

## **CHAPTER II**

### **LITERATURE REVIEW**

In order to help the writer in analyzing the collected data, the writer used some theories and studies that relate to her study. This chapter is divided into two parts. First, the writer discussed the theoretical framework, and the second part she discussed the review of related studies.

#### **2.1 THEORETICAL FRAMEWORK**

In this part, the writer would like to present the theories that are closely related to her study and she uses the related theories as guidance on her study, especially on data analysis.

##### **2.1.1. PHONOLOGICAL ACQUISITION**

Phonological acquisition is a commonplace that very young children deviate from adult norms of pronunciation in their rendering of words in the vocabulary of the language they are learning, such as 'dark' becomes [ga:k] (Smith in Lust and Foley, 2004)

According to Ingram (1989), phonological acquisition is child's capability in acquiring phonological features (phonemes) in a consistent and predictable sequence. There have been a few attempts to provide general stages of phonological acquisition:

1. Prelinguistic vocalization and perception (birth to 1 year old)
2. Phonology of first 50 words (1 year old to 1;6 year old)
3. Phonology of single morphemes (1;6 year old to 4 year old)

Therefore, children begin to develop their speech sound, until around age of 4 year old where most children have correct production words of phonological process.

Jacobson (cited in Ingram, 1989) stated that the universal character of the order of phonological acquisition, based on anecdotal report from a wide range of language over more than a century of observation by his time. The first oppositions are the most general and the most strongly predicated: the earliest syllable to be produced will include a vowel, normally the low vowel [a], and a consonant, usually a labial stop. Thus the first syllable should be [ba], or sometimes [da]. The first consonantal opposition is expected to be oral or nasal ([ba] : [ma] or [da] : [na]), then labial and dental ([ba] : [da]); the first vocalic opposition, high or low ([i] : [a]), then high : mid : low ([i] : [e] : [a]) or high front: high back : low ([i] : [u] : [a]). The less common vowels (front rounded, back unrounded) imply the more ones in the successive stages of a child's phonological system as they do in adult languages.

### **2.1.2. THE ORDER OF PHONOLOGICAL DEVELOPMENT**

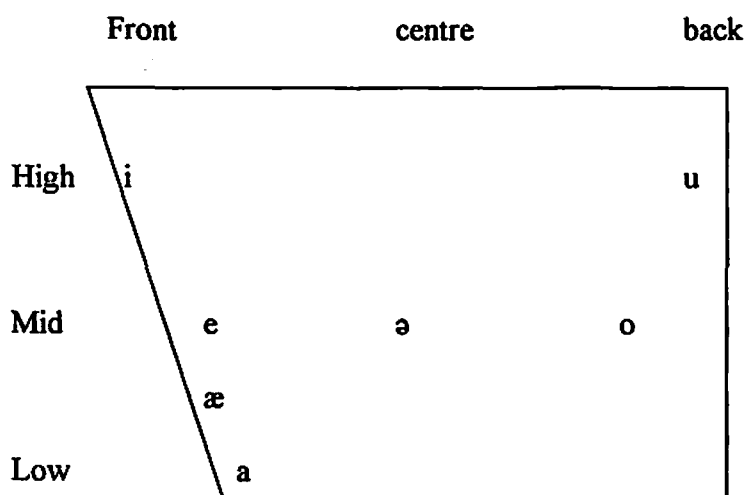
Vihman (1996) stated that phonological development has focused largely on the earliest period, with respect to later advanced recent work is more programmatic than conclusive. Ingram (1989) stated that the child around 18 months can be seen to have made the following gains. First, receptive vocabulary is around 200 words, and the productive vocabulary is around 50. Second, some preliminary phonological analysis has begun in both perception and production, with the former leading the way. Preliminary data also suggest that the child's

articulatory ability, although far from complete, is capable of producing at least a basic set of phonemes of the language being acquired. If acquisition of phonology were biologically pre-ordained, then children in all languages would evidence similar deformations and universal order in development.

Jacobson (cited in Lust, 2006) provides a prototype biologically determined “maturational theory.” Words divided into consonant and vowel, first consonant /p/ divided into Oral /p/ and Nasal /m/, where Oral /p/ divided labial /p/ and dental /t/, after that “front” /p/, /t/ and velar /k/. “Front” /p/, /t/ divided into stops /p/, /t/, /k/ and fricative /f/, /s/, /θ/ then other affricates. While Nasal /m/ then divided into labial /m/ and dental /n/, then continue with “front” /m/, /n/ and velar /ŋ/. In the vowel a (wide), divided into low vowel /a/ and high vowel /i/ or /u/, then continue with front /i/ and back /u/ where /i/, /e/, /u/, and /o/ are appeared.

While, according to Dardjowidjojo (2000), children whose age from 1 day until 1 year old, they are able to produce some vowels and consonants.

#### A. Diagram 2.1. Vowels in the age of 1 year old



(source. Dardjowidjojo, 2000)

**B. Table 2.1. Consonants in the age of 1 year old**

|             | Bilabial | Alveolar | Palatal | Velar | Glotal | Laringal |
|-------------|----------|----------|---------|-------|--------|----------|
| Stop        | p<br>b   | t<br>d   |         | g     | ʔ      |          |
| Fricative   |          |          |         |       | h      | ɣ        |
| Nasal       | m        |          |         | ŋ     |        |          |
| Approximant |          | ɹ        |         |       |        |          |
| Semivowel   | w        |          | y       |       |        |          |

(source. Dardjowodjojo, 2000)

The stages of the sound that are produced by the children depend on the age of the children:

**Vowel:** [ə, a] - in the age of 1 day

[i] - in the age of 0;1:1

[æ] - in the age of 0;3:3

[e, u] - in the age of 0;5:0

[o] - in the age of 0;6:0

**Consonants:** [h] - in the age of 1 day

[ɣ] - in the age of 0;0:2

[g, ŋ] - in the age of 0;3:1

[t, ʔ] - in the age of 0;3:2

[w, b] - in the age of 0;3:3

[ɹ] - in the age of 0;6:0

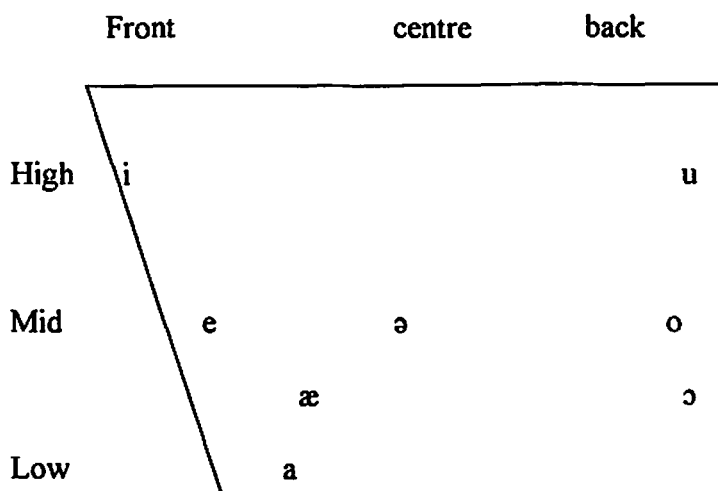
[m] - in the age of 0;10:0

[p, d] - in the age of 0;11:0

[y] - in the age of 1;0:0

When those children in the age of 1 – 2 year old, they are able to produce more vowels and consonants:

**A. Diagram 2.2. Vowels in the age of 2 year old**



(source. Dardjowodjojo, 2000)

**B. Table 2.2. Consonants in the age of 2 year old**

|                  | Bilabial | Alveolar | Palatal | Velar      | Glottal |
|------------------|----------|----------|---------|------------|---------|
| <b>Stop</b>      | p<br>b   | t<br>d   |         | (k)<br>(g) | ʔ       |
| <b>Fricative</b> |          |          | (s)     |            | h       |
| <b>Nasal</b>     | m        | n        |         | (ŋ)        |         |
| <b>Lateral</b>   |          | l        |         |            |         |
| <b>Semivowel</b> | w        |          | y       |            |         |

In this age, children develop their phonology like the explanation below:

a. Acquire these sounds in all positions:

[i, e, æ, u, o, ɔ, a, ə]

[p, b, t, d, h, m, n, l, w, y]

b. Acquire these sounds in the end of word:

[k, s, ŋ]

c. The children have not acquired yet:

[g, f, š, z, ʧ, j, ñ, r, x]

So, in this age, children usually do some substitutions like in the first or middle word, the sound [k] will be substituted by the sound [t], but it will not happen in the end of word. The sound [ñ] is replaced with [n], and then [r] with [l], and cluster like [st] becomes [t].

In the age of three, children mostly acquire all the consonants except fricative [f] and [v], and affricate [ʧ].

While in the age of four year old, children mostly acquire all the consonants and vowels except [r], [š], and [x], and they also pronounce [ʧ], [ñ], and [j] incorrectly. In the age of five, children can produce all the vowels and consonants perfectly.

### 2.1.3. THE PHONOLOGICAL ALTERNATIONS

Phonological alternation is the phenomenon of a phoneme or morpheme exhibiting variation in its phonological realization. Alternations in the shape of a morpheme are the clearest evidence of the effects of phonology. (Cohn, 2001)

Based on Davenport and Hannahs (2005), phonological alternations come in many shapes and sizes, and the processes behind them are equally varied, as are the kinds of factor which condition them. The characterisation of alternations is in terms of being caused by, or being due to some phonological process. Much of the focus of recent phonological thinking concerns the characterisation of predictable alternation between sounds in natural languages. For example, [p] and [p<sup>h</sup>] in English.

The following sections deal with each of the types of alternation based on Davenport and Hannahs (2005):

### 1. Phonetically Conditioned Alternations

Phonetically conditioned alternations can be characterised as being conditioned purely by the phonetic environment in which the phones in question occur, with no factors being relevant. If a vowel phone in English is followed by a nasal consonant, the vowel is nasalised. For example ('function'), occur in Russian [fʌŋksjə] not \*[fʌŋksjə]- compare in English [fʌŋkʃən].

### 2. Phonetically and Morphologically Conditioned Alternations

Phonetically and morphologically conditioned alternations are also clearly motivated by the phonetic environment. The form of the plural is dependent on the nature of the final segment of the noun stem. If the noun ends in a sibilant, for instance, [s], [z], [ʃ], [ʒ], [tʃ], or [dʒ], the plural takes the form [ɪz], for example 'hors[ɪz]'. If the final segment is a voiceless non-sibilant, the plural is a voiceless alveolar fricative [s], for example 'rat[s]'. If the final segment is a voiced non-sibilant, the fricative is voiced [z], for example 'warthog[z]'.

### 3. Phonetically, Morphologically and Lexically Condition Alternations

In this type is clearly some phonetic conditioning: fricatives are voiced between voiced segments (voicing assimilation), for example 'lea[f]' → 'lea[v]es' and 'hou[s]e' → 'hou[z]es', while a velar stop [k] is fronted and fricativised to an alveolar fricative [ç] before a high front (that is palatal)

vowel segment, for example 'electri[k]' → 'electri[s]ity' and 'medi[k]al' → 'medi[s]inal'.

#### **2.1.4. THE PHONOLOGICAL PROCESSES**

The writer wants to study the theory that was proposed by Ingram (cited in Fletcher and Garman, 1986) who described phonological processes which occur between the ages of 1;6 and 4 year old child. Ingram stated that phonological ability improves through an increase in the ability to produce adult sound and combine them into more complex phonological structure. So, a child's words at any point could be described within this approach by specifying the sound-laws that are operating in the child's speech.

There are three types of phonological processes, in which each of those three processes is still divided into several sub processes. The first of phonological processes is substitution processes. Sound changes in which one sound class replaces another class of sounds. Substitution processes consists of stopping, fronting, gliding, vocalization, and vowel neutralization.

Stopping is process in which fricatives are replaced by stops of the corresponding place of articulation. In acquiring the first consonant, many children will make errors in producing such as fricatives as [f, v, s, z, θ, ð, ʃ, ʒ], then replacing them with corresponding stop [p, b, t, d, k, g], [m, n, ŋ]. For example, when children say 'ting' [tin] for 'sing' [siŋ], and 'ti' [ti:] for 'sea'[si:].

Other substitution process operates in a child's phonology is fronting, in which velar [k,g,ŋ] and palatal consonants [c,j] tend to be replaced by alveolar



ones [t,d,s,z,l,n,r]. For example, children pronounce 'zu' [zu] for 'shoe' [ʃu:], and 'ta' [ta] for 'call' [kɔ:l].

Next is gliding, when a glide [w] or [j] is substituted for a liquid sound, for example [l] or [r]. An English child pronounced the word 'jek' [jek] for 'leg' [leg].

Another process is vocalization, in which a vowel replaces a syllabic consonant. For example, 'apo' [apo] for 'apple' [æpl], and 'babu' [babu] for 'bottle' [batl].

The last process of substitution process is vowel neutralization, it occurs when a child tends to change vowels into oral and often centralized vowel: [a], [a]. For example the word 'had' [had] for 'hug' [hag], and 'zad' [za:d] for 'yard' [ja:d].

The second of phonological processes is assimilation processes. Sound changes in which one sound or syllable influences another sound or syllable. Assimilation processes consist of: voicing, consonant harmony, and progressive vowel assimilation.

Voicing occur when consonants tend to be voiced when preceding a vowel, and devoiced at the end of syllable. For example, 'bik' [bik] for 'pig' [pɪg], and 'bit' [bit] for 'bird' [bɜ:d].

Another process is consonants harmony. It is a process when a child makes the consonants assimilate to each other in certain predictable ways. The patterns which are commonly occurred:

- a. **Velar assimilation:** Apical consonant tend to assimilate to a neighbouring velar consonant. For example: 'duck' /dak/ is pronounced 'gak' /gak/
- b. **Labial assimilation:** Apical consonant tend to assimilate to a neighbouring labial consonant. For example: 'tub' /tab/ is pronounced 'bab' /bab/
- c. **Denasalization:** A nasal consonant will denasalize in the neighbourhood of a non-nasal consonant. For example, when a child cannot produce the French 'poto' [potɔ] for 'mouton' [mutɔ]

Then, progressive Vowel Assimilation, in which an unstressed vowel will assimilate to a preceding (or following) stressed vowel. For example: 'flower' [flawə] is pronounced 'fawa' [fa:wa]

The last process is syllable structure processes. The sound changes that cause sounds or syllables to be reduced, deleted, or repeated. Some of the more basic syllable structure processes consist of consonants cluster reduction, the deletion of final consonants, deletion of unstressed syllable, and reduplication.

Consonants cluster reduction is the process in which a sequence of two or more consonants is replaced by a single consonant. For example: 'play' /pleɪ/ is pronounced 'pe' /pe/, and 'dress' [dres] is pronounced 'des' [des]

Another way of simplifying a syllable structure is the deletion of final consonant, in which CVC syllable is usually reduced to CV by deleting the final consonant. For example: 'bai' [bai] for 'bike' [baɪk], and 'ma' [ma] for 'more' [mɔ:r].

Besides that, there is a deletion of unstressed syllable, where children usually delete an unstressed syllable, especially if it precedes a stressed syllable. For example taken from English words 'banana' [bəˈnana] is produce as 'nana' [nana].

The other process of syllable structure is reduplication. It is commonly used by young children as a strategy to simplify words. The initial CV syllable is usually repeated, such as 'didi' [didi] for 'TV' [tɪv].

### 2.1.5. CONSONANT IN JAVANESE

According to Marsono (1989), Javanese has twenty one consonants. It is shown in the table below:

**Table 2.3 Javanese Consonants**

| Manner of Articulation | Voiced (+)/Voiceless (-) | Place of articulation |              |          |         |        |         |
|------------------------|--------------------------|-----------------------|--------------|----------|---------|--------|---------|
|                        |                          | Bilabilal             | Labiodentals | alveolar | Palatal | Velar  | Glottal |
| Stop                   | (-)<br>(+)               | p<br>b                |              | t<br>d   | c<br>j  | k<br>g | ʔ       |
| Fricative              | (-)<br>(+)               |                       | f            | s<br>z   |         | x      | h       |
| Approximan             | (+)                      |                       | w            | r        | y       |        |         |
| Lateral                | (+)                      |                       |              | l        |         |        |         |
| Nasal                  | (+)                      | m                     |              | n        | ɲ       | ŋ      |         |

(Source. Marsono, 1989)

### 2.1.6. VOWELS IN JAVANESE

Javanese language has ten vowels like Indonesian vowels (Sudaryanto in Marsono, 1989).

**Diagram 2.3 Javanese vowels**

|      | Front       | Central | Back        |
|------|-------------|---------|-------------|
| High | [i:]<br>[ɪ] |         | [u:]<br>[u] |
| Mid  | [e]<br>[æ]  | [ə]     | [o]<br>[ɔ]  |
| Low  | [a]         |         |             |

(Source. Marsono, 1989)

### 2.2. REVIEW OF RELATED STUDIES

In conducting this study, the writer found some similar studies about phonological processes. The writer takes three similar studies as references to analyze the case of the study. The first is a study written by a student of Petra Christian University, Puspasari (2001). Puspasari (2001) wrote in her study entitled "Phonological Processes of the first language acquisition done by a 2 year old Indonesian child". Here, Puspasari's study is much helps the writer since they have the same topic, which is phonological process in the first language acquisition. The writer and Puspasari also use the same theory that is proposed by Ingram. Puspasari classified all of her data by using Ingram's theory of child's phonological process. This is also what the writer of this research tries to do. In

her analysis, Puspasari found that the absent of the phonological process that occur in a two year old Indonesian child are gliding, vowel neutralization, vocalization, voicing, labial assimilation, but then she found that her subject substitutes the retroflex [r] into lateral [l], semivowel [y], nasal [n] and velar [ŋ], and then fricative [s] substitutes into alveolar [c]. Yet there are differences occur among them involve the use of the subject. Puspasari used two year old Indonesian child while the writer use 21 month Javanese child.

The second was written by Ngoris (2007), a graduate student of Petra Christian University. Her study entitled "Phonological of a Two Year Old Chinese Child". Ngoris also uses phonological theory that is proposed by Ingram as reference. From her research, Ngoris found that phonological processes that are suggested by Ingram (1989) occurred as the subject's tendency to simplify his speech, such as stopping, fronting, gliding, progressive vowel assimilation, cluster reduction, final consonant deletion, unstressed syllable deletion, and reduplication. Ngoris also found some phonological that did not belong to Ingram, such as deletion of final sound, deletion of medial sound, and special word. Here, there is a difference between Ngoris study and the writer's. Ngoris took a two year old Chinese Indonesian child, as her subject. Meanwhile, the writer took a 21 month Javanese child, as her subject.

The last study was written by Yuana (2009), a graduate student of Airlangga University. The title of his study is "An Analysis of Phonological Acquisition of a Two Year Old Javanese Indonesian Child". He concludes that not all phonological process proposed by Ingram occur in the speech of two year old,

he also found some process that did not occur in the Ingram's theory, such as lateralization which [r] is substituted with [l], then nasalization which [l] and [r] are substituted with [ɲ] and [ŋ], substitution of some vowel, deletion of initial consonant, and deletion of initial cluster consonant. It might be as good reference, since the writer and Yuana also use Javanese child, but it will be different in the age and analysis of alternations. By those differences, the writer believes that at the end of her study, she will find out different result.

# **CHAPTER III**

## **METHOD OF THE STUDY**

