as Variable Y. The object of	Left-brained dominant perform better in

Rahmani / 2013	<i>Strategies among Iranian EFL Learners</i>		this research is 90 Iranian EFL learners.	learning vocabulary
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