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LANGUAGE ACQUISITION AND DEVELOPMENT IN CHILDREN WITH AUTISM SPECTRUM DISORDER

Ratnawati [1], Fahmi Rakhman[2]
[1]STKIP Muhammadiyah Kuningan
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Abstract

The main function of language is to communicate or interact with other people. There have been many studies conducting about the language, especially about the process of language acquisition as it is an interesting and impressive aspect to be discussed in human development. The process of language acquisition starts from newborns period until they are adults. Language acquisition process deals with children, of course its process is vary between a child and others, particularly in the children with exceptionality such as children Autism Spectrum Disorders (ASD) or other disorders. The occurrence of ASD in the world increases rapidly every year. Thus, it is very important to discuss about language in children with ASD. According to the data base sources, the special education system and treatment to help children with ASD in developing their language will be discussed further in this paper.

✉ Alamat korespondensi:
E-mail :

INTRODUCTION

Language is a mean of communication used by human to interact or communicate with other people. Discussing about language is always correlated to brain and speech organ. Humans are gifted by the God with special organ by which can understand and produce language called as language acquisition devices and speech organ. The LAD (Language Acquisition Device) helps human in acquiring and learning language. The process of acquiring language includes some stages such as understanding the words, phrases, and sentences then finally producing the speech. As it was stated by Steinberg (1982), the principal formulations concerning the relationship of language and thought (brain) have been expressed in recent times as follows: (1) speech production or other behavior is fundamental for thought; (2) language is a fundamental basis of thought; (3) the language system perse provides specific of one's view of nature; and (4) the language system per se provides specific of one's culture. The explanations before showed that language and human's brain or thought have a tight relation. Language itself makes us really human and differentiates humans from animals. Bernstein (in Lefrancois, 1986) also links language and thought. He believes that part of the inferior school achievement of children from disadvantages homes is related to their language.

Recognizing about the importance of language for communication, language learning and acquisition is really needed for children both for normal children and children with special needs (disabilities; physic and mental, communication disorders). Language acquisition in children is divided into some categories first three years, pre-school years, and school years, of course those cover different certain stages. Children acquire language by understandingthe words implicitly though they do not able to produce the words yet. By the age of 18 months children can understand language and its meaning but only 30% words can be produced. Language acquisition and development in normal children covers those aspects, whereas in children with special needs or exceptional children of course have different stages or treatment such as children with disabilities and disorders. They need special treatment in language learning and certainly they have different stages of acquiring and learning the language.

A. THE PARADIGMS OF MEN AND WOMEN'S LANGUAGE

There are an issue in the past few decades that emerges the idea of women's brain is smaller than men's brain. Carl Linneaus, the pioneer of modern taxonomy, in 1806 suggested a proposal that the larger the organism's brain, the more advanced its behaviour and intelligence. This proposal dramatically generates other researchers to examine men's and women's brain in terms of the size of the brain, and a released belief saying that men is more intelligent than women because their brain is larger (Davison, 2012). However, is it true that men are more intelligent than women because of the size of the brain? Is their brain bigger than women's? These questions will be answered in the later chapter.

Swacker, cited by Cutler and Scott (1990), said that the proverb of "women's tongues are like lambs' tails – never still" has been spread to many cultures and countries. What is being emphasized in that proverb is that women have the tendency to produce more utterances than men, or in other words, women talk more than men. Similarly, though not truly discussing about the amount of utterances, some linguists, such as Lakoff, also agree with the argument saying that women's language is different from men's language. Lakoff, cited by Holmes in 1993, in her book titled "Language and Woman's Place" also proposes some features marked on women's language, which are:

1. Lexical hedges or fillers, e.g. you know, sort of, ...
2. Tag questions, e.g. she is very nice, isn't she?
3. Rising intonation on declarative, e.g. it's really good.
4. Empty adjectives, e.g. divine, charming, cute.

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5. Precise colour terms, e.g. magenta, aquamarine.
6. Intensifiers, such as just and so.
7. Hypercorrect grammar, e.g. consistent use of standard verb forms.
8. Super polite forms, e.g. indirect requests, euphemisms.
9. Avoidance of strong swear words, e.g. fudge, my goodness.
10. Emphatic stress, e.g. it was a brilliant performance.

She proposed those ten features as the characteristics of women's language or speech behaviours. She also suggests that women's language is "immature, hyper-formal, and non-assertive" while men's language is "assertive, adult, and direct" (Nemati & Bayer, 2007). Some sociolinguists and linguists also agree on the idea of women's and men's language differences. Every scientisthas certain reason to answer why men's and women's language is different. Sociolinguists and linguists agree that social construction is one that shapes women's behaviours, especially in language; while psycholinguists believe on the nature of women as a motherly human being with various affective traits. Neuroscientists, in the other hand, suggest the idea that women possess certain cells or fluids that make those differences.

Other paradigms are concerned with the idea that women talk faster than men as well as think differently than men. Kramer in 1977 found an issue that saying "... not only was talking a lot reported to be a characteristic of women, but so was talking fast" (Cutler & Scott, 1990). There has not any proof regarding to this idea, but some scientists believe that it exists due to the regular use of high pitch voice by women when they are talking to others.

From the linguistic perspective, there are lists of lexicons which are categorized or divided into men's language and women's language. There are some linguistic features, such as the pronunciation, the morphology, and the vocabulary, which are associated only to one gender, but not for another. Holmes in her book titled "An Introduction to Sociolinguistics" said that "... different words, with the same meaning, are used distinctively by men and women". She gives an example of a Japanese word of 'water'. For speech, Japanese women will use 'ohiya' for 'water' while the men will use 'miza' (Nemati & Bayer, 2007). This evidence, indeed, clarifies that literally there is a division of linguistic features in some languages because of the external factors, such as the culture, the custom, and the community.

Thus, what is the concern of this article actually? This article firstly will focus on how the neuroscience factors affect men's and women's level of intelligence. Second, this article will focus on how the neuroscience factors affect men's and women's behavioural differences. Last, this article will focus on how the neuroscience factors affect men's and women's languages. Totally different from the linguists' point of view that see the external factors as the trigger, this article will see point out the internal factors, human's mind and brain, that take a part in shaping men's and women's language, particularly on how it is stored and how is the state of linguistic features in the brain.

B. MEN'S AND WOMEN'S BRAINS

The human's brain plays the most important role in organizing all human's body parts and organs. The brain controls the body movement, internal organs, thoughts, memory, and speech – something that other living creatures are not possible to possess. According to Mayfield Clinic and Spine Institute (2013), the human's brain composes of three main parts, which are: 1) the cerebrum – the largest part of the brain that consists of right and left hemispheres. The function of both hemispheres are to "interpret touch, vision, and hearing, as well as speech, reasoning, emotions, learning, and fine control of movement", 2) the cerebellum – located under the cerebrum and functions as "coordinating muscle movements, maintaining posture, and balance", and 3) the brainstem which is useful to connect the cerebrum and cerebellum to the spinal cord. The functions of brainstem are to "perform many automatic functions such as breathing, heart rate, body temperature, etc."

Thus, what are the differences between men's and women's brains actually? There are a lot of scientists who have done an investigation regarding to the differences of men's and women's brains. One of them, Jill M. Goldstein and her colleagues, by using MRI, measured the size of cortical and subcortical areas of men's and women's brains. They found that the frontal cortex and limbic cortex of women are bulkier than men. The frontal cortex regulates many cognitive functions while the limbic cortex regulates human's emotional responses. Besides that, parts of the parietal cortex and the amygdala of men are bigger than women. The parietal cortex functions as a space perception while the amygdala functions to respond any emotional arousing information (Cahill, 2005).

Other differences being revealed here is that there is an area in the brain, called Hypothalamus which regulates human's reproductive behaviours, such as hunger, thirst, sleep, and sexual response. This area is located in the floor of the third ventricle and the main controller of autonomic

system (Mayfield Clinic and Spine Institute, 2013). According to an examination done to rats, there is a region of Hypothalamus that is larger in male rats than in female rats following the hormonal control. Other scientists also found that there are parallel sex differences in a clump of nerve cells in the human's brain – parts of the interstitial nucleus of the anterior Hypothalamus. The scientists found that men's nerve cells are larger than women's (Kimura, 1999). This research proves the idea that human's sex differences can make distinct feature differences in the human's brain.

More evidence to show, there is another thing that makes men's and women's brains are different in shape. That thing is the grey matter, or so called the neurons or nerve cells which are located in the cortex. According to some researchers, the grey matter of men is larger than women some times, while the white matter, the one that is being covered by the grey matter, of women is incredibly larger than men (Rae et al., 2004) this is why there is an evidence that women's brain will shrink slower than men as they are growing old, and they will get dementia slower than men in terms of the age. So, finally we come up with a conclusion that men's and women's brains are indeed different in shape and in size that makes its functions also differ in level. Men might be superior in some spatial tasks while women might be superior in memory and verbal reasoning, a part of any inclination regarding to the state of the brain or the behaviours that is considered as abnormal.

C. LANGUAGE

After discussing and finding the significant differences between men's and women's brains, so does it influence their language? Actually, I have not found any relevant research regarding to the language differences between men and women in terms of language production, language perception, and language acquisition. There has not been any related information or research on sex differences affecting the way people use the language. As far as this article is flowing, I can only find some general information about men's and women's differences in terms of language skill. However, I hope that this article can help other scientists and researchers to start and conduct a research about language differences in terms of language production, language perception, and language acquisition.

Doreen Kimura, in her article titled "Sex Differences in the Brain" (1990) stated that, "parts of the corpus callosum, a major neural system connecting the two hemispheres, as well as another connector, the anterior commissure, appear to be larger in women, which may permit better communication between hemispheres." As we know that a good communication between hemispheres can enhance a good language skill as one of the functions of the hemispheres to exist. Due to the better team work of both hemispheres in women rather than in men, it is appropriate to say that women have better language skill than men. That's why the population of women in language class or department is generally higher than men. She again confines that there are some greater differences in activities related to language tasks between the hemispheres of men and women in judging two words rhyme and creating past tense verbs. This research strengthen that, indeed, apart from women's sensitivity of verbal communication and affection as linguists always state in their researches, women is better at language than men following the brain shape.

Harasty in 1997 also mentioned that there is a specificdifference between men's and women's Wenicke and Broca areas in the brain. according to a research done by a group of students in University of Sydney, the volume comparisons of Wenicke and Broca areas are stated as this: "Wenicke and Broca areas were, on average, 17.8% and 20.4% larger in female's brains than in male brains." This anatomical comparison is responsible to create a concept of superior language skill exhibited by women and naturally encourages women to be more active in verbal skill than men (Davison, 2012). In addition to that, Sandra Witelson and her colleagues in McMaster University also discovered that a great density of neurons of women in parts of the temporal lobe cortex which is associated with language processing and comprehension. They discovered that in the six layers presented in the cortex, the two of them show more neurons per unit volume in women (Cahill, 2005).

Because of the tendency of the brain to process the language related things is more detailed and advanced in women than in men, and the anatomical research also found that women is good at language processing and comprehension than men, it is suitable to say that women have more lexical choices than men, and they tend to think more thoroughly than men in terms of lexical choices, under various conditions, events, and listeners. Brenann and Clark (1996) suggest that lexical choices are supposed to be affected also by speakers' memory for conceptualization. The more they appeal to a particular concept, the longer last its representation stored in the memory (see Garrod & Doherty, 1994). It is possible for women to have more lexical choices because, as many scientists have strengthened in their researches, women are good at landmark memorizing and verbal reasoning while men is at spatial tasks and mathematical related things.

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The recent research that I finally found related to the effect of sex differences in men's and women's speech production is the production of past tense verbs in men's and women's utterances. This finding has been mentioned by Kimura in her article before, and this research is conducted by Ivy V. Estabrooke. In her dissertation titled "The Influence of Sex and Sex Hormones on the Production of the English Past Tense" (2005), she found that sex differences influence the production of regular past tense forms. She found in her study that males generally arrange regular forms by using the grammatical rule while women arrange regular form from the lexicon. In another study, she examined the high and low frequency of regular verbs and the result shows that both men and women have the tendency to arrange the low frequency regular verbs. She strengthened her study as,

> "The comparison of males and females in their production of past tense forms indicates that there is a sex difference in how the verbs are produced. The difference in frequency effects for regular verbs indicates that women tend to store and retrieve regular past tense forms from memory. This sex difference may be attributable to the female advantage at verbal memory, making it more likely they would learn and store the fully composed regular past tense forms." (Estabrooke, 2005)

In other words, sex differences, due to women's superior ability to memorize words or lexicons, it is possibly easy for them to learn and store more composed regular past tense forms in their brain.

Then, answering another myth that saying women talking faster than men, Cutler and Scott (1990) try to enlighten against this issue. They stated that female vocal tracts – a voice producing system in human's throat/larynx – are generally shorter than men's vocal tracts. This condition directly influences the voice production of women, makes them higher pitched than men. The tendency of high pitch experienced by most women is the one that possibly signal the faster rate speed issue.

D. CONCLUSION

Thus, are the social paradigms regarding to men's and women's brain true? After scrutinizing some scientists' studies about the neurobiological anatomy of men's and women's brain, there are some findings that we can rely on to answer the issues. First, a research found that the frontal cortex – a part of brain that regulates many cognitive functions and the limbic cortex – a part of the brain that regulates emotional responses, of women are bulkier than men. Then, there is a region in Hypothalamus that is larger in men than in women. As we know that Hypothalamus controls the reproductive behaviours, such as hunger and thirst. Besides, according to some researchers, the white matter of women is larger than men while the grey matter of men is larger than women. This state directs us to a conclusion that women's brain will shrink slower than men because the white matter is bigger. Then, the white matter that consists of left and right hemispheresis connected well in women than in men. This condition indirectly results to women have a better communication skill as well as language skill than men. Another part of the brain that makes women is superior to men is the Wenicke and Broca areas. This anatomical comparison also results in creating a concept that women are superior in language skill. The most closer and promising experiment done by a researcher regarding to the issue of sex differences influencing men's and women's languages exposes that men generally arrange regular forms by using the grammatical rule while women using the lexicon. According to the findings exposed in this article, we can finally conclude that sex differences, directly or indirectly, affect the way men and women store and use the language by considering all anatomical and psychological differences.

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