English Sound Production and Phonological Alternation in a Three Year Old Indonesian Child

Handry Haryanto

Layli Hamida

English Department, Universitas Airlangga

Abstract

Acquiring phonology is the first step in acquiring a language. There are several processes in producing speech sound that may occur in a child phonological acquisition. This study aims to provide an initial description of phonological acquisition of Indonesian – Ukrainian three year old mixed-blood child. The description of the consonantal phonemic inventory as well as various Phonological processes evidenced in the child's speech is also reported. The speech sample was recorded and transcribed using the International Phonetic Alphabet (IPA). The result of the research shows that the Indonesian mixed-blood child has acquired several consonants and vowels such as bilabial consonants [p], [b], [m], labiodental [f] and [v], alveolar consonants [t], [d], [s], [z], [n], [l], retroflex consonant [r], palato-alveolar consonant [tʃ], velar consonants [k], [g], [ŋ], labio-velar consonant [w] and glottal consonant [h]. In addition, the child has also acquired short vowels [ɪ], [ɛ], [æ], [ɑ],[ɒ], [ʊ] and [ʌ], long vowels [iː], [ɑː], [ɔː], [uː] and [əː], as well as diphtongs [ʌɪ], [aʊ], [eɪ], [əʊ], [ɪə], [ɒu], [əu]. However, some of the other consonants have not been acquired by the child, such as: dental consonants [θ], [ð], and palato-alveolar consonants [ʃ], [ʒ], [dʒ]. Because he has not acquired some sounds, there are some alternations and process occur in the child's speech production. The alternation that occurred in the child's speech production was mainly influenced by the place of articulations.

Keywords: phonological acquisition, phonological alternation, phonological process, mixed-blood child, speech sounds.

Introduction

Children's initial language is usually formed through imitation from their surroundings. In this case, parents are the most frequent people that the children interact with. However, it might be a problem for children's acquisition if the parents come from different culture, or they are in the condition of mix-marriage.

Mix-marriage usually involves two people from different tribes and nationalities. Their children have a tendency to absorb two different kinds of culture inherited from the parents. This also includes the use of two different languages originated from the parents. These mixed-blood children could become either monolingual or bilingual children. If the parents choose to use only one language to communicate, these mixed-blood children are called as monolingual children. On the other hand, if the parents choose to use more than one language to communicate, then, these mixed-blood children are considered as bilingual children. The phenomenon of parents with different background can also be found in Indonesia. In this phenomenon, the child's parents are Indonesian and Ukrainian. This child's father is Indonesian who has background knowledge of English. Then, his mother is Ukrainian who always speaks English to communicate both in society and family. They taught English as the children's first language.

The writer decided to examine and investigate this English speaking three-year-old mixed-blood child because during that age, the phonological acquisition is rapidly developed. According to Ingram, the period of phonological of single morphemes is usually from age 18 months to 4 years. It is claimed to be a period during which the child goes from a small set of spoken words to a large vocabulary of words that are relatively correctly spoken (Ingram, 1989). Further, Ingram (in Lust 2006) stated that at the beginning of three year old, children produce final consonants most of time. In this stage they are very intelligible in connected speech and have mastered several consonants that

they produce at their age such as /b, d, g, y, p, m, n, w, h/. Because of that reason, the writer assumes that child's phonological acquisition at the age of three needs to be examined.

Thus, based on the theory of phonological acquisition above, the writer assumes that similar word simplification may also occur in mixed-blood child utterances. The writer also assumes that this mixed-blood child might experience certain processes in acquiring his first language. Here, the writer would like to underline the phonological acquisition underlying utterances that are produced by this mixed-blood child. Then, the writer believes that investigating the phonological process issue through the speech sound underlying the utterances of a child is interesting.

There have been many studies that discuss about phonological acquisition in children. As a reference for the writer's study, the first was a research that was conducted by Joseph (2007). She examined about phonological acquisition among Malaysian English speakers of Indian Descent. The second one was a paper written by Hamida (2008). Her paper is about phonological acquisition of Javanese Indonesian child aged one year old. In her paper, she stated that the subject of her research produced Javanese sounds instead of Indonesian. Based on this situation, she stated that in acquiring a language, especially phonological sounds, the environment where the children live could give an influence in the process of language acquisition.

The studies that have been conducted formerly concern with phonological development that occurs in children with non-mixed-marriage parents. Therefore, the writer chooses mixed-blood child with mixed-marriage parent since the writer is interested in the phenomenon that happens in English speech of mixed-blood child. The writer describes speech sounds that the child has acquired and reveal the phonological alternation that happens in the child's phonological acquisition .

Method of the Study

The participant of this study is a three year old mixed-blood child who is one of the brothers of the writer's students. His name is Manasseh. He was born on December, 29th 2009. When the observation began, he was at the age of 3;0 three year old and by the time the observation finished he was at 3;3 (three year and three month) old. Since it is a case study which involved only a child, the result of this study cannot be generalized for all mixed-blood child age three year old as the population of this study. Although his mother and father are not native speakers of English, his mother and father always use English to communicate with the other members of his family. Further, English is the language that regularly used in this family. Then, Manasseh's first language is English because in producing his language English is the first language that he produced. Moreover, his mother always interacts with him by using English all the time. Furthermore, this mixed-blood child get the exposure of English since he were born.

The data of this study would be acquired in naturalistic observation. It would be taken from the writer's recording of the words and sounds that are produced by the mixed-blood child. The writer assumes that the observation would be the most appropriate if the situation is not manipulated. The writer did a recording in the condition of natural conversation between the subject and his mother. The observation had been done two times every week since January 2013 to March 2013. In every meeting, the writer spent about 15 minutes to record the data. The data would be taken at every single place in the subject's house. After the observation was done, the writer transcribed the speeches that were produced by the subject of study orthographically and phonetically using the IPA symbol. This transcription would be used by the writer to examine the process of phonological acquisition that occurred in a three year old mix-blood child.

In this research, the writer uses Lust's theory on phonological acquisition (Lust, 2006). According to Lust (2006) by the time children age one year, they begin to utter understandable words. Consonant are acquired in a front to back order. In contrast, vowel is acquired in back to front order, where front and back refer to the origin of the articulation of the sound (Lust, 2006). In creating their speech, children usually start their talk in their second year. It is often difficult to identify their first words. First, children typically omit liquid sounds like [l] and [r]. Thus, children may produce the bilabial sounds like [p], [b], [m] in their first second year (Jacobson in Lust, 2006).

Additionally, the writer also use the theory of phonological alternation that lead the writer to analyze futher about speech sounds acquired by the child. In the process of producing speech sounds, children usually tend to alternate some of sounds. Phonological alternation might happen in the child's speech production because the child has not acquired some phonemes yet. Common alternation that might happen in the child's speech sound production is the alternation of [p] to become [p^h]. According to Lane (2003), the specific conditions that underlying the process of alternation between [p] and [p^h] are only happened in one element, in this case /p/. While pronouncing the word 'spin', children usually alternate [p] become [p^h].

However, the sets of alternations are different from each other in a number of ways. The type of alternation involved can vary as well as the factor that lead the process of alternation (Lane, 2003). The alternation may occur whenever the phonetic environment is met as in vowel nasalization or nasal place agreement. On the other hand, the alternation may be more restricted, and may only be found in the presence of particular suffixes, or even particular lexical items as like the alternation of [k] become [s] in the word 'electric and electricity' (Lane, 2003). In addition, according to him, there are three types of phonological alternation that might happen in child's speech production, such as: phonetically conditioned alternation phonetically and morphologically conditioned alternation and phonetically, morphologically, and lexically conditioned alternation.

Results and Discussion

Phonological Acquisition of The Child

The Acquisition of Consonants

There are several consonants that the child has already mastered such as: bilabial plosive consonants like [p] and [b], alveolar plosive consonants [t] and [d] and velar plosive [k] and [g]. For further explanation about the consonants that have been mastered by the child, the writer would like to represent the data as the example below:

Sound	Phonetic Transcription	Word
[p]	[pokæmən]	"pokemon"
[b]	[bʌz]	"brush"
[t]	[teɪk]	"take"
[d]	[dɔ:]	"door"
[k]	[kʊkiz]	"cookies"
[g]	[geim]	"game"

Besides, the child also produced several nasal sounds. Based on the place and manner of articulation, the child has already acquired bilabial nasal sound [m], alveolar nasal sound [n] and velar nasal sound [ŋ] that occurred in the words below:

Sound	Phonetic Transcription	Word
[m]	[mæstə]	"mister"
[n]	[nəʊ]	"no"
[ŋ]	[dwiŋk]	"drink"

In addition, the writer also found several uniqueness of this child. At the age of three years and one month, the child has not acquired lateral and approximant yet. However, at the age of three years and two months, he has already acquired alveolar lateral sound [l], retroflex approximant sound [r], palatal approximant [j], as well as labio-velar approximant [w]. The productions of the sounds are as follows:

Sound	Phonetic Transcription	Word
[r]	[rʌn]	"ranch"
[j]	[jɛs]	"yes"
[w]	[wɒn]	"want"
[l]	[lu:nə]	"luna"

The child has already acquired glottal sound [h] in producing his speech. The use of glottal sound [h] is usually produced by the child in the initial sound of the word. The example of the use of glottal sound [h] could be seen below:

Sound	**Phonetic Transcription**	**Word**
[h]	[ˈhʌŋgri]	"hungry"
	[hɪə]	"here"
	[hælən]	"Holland"

Fricative sounds could be said as the latest sounds that usually acquired later by the child. The child has also acquired some of fricative sounds such as labiodentals fricative sounds [f] and [v], as well as alveolar fricative sounds [s] and [z] at the age three years and one month (3;1). The child could pronounce these fricatives sound correctly whether the positions of the sounds are in the beginning, middle, or the end of the words. The use of fricative sounds produced by the child could be seen below:

Sound	**Phonetic Transcription**	**Word**
[f]	[fɪs]	"fish"
[v]	[væz]	"vest"
[s]	[sneɪk]	"snake"
[z]	[nʌɪz]	"nice

Children at the age of three years and three months usually have not acquired affricate sounds. However, the phonological development of this mixed-blood child is unique. The child has already acquired an affricative sound [tʃ]. The use of palato-alveolar affricative sound [tʃ] usually occurred in initial and last sound. Thus, the use of palato-alveolar affricative sound [tʃ] could be seen as listed below:

Sound	**Phonetic Transcription**	**Word**
[tʃ]	[wɪtʃ]	"witch"
	[tʃɪp]	"chip"
	[biːtʃ]	"beach"

In summarizing the data above, the child has already acquired most of consonants at the age of three years and three months (3:3). There are several consonants that have already been acquired by the child such as: bilabial consonants [p], [b], [m], labiodental [f] and [v], alveolar consonants [t], [d], [s], [z], [n], [l], retroflex consonant [r], palato-alveolar consonant [tʃ], velar consonants [k], [g], [ŋ], labio-velar consonant [w] and glottal consonant [h].

On the other hands, there are also several consonants that have not been acquired by the child such as: dental consonants [θ], [ð], and palato-alveolar consonants [ʃ], [ʒ], as well as affricative sound [dʒ]. The child usually substitute the [ʃ], [ʒ], as well as [dʒ] into other sounds which have similarities either in manner or place of articulation. Below is the table of the consonants that have already been acquired by the child at the age of three years and three months (3:3).

The Acquisition of Vowels

In producing vowels, children might follow the hierarchical in order to produce vowels sound. Vowels are usually produced from the backness; it means that back vowels might be acquired first rather than front vowels.

From the data that the writer has already collected, at the age of three years and three months (3:3) most of vowels are acquired by the child. There are several short vowels, long vowels, as well as diphthongs which have already been acquired by the child. After the research conducted by the writer, he found that the child has already acquired several short vowels, such as: [ɪ], [ɛ], [æ], [ɑ],[ɒ], [ʊ] and [ʌ]. The use of those short vowels could be determined by the utterances produced by the child that could be seen as follows:

Sound	**Phonetic Transcription**	**Word**
[ɪ]	[dɪs]	"dish"
[ɛ]	[nɛs]	"nest"
[æ]	[bæk]	"back"

[ɑ]	[fɑz]	"fast"
[ɒ]	[wɒn]	"want"
[ʊ]	[gʊd]	"good"
[ʌ]	[dʌk]	"duck"

Besides, the child has also acquired several long vowels. There are several long vowels that have already been acquired by the child in this study, such as: [i:], [ɑ:], [ɔ:], [u:] and [ə:]. The use of the long vowels that have already been produced by the child could be seen from the utterances produced by the child that described below:

Sound	**Phonetic Transcription**	**Word**
[i:]	[swi:t]	"sweet"
[ɑ:]	[stɑ:]	"star"
[ɔ:]	[sɔ:s]	"sauce"
[u:]	[tu:]	"two"
[ə:]	[bə:d]	"bird"
[ɛ:]	[jɛ:ah]	"yeah"

The last part of vowels acquired by the child is diphthong. Diphthongs are commonly said as the combination of more than one vowel sounds that is pronounced at the same time. At the age of three years old and three months, the child has already acquired several diphthongs such as: [ʌɪ], [aʊ], [eɪ], [əʊ], [ɪə], [ɒu], [əu].From the data that the writer has already got, the use of diphthongs produced by the child is represented as follows:

Sound	**Phonetic Transcription**	**Word**
[ʌɪ]	[lʌɪk]	"like"
[aʊ]	[kaʊn]	"clown"
[eɪ]	[sneɪk]	"snake"
[əʊ]	[stəʊf]	"stove"
[ɪə]	[ɪə]	"ear"
[ɒu]	[lɒus]	"lose"
[əu]	[əupn]	"open

In summarizing the data of vowels that have already been acquired by the child, the writer found that the child has already several vowels such as: short vowels [ɪ], [ɛ], [æ], [ɑ],[ɒ], [ʊ] and [ʌ], long vowels [i:], [ɑ:], [ɔ:], [u:] and [ə:], as well as diphthongs [ʌɪ], [aʊ], [eɪ], [əʊ], [ɪə], [ɒu], [əu].

Phonological Alternation in the Child's Phonological Acquisition

Based on the data taken from January – March 2013, the writer found the subject of the study produced several words simplification. Therefore, in producing his speech sounds, there are several alternation occurred in the child's speech production. The alternation of the sounds indicates that the child alternate certain sounds because he has not acquired the sounds. thus, underlying this alternation, the writer could summarize the sounds that has been acquired by the child.

In producing his speech sounds, the child tended to assimilate several sound. In this study, the writer found some aspirated sounds produced by the child. Mostly aspirated sounds that produced by the child are occurred in the bilabial plosive sound [b] and alveolar plosive [d]. Below is the example of aspirated sounds that produced by the child:

Sound	**Phonetic Transcription**	**Word**
[p]	[pɪləʊ]	'pillow'
[p^h]	[p^hɪləʊ]	
[p]	[ˈpɪktʃə]	'picture'
[p^h]	[p^hɪktʃə]	

the first alternation done by the child is the alternation of voiceless bilabial plosive [p] become aspirated sound [p^h]. The process of aspiration is known as the process that commonly happens in

English native speaker, and the process naturally happens because of the phonetic environment (Lane, 2003). The child substituted the sound [p] with [p^h] in some words such as in the words 'pillow' and 'picture'. Instead of pronounced it as [pɪləʊ], the child pronounced the word 'pillow' as [p^hɪləʊ]. Furthermore, in pronouncing the word 'picture', the child pronounced it as [p^hɪktʃə] rather than [ˈpɪktʃə].

Besides, the writer also found several fricative sounds that alternate into stops or plosive sounds. The child tended to substitute the fricative sounds like [θ], [ð] and [v] with plosive sounds [t], [d] and [p]. The example of the alternation could be seen as follows:

Sound	**Phonetic Transcription**			**Word**
[θ]→ [t]	[θæŋk]	→	[tæŋ]	'thank'
[ð]→ [d]	[ðat]	→	[dat]	'that'
[v]→ [p]	[bɪˈheɪv]	→	['bɪheɪp]	'behave'

Second alternation that is found by the writer is the alternation of fricative sounds into plosive sound. The child tend to substitute the fricative sound [θ], [ð], and [v] at the age (3;0) until in the beginning of the age (3;1). He usually alternates those fricative sounds into plosive sounds [t], [d], and [p]. This is happened because at the age of three, the child has not acquired the sound [θ], [ð], and [v], then he alternate the fricative sounds into plosive sounds.

The process of alternation happens by the child is supported by the theory of phonological acquisition. Ingram (1989) stated that child might alternate sounds in producing children's first sounds. Furthermore, Ingram (1989) also stated that children usually acquire the fricatives sounds in the late (3;4) and ended with the process of acquiring affricatives sound at the age of four (4;0).

The process of alternation also happens in nasal consonant. In his speech's sound production, the child changed nasal consonant with another nasal consonant which has different place of articulation. Here the child substitute nasal consonant [ŋ] with [n]. The process of nasal's substitution could be seen as follows

Sound	**Phonetic Transcription**			**Word**
[ŋ] → [n]	[sprɪŋ]	→	[spwɪn]	'spring'
[ŋ] → [n]	[wɔːkiŋ]	→	[wɔːkin]	'walking'
[ŋ] → [n]	[ˈswɪmɪŋ]	→	[ˈswɪmɪn]	'swimming'

From the example above, the child alternated nasal sound [ŋ] with nasal sounds [n] and [m] because in producing consonants, bilabial consonant [m] and [n] are produced first rather than velar consonant [ŋ]. This statement is supported by Roach (2001) that the process of producing consonants is usually determined from the frontness. It means that the process of producing sounds begin from the bilabial and end with glottal sounds.

In producing his speech sound, the child also substituted several voiced consonant into voiceless consonant. This alternation happens only in the final voiced consonants. In this study, the child substituted some consonants, such as: voiced labiodentals fricative [v] with voiceless labiodentals fricative [f], voiced alveolar fricative [z] with voiceless alveolar fricative [s]. Below is the example of the process of devoicing:

Sound	**Phonetic Transcription**			**Word**
[v] → [f]	[stəʊv]	→	[stəʊf]	'stove'
[z] → [s]	[nəʊz]	→	[nəʊs]	'nose'

Devoicing of the consonants also happened in the child's speech production. This alternation happened in the alternation of voiced consonants with voiceless consonant. According to Ingram (in Lust, 2006), devoicing happens when there is an alternation of voiced consonants into voiceless consonants. It usually happens when the consonant's position is on the end of a syllable. The child substituted the voiced sound [v] with [f] , and [z] with [s] as describes in the words 'stove' and 'nose'. Instead of pronounced it as [stəʊv], he pronounced it as [stəʊf]. Another example is shown in the word 'nose'. He pronounced it as [nəʊs] rather than [nəʊz].

In addition, the child also substituted some voiced plosive sounds in producing his speech sounds, such as: voiced alveolar plosive [d] with voiceless alveolar sound [t] and voiced velar plosive

sound [g] with voiceless velar plosive sound [k].for the further representation of the alternation process could be seen as follows:

Sound	**Phonetic Transcription**			**Word**
[d] → [t]	[fuːd]	→	[fut]	'food'
[g] → [k]	[pɪg]	→	['pɪk]	'pig'

Another example of alternation process happened in the child's speech production is the alternation of voiced plosive consonant [g] with voiceless plosive consonant [k] and voiced fricative sounds [z] with voiceless fricative sound [s]. This alternation also occurred in the last sound of the words. The writer found that the child substituted the final voiced sound [g] with [k] and [z] with [s]. The process of alternation happens because the preceding vowels of the final consonant are located near by the place of the articulation of the consonants. Besides, the sounds [g] and [k] as well as [z] and [s] have similarities in place of articulation and manner of articulation. The sounds [g] and [k] are known as velar plosive sounds. Then the sound [z] and [s] are known as alveolar fricative sounds.

The example above is supported by the theory of phonological acquisition proposed by Ingram (in Lust, 2006). He stated that the child tend to change the sounds into similar sounds. It usually comes when the sounds have similarity in the way it produced and, or the manner of the consonants.

Furthermore, the child also alternated the liquid sound into glide sound. in producing his speech sound, the child tend to substitute liquid sound [l] and [r] with glide sound [w]. For further description, the writer would explain as follows:

Sound	**Phonetic Transcription**			**Word**
[r] → [w]	[reɪl]	→	[weɪ]	'rail'
[l] → [w]	[liːp]	→	[wiːp]	'leap'

In the child's speech sounds, the child also alternates the final voiced sounds with voiceless sounds. Here, the child's tended to assimilate several voiced sounds, such as: [v], [d], [z], and [g] with voiceless sounds [f], [t], [s], and [k]. For further description about the alternation, the writer would explain as follows:

Sound	**Phonetic Transcription**			**Word**
[v] → [f]	[stəʊv]	→	[stəʊf]	'stove'
[d] → [t]	[fuːd]	→	[fut]	'food'
[z] → [s]	[nəʊz]	→	[nəʊs]	'nose'
[p] → [k]	[pɪg]	→	['pɪk]	'pig'

Besides, the child also alternated the voiced final consonants with voiceless final consonants. This alternation commonly happens when the preceding vowel is [u]. The child tended to alternated the voiced final consonants [v], [d], [z], and [g] with voiceless consonant [f], [t], [z], and [k]. This might happen because those consonants have similar sounds when it produced.

The next alternation that happens in the child's speech production is the alternation of voiceless consonant into voiced consonant when it precedes the vowels. Here, the child alternates voiceless fricative sound [ʃ] with another voiced fricative sound [z]. For further example of the alternation done by the child could be seen as follows:

Sound	**Phonetic Transcription**			**Word**
[ʃ] → [z]	[ʃuːs]	→	[zuːs]	'shoes'
[ʃ] → [z]	[ʃɛlvam]	→	[zelfam]	'selvam'

From the example above, the child also alternated fricative sounds with other fricative sounds which have different place of articulation. The child often substituted fricative sound [ʃ]with fricative sound [s] or [z]. According to the place of articulations, [s] and [z] are known as alveolar consonant rather than [ʃ] is palato-alveolar. In this case, the child tended to substitute the sound [ʃ] with [z] and [s] because based on the place of articulation of the sounds [z] and [s] is alveolar which is acquired first by the child rather than the palato-alveolar sound [ʃ].

Besides, the child also alternate vowels sound in producing his speech sounds. The child has tendency in order to alternate the vowels into central vowel. In this study, the writer found that the child alternated the vowels [a], [ɒ], and [ʌ] into central vowels [ə]. The example could be seen as follows:

Sound	**Phonetic Transcription**			**Word**
[a] → [ə]	[kan]	→	[kən]	'can'
[ɒ] → [ə]	[poki ˌmɒn]	→	[pokæmən]	'pokemon'
[ʌ] → [ə]	[lʌv]	→	[ləv]	'love'

In this study, the writer found that the child usually alternated back vowels into central vowels. Here, the child alternated the vowels [a], [ɒ], and [ʌ] into central vowels [ə]. This might happened because in producing central vowel [ə], the child has tendency to unround front or back rounded vowels. The finding that the writer found in this study is supported by the theory of phonological acquisition by Velten (in Lust, 2006) that the process of alternationis an especially early one and is normally not characteristic of the rapid period of vowels' development. However, other processes do affect vowels, for example, the tendency to unround front or back rounded vowels and the occasional tensing of lax vowels.

The next alternation that occurred in the child's speech production is the alternation of alveolar sounds into velar sounds. Furthermore, the child alternated alveolar sound [d] with velar sound [g] and [l] with [k] sound. For brief explanation about the alternation cold be seen as follows:

Sound	**Phonetic Transcription**			**Word**
[d] → [g]	[drag(ə)n]	→	[glagən]	'dragon'
[l] → [k]	[lɪŋkɪŋ]	→	[kɪŋkɪŋ]	'linking'

In addition, the child also assimilates alveolar sounds into labial sounds. For examples, the child alternated alveolar sounds [n] and [d] with labial sounds [m] and [b]. Below is the example of the alternation happens in the child's speech production:

Sound	**Phonetic Transcription**			**Word**
[n] → [m]	[neɪm]	→	[meɪm]	'name'
[d] → [b]	[ˈdɒbi]	→	[bɒbbi]	'dobby'

the alternation of alveolar consonants [n] and [d] with bilabial consonants [m] and [b]. The child alternated the alveolar consonants with bilabial consonants since bilabial consonants are acquired first by the child. Consequently, when the child found certain difficulties in producing alveolar sounds which place of articulation is in the back from labial sounds, the child tended to alternate alveolar sounds into the nearest place of articulation, bilabial sounds.

Thus, from the example above the writer found that the finding of the study shows an indication of similarity with the theory of phonology that proposed by Roach (2001). He stated that the process of producing consonants is usually determined from the frontness. It means that the process of producing sounds begin from the bilabial and end with glottal sounds. It is also supported by theory of phonological acquisition proposed by Jacobson (1968) that most of children consonants which are articulated correctly by most children are nasals (/n/,/m/, /ŋ/), stops (/p/, /t/, /k/, /b/, /d/, /g/).

Conclusion

In the previous chapter, the writer represented that the child might acquire several speech sounds in the age of three. In producing his speech sounds, the child tends to substitute, assimilate, reduce as well as delete several sounds. Thus, this study begins with the question about the phonological acquisition that occurs in a three year old mixed-blood child. However, in analyzing the phonological acquisition of the child, the writer also explain the analysis of phonological acquisition through the phonological alternation and process that happens in the child's speech production In his analysis, although the writer found that that most consonants have already been acquired by the child, there are several uniqueness that produced by the child in acquiring both consonants and vowels. In producing his speech sounds, the child tended to substitute several sounds.

The result of the study shows that most alternations are being conditioned purely by the phonetic environment without other factors being relevant. Consequently, this alternation produced by the child could be said as phonetically conditioned alternation. In acquiring speech sounds, the child has his own way in producing his speech sounds in order to acquire consonants and vowels. The child articulates the consonant in a front into back order, whereas vowels are articulated from the back to front order. Furthermore, by the end of the study, the child's has already acquired most of consonants

such as: bilabial consonants [p], [b], [m], labiodental [f] and [v], alveolar consonants [t], [d], [s], [z], [n], [l], retroflex consonant [r], palato-alveolar consonant [tʃ], velar consonants [k], [g], [ŋ], labio-velar consonant [w] and glottal consonant [h].On the other hands, there are also several consonants that have not been acquired by the child such as: dental consonants [θ], [ð], and palato-alveolar consonants [ʃ], [ʒ], as well as affricative sound [dʒ].

At the age of 3;3 the child has also acquired most of vowels in the form of short vowels, long vowels, as well as diphthong. The uniqueness is also found by the writer, the child tent to replace some vowels with other vowels. For example, the child substituted vowel [ʌ] with [ə] in the word 'love'. The substitution of that vowel does not occur because he has not acquired the vowel yet, but he substitutes the vowels regarding to the pattern of flows of pronunciation. Finally, by the end of the study, the writer found that the child has already acquired most of vowels, such as: short vowels [ɪ], [ɛ], [æ], [ɑ],[ɒ], [ʊ] and [ʌ], long vowels [iː], [ɑː], [ɔː], [uː] and [əː], as well as diphtongs [ʌɪ], [aʊ], [eɪ], [əʊ], [ɪə], [ɒu], [əu].