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An Investigation of 1 Year Old Child's Speech Production in Babbling Stage: A Case Study

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Abstract: This study aims at investigating speech production in babbling stage which involves kinds of utterance, phonological organization, and contextualized meanings produced by a child. The participant of this study is a one year old child. A case study is derived to conduct this research in order to describe child's development in first language acquisition. The data was collected from direct observation to the child and interview with the parents. A recorder and filed notes were used as data instrument to do documentation. The result shows that at this stage, the child was able to produce six vowels /a/, /i/, /u/, /e/, /ə/ and /o/, and 15 consonants /b/, /tʃ/, /d/, /g/, /h/, /l/, /m/, /n/, /ɲ/, /ŋ/,/p/, /s/, /t/, /w/, /y/, making the child able to produce various babbling sounds both canonical and variegated. The data also reveals that at this stage the child has been able to produce some one-word utterances.

Keywords: Babbling Stage, Child's Development, Language Acquisition, Utterances.

Introduction

Before children are able to produce one-word utterance known as holophrastic speech, they have to experience a sequence of language acquisition process starting from crying, cooing, and then babbling in their early birth. Babbling is the first major stage in the language acquisition process during infancy when children begin experimenting with sound production for the first time. The only sounds they are able to make at this stage are simple noises and sounds that are not advanced enough to be considered words. As the initial process before a child acquires his first language, babbling becomes one way to measure how a child's language is developing. Through babbling, a child appears to be experimenting with creating first words, it turns out to be an important clinical indicator, a child's ability to use the sounds in their language is a strong indicator of language in the later years. Delays in babbling have been associated with autism (Yankowitz et al., 2022), childhood apraxia of speech (Overby et al., 2019), and speech/language delays (Lee et al., 2017).

According to Johnson (2008) Babbling can be defined as a type of pre-linguistic, non-cry vocalization, which typically emerges by 6 or 7 months of age with repetition of the same consonant vowel (CV) syllable. Babbling begins shortly after birth and progresses through several stages as the infant's repertoire of sounds expands and vocalizations become more speech-like (Oller, 2000). The early babbles mainly consist of repeated consonant-vowel sequences, like mama, gaga, and dada. At around nine to eleventh months, infants become capable of using their vocalization to express emotion and emphasis (Jianggimahastu and Husaini, 2023).

Owens (2005) further explains the timeline of typical vocal development during babbling stage as follows: From birth to 1 month, babies produce mainly pleasure sounds,

cries for assistance, and responses to the human voice. Around 2 months, babies can distinguish between different speech sounds, and can make gooing sounds. Around 3 months, babies begin making elongated vowel sounds "oooo" "aaaa", and will respond vocally to speech of others. They continue to make predominantly vowel sounds. Around 4 months, babies may vary their pitch, and imitate tones in adult speech. Around 5 months, babies continue to experiment with sound, imitating some sounds made by adults. Around 6 months, babies vary volume, pitch and rate. When infants are 6 months old they are finally able to control the opening and closing of the vocal tract, and upon obtaining this ability, infants begin to distinguish between the different sounds of vowels and consonants. This age is often distinguished as the beginning of the canonical stage. Around 7 months, babies can produce several sounds in one breath, and they also recognize different tones and inflections in other speakers. Around 8 months, babies can repeat emphasized syllables. Around 9–10 months, babies can imitate non speech sounds, and speech-like sounds if they are in the child's repertoire of sounds. Around 11 months, babies imitate inflections, rhythms, and expressions of speakers. By 12 months, babies typically can speak one or more words. These words now refer to the entity which they name; they are used to gain attention or for a specific purpose.

There are two types of babbling based on their age, namely canonical and variegated babbling (Fernandez & Cairns, 2011). Canonical babbling consists of a sequence of the same consonant vowel (CV) syllable, the most typical syllable in adult languages. Utterances produced with full stop consonants such as /p/, /b/, /t/, and /d/ and vowels are most common at this stage, resulting in utterances such as /baba/ and /didi/ ("dee dee"). Ysunza later classifies canonical babbling into two types: 1) reduplicated babbling, in which the child produces a series of Consonant-Vowel (CV) syllables with the same consonant being repeated. The following are some examples. wa-wa-wa ab-ab-ab mu-mu-mu, 2) non-reduplicated babbling, during this sub – stage, infants produce vocalizations either in the form of Consonant-Vowel-Consonant (CVC) sequences or Vowel-Consonant-Vowel combinations. The following are examples of these forms: non, mam, peep, oo-boo, a-ma, ee-wee.

Variegated babbling, where successive syllables are not identical, begins to appear between 6 and 10 months of age (Paul, 2007). This consists of a variety of CV and consonant-vowel-consonant (CVC) syllables that are not identical. In variegated babbling, the types of syllables and the prosody are more varied and the vocal patterns resemble words, the sequences of syllables show increasing variation. The following are common examples. Ma – moo - mee ba - doo wo – mee. These two forms of babbling do not correspond to two different stages, for infants may produce both at the same time. Baby babble is the first stage of speech development in infants prior to them developing first recognizable words. It is an important developmental milestone that children need to pass through to achieve clear speech development. When a baby babbles, they are learning how to move their lips and tongue to replicate the sounds of their native language. By playing with their voice, babies master the building blocks of language and also learn how to modulate their voice.

Research Methods

This study used descriptive qualitative research in form of a case study design. A case study was conducted to observe a unique phenomenon regarding the language acquisition particularly the babbling stage of a one yearold child. Due to the fact that each child has a unique circumstance, it is deemed appropriate to employ this method. The data was

collected from the observation the researcher did on the child and the interview the researcher did with the parents. Both interviews and observations used field notes and a recorder as research instruments. This study used three phases to analyze the data: data reduction, data display, and conclusion/data verification. This method of data analysis was designed to ensure that the data were collected in a trustworthy, accurate, reliable, and correct manner.

Result and Discussion

1. Types of Babbling

The child mainly produced utterances that can be classified into canonical and variegated babblings. This classification is based on Fernandez and Cairns' theory of babbling (2011). From the observation it reveals that she dominantly produced various complex utterances (variegated) than reduplicated sound (canonical). The percentage of the data can be seen as follows:

No.	Types of Babbling		Number of Occurrences	Percentage
1.	Canonical Babbling	Reduplicated	12	18%
		Non-reduplicated	12	18%
2.	Variegated Babbling		43	64%
Total			67	100%

2. Phoneme Inventory

a. Vowel

Vowels are phonemes that represent speech sounds where air leaves the mouth without any blockage by the tongue, lips, or throat. They are major component of syllable, stand as syllabic nuclei which help to determine the syllabic patterns and play a role in word recognition (Qonita et al 2023). There are six vowels of Bahasa: /a/, /i/, /u/, /e/, /ə/, and /o/, and the child has acquired all vowels of Bahasa. The distribution of the vowels is shown as follows:

	Front	Central	Back
Close	/i/		/u/
Close-mid	/e/	/ə/	/o/
Open		/a/	

b. Consonant

Consonant is a basic speech sound in which the breath is at least partly obstructed and which can be combined with a vowel to form a syllable. Consonants are classified into voicing, their place of articulation, and their manner of articulation. There are 24 consonants in Bahasa, but apparently the child merely acquired fifteen out of it. The distribution of consonants of the child is presented in the following table:

	Labial	Dental/	Palatal	Velar	Glottal

			Alveolar			
Nasal		/m/	/n/	/ɲ/	/ŋ/	
Stop/ Affricatives	voiceless	/p/	/t/	/tʃ/		
	voiced	/b/	/d/		/g/	
Fricatives	voiceless		/s/			/h/
	voiced					
Approximant		/w/		/y/		
Lateral			/l/			
Trill						

c. Words Inventory

During the observation, it was found that the child has acquired eight utterances that might refer to actual words. She frequently said these utterances to express her feeling, to refer to something, or to request something to her parents. By saying these utterances, it seems that the child has been able to perceive, comprehend and also produce her first language. The word findings are further described as follows:

No.	**Utterances**	**Correct Forms**	**Meaning**
1.	Nyum, minyum, nyom-nyom, mik	Minum	She would like to have a bottle of milk
2.	Emam, mam, mamama	Makan	She would like to have something to eat
3.	Bobo	Tidur	She wants to sleep
4.	Ma, mama	Mama	She calls for her mother
5.	Pa, papa	Papa	She calls for her father
6.	Ya, iya	Iya	She shows her agreement
7.	Bowa	Bola	She refers to her toy, ball
8.	Boye	Boleh	She says it is permitted but in this sense, she says this word as she imitates her parents without knowing the actual meaning.

As the child has limited consonants inventory, the child seemingly produced the words in unrecognizable way. For examples lack of consonant /r/, she preferred to say bobo instead of tidur, lack of consonant /k/, say emam, mam, mamam instead of makan. But still,

both of her parents understand what she is saying. This makes the communication between them goes well. Her parents often help her to correct her utterances by uttering the right ones, which helps her to memorize and to improve her language ability. As at this stage she is still growing and developing, her language ability will surely turn much better as time goes by.

Conclusion

Babbling is an important stage of children language acquisition starting from early birth to last for 12 months. In this stage, children begin to practice their vocalizations by making a range of sound. Through babbling, children employ their ability to produce utterances though most of the utterances are recognizable words. The participant of this study, a oneyearold infant, showed that she has acquired the six vowels of Bahasa /a/, /i/, /u/, /e/, /ə/, /o/ and fifteen consonants of Bahasa /b/, /tʃ/, /d/, /g/, /h/, /l/, /m/, /n/, /ɲ/ /ŋ/, /p/, /s/, /t/, /w/, and /y/. By possessing these phonemes, the participant is able to combine the phonemes making and producing many utterances. Some utterances might still be identified as canonical babblings or variegated babblings, and they are mainly produced to practice her vocalizations without having intended meanings. But some utterances like ma, pa, bobo, boye, bowa, emam, iya, inyum are actual words that she intentionally produces because she refers those words to certain things.

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