

## **CHAPTER I**

### **INTRODUCTION**

#### **I.1 Background of the Study**

It has been known that human basically has an instinct to be beautiful. They like beauty. Most of their lives cannot be separated from “beauty” which is a natural instinct. Being beautiful means that they beautify themselves and their surroundings. Consequently, they would require different impressions of their things, for instance: their houses, parks, fences, chair, furniture, cars, tables, beds, souvenirs, clothes, etc. Fortunately, we have recently found those numerous and various products which are artistically and beautifully presented. Those products are packed and advertised in an interesting way. Indeed, this process indirectly involves a high creativity and ability of the creator of the product- namely a product-designer. Therefore, being a product-designer does require a high imagination to be able to create and design a product. In fulfilling this, there must be a qualified and well-established institution which would provide, improve and educate human resources who are ready to be challenged in entering this field. In Surabaya, product-design program itself is put under the program of engineering institution. One of the institutions is the 10 November Institute of Engineering Surabaya (Institute Teknologi 10 Nopember Surabaya / ITS). It offers product-design engineering program to face the development of the world of design. This program offers several kinds of practical courses which are directly connected with the atmosphere of design. In this institution, the students are properly prepared to face the industrialization and computerization era. Consequently, they

are served with the combination of the practical and theoretical courses which absolutely implement computer skill instead of manual skill. The students of product-design engineering program basically learn courses which deal with drawings and imagination. So, the composition of the courses is mostly drawings. They have to imagine certain things, construct them, see them from many sides as well as put them into vivid forms.

Human has brain as the most important part of their body. The brain is the master organ for control and communication within the body and it is the master organ for communication between the body and its surroundings. It consists of a thin wrinkled mantle of the gray tissue made of millions of neuron that is known as cortex. Brain is composed of three concentric layers; they are: (1) a primitive central core, (2) the limbic system and (3) cerebral hemisphere. The cerebral hemisphere itself is divided into two parts. They are called left (major) hemisphere and right (minor) hemisphere. Both of these two hemispheres are connected by corpus callosum. Furthermore, the division of the two hemispheres is recently viewed liked a mirror images of each other. In fact when they are closely examined, they are asymmetries. Structurally, the left hemisphere is almost always larger than the right hemisphere. Also, the right one contains many long neural fibers, whereas, the left one shorter fibers. The different quantity of the left and right hemisphere itself makes them distinct from each other and therefore, makes their functions different. The left controls speech, reading, writing and arithmetic. It operates in a logical, analytical mode, focuses on details ~~and~~ perceives in terms of individual features rather than holistic patterns. The

right, on the other hand, plays a special role in musical and artistic abilities, in imagery and dreaming and in the perception of complex geometric patterns. Its perceptions are holistic and it is particularly effective on tasks that require the visualization of relationships (Atkinson, 1987:49 )

Based on the description above, it can be said that the students of product-design engineering who frequently activate their imagination in drawings and artistic things dominantly use their right (minor) hemisphere. They mostly receive courses which deal with drawings. Gardner, Gazzaniga and Doux; Lovy, Rinn and Smith (cited in Kagan & Havemann, 1980) maintained that drawings relate to the activity of the right (minor) hemisphere. They stated that the right (minor) hemisphere appears to comprehend spoken and written language to some extent, but it excels at perceptual tasks such as visualizing objects in space, generating imagery, drawing and recognizing faces, categorizing by shape, appreciating music and synthesizing details into wholes.

Reading, then, is a part of language skill. Surely, based on the theory, it involves the activity of the left hemisphere. Moreover in this research, there are two kinds of reading which would be comprehended. The first one deals with the picture story and the second one deals with the written text. In general, reading itself is always in the form of written text, though in fact, there are some pictures which are sometimes provided. Furthermore, there is a form of reading text which is called comic. It is also maintained as picture story as all of the pages are covered with pictures and some written dialogues. In this study, I only provide a kind of reading text which is extremely provided with pictures. They are arranged

orderly and well narrated. Though, it is also called picture story, the form is not purely a comic (picture story) as it does not include any written dialogues. Thereby, it fully contains pictures. As a matter of fact, by giving this kind of picture story test, it is believed that it has representatively shown the role and activity of the right hemisphere.

Since the students of product-design engineering basically and dominantly learn several courses dealing with drawings, it is clear then that they mostly exercise their right hemisphere. Thereby, the representation of picture story hopefully represents the activity of the right hemisphere. On the other hand, written text itself involves the activity of the left hemisphere. As the students of product-design engineering rarely learn courses which deal with language such as reading, it is necessary, then, to indicate that there might be one dominant hemisphere which is used by them when learning those courses.

## **L2 Statement of the Problem and Hypothesis**

Based on the background of the study above, the problem can be stated as follows :

- Are the abilities of the students of product-design engineering in comprehending picture story better than those in written text?

## **Hypothesis**

**Ho : The comprehension of the students of product-design engineering of picture story is not better than that of written text .**

**H1 : The comprehension of the students of product-design engineering of picture story is better than that of written text.**

### **1.3 Objective of the Study**

The objective of the study based on the statement of the problem above is to find out the abilities of the students of product-design engineering in comprehending picture story and written text.

### **1.4 Significance of the Study**

The study is expected to broaden our horizon about the lateralization of the brain, precisely, it is done to prove the theory. Moreover, this research is expected to give a contribution to those students who get involved in the study of psycholinguistics especially in doing further research about lateralization of the brain.

### **1.5 Theoretical Framework**

This study particularly applies a psycholinguistic approach, in which it has both psychology and linguistic perspective. Moreover, in psychology, there is a deep study of the biological anatomies of the human. It is a study of the anatomy of the brain and its function. As the study mainly discusses the human brain, and

its interaction with language, then, it is called a neurolinguistic study. Thus, neurolinguistics is a study which concern with the biological foundation of language and the mechanisms of the brain. Hence, theories of psychology-neurology and linguistics are applied here.

In the psychology-neurology theories, there are some explanation of the organization and division of the brain. These theories reveal much about the different structure and function of the left and right hemispheres. And thus, they give clear description about the lateralization of the brain which fully helps to clarify the topic and to gain the objective of the study.

Meanwhile, the linguistic theories here, deal with reading comprehension theories. Moreover, it describes the definition of reading comprehension and its activity, especially in the left hemisphere.

In addition, some related studies are also conducted. These studies were done in the past and they are related to this topic. The details of the theories will be described further in chapter II (Literature Review).

## **1.6 Definition of Key Terms**

- 1. Reading** : a process of thinking, evaluating, judging, imagining, reasoning and problem solving.
- 2. Comprehension** : understanding written text, making sense out of the text.

3. **Reading Comprehension** : (the power) of understanding the meaning of written or printed words or symbols.
4. **Left Hemisphere** : the left side of human brain which controls speech, reading, writing and arithmetic as well as in logical, analytical modes and focuses on details.
5. **Right Hemisphere** : the right side of human brain which has a special role in musical abilities, in imagery and dreaming and in geometric patterns.
6. **Lateralization** : the localization of cognitive and perceptual function in particular hemisphere of the brain.
7. **Corpus Callosum** : a bridge which connects and divides the left and right hemisphere
8. **Written Text** : a kind of reading material which is fully provided with sentences.
9. **Picture Story** : a kind of reading material which is fully provided with pictures. The pictures themselves are well narrated and ordered
10. **Product-design Engineering** : a program offered by the 10 November Institute of Engineering Surabaya with drawings as its major courses.

## **1.7 Method of the Study**

The study particularly applies a descriptive quantitative method since the analysis is mostly provided by counting numbers to know the abilities of the students of product -design engineering in comprehending picture story and written text.

### **1.7.1 Location and Population**

The population in this study is the students of product-design engineering of the 10 November Institute of Engineering Surabaya (ITS). I take the students of product-design engineering of ITS as the cohort of the research because they study in Surabaya as the second biggest city in Indonesia which has great facilities of technology. Therefore, it will surely contribute and inform the students with some recent issues of technology. Second, the students of product-design engineering of ITS dominantly focus their study in drawings which would largely support the research. Third, I take Surabaya as the location of the research because it is the residence of the researcher and it will ease the researcher in doing the research.

### **1.7.2. Limitation**

The research is focused on the comparison of the comprehension of the students of product-design engineering of written text and that of picture story. Each of the tests takes 15 minutes. Thus, they totally take 30 minutes. Both of

them are taken from Indonesian Folktales Stories which consist of 15 questions each.

### **1.7.3 Sampling**

The study takes 30 students of product design engineering of 10 November Institute of Engineering Surabaya (ITS) as the sample. Moreover, random sampling method is applied here.

### **1.7.4. Technique of Data Collection**

In collecting the data, I did several steps. First, I did observation dealing with the study conducted. Second, I chose the population. Third, I took the sample by using random sampling method. Fourth, I gave two kinds of tests; they are picture story (test I) and written text (test II). The two tests are taken from the same resources but they have different themes. The questions of the two tests are of the same level. In test I (picture story), the students had to answer several questions. Consequently, the students must answer several questions. The answers themselves could be obtained by comprehending the pictures. Then, the second test in the form of written text was conducted. After reading and understanding the text, they also had to answer some questions provided. Fifth, I collected the answer-sheets and then scored the tests. To make it easier, I put the results of the two tests into tables.

In short, the steps in collecting the data were:

#### **1. making observation**

2. choosing the population
3. taking sample
4. conducting tests : - the first test (picture story) : 15 minutes  
- the second test (written text) : 15 minutes
5. collecting and scoring the tests
6. putting the results into tables

#### **1.7.5 Technique of Data Analysis**

There are several procedures in analyzing the data. First, the data were classified into two classifications. The first data were taken from the test on comprehending picture story and the second data written text. Then, the data were put into tables.

The results of the two tests were presented in the form of percentage. This percentage was used to show how the abilities of the students of product-design engineering in comprehending picture story and written text are.

Afterwards, the data were analyzed using chi square test to know whether the comprehension of the students of product-design engineering of picture story is better or not better than that of written text.

Based on the chi square test, I calculated the expectation values of the chi square table, and then, calculated the  $\chi^2$  value. After getting the  $\chi^2$  value, I took 95 % as the confidential value. Next, The  $\chi^2$  value was put in chi square diagram.

In short, the steps in analyzing the data were :

1. classifying the data

2. calculating the percentage
3. doing the chi square test
4. making interpretation
5. making the conclusion

### **1.8 Organization of The Paper**

In this study, the paper is presented into four chapters. The description of these four chapters are as follows:

The first chapter is an introduction. In this chapter, there are eight subchapters. The first subchapter is background of the study, the second is statement of the problem and hypothesis, the third is objective of the study, the fourth is significance of the study, the fifth is theoretical framework, the sixth is definition of key terms, the seventh is method of the study and the last one is organization of the paper. Moreover, in subchapter seven, method of the study, there are five divisions, they are location and population, limitation, sampling, technique of data collection, and technique of data analysis.

The second chapter is literature review. In this chapter, some theories which relate to the study of psycholinguistics, precisely, neurolinguistics and reading comprehension are attached. Furthermore, it is also provided with some related studies in this field.

The third chapter, then, is presentation and analysis of the data. It is divided into three subchapters, they are presentation of the data, analysis of the data and interpretation of the data. In subchapter one, presentation of the data, the

outcomes of the two tests are presented with tables, percentages, numbers and sentences. This also happens in subchapter two, analysis of the data. Most of the analysis deals with numbers as it is a quantitative analysis. In subchapter three, interpretation of the data, some interpretations, which are a mixture of presentation of the data, analysis and theories, are made.



# **CHAPTER II**

## **LITERATURE REVIEW**