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Neurolinguistics and Its Influence on Language Teaching in Children

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Abstract: Human beings are born in the social environment as social beings that interact with others. The tool of social interaction used in her work is language in everyday life. This study uses a descriptive approach for qualitative research. The data are used as secondary data, the data collection method using the study method of literature. The authors used basic techniques for recording, participatory techniques for observation, conversations and approaches for writing. Research and analyzes can be concluded that language skills development supports the ability to communicate. The complexity of the language demands the accumulation of acquisition from the simplest to the most demanding level of language and social skills. The language skills growth chain is not consistent between individuals. It is this variation that leads to differences in the performance and the achievement of cognitive abilities. It is incorrect to call it a language disability because language skills are necessary, but it refers to a language disability. This impairment is a speech disturbance or delay that goes beyond the golden linguistic age.

Keywords: Language, Neurolinguistics, Learning, Children.

INTRODUCTION

Language is one of the essential elements in which people can express themselves and communicate with the environment. Language learning is essentially learning to think, express and communicate to satisfy various needs in personal life and social interaction within the community of life (Aldhaheri, Kulkarni & Bhise, 2021). The functioning of the nervous system has the unique ability of humans to speak. Nervous system imperfections will affect the language abilities of the individual (Antić, 2006). The cognitive, communication, social interactions, interests and activities of the child's imagination and the child's emotion are very complex. Naturally, ordinary children will learn their language without formal instruction. Normal children usually start to speak at 18-28 months of age (Chen, Xue, Mei & Dong, 2009). Others experience language disturbances for various reasons, such as speech delays and language learning difficulties (Caballero & Rosado, 2018).

Human beings are born in the social environment as social beings that interact with others. In daily life, its activities use language as a social interaction tool (Delbio, 2021). Language is used in terms of working together, communication and identification to express human ideas and thoughts. It seeks to identify the requirements for human behaviour and relations. Language activities as a form of human behaviour cannot be separated from brain control in speech as a control centre for all human activities (Farrokh, Soleimani, Haghir & Jafarigohar, 2020). In the language process, the brain performs a long and rapid process. This language has sound and significant features (Green & Kroll, 2019).

Language has meaning when expressive languages are symbols like morphemes, word, phrase, clauses, phrases and speeches (Hinojosa, Moreno & Ferré, 2020). The language of language has meaning. When speaking in human speech devices, the sound is in language. All can't talk adequately and appropriately, however. It can also be improper

for someone to communicate their ideas and feelings by language (Kotik, 2006). This is due to several factors, such as brain damage and speech organ damage. Injury can affect the failure of a person to react to external stimuli (Ingram, 2007). So the person's meaning and sound are not always in context. Brain damage causes an individual to experience linguistic disorders (Köpke, 2004).

Language disorders may be split into two general—first, medical interference and environmental interference (Mayberry, Devenport, Roth & Helgren, 2018). Medical factors include disorders either because of brain function or speech device abnormalities (Murthado, Arung, Boeriswati & Rahman, 2021). However, what social, environmental factors mean it is an environment that is not natural to humans, such as being excluded or isolated from human society's natural environment (Nergis, 2011). Language disorders are behavioural communication disorders where patients have difficulties or lose their ability to speak because they have not attained language development stages. In principle, damage to the brain causing language disorders can happen both in the brain, i.e. in the right and left hemispheres (Netten & Germain, 2012).

Aphasia is also a mistake in expressing ideas, namely the failure to synchronize between thinking and speaking. It was damaged on the left hemisphere that controls the language centre (Paradis, 2007). In general, people with aphasia experience phonological, morphological, syntactic, semanticizing and pragmatic linguistic disorders. People with aphasia can hear others talk but are hard to understand (Richards & Schmidt, 2013). He can see the letters, books or journals well, but he doesn't know what's written about them. Aphasia may be so profound that the patient could hardly say anything or understand (Roberts, Gonzalez, Pliatsikas & Rothman, 2018). Or maybe aphasia is so mild that the environment doesn't anticipate it, but the patient sometimes knows that it is not easy to speak and that he sometimes has difficulty with the right words (Song & Liu, 2019). In addition, sensory damage causes sensory aphasia or aphasia of Wernicke, which shows fluent speaking characteristics without meaning for the listener (Trevisan & Garcia, 2019).

Most of them do not know the role of neurology in language education (Walsh & Diller, 1979). It is a little easier to teach if we see the role played by the language teacher to make students understand the target language. The knowledge about the human language differs from the knowledge about animals because it is based on biological and neurological aspects. Although scientists did not discuss physical elements, the scientists only explained from biological factors that human language growth can be seen following the genetic development schedule so that a linguistic feature cannot be forced. The neurological side, meanwhile, namely the brain-language relationship. Chair argues that the brain is a nerve centre in the human nervous system, which controls thinking and human organ mechanisms, including language processing mechanisms. Thus, human language development is linked to the development of the brain.

METHOD

This study uses a qualitative research type with a descriptive approach. The data used in the form of secondary data. The method of data collection using the literature study method. In this study, the authors used basic techniques (recording techniques), participatory observation techniques/listen to conversational engagements and writing techniques.

RESULT AND DISCUSSION

The researcher discusses the role of neurolinguistics in the field of language learning. In the debate that follows, the development of language in children will be addressed. The first and second languages in children will be explained before linguistic disorders are finally discussed.

Language Development in Children and Its Variety

In addition to other developments, such as gross engine development, visual engine problem solving that combines optical and fine engine functions and social development, language development is a link to children's growth. Language development often is a benchmark for a child's intelligence, even though, essentially, a child's development is

unified and complementary. A child cannot thus be said to be intelligent unless he or she can only address problems of the visual-motor and is fluent without being socially balanced (Wong, Yin & O'Brien, 2016).

In the first years of life, every child who develops typically his/her mental mind will learn B1 or the mother tongue, which happens until about five years of age. Afterwards, the child will continue learning B1 in puberty (around 12-14 years) and adulthood (approximately 18 to 20 years). After puberty, the child's linguistic skills do not go far, even though he learns B1 continually throughout life in several respects, for example, in vocabulary. We consider acquiring the B1 language as the most stable language of knowledge and use for children. When a child reaches B1 language, it takes place through two processes: competence and performance. Both of these processes are different. Skill is a process of unconsciously mastering grammar. This process of competence is a prerequisite for a performance process involving the process of understanding and speaking. The understanding process consists of the ability to understand sentences heard. At the same time, the process of speaking becomes the following language (Wu & Zhang, 2020).

In all developmental phases, the language function is the most complex. Language development indicators include the sensory function, namely the child's ability to recognize, recognize and react to somebody, the facts in the environment, understanding of the meaning of words and sounds, and, finally, the ability of children to express their wishes and thoughts. The children also have sensory functions. This expressive function is influenced by sensory function. It is a more complex one since children begin preverbally, continue communicating with facial expressions, body movement, and ultimately using words or verbal communication. The table below summarises the phases of speech development in children from newborns to 4 years old that include receptive and expressive functions.

About the above table for language development, the child is said to have speech delays or language problems if his or her capacity deviates from those standards. Speech delays are the most common developmental disorders in 3–15% of children. Up to 1% of children who have language delays are still unable to speak about them. 30% of children with mild delays recover from their problems or become regular. The remaining 70% will have problems with languages, less intellectual skills and other learning problems.

There are very various causes of speech or linguistic retardation in general, including 1) mental retardation that causes the child to lack intelligence in comparison to the other kids of its age; 2) heart loss, 3) speech organ disorder; 4) selective mutism or unwillingness to speak in certain circumstances.

In some language psychology literature, the study of speech retards or disorders is still limited to general-speaking problems. There has been no general discussion of the difficulty of speaking with the language ability of a syntactic and practice review. Carroll (1986:30) categorizes 4 (four) speech disorders: 1) mental impairment children speech disorders; 2) hearing impairment children speech problems; 3) autistic children's speech disorder; and 4) brain injury children's speech impairments.

First Language Acquisition in the Early Period

The acquisition of language in young children begins with their cries that react to their environmental stimuli. With his mental maturity, the way he responds develops. In addition, the child will keep linguistic stimuli in his memory. A first language acquisition, or what is often called a mother language, is a creative process in which children learn the language rules based on input from simplest to more complex forms.

If children are golden ages or ideal period (critical age), 6-15 years of age, they will master their language more rapidly. The compulsory age is supposed to be 0-6 years in other theories, but essentially prepuberty is ideal. The human brain in the golden age was still highly elastic so that a child could easily and quickly acquire a first language. Meanwhile, cognitive maturity was achieved when certain brain functions were completed at puberty time, in particular verbal functions, which are stable on the left side of the brain. That's what lateralization is called. It is the critical period for lateralization-lateralization, which reduces natural language acquisition until it is finally gone.

Chelsea, who started to become linguistic when she was 31 years old, was an example of a delay in language acquisition. Beginning with the doctor's careless diagnosis that Chelsea was delayed, he never took part in social

contacts that permitted his language acquisition. After growing up, Chelsea was discovered to be subdued by the fact that sign language can be taught. It is shown that Chelsea can speak and imitate other speakers after it has been fitted with hearing aids. The time it takes for Chelsea to learn a language during a golden age is longer than it took for children. Another study showed that children taught to use sign language at age 0-6 had a better understanding and word production than children taught at age 12 and over. In conclusion, the brain cannot achieve syntactic and morphological skills as much as possible above the golden age. Therefore, teaching for young children (language, reading the Koran, etc.) is like writing in a rock; teaching parents is like written in the street.

Language is not easy to use in a systematic and accurate language learning process. In deaf children, the ability to produce words faster than in ordinary children. This capability is not easy to develop, proving that in ordinary kids, control of the larynx muscles and speech organs is more complex than control of the hand muscle in deaf kids.

In the case described above, it cannot be assumed that sign language is more accessible than the spoken language, as both have linguistic universality, grammatical system similarities, allow language evolution and change and cannot be separated from language errors. Acquisition of second language and problems a second, third, and so on shall be referred to as acquiring a language other than the mastery of the mother or first language. For example, in Javanese society, if children are brought up in a Javanese-speaking community in Indonesia, they are called a second language.

If it starts early, language acquisition is better. Psycholinguistics experts McLaughin & Génesee argue, in comparison to adults, that children will learn a language quicker and easier. Also, neurolinguistic expert Lennenberg emphasized the support of this opinion concerning the condition of the brain. Before puberty, a child's brain or thought power is more plastic and flexible, making it easier to teach any language. Language absorption in children works automatically, simply by self-exposure and participation in the target language communication. This flexibility is reduced after puberty, and its performance is not optimal.

There are usually two views on second language acquisition. First, children were used to being exposed to different languages since they were born. Second, after their mother tongue, children can learn a second language. However, they still have drawbacks, and both opinions are equally good. The first method may lead to language delays because the child's brain works hard to figure out which language the speaker uses. But it doesn't take long; as the child gets older, this ability is improved. The second method resulted in a second language pronunciation worse than the first method for a child. The child is used to a more precise pronunciation and accent in the first method. Nevertheless, the two methods can be used with a note that considers the interactive, engaging and attractive atmosphere of language acquisition.

The challenge of learning a second language remains related to the theory of the golden age as described above. Generally speaking, we can see that the facility with which a child learns a second language becomes increasingly difficult and slow after puberty after 5-7 years. People seldom achieve the phonological fluidity of the second language after puberty or after the golden age. However, according to Krashen, even after the lateralization-lateralization process is over, the ability to learn a second language is not too low.

Language Disorder

In this instance, the fact that language disorders impact 2 (two) things must be taken into account. First, sluggish language learning – a five-year-old baby, for example, has the same language skills as a two-year-old; secondly, in children that acquire language in an order different from most children or have skills that differ significantly from those of a mother tongue.

Language disorders can be divided into 2 (two) groups when viewed from the beginning. Initially, language disorders develop, which means congenital disability disorders. In some children, language acquisition is complex because of developmental disorders. Secondly, language disorders acquired meaning operative, stroke, accident or ageing disorders.

Medical factors and environmental factors may cause linguistic and communication disorders. Medical aspects have consequences for speech, language and thought disorders. Medical factors include infections caused by brain injury causing nervous system damage, psychogenic disorders and speech organ system disorders. The damage to the nervous system also causes the network to disconnect the auditory field from the speech production to prevent the communication of the speech message.

The speaker mentioned above problem is permanent, which leads to a lack of proper and correct speech. In terms of certain other disorders, the absence of language skills is temporary. It's not called "no" but "no" because it doesn't refer to the word. The influence of affective feelings, for instance, in patients with stuttering caused by the disconnectedness of thoughts and speech, difficulty with speaking words and a lack of knowledge of the topic of the talk.

The above-described language deficit can mainly occur during three phases of reconstruction of linguistic memory that create a complete language acquisition process. Input is the first phase. If anyone hears or reads a speech, he makes notes and interpretations of the content and the linguistic message. This stage complicates understanding in patients with neurological disorders so that further procedure is hindered. Storage is the second phase. Two storage concepts are distinguished by experts: the short-term and the long-term. Short-term store in the form of words or numbers up to 7 sentences so that people can recall seven digits of a telephone number within a short time. Long-term storage is about sentence messages that can be kept for a long time, which varies between individuals. The final stage is the final stage, in which the two types of memory have a contrast, which means that the longer the listener can remember an utterance, the minor form, the better, the more significance is recognized.

Incorrect positioning of nouns and verbs and the use of transitive verbs without objects are also syntax defects. Syntax errors are considered part of a language disorder when they persist at an age that should have lost this habit. Syntactic tools are order, word shape, intonation, and assignment of particles or words. The structure in syntax usually consists of the subject (S), predicate (P), object (O) and description arrangement (K). Syntactic units comprised of words, phrases, terms and phrases. Syntax functions in the syntactic team consisting of S, P, O, K elements that are "empty cases" and "empty places," which have some category and some role to play. In one communications context, there are 67 utterance phrases. Sixty-seven utterance sentences have been found among four autistic children, including up to 17-word order errors, one grammatical mistake, one-word error, 11 sentence errors for a syntactic unit, four keyword errors, and no sentence mistakes.

The defined permanent or temporary speech disabilities can be categorized into 3 (three) types, including disability and language disabilities initially, disturbances in organ imperfections conditioning. Secondly, cognitive disturbances. Thirdly, linguistic information processing disturbances. Examples of the first category above include people with a deaf, blind and speech disorder. Imperfections of the organ give priority to the education of the deaf in the language of signs. Then the deaf understand spoken and written language, using sign language as a mother tongue, as a second language. Today it is more emphasized to teach an understanding of lip reading. However, only sign language can be instructed to deaf people with severe hearing loss.

Given the complexity of a deaf children's linguistic phase consisting of sign language and lip-reading, it takes more time to learn to read and write. The ability of deaf children to read and write is thus slower than normal children. The skills in communication achieved are limited to face-to-face communication, making it challenging to conduct telephone conversations without visual technology.

Language development among deaf children is generally determined by 3 (3) core factors: 1) hearing level, 2, normal or deaf, and 3, the age of communication in particular systems, and the consistency of training. In blind people, there are often certain doubts concerning their language skills. One of the often asked questions is whether visually impaired language is delayed? This considers the child's state, which does not benefit the objects around it by facial expressions, body language, or gaze. Research shows that the phonological system is acquired by blind children slower than normal children. Sometimes blind children get confused with pronunciation-like phonemes, for instance /n/ and /m/. Blind children's ability to babble and speak the first words is the same as regular children. However, the content

of the original vocabulary differs. Blind children do not usually vary their verb, which shows that they are categorized in a limited way that impacts vocabulary diversity.

Speech organ imperfections affect a person's ability to speak (words) compounded by vocal cords, tongue, muscles of the oral cavity and oesophagus and lungs. This is called a disorder of the speech mechanism. According to Chaer (2002), speech disorders may arise due to lung (pulmonary), vocal (laryngeal), language, oral cavity and oesophagal abnormalities, based on the mechanism. Chaer (2002) states: (resonental).

Cognitive disorders cause language disorders in the second category. This happens in individuals who are senile, isogenic and depressed. Thinking disorders in people with dementia make verbal phrases challenging to find the right words. The conversation is often repeated because the direction of the discussion is not remembered or frequently move to another topic. The conversation is often interrupted. The main focus is on language deficiencies in children so that dementia disorders are not detailed.

Sysophrenic and depressing people have difficulty with verbal outpouring because of thinking disorders following the context. For example, depressed verbal outflows are replete with sad subjects, self-reproaching and self-reproach, a loss of enthusiasm for work, and a loss of passion for life. The above examples are rare in kids. In people with down syndrome and autism, language disorders because of cognition are more common. Down Syndrome people have a wide range of intellectual skills, and the assumption that all people have the same language skills is wrong. The levels are: slight (IQ 5368), moderate (IQ 3652), severely (Iq 2035), and hardly (severe), according to Kendler (Carrol, 1986:95). The levels are: (IQ below 20). His language skill, therefore, refers to his cognitive disorder.

Down syndrome studies or mental delay show a relationship between cognitive disorders and the failure to develop language skills. Phonological progress is generally slow. It can be mastered only a tiny vocabulary, and speaks are short and telegraphic (without affixes and conjunctions, similar to the language in telegrams). Children with Down syndrome also have pronunciation problems. His intonation is classified as abnormal with a distinctly harsh voice. Children with severe and severe Down syndrome prefer communication using their body language (gesture). In adulthood, syntax abilities can be achieved, but the construction of affirmative sentences can be more grasped than denied.

Generally speaking, language disorders of both children and adults, experienced by people with Down's syndrome, are only late (not lacking or unable). This means that the language acquisition process that it is going through is similar to the typical sequence with slow development. However, the average adult speakers are not able to gain complete expertise. The severity of the disorder depends on this.

For autism, cognitive and social disorders are combined. Persons with autism may be silent until they are 5, or just parrot adult words. This shows that people who are autistic have limited natural thinking, which means they can't understand the world from the point of view of others. All communication aspects are challenging.

CONCLUSION

From the above, the ability to communicate can be concluded by supporting the language learning process. The complexity of the language demands the accumulation of acquisition from the simplest to the most demanding level of language and social skills. The language skills growth chain is not consistent between individuals. It is this variation that leads to differences in the performance and the achievement of cognitive abilities. It is incorrect to call it a language disability because language skills are necessary, but it refers to a language disability. This impairment is a speech disturbance or delay that goes beyond the golden linguistic age.

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