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## A psycholinguistics view on a child's speech production in babbling stage: A case study

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### A B S T R A C T

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This study aims to examine a baby's babbling child's speech production seen from psycholinguistics view. It also aims to reveal the phonological organization, contextualize meaning, and decipher meaning of the baby's babbling stage. The participant was an infant who was at the stage of babbling at eight months old. This study used case study as the research design. Moreover, the data was collected by using direct observation, document and parents' interview. The results shows that there were 99 patterns in the baby's babbling stage. Furthermore, the babbling topic occurred in several contexts, with each babbling having a varied meaning depending on the situation.

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### 1. INTRODUCTION

Language acquisition brought controversy to its theory between nature and nurture. As humans acquire a language from the beginning of their life, experts of language make it a contradiction to their opinion. The debate of three-argument among nativist, behaviorist, and interactionist make the topic of language acquisition is interesting to be discussed. Much research also had been done to prove the diversity of the argument. Natives believed that human was born equipped by a language system called LAD (Language Acquisition Device). Brown (2014) stated that every child is born completed by a piece of innate knowledge or tendency towards language. This property or called by LAD or UG (Universal Grammar) is universal in all human beings. But, on the other side, this hypothesis was a possible resolution of the contradiction between the behaviorist thought that explains that language can be obtained by the process of conditioning the habit.

In social interaction using language as a tool of communication, there are two participants; hearer and speaker. The interaction is conducted by doing their communication. Therefore, interactionists believe that children develop the language in social interaction. The cultivation of social interaction is a crucial aspect of child development that warrants emphasis from parents during the early stages of growth (Dyah, 2009; Ghani et al., 2022). This theory means that interaction between language acquisition and the process of social systems have close relations, and operate in human behavior.

Children experienced some stages in their language acquisition process. Children will receive some message by hearing some sound around him then produce it in their mind. Continuously children will develop their language ability together with their growth. The parents especially mothers usually accompany their children in acquiring their language starting from young age (Rohmana & Senjana, 2022). The development of the language acquisition process has the same basis as the biological development of a child. The biological development

in children is sitting up, crawling, standing, walking, using the hands to do something, and much other physical activity. Similarly, there are five speech stages in language acquisition. They are the pre-language stage or called babbling or cooing, one-word stage or holophrastic construction, two-word stage, and telegraphic speech.

The early babble consists mainly of repeated consonant- vowel sequences, like mama, gaga, and dada. At around nine to eleventh months, they became capable of using their vocalization to express emotion and emphasis. There are two types of babbling stage based on their age, they are canonical and variegated (Fernández & Cairns, 2011; Guasti, 2016). Canonical babbling consists of a sequence of the same CV (C consonant, V vowel) syllable, the most typical syllable in adult languages (e.g., *bababa*, *dadada*). In variegated babbling, the types of syllables and the prosody are more varied and the vocal patterns resemble words. These two forms of babbling do not correspond to two different stages, for infants may produce both at the same time.

This condition leads the researcher to research the children's language acquisition process. This research is aimed to find the answer to three research problems. There are 1) how is the phonological structure of the babbling, 2) What are the contexts used in speech production of a child in the babbling stage, and 3) How is the meaning reconstruction in the babbling stage.

## 2. METHOD

Qualitative research is a cyclical process that enhances comprehension within the scientific community by generating novel and noteworthy distinctions that arise from a closer examination of the phenomenon under investigation (Aspers & Corte, 2019; Baxter & Jack, 2015; Yin, 2016). The exploration is done via a variety of lenses in order to highlight the phenomenon's many features. In this research, the case study method is required in order to observe a unique phenomenon regarding the language acquisition of infants younger than one year. Comparable to babbling and other occurrences. Due to the fact that each child has a unique circumstance, it is deemed appropriate to employ this method.

The subject of this research was J-A-A, an 8-month-old baby girl. The researcher chose the subject because she was a happy and active infant with frequent babbling stage speech production for her age. Therefore, the researcher can collect a large amount of data to analyze the babbling's phonological structure. This baby was raised by parents who speak Javanese as their native tongue. Her mother accompanied her on all of her daily errands without employing a babysitter, directly or indirectly will impact how the baby's language development.

The researcher collected data through observation and interviews. Both interviews and observations used field notes and a recorder as research instruments. A semi-structured interview was conducted to the subject's family. The researcher used this interview method because it can be devised based on the discussed topic.

The research procedure consisted of planning, application, and reporting phase. The researcher measured the data using validity. Triangulation was used to evaluate the reliability and validity of data collected in a research setting. Justifications for interconnected motifs were constructed utilizing triangulation. This process will increase the study's authenticity and validity if researchers are able to incorporate themes derived from a variety of information sources or participant perspectives (Creswell & Creswell, 2018). This study used three phases to analyze the data: data reduction, data display, and conclusion/verification. This method of data analysis was designed to ensure that the data were collected in a trustworthy, accurate, reliable, and correct manner.

### 3. RESULTS AND DISCUSSION

#### 3.1. The phonological structure of babbling stage

The structural form is the using of word that related by child's speech sounds to complete the word structure. The researcher uses the theory of phonological process structure from Fromkin et al., (2021). Here is the result of the research:

**Table 1. The Structure of Babbling Stage**

Findings	Target Word	Syllable Structure
Eh-bah-bah	Yes	VC-CVC-CVC
He-ya-ya	Yes	CV-CV-CV
Eh-eh-e-ba-ba-pa	Father	VC-VC-V-CV-CV-CV
Ba-pak	Father	CV-CVC
E-da-da-eh	Drink medicine	V-CV-CV-VC
Eh-di-di	Won't	VC-CV-CV
Ha-ha-hah	Borrow	CV-CV-CVC
Ha-ta-ta	Music's toy	CV-CV-CV
Be-ya-be-ya	Claps hands	CV-CV-CV-CV
Heh-heh	Calling	CVC-CVC
En-na-en-na-en	Drink	VC-CV-VC-CV-VC
A-ha-ha	Mother	V-CV-CV
Ma-em-ma-em	Eat	CV-VC-CV-VC
En-na-en-na-en	Delicious	VC-CV-VC-CV-VC
He-ya-ha	Stand	CV-CV-CV
a-ha-ha	Bicycle	V-CV-CV
Hah-hah-hah	Plate	CVC-CVC-CVC
e-ya-e	Spoon	V-CV-V
En-na-na	Spoon	VC-CV-CV
A-ah-ah-hah-hah	Bottle	V-VC-VC-CVC-CVC
E-ya-ya-da-ya-da	Water	V-CV-CV-CV-CV-CV

Phonology is the study of the child's sounds with phonetic in the target language. The phonological structure of the babbling stage can be seen on the syllable structure of speech production. The babbling stage has consonant and vowel sounds that have phonetic characteristics. Consonant and vowel (CV) syllables are often reduplicated or repeated like *mama* and *gaga*. Below are some speech sounds produced by the subjects on her babbling stage. It has been analyzed for its target word based on the context of utterances.

The subject produced her first speech sound in the babbling stage. As we can see in the table above, the subject's speech production contains a structural form, consisting of a sequence of the same CV (C consonant, V vowel) syllable. It represented the most typical syllable that is produced by babbling stages in child language for example "*bababa*" and "*dadada*". In variegated babbling, the types of syllables are more varied on the vocal patterns that resemble words (Guasti, 2017). Based on the research, the subject produces more varied patterns, because the subject utters last babbling or variegated babbling. If canonical babbling has the same syllable as "*mamama*", the subject produces more varied syllable. The researcher finds the subject's utterances of the syllable, for example, "*eh-bah-bah*", "*ha-ta-ta*", "*e-ya-ya-da-ya*" and so on.

The pattern of the babbling stage has some CV in the subject's utterances. Every word that is uttered by the child has a different pattern of CV. The subject has the same pattern in phonology, consist of CVC-CVC and CV-CV-CV. Then, the subject also utters not similar patterns like VC-CV-VC-CV-VC, V-CV-CV-VC, VC-CVC-CVC, and so on. The researcher finds 92 syllable patterns in the babbling stage that consists of some combination of CV and VC. In the case of the phonological structure of child speech, it does not only contain structural patterns but also target words. When the subject produced any speech sound, it may have a target word. In the early stages of language development, children rely heavily on gestures as a means of communication. However, as they progress through the one-word stage, gestures become integrated with speech, resulting in the formation of sentence-like utterances (Cartmill et al., 2011). Based on this theory, the researcher can find out the subject's target word by giving much attention to the subject's gestures and intently doing a communicative interaction with the subject. The subject produced speech sound with the target word such as to mean an object. In this case, the subject sometimes produced the same type of syllable to present different target word based on the context. One example of a subject's word "a-ha-ha-ha" has two target words "bicycle" and "mother". Therefore, sometimes in a different situation the subject produced the same syllable form but it has a different target word.

### 3.2. The types of contexts of babbling stage

The circumstance where the language is used is called context. Certain factors in the different contexts of the utterances have an important role in developing children's language in the babbling stage (Brown, 2014). Below is the context found from the observation:

**Table 2. Context in babbling stage**

The Subject and Participant Conversation	Findings	Context
Setting : at home M : utah kuwi mbok ingeti neh M : utah wi, ojo ndhuk gak pareng! M : utah e ae iki lho banyu. S : (vomitting) M : iyo dang ndhuk gak popo. S : e-da-da-eh M : engko gak usah adus dhisik ya ndhuk. S : (cough) eh-ba-pak M : geniyo sayang? S : eh-di-di M : he'em ndang mimik disik ndang. Iyo ndang mimik neh ndang M : iki nke jane obate wis melbu lho ndhuk tapi kok muntah. Muntah e banyu S : heh-heh M : piye sayang? Ngesakne aku nek Alya ngeneki	1. E-da-da-eh 2. Ba-pak 3. Eh-di-di	1. Subject wanted to drink the medicine 2. Subject cried after drink the medicine 3. Subject wanted milk

<p>Setting : at home                      M : lho mangap tibake gak sido. Nyah iki enek pentole                      S : ma-em-ma-em                      M : a.. ndang maem                      S : ( try to take food )                      M: Al gak usah reno-reno. Klambi mu reget kabeh iki                      S : e-ya-e                      M: A..ndang ak.. oalah tanganmu rasah melu-melu.                      Koyo wis iso maem dewe ae. Nek wis iso maem                      dewe ngono gak opo-opo                      S: en-na-na                      M: seng alon-alon marai hok we engko. Wis ya, iki                      sitok engkas</p>	<p>1. Ma-em-ma-em                      2. E-ya-e                      3. E-na-na</p>	<p>1. Subject happy when her mother brings food for her                      2. When her mother will feed to subject, the subject tries to take the food                      3. Subject tries to take the spoon</p>
<p>Setting : at home                      S: (weeping)                      G: eh.. gobyos. Engko melu magrib ibuk engko.                      S: a-ha-ha (weeping)                      G: halah... tang dit tong, tong tak tong, tong dit tong.                      Cup cup sayang. Engko ibu balik nek wis bar wudhu                      S: a-wa-wa (weeping)                      G: ealah pinter nangis tibake engko melu engko, engko melu engko.                      S: (weeping and cough)                      G: yo ngono kuwi lho marai watuk to                      S: em-ma-ma (cough)                      G: wis cup cup marai watuk engko</p>	<p>1. A-ha-ha                      2. A-wa-wa                      3. Em-ma-ma</p>	<p>1. Subject looks for her mother and weeping                      2. Subject stands and weeping                      3. Subject weeping and want to meet her mother</p>

The study's environment included a variety of circumstances, according to the data in Table 2, 30 utterances are discovered in various contexts. In this instance, the social environment has a major impact on how the subject language develops. The researcher discovered and examined two components of the context. the individuals that are near the infant and all of the activities that have happened.

The study had five participants in all. They are the subject's mother, father, aunt, and grandfather. With the participants who were familiar with the subject, the subject engaged in babbling. The mother of the subject is the participant who is closest to her and with whom she frequently makes speaking sounds. The mother of the subject is to blame for the fact that she always follows practically all of the subject's activity. When the subject was with her mother, as opposed to other participants, these circumstances caused the subject to create more speech sounds. As a result, the production of the utterances is determined by the close relationship between participants and the topic, in this example, the mother of the subject.

The occasion encompassed the background and circumstances surrounding this particular study. The event refers to the occurrence in which the subject engages in activities and subsequently enters the babbling stage. In this instance, the individual engaged in various activities within an alternative environment. The subject's lexical output varied across different activities. For instance, the individual engaged with a miniature guitar, vocalized alongside her maternal figure, or expressed a desire to acquire an item.

### 3.3. The reconstruction of meaning in babbling stage

In the naming process in babbling stage, the researcher was classified the data based on the meaning of the word that had been uttered by the child. In this case, the researcher is supported by Spolsky and Hult (2010) to identify the child's word.

**Table 3.** The Meaning of Reconstruction

Code/ Setting	Glossary	Primitive	Context	Reconstruction of Meaning
Code 1 Setting at home	· <i>Heh-heh-heh</i>	<i>Hai</i>	The subject calls her mother (screaming)	Calling her mother
	· <i>He-ya-ya</i>	<i>Iya</i>	The subject's mother ask to the subject about the taste of food	Want to say yes
Code 2 Setting at home	· <i>Ba-pak</i>	<i>Bapak</i>	The subject looking for her father	Calling her father
	· <i>E-da-da-eh</i>	<i>Dada</i>	The subject see her father gone	Saying good bye
Code 3 Setting at home	· <i>Ha-ta-ta</i>	None	The subject tries to takes her music toy	None
	· <i>Be-ye-be-ya</i>	None	The subject eats food with her mother	None
Code 6 Setting at home	· <i>A-ha-ha</i>	<i>Hay-hay</i>	The subject is screaming and weeping when her mother leave the subject	Calling someone (mother)
Code 7 Setting at home	· <i>Em-ma-ma</i>	<i>Mama</i>	The subject is looking for her mother and weeping	Calling her mother
Code 8 Setting at home	· <i>Ma-em-ma-em</i>	<i>Maem</i>	The subject eats an egg with her mother	Eating food
Code 9 Setting at home	· <i>En-na-en-na</i>	<i>Enak</i>	Her mother gave the subject vitamin (the subject drinks vitamin)	Delicious drink
Code 10 Setting at home	· <i>He-ya-ha</i>	None	The subject wore the clothes with her mother	None
Code 13 Setting at home	· <i>Hah-hah-hah</i>	None	After the subject ate the food	None
	· <i>E-wa-wa-wa-wa</i>	None	The subject's mother asked to the subject to keep calm and want to take a bath	None

The researcher classified the subject's word into two definitions; "words have meaning" and "words have no meaning". Spolsky and Hult (2010) stated that the meaning of words can be seen by the child's description and gestures to represent the target word.

According to Table 3, the process of meaning reconstruction involved extracting meaning from the subject's words by considering the contextual factors. The target word of the subject was determined by the researcher through analysis of the subject's gestures and contextual activities. Research has indicated a correlation between the phonetic and semantic properties of the subject's lexicon and its actual meaning. For example, the word “ma-em” means “makan”; “eating” and the word “ba-pak” means “ayah”; “father” that has the meaning. The speech sound produced by the subject represents the phonological structure that sounds close to the target word. Other words like “e-ya-e”, “ha-ta-ta”, “he-ya-ya” have no speech sound that constructs the meaning or represents any target word. Therefore it is classified into no meaning word as in line with (Rimawati, 2009).

#### 4. CONCLUSION

The phonological structure of the babbling stage can be seen based on the syllable structure. The syllable structure in the babbling stage consists of consonant and vowel (CV). It is the phonetic characteristic in the babbling stage. Consonant and vowel syllables are often reduplicated or repeated like *baba* and *gaga*. The subject produces 92 syllable patterns in the babbling stage that consists of some combination CV and VC. In this case, the subject produces varied babbling. Varied babbling is more complex than canonical babbling, because the subject produces more varied babbling, like “Be-ya-be-ya” or “E-ya-ya-da-ya-da”. Every subject's word has a target word and it can be seen by the subject's gestures.

The context of the babbling stage contains some different situations. The subject has 30 utterances in different contexts when data of this research was carried out. The context is about the participant & event that the subject produces words on the babbling stage. The subject's word is developed by the context in her social environment.

Based on the subject's utterances, there are two kinds of meaning reconstruction, they are the subject's words that have meaning and the subject's words that have no meaning. The reconstruction of meaning can be seen by the real meaning and the context when the subject was producing the words, which the subject uttered and has the real meaning or not.

This research gives information for parents about knowledge of speech production for children due to giving more attention in language development. The most important aspect that should be given more attention and prepared to develop the children's language are social environment and parents. We can recognize their language development and understand what the children's mean from the children's utterance. So, it can become a reference for those who want to study about the language processes of children especially in babbling stage.

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