CHAPTER II

LITERATURE REVIEW

To support the analysis, this chapter reviews use several theories related to this research. Those are language disorder: aphasia, basic groups: broca's aphasia and wernicke's, broca's aphasias, wernicke's aphasia, other speech-related aphasias, reading and writing aphasias: dyslexias, definition of dyslexia, the types of dyslexia, the biological level, the cognitive level, directional dyslexia, and related to support the analysis.

2.1.1 Language Disorders: Aphasias

Language in young children shows large variation in onset and development between individual children. Children speak their first words between 9 – 18 months (Goorhuis-Brouwer and Schaerlaekens 1994). By the age of 2 most children have at least 50 words of vocabulary and produce 2-3 word combinations (Rescorla 1989). Some common symptoms include, difficulty understanding what other people say, hard time following spoken directions and trouble organizing thoughts.

Language disorders may appear as difficulties in the receptive, expressive and/or communication domain. A receptive language disorder means that the child has difficulties with understanding spoken language. Children need to understand language before they can use language adequately. In most cases, the child with a receptive language problem also has an expressive language disorder,

which means they have trouble using spoken language. An expressive language disorder implies difficulties with verbal and written expression. The child generally has difficulties with spoken language. Their vocabulary (the number of words they know and say) tends to be smaller compared with other children of the same age. (Hellen Van Agt, 2011) Some children have a language disorder even though they produce sounds well and have understandable speech. Difficulty expressing meaning to other people is called an expressive language disorder. Difficulty understanding other speakers is called a receptive language disorder. A child might have difficulties with both. This is what is called a mixed receptive-expressive language disorder.

Then, children with language disorders may have difficulty labeling an object or remembering a name. This is similar to the feeling of "having it on the tip of your tongue." A phonemic cue helps the child produce the word quicker! Simply give the child the first sound of the word:

Math Example: 2 + 2 = (cue "four" by saying the sound "f")

History Example: Columbus came to America in...(cue "1492" by saying "f")

Science Example: The gas which humans need is...(cue by saying "ah" for "oxygen")

From the statement above, the researcher can take a conclusion that language disorder is the study of psycholinguistic that includes broca aphasia, dyslexia, etc. It is also called as problem in brain that can make some differences of the function of brain. Also, language disorder have problems understanding

oral language or in listening. They may have difficulties processing and retaining auditory information, and in following instructions and directions. Difficulties understanding what is said may be exacerbated in group discussions. Difficulties in answering questions may be related to a limited understanding of question forms. Students may have difficulties filtering out background noise and have difficulties with verbal reasoning. Difficulties remembering strings of words and difficulties with sound discrimination may also be evidenced.

2.1.2 Two Basic Groups: Broca's Aphasia and Wernicke's

Language disorders, known as aphasias, are presumed to have as their cause some form of damage to some specific site in the hemisphere where language is located. Such damage cause characteristic problems in speech, as well as in reading and writing. An extensive study using radio-isotope scanning by Benson and Patten (1967) served to support the traditional distinction that aphasias are generally classifiable into two groups, Broca's Aphasias and Wernicke's Aphasias. In addition to these two basic groups, other aphasias sites were also found. Steinberg, Nagata, Aline (2001: 332)

2.1.3 Broca's Aphasias

Broca's area, in front of and just above the left ear. The sections of the brain involved in the actual articulation of speech seem to be partly distinct from those involved in its planning and comprehension. The majority of neurologists

agree that some areas of the brain are statistically likely to be involved in speech planning and comprehension. Aitchison, J (2008: 50)

It was in 1861 that Broca published the first in a series of studies of language and brain. This was the beginning of the true scientific study of cases of aphasias, a term which covers a very broad range of language disorders which are commonly caused by tissue damage or destruction in the brain. War injuries, strokes, and car accidents are frequent causes of such injuries. Steinberg, Nagata, Aline (2001: 332) Broca was one of the first researchers to discover that damage to certain portions of the brain, but not to others, results in speech disorder. One particular condition, now called Broca's Aphasias, is characterized by meaningful but shortened speech and also occurs in writing.

Although the most noted feature of Broca's Aphasias is the fragmentary nature of speech production, it has recently been discovered that speech comprehension is also affected. In one experiment with a patient with Broca's Aphasia, when presented with the spoken sentence, 'The apple that the boy is eating is red', the patient was able to understand the sentence, particularly with regard to who was doing the eating (the boy). Thus, there is a loss of syntactic knowledge in both speech production and understanding for those with Broca's Aphasia. Interestingly, people with Broca's Aphasia can often sing very well, even using the same words and structures they are unable to utter in conversation. This show that Broca's Aphasia is not simply a breakdown in the muscular control of speech movements, since those with disorder can pronounce words.

The loss, therefore, must be something of a deeper nature. Steinberg, Nagata, Aline (2001: 333).

2.1.4 Wernicke's Aphasia

Wernicke's area, in the region around and under the left ear, located on the temporal lobe on the left side of the brain. Area after the neurologist who first suggested this area was important for speech. Wernicke's area is the region of the brain that is important in language development, responsible for the comprehension of speech.() Language development or usage can be seriously impaired by damage to this area of the brain. Aitchison, J (2008: 50)

There are two kinds of wernicke's aphasia:

• Nonsense double-talk

This condition is characterized by speech which often resembles what is called nonsense speech or double-talk. It sound right and is grammatical but it is meaningless. It can seem so normal that the listener thinks that he or she has somehow misheard what was said, as is often the case in ordinary conversation. A patient with Wernicke's Aphasias may say, 'Before I was in the one here, I was over in the order one. My sister had the department in the order one', 'My wires don't hire right', or 'I'm supposed to take everything from the top so that we do four flashes of our volumes before we get own low'.

Word substitution

Patients with Wernicke's Aphasia commonly provide substitute words for he proper on the basis of similar sounds, associations, or other features. Te word

'chair', for example, elicited the following in some patients: 'shair' (similar sound), 'table' (association), 'throne' (related meaning), 'wheelbase' (?) and 'you sit on it. It's a ...' (word loss). As with Broca's Aphasia, Wernicke's Aphasia can also cause a svere lost of speech understanding, although the hearing of non-verbal sounds and music may be unimpaired. Steinberg, Nagata, Aline (2001: 333)

2.1.5 Other Speech-Related Aphasias

In addition to the kinds of aphasias which can occur from damage to te two main language centres of the brain, Broca's Areas and Wernicke's Area, there are other aphasias which occur due to damage at sites near or between those areas and at other sites in the brain as yet undetermined. Damage to the area which leads into Wernicke's Area from the auditory cortex may result in *pure word deafness*, where one cannot recognize the sounds of words as speech but can hear other types of sound. Steinberg, Nagata, Aline (2001: 333)

A condition known as *conduction aphasia* is characterized by a poor ability to repeat words despite relatively good comprehension. Persons with this aphasia might substitute a closely related sound for the one they actually hear, e.g. for 'teethe' (the verb) they say 'teeth' (the noun) and for 'bubble' they say 'bupple' (here inventing a new word but one that conforms to the sound pattern of English).

Anomic aphasia involves problems in finding the proper words for spontaneous speech, even though language comprehension and repetition are good. Typically, such a person has difficulty finding the correct names for objects. This is a

phenomenon which we all experience at times, e.g. 'hand me that uh...uh...uh...thing over there.' In this aphasia, however, the loss is frequent. There are also reported cases of patients being unable, in response to a verbal command, to perform skilled motor movements with their hands, even though they understand the command and their spontaneous hand movements are perfectly normal. This inability to respond appropriately to verbal commands is called *apraxia*. There is also *global aphasia*, a terrible condition in which many or all aspect of language are severely affected, presumably due to massive damage at numerous sites in the left hemisphere or to critical connections between language areas. Steinberg, Nagata, Aline (2001: 334)

2.1.6 Reading and Writing aphasias: Dyslexias

The type of aphasia which involves disorder in reading and writing is called dyslexia. There are many sorts of dyslexia, one category of which is due to damage to the brain, *after* reading and writing have been acquired. With children, however, dyslexia may be observed while they are in the process of acquiring reading and writing skills. Problem of hemispheric dominance or defects in visual perception, for example, may play some role in causing difficulties in reading and writing. Consider the following example:

Deer as reed

Some children may only be able to write backwards (*deer* as *reed*) or upside-down, or in reading may only be able to wrote letters (b with d, p with q, u with n, m with w) and engage in other anomalies. To help

remedy such problem as those with letters, it is best not to present the letters to the child in isolation but in a context. Then, b and d should be shown in words, e.g. *tub*, *dog*. In this way, the child can see the proper orientation of the letter and the word in which it appears.

Dyslexia is a neurodevelopment disorder with a probable genetic basis, and it is generally agreed that more boys than girls are affected (although the gender ratio is higher in referred samples). The core feature of dyslexia is a problem with word decoding, which in turn impacts spelling performance and the development of reading fluency. Dyslexia is persistent across the lifespan, and adult outcomes are variable, although some young people with dyslexia proceed to a university education, others leave school with minimal qualifications. Most adults with dyslexia complain of slow reading, problems of spelling and difficulties with written expression. In addition, problems with working memory, attention and organisation are frequently reported.

Then, right hemisphere is better prepared than the left to appreciate some of the pragmatics aspects of language. Kaplan, Brownell, Jacobs, and Gardner (1990) examined the ability of individuals with right-hemisphere brain damage to interpret conversation remarks. (Carrol, 1994)

Dyslexia may be subdivided into two basic categories, *alexia*, which involves disorder in reading, and *agraphia*, which involves disorder in writing. One may be afflicted by both conditions at the same time, in which case the person is unable to either read or write property. In *pure agraphia* there is a total loss of the ability to write, even though the hand can be used skillfully for other

purposes. For example, a person who has had a left hemisphere stroke may be able to read the simple sentence 'How are you?' and yet be unable to write it. Also, some may be unable to read a phrase yet be quite able to write it as dictation. That condition is termed *alexia without agraphia*, where a patient may not even be able to read what they themselves have just written. Steinberg, Nagata, Aline (2001: 334)

2.1.7 Dyslexia

2.1.2.1 definition of Dyslexia

Dyslexia is best described as a combination of abilities and difficulties that affect the learning process in one or more of reading, spelling and writing. Accompanying weaknesses may be identified in areas of speed of visual processing, short-term memory, sequencing and organisation, auditory and or visual perception, spoken language and motor skills. It is particularly related to mastering and using written language, which may include alphabetic, numeric and musical notation. (Peer 2003)

In other hand, Margaret J. Snowling (2012: 1) Dyslexia is a neurodevelopmental disorder with a probable genetic basis, and it is generally agreed that more boys than girls are affected (although the gender ratio is higher in referred samples). The core feature of dyslexia is a problem with word decoding, which in turn impacts spelling performance and the development of reading fluency. Dyslexia is persistent across the lifespan, and adult outcomes are

variable; although some young people with dyslexia proceed to a university education, others leave school with minimal qualifications. Most adults with dyslexia complain of slow reading, problems of spelling and difficulties with written expression. In addition, problems with working memory, attention and organisation are frequently reported.

Rosana (2009: 251) said that Dyslexia is a language disability, affecting reading, writing, speaking and listening. It is a dysfunction or impairment in the use of words. Consequently, relation with others and performance in every subject in school can be affected by dyslexia. It can be found around the world principally among boys. It exists in learners of slow, average and superior intelligence. The dyslexic child can come from any background or any income level and dyslexia may occur in any child in a family regardless of order in which he is born.

2.1.2.2 The Types of Dyslexia

Every linguist has his/her own view and opinion about types of dyslexia. There are several types of dyslexia as follows the genetic/biological level, the cognitive level and behavioral level. In this research, the discussion is focused only on three parts of dyslexia based on Uta Frith (1997) theory.

2.1.2.2.1 The Biological Level

A range of new and intriguing findings have emerged, indicating that dyslexia is likely not to be caused by a single gene but through the interaction of multiple genes, with possibly different gene sets being involved with different phenotypes (behavioural symptoms). It is not clear what bearing these genes have directly on behaviour or even on the development of the brain. It is, for instance, possible that one gene might lead say to birth complications, and so it would have only an indirect effect upon the child's brain. Another gene might lead to sinus problems or 'glue ear' in infancy. The poor quality auditory input during the critical period for development of speech-related auditory cortex might lead to poorer quality auditory representations of speech, and thus phonological deficit – again an indirect effect. Angela J. Fawcett (2001: 11)

New theories have been suggested, both in terms of magnocellular deficit (Stein) and cerebellar deficit (Fawcett and Nicolson), as discussed in this volume. Both theories have a good deal in common, and both suggest that problems will be more widespread than just phonological deficit. A good deal more research is needed to establish the extent to which these theories account for dyslexia and, in particular, we need to establish the 'prevalence' of the different subtypes that might be expected under the different accounts. Angela J. Fawcett (2001: 12)

2.1.2.2.2 The Cognitive Level

In addition to the automatization deficit and phonological deficit account, the major newcomer to the cognitive level accounts is the 'double deficit' hypothesis (Wolf and Bowers, 1999) that suggests that dyslexic children suffer not only from a deficit in phonological processing but also in central processing speed. A particularly striking finding is our 'square root rule', that dyslexic people

may take longer to acquire a skill in proportion to the square root of the time normally taken to acquire it.

If a skill takes four practice sessions to master, it would take a dyslexic child eight sessions to reach the same standard. If it normally took 400 sessions, it would take the dyslexic child 8000 sessions! If replicable, this finding would have striking implications for dyslexia support in that it mandates progression in terms of small, easily assimilated steps. This would not only provide theoretical support for existing good practice in dyslexia support but might also distinguish dyslexia support requirements from those for other poor readers. Clearly considerable further research is needed to investigate these hypotheses. Angela J. Fawcett (2001: 12)

2.1.2.2.3 Directional Dyslexia

Directional dyslexia is distinguished by left-right confusion and a tendency to become disoriented or lost. The term is also occasionally used to mean confusion with letters such as p and b or d and b, where there is confusion over the 'direction' of the letter. Generally, problems with directions are a symptom of dyslexia more than a sub-type. Not all dyslexics have this problem.

We now have a wide range of skills on which groups of dyslexic children show significant impairment. These include sensory deficit (flicker, motion sensitivity, rapid auditory discrimination), motor (bead threading, balance), and cognitive (phonological, working memory, speed). The challenge is no longer to find skills where the dyslexic children perform poorly, but rather those where they perform at normal or above normal levels. These typically include non-verbal reasoning, vocabulary and Introduction 13 problem solving. What is still not clear is whether there are different 'subtypes' of dyslexia, each corresponding to a different 'profile' of skills, and to what extent dyslexia is distinct from other learning disabilities. Angela J. Fawcett (2001: 13)

2.1.2.2.4 Primary Dislexia

Primary dyslexia is a dysfunction of, rather than damage to, the left side of the brain (cerebral cortex) and does not change with age. Individuals with this type of dyslexia are rarely able to read above a fourth-grade level and may struggle with reading, spelling, and writing as adults. Primary dyslexia is passed in family lines through their genes (hereditary). It is found more often in boys than in girls. (14 mei 2015. TYPES OF DYSLEXIA http://www.understanding-learning-disabilities.com/types-of-dyslexia.html)

2.1.1.2.5 Phonological (auditory) Dyslexia

Phonological (auditory) dyslexia refers to the specific learning disability termed auditory processing, or the more severe condition termed Auditory Processing Disorder (OPD). This form of dyslexia involves difficulty with sounds of letters or groups of letters. When this form of dyslexia is present, the sounds are perceived as jumbled or not heard correctly. And just as with visual processing, the brain correctly interprets information that it correctly received. (14)

mei 2015. TYPES OF DYSLEXIA http://www.understanding-learning-disabilities.com/types-of-dyslexia.html)

2.2 Review of Related Studies

 Reading, dyslexia and the brain (Centre for Neuroscience in Education, University of Cambridge, UK), (Received 17 August 2007; final version received 8 November 2007)

This research was written by Usha Goswami, the purpose is focused on the different neuroimaging technologies available offer complementary techniques for revealing the biological basis of reading and dyslexia. Functional magnetic resonance imaging (fMRI) is most suited to localisation of function, and hence to investigating the neural networks that underpin efficient (or inefficient) reading.

A Study Of Dyslexia Among Primary School Students In Sarawak, Malaysia

This research was written by Rosana Bin Awang Bolhasan, The purpose of this study was to determine the degree of dyslexic reading problem among primary school students and the relationship between the degree of dyslexia and the demographic factors. Eight demographics factors, according to gender of age, class, parents' income, parent education, parents' occupation, students' position in the family and the number of brothers and sisters in the family are chosen for the study. There are 32 characteristics of dyslexic student listed in the questionnaire "Dyslexia Screening Instrument". 250 dyslexic students from 7 primary schools in

Petra Jaya area in Sarawak, who were early, determined in the pilot study, were the sample in the study.

There are two related studies that the writer founded. About reading dyslexia and a study of dyslexia among primary school student. After read the analysis of dyslexia above, the writer more interesting to analyze about dyslexia. The writer takes other object in this analysis, the writer use movie for the object. The writer analyzes kind of dyslexia and how to overcome, also help child who had dyslexia. Then, the writer want to know dyslexia more deeply and want to help child who had dyslexia if someday meet them.