

**PHONOLOGICAL PROCESSES IN LANGUAGE ACQUISITION  
BY CHILDREN OF THREE YEARS OLD**

By: Happy Sri Rezeki Purba, M.Hum<sup>1</sup>

**ABSTRAK**

Pemerolehan bahasa merupakan salah satu tanda dari kebesaran Allah SWT yang membedakan manusia dengan makhluk ciptaan Allah SWT yang lainnya. Oleh karena itu, penelitian ini bertujuan untuk mengetahui proses penyerapan fonologi Bahasa Indonesia oleh anak Indonesia berusia tiga tahun berdasarkan sumber ilahi dan sumber insani. Penelitian ini merupakan penelitian *Observasional Case Study*, dan observasi dilakukan selama kurang lebih tiga bulan dengan bantuan dan dampingan dari orangtua subjek (anak Indonesia usia 3 tahun). Dalam proses pemerolehan fonologi anak Indonesia terhadap Bahasa Indonesia terdapat juga sebuah fenomena yang dikenal sebagai *Fis Phenomenon*. Hasil penelitian menunjukkan bahwa ketiga subjek penelitian yaitu R, A, F mengalami fenomena tersebut dan khusus dalam proses pemerolehan fonologi ketiga subjek kesulitan dalam pemerolehan suara [r].

*Kata kunci: Phonological Process, Language Acquisition*

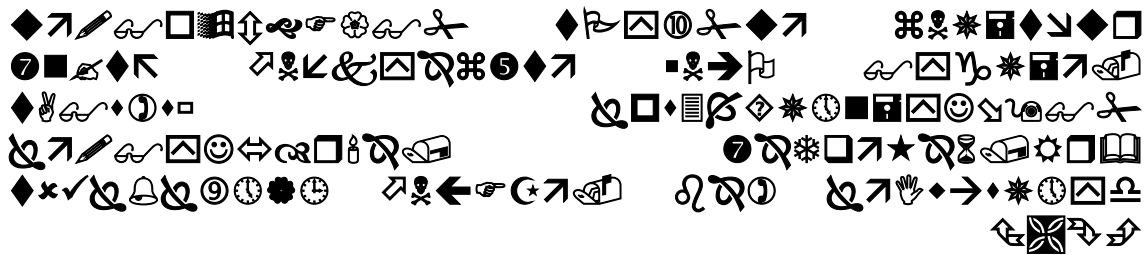
**A. Introduction**

Allah SWT created human in complete organ and ability. One of that is humanbeing are born with the ability to communicate with others. One means of communication is language. Human language is indeed such a unique form of communication. The language used by humans is distinct from ‘languages’ of other creatures. Human’s ability to communication with others relates to their innate capacity. The innate capacity and the stimuli from others make people, adults and children are able to communicate. In fact, how children acquire their language is a very amazing process. In the course of acquisition, children recognize the sounds of their language around them.

Based on Qur’an surah Al baqarah 31 stated that:

---

<sup>1</sup>Happy Sri Rezeki Purba is Lecturer of English Education Department FKIP UMTS (Universitas Muhammadiyah Tapanuli Selatan) Padangsidimpuan.



*“And He taught to Adam about the name of all things, then He stated to all angles say me the all the things if your are really a right man”<sup>2</sup>.*

How children so quickly and as if by magic acquire language has interested people for thousands of years. Psammeticus, an Egyptian Pharaoh during the 7<sup>th</sup> century BC, believed language was inborn and that children isolated from birth from any linguistic influence would develop the language they had been born with. He isolated two children, who were reported to have spoken a few words of Phrygian.

The other research is done by Akbar, a 16th cent. Mogul emperor of India, desired to learn whether language was innate or acquired through exposure to the speech of adults. He believed that language was learned by people listening to each other and therefore a child could not develop language alone. So he ordered a house built for two infants and stationed a mute nurse to care for them.

The children did not acquire speech, which seemed to prove Akbar's hypothesis that language is acquired and does not simply emerge spontaneously in the absence of exposure to speech.

In Indonesia, the famous research of children language acquisition is done by Dardjowidjojo. He observed his own granddaughter, Echa who lives in Java island, for five years of the acquisition of Indonesian language. He found some different processes especially phonological processes between the acquisition of Indonesian and English children.

After reading Dardjowidjojo’s report, the writer also has an aim to make a small research about the phonological processes of Indonesian children particularly at age of

---

<sup>2</sup>Departemen Agama, *Alquran dan Terjemahan*, (Bandung: Diponegoro, Cet. X, 2010), p. 5.

three years old. She wants to know more detail about the language acquisition especially in phonological processes of Indonesian children in different places from Echa<sup>3</sup>.

The behaviorism approach believes that the infant is like a blank sheet (*tabula rasa*). The infants will repeat vocal speech sounds over and over again, and then they will imitate the adult's vocalization. It means that children's language acquisition is started from a sound. Then, the research of language acquisition begins in sound especially about the phonology.

Phonology is the systematic use of sound to encode meaning in any spoken human language, while phonological processes are the part of phonological development often recognized by parents as simple pronunciation errors.<sup>4</sup>

Meanwhile, there are three processes of phonological acquisition, namely substitution, assimilation and syllable structure. The substitution consists of stopping, fronting, gliding, vocalization and vowel neutralization. Some relatively common processes of assimilation are voicing, consonant harmony which consists of a velar assimilation, labial assimilation, and denasalization. Moreover, the syllable structure process consists of consonant cluster reduction, the deletion of final consonants and deletion of unstressed syllable.<sup>5</sup>

In the process of children language acquisition, there is also *fis* phenomenon. The *fis* phenomenon is a phenomenon of child language acquisition that demonstrates that perception of phonemes occurs earlier than the ability of the child to produce those phonemes.

## **B. Definition**

### **a. Language Acquisition**

How children acquire their first language is a process that has not been answered satisfactorily. Language acquisition is a process of learning language by children naturally, as a process of development.

---

<sup>3</sup>Dardjowidjojo, *ECHA: Kisah Pemerolehan Bahasa Anak Indonesia Jakarta*, (Jakarta: Grasindo Jaya, 2000), p. 8.

<sup>4</sup>David Ingram, *First Language Acquisition: Methods, Description and Explanation*, (New York: Cambridge University Press, 1979), p. 15.

<sup>5</sup>*Ibid.*, p. 133.

Language acquisition is a crucial concept in the attempt of understanding language development more deeply. There are some stages of language acquisition and in general it is believed that by the time children of 3 to 4 years old, they typically have acquired thousands of vocabulary, words, complex grammatical and phonological system, and equally complex rules for how to use their language appropriately in many social setting.<sup>6</sup> In the field of language acquisition, there are three approaches that show how the children acquire their first language, namely behaviorism, linguistics, and cognitive.

The behaviorism approach believes that the infant is like a blank sheet (*tabula rasa*). The infants will repeat vocal speech sounds over and over again, and then they will imitate the adult's vocalization. This approach assumes that the language acquisition of children is influenced by the stimuli of adults. Unfortunately, there are some limitations of this approach. Actually, language is based on a set of structures or rules, which cannot work simply by imitating individual utterances. The mistakes made by children reveal that they are not simply imitating but actively working out in applying the rules.

For example, a child who says "drinked" instead of "drank" is not copying an adult but rather over-applying a rule. The child has discovered that past tense verbs are formed by adding [d] or [t] sound to the base form. The "mistakes" occur because there are irregular verbs which do not behave in this way. Such forms are often referred to as intelligent mistakes or virtuous errors.

Another approach is linguistics which is influenced by the idea of Chomsky. He concluded that children must have an inborn capacity for language acquisition. This natural capacity has become known as the Language Acquisition Device (LAD).

There are some characteristics of LAD:

1. It has a rational or innate basis as appose to an empirical one.
2. It deals with syntactic universals.

---

<sup>6</sup>Gleason and Ratner, *Psycholinguistics*, (Orlando: Harcourt Brace College Publisher, 1998), p. 348.

3. These syntactic universals can be described in part by Chomsky's theory of grammar, particularly the grammatical relations characteristic of deep structure of sentences.
4. The internal structure of LAD does not contain information required to produce appropriate linguistic transformations and surface structure directly.

Linguistics approach also has the limitation. It is impossible for the children to speak if they have no stimuli from others. Chomsky's work on language was theoretical. He was interested in grammar and much of his work consists of complex explanations of grammatical rules. The theory relies on children being exposed to language but takes no account of the interaction between children and their careers. Nor does it recognize the reasons why a child might want to speak, and the functions of language. Besides the behaviorism and linguistics, there is cognitive approach and the writer believes this one is the related approach on this study.

Based on Piaget cognitive approach refers to the way in which we gain knowledge through perception, memory, and thought processing. The cognitive approach regards the child as a spontaneously active individual who constructs his own knowledge of the world.

Development is not a series of cumulative changes, but rather that as the children develops, the mind undergoes a series of reorganizations. Then, with each reorganization, the children move to a higher level of psychological functioning.

The cognitive approach has some stages based on Piaget's view, they are:

- The sensory motor stage (0-2 Years)
- Preoperational stage (begins from the end of 2; 0 – 7; 0).
- Concrete Operational Stage (7-11 years)
- Formal operation Stage (11 years and up)

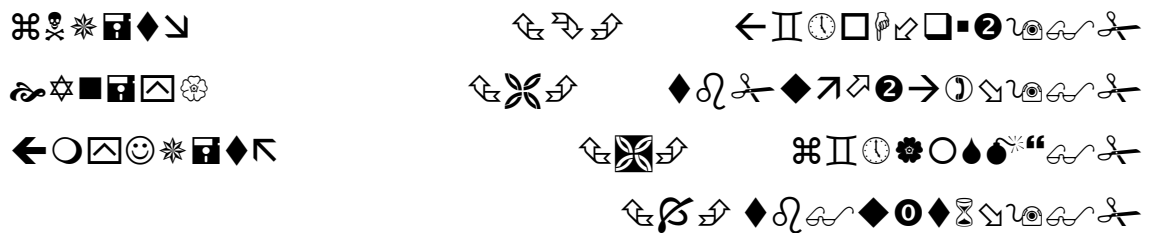
The older adolescent is capable of inductive and deductive reasoning and can comprehend math, physics, philosophy, psychology, and other abstract systems. From this point on, improvements in intellectual ability are based on gaining knowledge, experience, and wisdom, rather than on gains in basic thinking capacity. The cognitive approach believes that the children acquire the language through perception, memory,

and thought processing (intellectual). It means that the children need the innate capacity to process the sounds from others.

Related to the factors of language acquisition, Ali Abdul Wahid Wafi<sup>7</sup> stated there are some theories of it. The first theory state that language comes from Allah and needs the guidance of Him. This is also supported by Heraclite, the Greek Philosopher, Ibn Farris in his book “al shahibiy” and some of linguists such as Lami, and De Bonald.

The second theory stated that language is the result of agreement among people to create the name of things spontaneously moreover Adam Smith, Redi and Dugald Stewart have the same theory of it.

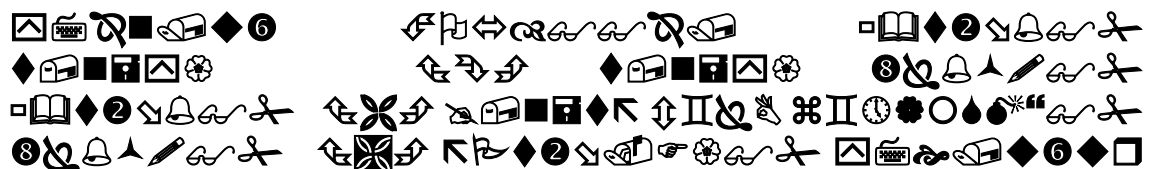
Languages is the process of instinct that pushed people to create a language and this is become the third theory based on Wafi and this is supported to Surah Al-Rahman 1-4:



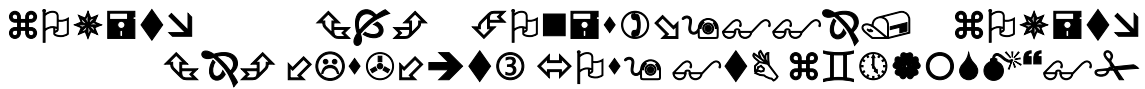
The meaning:

1. The beneficent
2. Hath made known the Qur'an
3. He had created man
4. He hath Taught him utterance

Besides Surah Al Rahman, Allah SWT at surah al-alaq stated about language:



<sup>6</sup>Muhammad Ali al Shabuny, *Shafwatu al Tafsir*, (Jakarta: Darul Quranul Karim, 1999), p. 1178.



The meaning:

1. Read in the name of your Lord, who has created (all that exists)
2. Has created man from a clot (a piece of thick coagulated blood)
3. Read and your Lord is the most generous
4. Who has taught (the writing) by the pen (the first person to write was Phropet Idrees
5. Has taught man that which he knew not

**b. Stages in Child Language Acquisition**

Pavio has summarized the development of stages of language, as follows:

1. Infants Period (birth – 0;6)
  - crying, cooing, shrieking, and chuckling
2. Babbling Period (0; 6 – 1; 0) :
  - child is beginning to produce sound sequences that vary across situation
  - repetitive, sometimes resemble words
  - become increasingly word like
3. Echoic Period (0; 9 – 1; 0) :
  - Strings of utterances with adult like patterns of stress and intonation
  - Sometimes imitative
4. Holophrastic Period (1; 0 – 2; 0) :
  - Using single words to express complex ideas
  - Vocabulary increase from 20 to 300 words until 2; 0
5. Simple and complex sentence Period (3;0 – onwards) :
  - Using sentences having grammatical features
  - Resulting speech called telegraphic speech because it resembles telegram c

### c. Simple and Complex Sentence Period of Children Language Acquisition

At this period children can utter multi words. Dardjowidjojo<sup>8</sup> explained “*Kalimat anak tidak merayap dari dua ke tiga kata saja tetapi juga multi kata*”. At the age of three, children should have an active vocabulary of 300 or more words.

They will be able to talk in sentences of five or six words and imitate most adult speech sounds. Language allows them to express their thoughts, and the more advanced the children are in speaking and understanding words, the more tools they will have for thinking, creating and telling people about it. The children speech should be clear enough that even strangers can understand most of what they say. Even so, they still may mispronounce as many as half the speech sounds they use.

For example, [w] for [r] [wabbit], [wice], [wose], [d] for [th] [dis],[dat], [den], or t for [tee] for three, [tik] for six. The sounds [b, p, m, w,h] will only begin to emerge midway through this year, and it may take months after that for them to perfect their use of them.

Based on Dardjowidjojo, the Indonesian children will have the similar mistakes at this age “*Sampai dengan umur ini bunyi frikatif [s] pada awal suku kata masih sering diucapkan sebagai [t] atau [ts] meskipun di akhir kata sudah lebih konsisten sebagai [s]*”.

On this age, the Indonesian children will also have fis phenomenon. The name of fis phenomenon comes from an incident reported in 1960 by J. Berko and R. Brown. The fis phenomenon is a phenomenon of child language acquisition that demonstrates that perception of phonemes occurs earlier than the ability of the child to produce those phonemes. It is also an illustrative of a larger theme in child language acquisition: that skill in linguistic comprehension generally precedes corresponding skills in linguistic production. Dardjowidjojo<sup>9</sup> explained “*gejala ini adalah: anak tidak dapat mengucapkan bunyi [f] seperti kata fish; dia mengucapkannya sebagai [fis]*”.

---

<sup>8</sup>Dardjowidjojo, *Op. Cit.*, p. 159.

<sup>9</sup>*Ibid.*, p. 103.



The chart of the international phonetics alphabet also important in the description of phonological processes, the writer uses the chart to make the phonetics transcriptions of the sounds which are produced by the children.

## C. Discussion

### a. The Phonological Processes of Language Acquisition

Children pronounce words quite differently from adult speakers. Commonly, these differences are labeled as phonological processes<sup>10</sup>. Phonological processes are a common and predictable part of phonological development often recognized by parents as simple pronunciation errors.

Innately, children's phonemic capacity is limited. There are many theories on how children acquire language. Most theories concerning phonological development suggest that phonology is internal to children. Research has supported this theory by identifying predictable phonological processes that are present in the development of children.

Those who believe that language development is innate attribute the presence of phonological processes to children's cognitive limitations. As children grow and mature into adults physically, their mental capacity also develops. As their phonemic capacity increases, their sound systems become less restrained by phonological processes and their phonology transitions into that of an adult<sup>11</sup>.

The primary function of the phonological process is to mark differences in speech style. The stylistic function of these phonological processes also serves to make them optional. David Ingram proposed theory of phonological process in his book "Phonological Patterns in The Speech of Young Children".

---

<sup>10</sup>*Ibid.*, p. 105.

<sup>11</sup>*Ibid.*, p. 110.

It has universal significance in that some processes are extremely common across all languages and all children. It involves substitution process, assimilation process and syllable structure process<sup>12</sup>.

#### **b. Substitution Process**

A common characteristic of phonological analysis of the speech of children is determination of substitution in the child's words. Substitution process consists of stopping, fronting, gliding, vocalization and vowel neutralization. Stopping is a process in which fricatives are replaced by stops of the corresponding place of articulation.

In acquiring the first language, many children will make "errors" in producing such fricatives as [f,v,s,z,h], replacing them with corresponding stop [p,b,t,d,k,g,?].

For example, when children say [ti] for 'sing' and for 'say' [seI]. The example of Indonesian language based on Dardjowidjojo [təkalan] for "sekarang".

Other substitution process operates in a children's phonology is fronting. It means that velar [k, g] and palatal consonants [c, j] tend to be replaced by alveolar ones [t, d, s, z, l, n, and r]. For example in Indonesian, children pronounce [tatak] for "kakak" and [toba] for "coba"<sup>13</sup>. Next, when a glide [w] or [j] is substituted by a liquid sound, for example, [l] or [r], it is called gliding. For example [ret] for wet.

Another process is vocalization in which a vowel replaces a syllabic consonant. Because this process is particularly characteristic of English, an example from English child will be best representative, for example, he says [apo] for the word "apple" [babu] for "bottle", and [bada] for "bottom". The example of Indonesian language [puti] for "putri"<sup>14</sup>.

The other substitution process is vowel neutralization. It occurs when a child tends to change vowels into oral and often centralized vowel, i.e. [a] for [A]. For instance, the word 'back' is pronounced [bat] 'hat' is pronounced [hat], 'yard' is produced as [za:d], and 'hug' pronounced [had].

---

<sup>12</sup>David Ingram. *Op. Cit.*, p. 133.

<sup>13</sup>*Ibid.*, p.103.

<sup>14</sup>*Ibid.*, p.107.

### c. Assimilation Process

Another common type of child phonological process is assimilation. Assimilation process occurs when sounds in the child's production are assimilated to neighboring sounds in the same word or other unit.

Thus, the affected sound has a phonetic relation not only to the model sound but also to relevant other sounds that occur near it. For example, if a child regularly says [guck] for [duck], the initial alveolar [d] is being assimilated to the velar [k] later in the word, and the same child may say [d] for adult [d] in words that do not contain a following velar stop.

Some relatively common processes of assimilation are voicing, and consonant harmony which consists of a velar assimilation, labial assimilation. Voicing and devoicing occur when consonants tend to be voiced when preceding a vowel, and devoiced at the end of syllable, for example, an English says [be:ba] for 'paper' [peɪpə], [daiɪni] for 'tiny' [tɪni], for 'egg' [eg], and [das] for 'toes'.

Another process is consonants harmony; it is a process when a child makes the consonants assimilate to each other in certain predictable ways. One frequent pattern of consonant harmony is velar assimilation in which apical consonants [t,d,s,z,l,n,r] tend to assimilate to neighboring velar consonants for example a child usually says for [duck] and for 'sock' The next is labial assimilation.

It appears when apical consonants tend to assimilate a neighboring labial consonants [p,b,m,w], for example, 'table'. The example of assimilation in Indonesian is [dendut] for "gendut".

The other assimilation is denasalization. If nasal consonants denasalize in the neighborhood of a non-nasal consonant, it is called denasalization. For example: when a child cannot produce the French 'mouton' he might say [poto] for it.

### d. Syllable Structure Process

Besides substitution and assimilation process, there are specific processes which are directly motivated by the tendency of young children to simplify syllable structures. For most children the direction is towards a basic CV syllable.

Some of the more basic syllable structure processes consist of consonants cluster reduction, the deletion of final consonants, deletion of unstressed syllable, and reduplication. To produce consonant cluster, children may also present difficulty thus they apply the consonant cluster reduction. Consonants cluster reduction is the process in which a sequence of two or more consonants is replaced by a single consonant.

It is a widespread phenomenon in children's speech. When children say 'dress' they eliminate the second consonant becomes [dres]. The word 'clown' becomes [kaon], 'play' [pleI] becomes [pel], 'train' [treIn] as [ten]. Another way of simplifying a syllable structure is the deletion of final consonant. CVC syllable is usually reduced to CV by deleting the final consonant. An example taken from English words "bib" is produced as [bi] "bike" as [bai]. While in Indonesian [kaka] for "kakak".

The other process of syllable structure process is reduplication. In a multisyllabic word, the initial CV syllable is usually repeated. Reduplication is commonly used by young children as a strategy to simplify words. Example of this process from English child who say [didi] for "TV". The example of Indonesian [mamam] for "makan".

#### **e. Methodology**

The research design used in this study was observational case study. In this study the major data gathering technique is participant observation and the focus of the study is on a particular organization or some aspect of the organization<sup>15</sup>. This design used because this study was concerned with the Indonesian children at age of three years old about their phonological processes at the certain time and the researcher was

---

<sup>15</sup>Bogdan, R., *Qualitative Research for Education: An Introduction to Theory and Methods*, (Second Edition: Allyn and Bacon. 1994), p. 16.

the key instrument. The data collected from the children's utterances through observation. This research conducted for three months.

#### **f. The Subject of Research**

The subjects of this study were three Indonesian children of three years old who lived in Marindal I Medan. The writer used them because she was interested in the language acquisition of three years old and easier to observe them who lived in the same village with her.

The first language of these children is Indonesian language. All people in their place also use Indonesian language, so the children are native speaker of Indonesian language.

**Table 1: The Subjects**

<b>No.</b>	<b>Names</b>	<b>Place of Birth and Date</b>	<b>Sex</b>	<b>Age</b>
1.	Riza (R)	Medan, March 10 <sup>th</sup> 2013	M	3;0
2.	Firli (F)	Medan, January 2 <sup>nd</sup> 2013	M	3;2
3.	Aisyah (A)	Medan, January 22 <sup>nd</sup> 2013	F	3;2

#### **g. The Tehnique of Analysing Data**

The data analysis were administered in the following steps, they were:

1. Listing of the sounds produced by the subjects based on International Phonetics Alphabeth in order to know the words produced or used by the subject.
2. Classifying the data based on the processes in the theory such as assimilation, substitution processes, and fish phenomenon.

3. Analyzing the data to know the different sounds produced by the subjects which convey the same meaning.

#### **h. Findings**

The processes of substitution that experienced by the subjects are stopping, and fronting. The stopping is a process in which the fricative consonants [f,v,z,s,h] are changed into stop consonants [p,b,d,t,k,g]. For example the subjects R, F and A changed the sound [f] into [p] as in word “fitri”. The next process is fronting. The fronting is a process in which the position of the tongue is fronted as in the alveolar sounds [t,d,s,z,l,n,r]. The example of fronting happens in the word “gendut” produced by the subject R. He changed the consonant [g] into [d] such as [dendut]. While in the assimilation process, the subjects have no labial assimilation and voicing. The subjects experienced all of the syllable structure process. There are some difficult sounds uttered by three years old children, they are the fricative sounds [f,v,z] and palato alveolar sound [r]. The other finding is the subjects on this study have the fis phenomenon in their utterances.

The subject R acquired the phoneme of the word “kamar” first than the ability in pronouncing the word, while subject F in the word “satu” and the subject A in the word “kakak”. The subjects refused the mistakes sound but they themselves produced the mistakes.

### **CONCLUSIONS**

The conclusions of this study are pointing as the following:

1. All of the phonological processes: assimilation, substitution and syllable structure occurred in subject’s utterances but especially in the substitution and assimilation there are some processes that the subjects did not experience, such as vowel neutralization, vocalization, labial assimilation and voicing.
2. All of the subject have the fis phenomenon in their utterances. It demonstrates that perception of phonemes occur earlier than the ability of theirs to produce the phonemes.

3. The subjects in this research simplified the adult's utterances as the result of phonological processes.
4. The subjects have no difficulties in pronouncing the vowel in Indonesian language but they still cannot produce all of the consonant sounds such [r,f,v,z].

#### REFERENCES

- Badriah, N. *Vocabulary Acquisition of Male and Female Children*. Graduate U University of Medan. 2003.
- Clark, E.V. *First Language Acquisition*. Cambridge University Press, 2003.
- Dardjowidjojo, S. *ECHA: Kisah Pemerolehan Bahasa Anak Indonesia*. Jakarta. PT. Grasindo Jaya, 2000.
- \_\_\_\_\_. *Psikolinguistik, Pengantar Pemahaman Bahasa Manusia*. Jakarta. Unika Atmajaya, Yayasan Obor Indonesia, 2003.
- Departemen Agama, *Alquran dan Terjemahan*, Cet.Kesepuluh, Bandung: Diponegoro, 2010.
- Gleason, J.B and Ratner, N.B. *Psycholinguistics*. Orlando: Harcourt Brace College Publisher. 1998.
- Ingram, D. *First Language Acquisition: Methods, Description and Explanation*. New York. Cambridge University Press, 1989.

Paivio, A and Begg, I. *Psychology of Language*. New Jersey: Prentice-Hall Inc. 1981.

Roach, P. *English Phonetics and Phonology*. Cambridge University Press. 2002.

Silitonga, M. *English Phonemics and Phonology*. Medan. State University of Medan, 2004.

Sibarani, B. *Qualitative Research in Linguistics and Language Teaching*. Graduate University of Medan, 2004.

Spencer, Christoper and M.Blades, *Children and their Environments*. New York. Cambridge University Press, 2006.

Sugeno, D. *Berbahasa Indonesia dengan Benar*. Cetakan ke-5. Jakarta Puspa Suara, 1971.

www.google.com, from: <http://www.speech-language-development.com>. Phonological Processes Affect Entire Class of Sounds, accessed on August, 18<sup>th</sup>, 2015.

www.google.com,. Massucci. 2004. from: <http://www.google.com>. Phonological Processes. accessed on September, 20<sup>th</sup>, 2015.