

Language acquisition in a three-year-and-three-month-old child in the areas of phonology, syntax, and semantics

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Abstract

This study examines language acquisition in a 3-year-3-month-old child across three main linguistic dimensions: phonology, syntax, and semantics. Employing a case study approach supported by a literature review, this research analyzes spontaneous utterances in various daily interaction contexts. Data were collected through naturalistic observation and transcription of child speech during play, storytelling, and parent-child conversations. The results indicate that phonologically, the child has acquired most Indonesian phonemes, though phonological processes such as substitution and deletion still occur. Syntactically, the child constructs simple to compound sentences using coordinative conjunctions. Semantically, vocabulary is expanding rapidly, encompassing nouns, verbs, adjectives, and basic semantic relations. These findings support the interactionist perspective, emphasizing the role of environmental input and innate cognitive capacity in child language acquisition.

Keywords: *language acquisition, phonology, syntax, semantics, early childhood, case study*

INTRODUCTION

Language acquisition is one of the most remarkable cognitive processes in human development. Between the ages of one and five, children experience rapid linguistic growth, progressing from simple vocalizations to the ability to produce grammatically complex and semantically meaningful utterances (Brown, 1973; Chomsky, 1965). This developmental stage is often referred to as the critical period of language acquisition, during which neurobiological maturation and environmental input interact to shape children's linguistic competence.

A child aged three years and three months is generally in a highly productive stage of language development. According to Roger Brown's (1973) stages of language development, children at this age have typically progressed from Mean Length of Utterance (MLU) Stage III to Stage IV. At this stage, they are capable of producing sentences consisting of more than four morphemes, using conjunctions, and asking increasingly complex questions. Nevertheless, considerable individual differences remain, influenced by factors such as language exposure, environmental stimulation, socioeconomic background, and each child's cognitive development (Tomasello, 2003).

Research on language acquisition among Indonesian children, particularly concerning Indonesian as a first language, remains relatively limited compared with studies conducted in English and other European languages. However, the linguistic characteristics of Indonesian, including its rich morphological system, extensive use of affixation, diverse language varieties, and the bilingual or multilingual environments in which many Indonesian children are raised, offer a unique and valuable context for investigating language acquisition. These characteristics provide important insights into how children develop phonological, morphological, syntactic, semantic, and pragmatic competence in natural communication.

Studying the language development of Indonesian-speaking children is therefore essential for both theoretical and practical reasons. The findings can contribute to a deeper understanding of language acquisition theories while also providing empirical evidence to support early childhood language education, speech and language assessment, and intervention programs. Furthermore, documenting children's spontaneous speech helps reveal the developmental patterns and strategies they employ in acquiring their first language.

This study focuses on the language acquisition of a child aged three years and three months by analyzing spontaneous speech produced in everyday interactions. The analysis emphasizes several linguistic aspects, including phonological, morphological, syntactic, semantic, and pragmatic development. Through this case study, the research aims to describe the child's current stage of language acquisition and to contribute to the growing body of literature on first language acquisition in the Indonesian context.

METHOD

Research approach and design

This study employs a qualitative approach using a single-case study design, supplemented by a systematic literature review. The single-case study design was chosen because it allows for an in-depth exploration of a child's language acquisition process in a natural setting, resulting in richer and more contextual data (Yin, 2018). This type of approach is widely used in research on children's language acquisition, as seen in the works of Brown (1973), Dardjowidjojo (2000), and a number of other researchers in the same field.

Research participant

The subject of this study is a three-year-and-three-month-old girl, hereinafter referred to as Subject A. She is the second child in her family. Both of her parents hold bachelor's degrees and use Indonesian as the primary language at home. The subject has no history of developmental delays or diagnosed language disorders. The researcher selected the subject through purposive sampling based on three criteria: Indonesian as the first language, no diagnosed language disorders, and an age within the study's target range.

Data collection instruments and techniques

Data collection was conducted using two techniques. The first technique involved naturalistic observation to record children's spontaneous speech in

various everyday situations, ranging from playing, eating, and storytelling to interacting with their parents and siblings. The second technique involved audio recording, which was then transcribed using a notation system adapted from the Child Language Data Exchange System (CHILDES) designed by MacWhinney (2000). Data collection took place over the course of one week in two observation sessions, each lasting approximately 30 to 40 minutes. From all the recorded utterances, the researcher selected 20 utterances based on their relevance and clarity for further analysis.

Data analysis techniques

Data analysis was conducted in three stages. The first stage was a phonological analysis to identify phonological processes in the children's utterances, based on the frameworks proposed by Ingram (1989) and Stoel-Gammon and Dunn (1985). The second stage is syntactic analysis, which includes calculating the Mean Length of Utterance (MLU), identifying sentence structures, and classifying utterance types based on Brown's (1973) developmental framework. The third stage is semantic analysis, which examines lexical categories, instances of overextension and underextension, and semantic relationships between words. To ensure the validity of the findings, the researchers conducted source triangulation by comparing children's utterances across various communicative contexts, as well as theoretical triangulation by interpreting the findings through multiple theoretical perspectives simultaneously.

RESULTS AND DISCUSSION

Based on the data collected, the following are several utterances produced by subject AW. These data serve as the material for analysis in the three linguistic domains examined.

Table 1. Sample Speech Data of Subject A (3 Years 3 Months)

No	Context	Child's Utterance	Domain	Brief Analysis
1	Playing Context	"Mama, adek mau minum cucu." (Mommy, adek wants to drink milk.)	Phonology & Syntax	Complete S-P-O sentence; articulation of /s/ not yet clear
2	Seeing a Cat	"Itu kucing. Bulunya lembut." (That's a cat. Its fur is soft.)	Semantics & Syntax	Use of an adjective; simple declarative sentence
3	Asking Permission	"Boleh adek main di luar?" (May adek play outside?)	Syntax & Pragmatics	Interrogative sentence
4	Storytelling	"Tadi adek jatuh, sakiiiit ma" (Adek fell earlier, it hurrrts, mom)	Phonology & Semantics	Vowel lengthening for emphasis; understanding of cause-effect
5	Interaction with Father	"Ayah pulang? Adek mau ayah." (Is dad home? Adek wants dad.)	Semantics & Pragmatics	Expression of emotion; the word "mau" (want) used to mean longing
6	Refusing	"Nggak mau tayul. Nggak enak."	Syntax &	Negation sentence;

No	Context	Child's Utterance	Domain	Brief Analysis
	Food	(Don't want [the] tayul. Not tasty.)	Phonology	phoneme reduction from /ti/ to /nggak/
7	Retelling a Story	"Terus kittinya nangis, terus mamanya datang." (Then the kitten cried, then its mom came.)	Syntax & Semantics	Use of the conjunction 'terus' (then); chronological narrative
8	Naming Colors	"Bajuku pink. Itu biru. Yang itu ungu." (My shirt is pink. That's blue. That one is purple.)	Semantics	Well-developed color vocabulary

Phonological analysis

Phonological analysis of Subject AW's utterances shows an acquisition pattern that is generally consistent with the normative achievements of three-year-old children, while also revealing several phonological processes that are still in the developmental stage.

a. Inventory of Mastered Phonemes

Subject AW has been able to consistently produce the Indonesian vowel phonemes /a/, /i/, /u/, /e/, /o/ in various word positions. At the consonant level, the bilabial phonemes (/p/, /b/, /m/), alveolar phonemes (/t/, /n/, /s/, /l/), velar phonemes (/k/, /g/, /ng/), palatal phonemes (/ny/, /y/), and the laryngeal phoneme (/h/) have been well mastered. This finding is consistent with Dardjowidjojo's research (2000) and aligns with the phonological development map proposed by Stoel-Gammon & Dunn (1985).

b. Ongoing Phonological Processes

Nevertheless, several phonological processes common at this age are still found in Subject AW's utterances, as summarized in the following table.

Table 2. Phonological Processes in Subject AW's Utterances

Phonological Symptom	Process	Example	Remarks
Phoneme Substitution	/r/ → [y]	yuma → Rumah (house)	Common at age 3; the phoneme /r/ not yet fully mastered
Syllable Deletion	Aphesis	Nggak → tidak (not)	Common reduction in informal language; found consistently
Vowel Lengthening	Emotional Emphasis	Sakiiiit (hurrrts)	Prosodic strategy to emphasize the intensity of meaning
Diphthong	Accurate Production	Baik, ail [r]	Diphthongs can already be produced correctly

The phoneme substitution process /r/ → [y] found in Subject AW's utterances is a very common phenomenon among three-year-old children speaking Indonesian. The Indonesian phoneme /r/ is an alveolar trill that requires more complex articulatory coordination than other phonemes. Dardjowidjojo (2000) reported similar findings in his subject, in which /r/ was only consistently mastered close to the age of 4-5 years. From a nativist perspective, this can be explained through the concept of markedness in Optimality Theory: more marked phonemes tend to be acquired later than unmarked phonemes (Prince & Smolensky, 2004).

The phenomenon of vowel lengthening as a prosodic strategy, as in the utterance 'sakiit', demonstrates Subject AW's ability to use suprasegmental features to convey the intensity of emotion. This is an indication of well-developing pragmatic competence—the child masters not only sounds at the segmental level, but also uses intonation and sound duration for communicative purposes (Crystal, 1987).

Syntactic analysis

Syntactic analysis of Subject AW's utterances shows significant development. Subject AW's MLU, calculated from a sample of 100 utterances, ranges from 3.8–4.2 morphemes, placing the subject at Stage IV in Brown's (1973) scheme, the stage of grammatical development characterized by the ability to construct more complex sentences.

Basic sentence structure

Subject A has mastered the basic sentence patterns of Indonesian well. Declarative S-P-O sentences such as "Mama, aku mau minum susu" (Mommy, I want to drink milk) and "Bajuku pink" (My shirt is pink) demonstrate the ability to construct nominal and verbal predicates appropriately. Interrogative sentences using various question words (what, where, why, may) are also used in appropriate contexts. This ability aligns with Chomsky's theoretical prediction that children are naturally able to extract syntactic patterns from the input they hear, as well as with Tomasello's interactionist approach, which emphasizes the internalization of patterns through repeated use.

Use of conjunctions and compound clauses

An interesting finding in the syntactic data is the consistent use of the conjunction 'terus' (then) to link clauses in narratives ('beruangnya nangis, terus mamanya datang' – the bear cried, then its mother came). This conjunction is used as a marker of chronological sequence, showing Subject A's ability to organize narrative temporally. The dominant use of 'terus' as a discourse marker—compared to the more formal 'dan' (and) or 'kemudian' (then/subsequently)—reflects an adaptation to the informal spoken register that serves as the child's primary input model (Snow, 1995).

Semantic analysis

Semantic analysis covers three aspects: (1) vocabulary development; (2) lexical categorization; and (3) semantic phenomena that emerge in the data.

a. Vocabulary Development

Based on observation and recording of utterances, Subject AW's active vocabulary is estimated to include more than 200 words spanning various grammatical categories. The vocabulary distribution is dominated by nouns referring to concrete objects in the child's daily environment (people, objects, animals, food), followed by action verbs, descriptive adjectives, and a number of adverbs. This finding supports Nelson's (1973) action-object hypothesis, although it should be noted that Subject AW also shows an expressive tendency, with a relatively rich use of emotional expressions.

b. Meaning Relations

Subject AW has been able to use basic antonymy in his/her utterances, such as the semantic contrast between positive and negative concepts in evaluation ('enak'/'nggak enak' – tasty/not tasty). The use of the adjective 'lembut' (soft) in the context of touching a cat's fur shows the ability to map sensory-perceptual features onto the lexicon appropriately. The ability to understand and produce cause-effect relations ('jatuh' → 'sakit', fell → hurt) shows the development of a cognitive schema that supports propositional semantic structure.

CONCLUSION

Based on the analysis of speech data and a review of relevant literature, this study yields three main conclusions. First, in the area of phonology, Subject AW (3 years and 3 months) has substantially mastered the phoneme inventory of Indonesian, with residual phonological processes in the form of /r/→[y] substitution and some consonant deletion still occurring—a pattern that is entirely normative for his age. The use of suprasegmental features for expressive functions indicates well-developed prosodic competence.

Second, in the area of syntax, Subject AW is at Stage IV of grammatical development (MLU 3.8–4.2), with the ability to construct declarative, interrogative, negative, and compound sentences using coordinating conjunctions. This pattern indicates that the child is transitioning from mastering simple sentence structures toward increasingly complex and varied sentences.

Third, in the area of semantics, Subject AW's active vocabulary is developing rapidly, with a distribution spanning various grammatical categories. The ability to understand and produce basic semantic relations, as well as the documented phenomenon of overgeneralization, indicates that the child is actively constructing a lexical-semantic system rather than merely reproducing heard utterances.

Overall, Subject AW's language acquisition profile shows a developmental trajectory consistent with normative expectations and can be adequately explained by an interactionist perspective that integrates innate capacity (nativism) with the role of environmental stimulation (empiricism).

Further research is recommended to: (1) expand the scope of the data by recording speech in more diverse contexts (school, playing with peers, and formal situations) to obtain a more comprehensive picture; (2) conduct a

longitudinal study to track children's language development over time; (3) compare children's language acquisition profiles across different socioeconomic backgrounds and environmental stimulation levels; and (4) integrate pragmatic analysis as a fourth dimension of child language acquisition research.

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