The Ecological Linguistic Acquisition Model (ELAM): An Applied Linguistics Perspective on Language Acquisition and Teaching in Multilingual Children

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Abstract
Language acquisition in multilingual settings provides critical empirical insights for designing adaptive language learning models. This study examines the dynamics of language acquisition among Indonesian multilingual children to develop the Ecological Linguistic Acquisition Model (ELAM)—an applied linguistics framework bridging language acquisition and language pedagogy. Employing a six-month longitudinal qualitative design, the study observed four children who routinely navigate Indonesian, Javanese, Madurese, and English across daily contexts. Data were collected through naturalistic observations, recorded spontaneous interactions, interviews with parents and teachers, and developmental documentation, then analyzed thematically using Bronfenbrenner's Ecological Systems Theory and translanguaging frameworks. The findings reveal that multilingual acquisition is a dynamic ecological process driven by continuous interactions across family communication, school environments, sociocultural practices, and communicative needs. Rather than developing through isolated structural mastery, multilingual competence emerges through the flexible deployment of children's entire linguistic repertoires in translanguaging practices. Accordingly, ELAM establishes learners' linguistic ecologies as the bedrock for contextual, inclusive, and practice-oriented pedagogy, bridging the gap between developmental linguistics and multilingual educational innovation.
Key words: applied linguistics, child language acquisition, Ecological Linguistic Acquisition Model (ELAM), multilingual education, translanguaging

Introduction

Language acquisition is a strategic field within applied linguistics, as it provides a scientific foundation for the development of language learning in children, language policy, and educational practice. In this regard, language functions not only as a tool for communication but also as the primary medium for children's cognitive development, identity formation, social interaction, and cultural participation. Furthermore, with increasing globalization, population mobility, migration, and the development of digital technology, more and more children are growing up in multilingual environments where they are exposed to more than one language, meaning that the process of language acquisition takes place within an increasingly complex linguistic and social context. These changes call for the development of an applied linguistic perspective capable of explaining the dynamic relationship between language development and the environment in which children interact (Hoff, 2023; Ortega, 2024; Rowe & Snow, 2020; Tomasello, 2023).

Meanwhile, for several decades, research into language acquisition has been dominated by nativist, cognitive, and interactionist perspectives. These three approaches have made significant contributions to our understanding of children's language development, but they still tend to explain biological, cognitive, and social factors in isolation. In multilingual societies, the development of linguistic competence occurs through complex interactions between individual capacities, communicative experiences, cultural practices, and the family, school, and community environments.

Various recent studies indicate that language acquisition is influenced by the intensity *of language exposure*, *family* language policy, the quality of social interaction, translanguaging, and the educational environment. However, the majority of these studies still examine these factors in isolation and are therefore unable to explain the mechanisms underlying the relationships between the ecological factors that shape language development as a whole (Ambridge & Lieven, 2021; Bronfenbrenner & Morris, 2006; De Houwer, 2021; Sun et al., 2024).

This study's research gap is the lack of a conceptual model that integrates theories of language acquisition, developmental bioecology, ecolinguistics, translanguaging, *family language policy*, and *language exposure* to explain children's language acquisition in multilingual societies. Furthermore, the majority of existing theories are still based on the context of monolingual or bilingual societies in Western countries and therefore do not fully represent the dynamics of language acquisition in multilingual countries such as Indonesia. This situation highlights the existence of empirical, theoretical, and contextual gaps that remain unaddressed in contemporary language acquisition research (Cenoz & Gorter, 2023; Eberhard et al., 2024; García & Wei, 2014; Ortega, 2024).

In light of these gaps, this study develops **the Ecological Linguistic Acquisition Model (ELAM)** as a new conceptual model that views language acquisition as an ecological process shaped through dynamic interactions between the child and their linguistic, social, cultural, family, school, and community environments. The theoretical contribution of this study lies in integrating various perspectives—previously developed separately—into a single framework, which expands the paradigm of language acquisition from a linear approach to a coherent analytical framework that embraces a multidimensional ecological **approach.** Thus, ELAM offers a new perspective in applied linguistics to explain children's language acquisition in multilingual societies more comprehensively (Bronfenbrenner & Morris, 2006; Hoff, 2023; Ortega, 2024; Tomasello, 2023).

The novelty of this research lies in the development of ELAM as an integrative model that not only combines theories of language acquisition, bioecology, ecolinguistics, translanguaging, *family language policy*, and *language exposure*, but also repositions translanguaging as an ecological mechanism in the language acquisition process, rather than merely as a communication strategy or pedagogical approach. This model is based on the language experiences of Indonesian children who live in multilingual communities. It provides a clearer understanding of multilingual societies in the Global South, which are not well represented in current research of multilingual societies in the Global South, which are still not well represented in current multilingual societies in the Global South and are relatively under-represented in existing theories of language acquisition (Cenoz & Gorter, 2023; De Houwer, 2021; Eberhard et al., 2024; Wei, 2022).

The significance of the study lies in its contribution to the development of applied linguistics, both theoretically and practically. Theoretically, this research enriches the field of applied linguistics by providing a more comprehensive conceptual framework to explain the relationship between linguistic and ecological factors in children's language acquisition and development. Practically, ELAM is expected to serve as a scientific foundation for the development of language learning, language education policy, and pedagogical practices that are more adaptable to the needs of multilingual learners. Consequently, this research not only broadens our understanding of children's language acquisition but also offers relevant implications for the development of language education and policies aimed at preserving linguistic diversity within multilingual societies (Hoff, 2023; Moraru et al., 2025; Ortega, 2024; UNESCO, 2023).

Another point of focus in this study is that language acquisition is a strategic field within applied linguistics, as it provides a scientific foundation for the development of language learning, language policy, and educational practice in a society that is becoming increasingly multilingual. Language serves not only as a tool for communication but also as the primary medium for children's cognitive development, identity formation, social interaction, and cultural participation. With increasing globalization, population mobility, migration, and the development of digital technology, more and more children are growing up in environments where they are exposed to more than one language, meaning that the process of language acquisition takes place within an increasingly complex linguistic and social context. These changes call for the development of an applied linguistic perspective capable of explaining the dynamic relationship between language development and the environment in which children interact (Hoff, 2023; Ortega, 2024; Rowe & Snow, 2020; Tomasello, 2023).

Based on the background, research gaps and theoretical contributions outlined above, this study aims to develop and validate **the Ecological Linguistic Acquisition Model (ELAM)** as a conceptual framework within applied linguistics that explains children's language acquisition in multilingual communities. Specifically, this study aims to (1) describe the language acquisition process of Indonesian children growing up in multilingual communities; (2) identify the ecological factors influencing the development of children's language competence; (3) analyze the relationship between the family, school, and community environments, cultural practices, and translanguaging in shaping language acquisition; and (4) formulate and validate **ELAM** as a conceptual model that integrates perspectives from language acquisition, bioecology, ecolinguistics, and translanguaging. Based on these objectives, this study aims to answer the following three research questions: **(1)** How does the language acquisition process take place in children living in multilingual communities? **(2)** What ecological factors significantly influence the development of children's language competence in a multilingual environment? **(3)** How can **ELAM** explain the dynamic relationship between linguistic, social, cultural, family, school, and community factors in children's language acquisition? To answer these questions, this study employs the methodological approach outlined in **the "Methods"** section**.**

Theoretical Framework and Literature Review

Developments in applied linguistic research in the field of language acquisition theory have produced a variety of perspectives explaining how children acquire language and develop linguistic competence. However, to date, there is no conceptual framework capable of fully integrating biological, cognitive, social, and ecological dimensions within the context of a multilingual society. The nativist perspective posits biological predisposition as the primary prerequisite for language acquisition through the concept *of universal grammar*. The **theory**, proposed by **Noam Chomsky** in the 1950s, essentially states that all human languages share the same biological and cognitive structural basis. Humans are born with an innate mechanism called **the Language Acquisition Device (LAD),** which enables children to understand and acquire language quickly and naturally. The main objection to this theory is that language ability is not an innate genetic blueprint present from birth but rather the result of social and cultural habits and the human brain's general capacity to process patterns. Experts in the cognitive-functional approach, for example, argue that children learn language through social interaction and the frequency with which they hear it, rather than through a specific innate language mechanism known as *the Language Acquisition Device* (LAD).

Meanwhile, sociolinguists contend that grammatical structures are shaped by ways of thinking, the living environment, and the communication needs of local communities,

rather than by rigid biological rules. On the other hand, proponents of the cognitive constructivist school of linguistics see language development as a result of growing cognitive abilities. Meanwhile, sociocultural theory asserts that language develops through social mediation and children's participation in communicative activities with their surrounding environment. Nevertheless, these three perspectives have developed within distinct epistemological traditions, meaning that each explains only part of the mechanisms of language acquisition. The nativist perspective tends to overlook the influence of multilingual environments; cognitive theory has not yet given sufficient attention to socio-cultural dynamics, whilst sociocultural theory has not yet explicitly modeled the relationships between the ecological systems that shape a child's linguistic experience. Consequently, contemporary literature still exhibits conceptual fragmentation in explaining language acquisition in 21st-century multilingual societies (Hoff, 2023; Tomasello, 2023).

The limitations of these theories have spurred the development of an ecological perspective that views human development as the result of reciprocal interactions between the individual and various interrelated environmental systems. Within Bronfenbrenner's bioecological framework, the family, school, community, and socio-cultural environment are viewed as dynamic components that influence language learning and development. This perspective emphasizes the importance of context and the interconnectedness of these systems in shaping a child's communicative abilities and cultural identity. These systems collectively shape a child's learning experiences. This approach makes an important contribution by situating language within a real-life context, thereby viewing linguistic development as part of the process of adaptation to the social environment. Nevertheless, bioecological theory is fundamentally a theory of human development in general and is not designed to explain the specific mechanisms of language acquisition. Thus, whilst it successfully demonstrates the importance of the interrelationships between environmental systems, this approach has not yet elucidated how each ecological layer influences the development of linguistic competence, particularly in children living in multilingual environments (Bronfenbrenner & Morris, 2006; Hoff, 2023).

The *'ecology of language'* perspective and the development of ecolinguistics have further broadened the scope of analysis by situating language as part of a social, cultural, and environmental ecosystem. Language is perceived not merely as a structural system but also as a social practice that evolves through the interactions among speakers, cultural influences, and environmental changes. This approach has successfully demonstrated that the survival and development of language are significantly influenced by social dynamics, social mobility, education, and technological developments. However, the primary focus of ecolinguistics remains more on the relationship between language and the environment than on explaining the mechanisms of language development in individuals. Consequently, the contributions of ecolinguistics to theories of children's language acquisition remain largely conceptual and have not yet yielded a model that explicitly links the ecological environment to the development of linguistic competence from an early age (Stibbe, 2021; Fill & Penz, 2022; Curdt-Christiansen & Huang, 2023).

In applied linguistics, the *translanguaging* paradigm has transformed our understanding of multilingual competence. García and Wei argue that multilingual speakers draw on their entire linguistic repertoire in an integrated manner to construct meaning, meaning that the boundaries between languages are more flexible than assumed in traditional approaches. Various studies indicate that translanguaging contributes to improved literacy, cognitive flexibility, the formation of multilingual identity, and more inclusive participation in learning. Despite these contributions, the majority of research still positions translanguaging as a pedagogical strategy or a communicative practice within

the classroom. Relatively few studies have explored how translanguaging functions as a mechanism of language acquisition influenced by interactions between family, school, community, and cultural environments. Consequently, the relationship between translanguaging and the language acquisition ecology remains a conceptual gap requiring further development (García & Wei, 2014; Wei, 2022; Cenoz & Gorter, 2023).

Research on *family language policy* and *language exposure* further emphasizes that the quality of the linguistic environment is a crucial factor in children's language development. Family language policy influences the choice of language used in everyday interactions, while the intensity and quality of language exposure determine children's opportunities to develop linguistic competence, pragmatic skills, and linguistic identity. Recent research indicates that language development is influenced not only by the quantity of linguistic input but also by the quality of interaction, consistency in language use, and the interconnectedness between the home, school, community, and digital media environments. Nevertheless, the majority of studies still analyze *family language policy* and *language exposure* as independent variables, rather than as interacting components within a dynamic ecological system. Consequently, the mechanisms by which these factors interact to shape children's language acquisition have not yet been comprehensively explained in theoretical terms (De Houwer, 2021; King & Logan-Terry, 2023; Hoff, 2023; Sun et al., 2024).

Conclusions drawn from the literature review indicate that contemporary research has yielded an increasingly rich understanding of children's language acquisition, but this development continues to unfold within a relatively fragmented scholarly tradition. Nativist theories explain biological readiness; constructivism highlights cognitive development; sociocultural theories emphasize social interaction; and bioecological theories explain the relationships between environmental systems, while translanguaging, *family language policy*, and *language exposure* explain the dynamics of communication within multilingual societies. However, within these theories, there is as yet no conceptual framework that explicitly integrates all these perspectives to explain how these factors work simultaneously to shape children's language acquisition. It is this gap that constitutes *the* primary *theoretical gap* in contemporary applied linguistic literature and calls for a conceptual synthesis capable of explaining language acquisition as a multidimensional process taking place within an ever-changing linguistic ecosystem (Wei, 2022; Hoff, 2023; Cenoz & Gorter, 2023; Curdt-Christiansen & Huang, 2023).

In light of this gap, this study develops the Ecological Linguistic Acquisition Model (ELAM) as a conceptual synthesis that integrates various perspectives on language acquisition into a single, unified ecological framework. ELAM is not intended as an alternative theory to replace previous approaches but rather as an integrative framework that explains how biological readiness, cognitive development, social interaction, translanguaging, *family language policy*, *language exposure*, and the educational and cultural environment interact to shape a child's language development. By positioning these factors as interdependent components within an ecological system, ELAM provides a fresh perspective that connects classical language acquisition theory with contemporary multilingual realities. Consequently, ELAM's main contribution lies not in the introduction of a new model but in providing a multidimensional theoretical synthesis that enables applied linguistics to explain children's language acquisition in a more holistic, contextualized manner, and one that is relevant to the nature of 21st-century multilingual societies, whilst also providing a stronger conceptual foundation for future empirical research and the development of language learning practices (Tomasello, 2023; Hoff, 2023; De Houwer, 2021; Cenoz & Gorter, 2023; Wei, 2022).

To reinforce these conclusions, a comparison can be drawn between several relevant theories based on their theoretical perspectives, underlying assumptions, and key contributions to applied linguistics, particularly in the field of language acquisition. Finally, the contribution of these theories to ELAM is outlined. A comparative overview is provided in the table below.

Table 1. Theory Synthesis Underpinning the Ecological Linguistic Acquisition Model (ELAM)

Theoretical Perspective	Core Assumptions	Major Contribution to Applied Linguistics	Limitations	Key References
Nativist Theory	Language acquisition is underpinned by innate linguistic capacities (Universal Grammar / Language Acquisition Device).	Explains children's biological readiness for language acquisition and the universality of grammatical development.	Pays limited attention to social interaction, multilingual environments and cultural variation.	Chomsky (1965, 1981); Hoff (2023).
Cognitive Constructivism	Language develops alongside children' ' cognitive development through active meaning construction.	Demonstrates that conceptual growth influences the , vocabulary, categorisation, and language complexity.	Underemphasise s the influence of multilingual social environments and ecological interaction.	Piaget (1952, 1970); Tomasello (2023).
Sociocultural Theory	Language develops through social interaction, mediation, and collaborative learning.	Explains the importance of caregivers, peers and communicative interaction in language development.	Focuses primarily on interpersonal interaction without explicitly modeling multilingual ecological systems.	Vygotsky (1978); Bruner (1983).
Ecological Systems Theory	Human development arises from reciprocal interaction between individuals and multiple environmental systems.	Provides a comprehensive explanation of how family, school, community and society shape child development.	Does not specifically explain the mechanisms of language acquisition or multilingual linguistic development.	Bronfenbrenne r (1979); Bronfenbrenne r & Morris (2006).
Ecology of Language / Ecolinguistics	Language exists within an ecological relationship involving speakers, culture and the environment.	Demonstrates that language development is inseparable from social and cultural ecosystems.	Provides a limited explanation of the developmental mechanisms involved in childhood	Haugen (1972); Stibbe (2021).

			language acquisition.	
Translanguaging Theory	Multilingual speakers use their entire linguistic repertoire dynamically to construct meaning.	Explains multilingual communication as integrated rather than separate linguistic systems.	Most studies focus on pedagogy and communication practices rather than language acquisition processes.	García & Wei (2014); Wei (2022); Cenoz & Gorter (2023).
Family Language Policy	Parents' language choices influence children's linguistic development and the maintenance of their heritage language.	Demonstrates the role of family practices in determining language exposure and language maintenance.	Often analysed separately from schools, peers and wider ecological contexts.	De Houwer (2021); King, Fogle, & Logan-Terry (2023).
Language Exposure Perspective	The quantity and quality of language input strongly influence - language acquisition.	Consistently identifies language exposure as a major predictor—— of vocabulary, grammar, and communicative competence.	Frequently conceptualized as an isolated predictor rather than part of interconnected ecological processes.	Hoff (2023); De Houwer (2021); Sun et al. (2024).
Usage-Based Theory	Language emerges from repeated language use and communicative experience rather than innate grammar alone.	Explains language acquisition through interaction, joint attention, and frequency of usage.	Pays relatively less attention to multi-layered ecological environments and multilingual cultural systems.	Tomasello (2023).
Ecological Linguistic Perspective (ELAM)	Language acquisition is an emergent, dynamic, and adaptive process resulting from continuous interaction amongst cognitive, biological, social, cultural, educational,	Provides a holistic framework that integrates multiple complementary theories into a unified model for explaining multilingual language acquisition and informing applied	As a conceptual synthesis, empirical validation across diverse multilingual settings is still required to establish its predictive and explanatory power.	Bronfenbrenner & Morris (2006); García & Wei (2014); De Houwer (2021); Hoff (2023); Tomasello (2023); **Present Study (ELAM)**

	and multilingual ecological systems. No single theoretical perspective sufficiently explains multilingual language acquisition.	linguistics, language education, and language policy.

Methods

This study employs a qualitative longitudinal approach using *a* multiple-case *study* design to gain an in-depth understanding of children's language acquisition processes in multilingual environments whilst developing *the Ecological Linguistic Acquisition Model* (ELAM). This approach was chosen as it allows researchers to observe the development of children's language abilities continuously within a natural living context, thereby enabling a comprehensive understanding of the relationship between linguistic experiences and the social environment.

The research was conducted over a period of six months with Indonesian families living in Manchester, a major city in the north-west of England. The participants were students living with their wives and children, who were on average aged 6–8 years, had recently moved abroad for the first time, and were not yet fluent in English. Consequently, their families used more than one language in their daily lives. The requirement to attend primary school meant that parents and their children had to live within a multilingual community. Participants were selected using **purposive sampling**, which involves selecting informants based on specific characteristics relevant to the research objectives (Patton, 2015; Creswell & Poth, 2018).

The criteria for participant selection included (1) being from families of Indonesian immigrant students; (2) using more than one language in everyday communication; (3) having intensive interaction with family, school, and the social community; and (4) parents being willing to support the research process during the observation period. These criteria were selected to capture various linguistic experiences, enabling an in-depth exploration of the relationship between the ecological environment and children's language acquisition (De Houwer, 2021; Hoff, 2023).

Table 2. Demographic and Multilingual Family Background of Research Participants

No.	Participant Code	Age (Years)	**Child's Regional Background**	**Father's Regional Background**	**Mother's Regional Background**	**Family Language Repertoire**
1	SAN	6	East Java	East Java	East Java	Javanese (East Java), Indonesian
2	BAY	7	Sumatra	West Sumatra	West Sumatra	Sumatran Malay, Indonesian, English
3	NAD	8	Madura	Yogyakarta	Madura	Madurese, Indonesian, English
4	AND	8	Central Java	England	Central Java	Javanese (Central Java),

The four participants have different linguistic backgrounds, thus representing the linguistic diversity commonly found in multilingual communities in Indonesia. The first participant, **SAN** (aged 6), grew up in a family that uses Indonesian and the East Javanese dialect of Javanese as their everyday languages. The second participant, **BAY** (aged 7), speaks Indonesian and the Jambi dialect of Malay. The third participant, **NAD** (aged 8), uses Indonesian, Madurese, and English in daily life. The fourth participant, **AND** (aged 8), speaks Indonesian, the Yogyakarta dialect of Javanese, and English, as his father is from the city **of Bath in England. However, Smith, AND's father**, **has lived in** Yogyakarta **for more than 10 years** and works as an English lecturer at one of the local universities. AND's mother, however, is originally from Bantul, Yogyakarta, and is therefore fluent in Indonesian and Javanese. In addition to the children as the main participants, this study also involved parents, teachers, and community members as supporting informants to obtain more comprehensive information regarding the children's language experiences, *family language policy*, and the communication patterns that develop within their social environments (King et al., 2023).

The research context encompasses the family environment, primary school, and the social community where the child interacts on a regular basis. These three environments are viewed as interconnected ecological systems that influence the development of the child's linguistic competence, as explained in *Ecological Systems Theory* (Bronfenbrenner, 1979; Bronfenbrenner & Morris, 2006). Children learn language by talking to their parents and other family members in the home. In the school environment, children interact with teachers and peers in various learning activities. Meanwhile, the community environment provides a space for children to use language within a broader social context, including in cultural activities, play, and social interactions.

Data were collected through naturalistic observation, semi-structured interviews, documentation, and audio and video recordings. Observations were conducted in various communicative situations at home, at school, and within the community to document children's language use, translanguaging, and interaction patterns across different social contexts. Interviews with parents and teachers aimed to elicit information regarding *family language policy*, the intensity of language exposure, and children's communication and learning experiences. All data were then transcribed verbatim and enriched with field notes and supporting documents as part of the triangulation process.

Data analysis was carried out in stages using thematic analysis combined with *cross-case analysis*. The analysis process began with data reduction, coding, theme grouping, and the interpretation of relationships between themes to identify the ecological factors influencing language acquisition. Subsequently, the results of the analysis were compared across participants to identify consistent patterns before being synthesized with theories of language acquisition, developmental ecology, ecolinguistics, and translanguaging. This synthesis formed the basis for formulating *the Ecological Linguistic Acquisition Model* (ELAM).

Data validity was ensured through triangulation of sources and techniques, *member checking*, *peer debriefing*, and the creation *of an audit trail*, ensuring that the resulting interpretations possess credible, reliable, and verifiable credibility. This research also adhered to the principles of research ethics by obtaining written consent from all parents (*informed consent*), safeguarding the confidentiality of participants' identities through

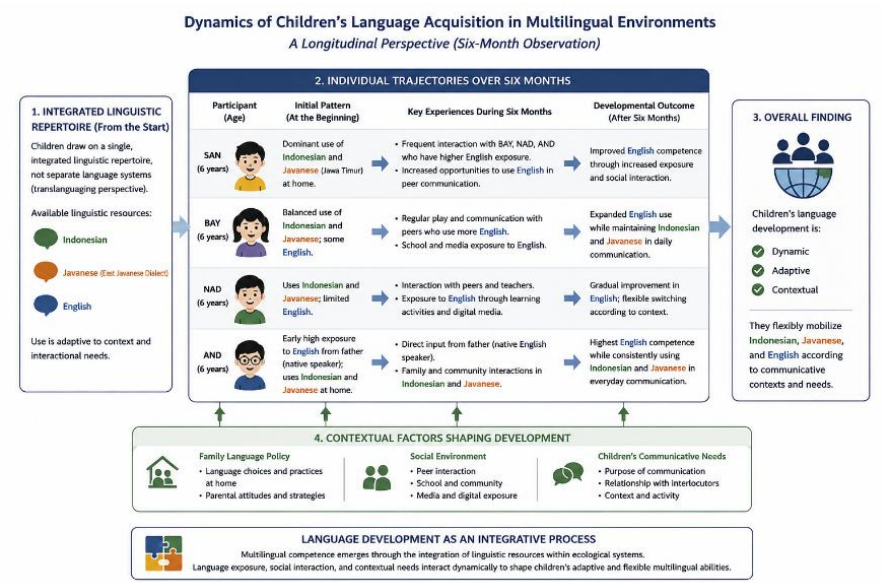
the use of pseudonyms, and ensuring that all data was used solely for academic purposes.

Research Findings

Dynamics of Children's Language Acquisition in Multilingual Environments

A six-month longitudinal analysis revealed that children's language acquisition occurs through a dynamic, adaptive, and contextual process. All four participants demonstrated the ability to use Indonesian, a regional language, and English flexibly, in accordance with the communicative contexts they encountered. These findings indicate that language development does not occur through the separate mastery of languages but rather through the integration of various linguistic resources available within the children's environment. These findings are consistent with the translanguaging perspective, which views multilingual competence as a single, integrated linguistic repertoire rather than a collection of separate language systems (García & Wei, 2014; Wei, 2022; Cenoz & Gorter, 2023).

At the beginning of the observation period, SAN mostly spoke of the study. SAN (aged 6) tended to use Indonesian and the East Javanese dialect as their dominant languages when interacting with family members. However, after six months of observation, SAN demonstrated an improvement in their English language skills through regular interaction with BAY, NAD, and AND, who had a higher level of exposure to English. These findings indicate that the intensity of language exposure and social interaction are key factors in the development of children's linguistic competence (De Houwer, 2021; Hoff, 2023). Similar developments: The other participants also exhibited similar developments. in the other participants. AND demonstrated the highest level of English proficiency due to direct exposure from his father, who is a native English speaker. Nevertheless, AND continued to use Javanese and Indonesian in everyday communication due to the influence of their family and community environments. These findings demonstrate that multilingual competence develops through the interaction between family language policies, the social environment, and the child's communication needs (King et al., 2023; Bronfenbrenner & Morris, 2006). (see Figure 1).



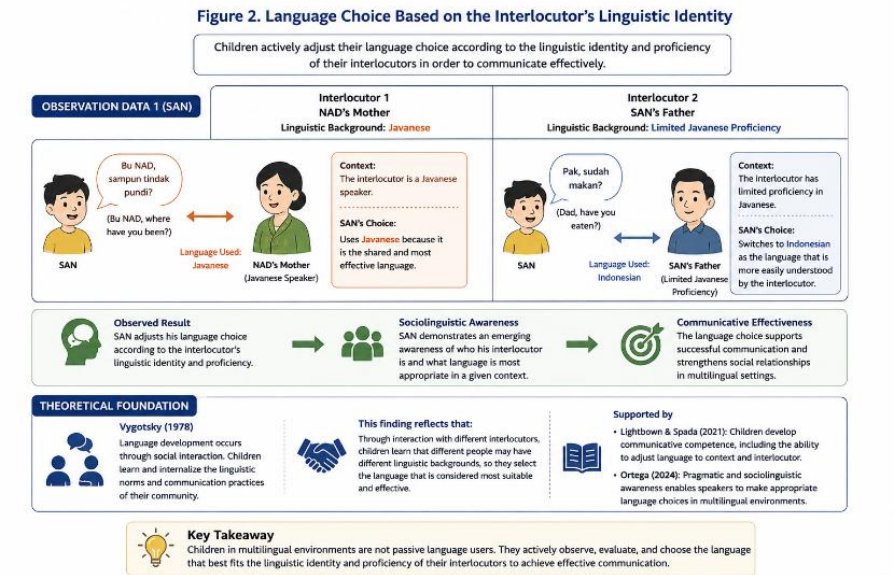
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Figure 1. Dynamics of Children's Language Acquisition in Multilingual Environments

Figure 1 illustrates the dynamics of children's language acquisition in multilingual environments as a dynamic, adaptive, and contextual process. Over a six-month observation period, all four participants demonstrated the integrated development of their proficiency in Indonesian, a regional language, and English through the interplay of language exposure, family language policies, the social environment, and communicative needs. This diagram emphasizes that language acquisition does not develop as the mastery of separate language systems but rather as a single, integrated linguistic repertoire, enabling children to use various languages flexibly according to their communicative context.

Language Choice Based on the Interlocutor's Linguistic Identity

The results of the observations indicate that children actively adapt their language choice based on the interlocutor's linguistic identity. In Observation Data 1, SAN used Javanese when speaking to NAD's mother, who is known to have a Javanese linguistic background, but switched to Indonesian when speaking to her father, who is less fluent in Javanese. This phenomenon indicates that children have developed sociolinguistic awareness, enabling them to choose the language deemed most effective in a specific communicative context. This ability to adapt language choice reflects the development of children's communicative competence and pragmatic awareness within a multilingual environment (Lightbown & Spada, 2021; Ortega, 2024). These findings also support Vygotsky's (1978) view that language development occurs through social interaction, which enables children to understand the norms and communication practices prevalent within their community. An illustration of 'Language Choice Based on the Interlocutor's Linguistic Identity' can be seen in Figure 2.



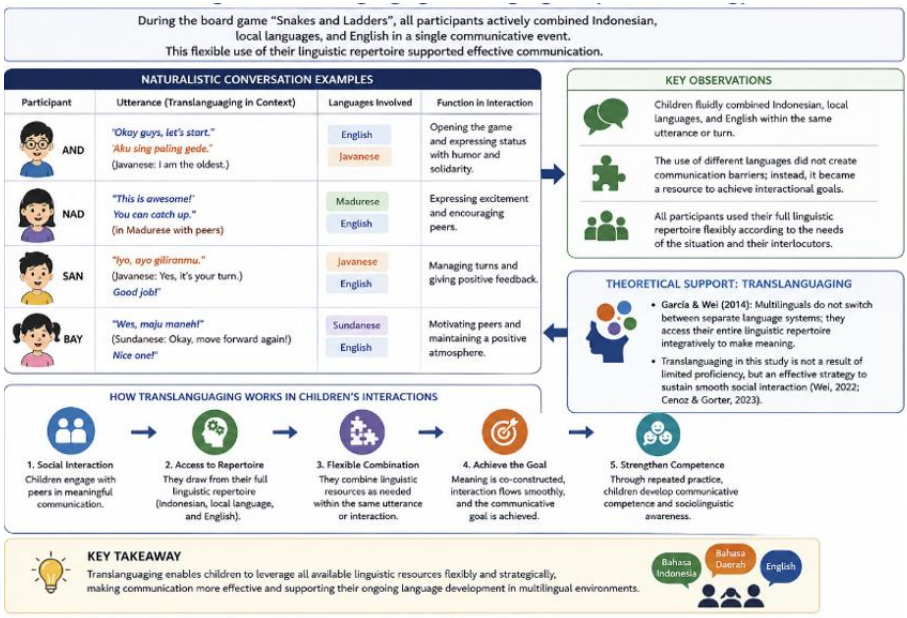
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Figure 2. Language Choice Based on the Interlocutor's Linguistic Identity

The figure above illustrates that children in multilingual environments actively adapt their language choice based on the linguistic identity and language proficiency level of their interlocutor. In SAN's case, the use of Javanese with his mother NAD and the switch to Indonesian when communicating with his father demonstrate the development of sociolinguistic awareness, communicative competence, and pragmatic ability in selecting the most effective language according to the context. This finding confirms that social interaction plays an important part in developing a child's ability to understand communication norms and use language adaptively to achieve effective communication. For example, in Observation Data 1, SAN used Javanese when speaking to NAD's mother, who is known to have a Javanese linguistic background, but switched to Indonesian when speaking to her father, who is less fluent in Javanese. This phenomenon indicates that the child has developed sociolinguistic awareness, enabling them to choose the language deemed most effective in a given communicative context.

Translanguaging as a Language Acquisition Strategy

Analysis of naturalistic conversations during a game of snakes and ladders revealed that all participants actively engaged in translanguaging by combining Indonesian, regional languages, and English within a single communicative event. The use of these various languages did not create communication barriers; rather, it served as a resource that helped the children achieve their interactive goals effectively. For example, AND used the utterance "Alright guys, let's start," followed by the Javanese phrase "Aku sing paling gede," while NAD combined Madurese and English in the utterances "This is wonderful!" and "You can catch up." NAD combined Madurese and English in the utterances "This is awesome!" and "You can catch up. " SAN and BAY also consistently used vocabulary characteristic of their regional dialects without hindering mutual understanding. This pattern demonstrates that the children flexibly utilize their entire linguistic repertoire according to their communicative needs. These findings support the theory of translanguaging proposed by García and Wei (2014), which states that multilingual individuals do not switch between languages as separate systems but rather access their entire linguistic resources in an integrated manner to construct meaning. In the context of this study, translanguaging does not arise from limited language competence but rather as an effective communication strategy to maintain the fluency of social interaction (Wei, 2022; Cenoz & Gorter, 2023). (see Figure 3).

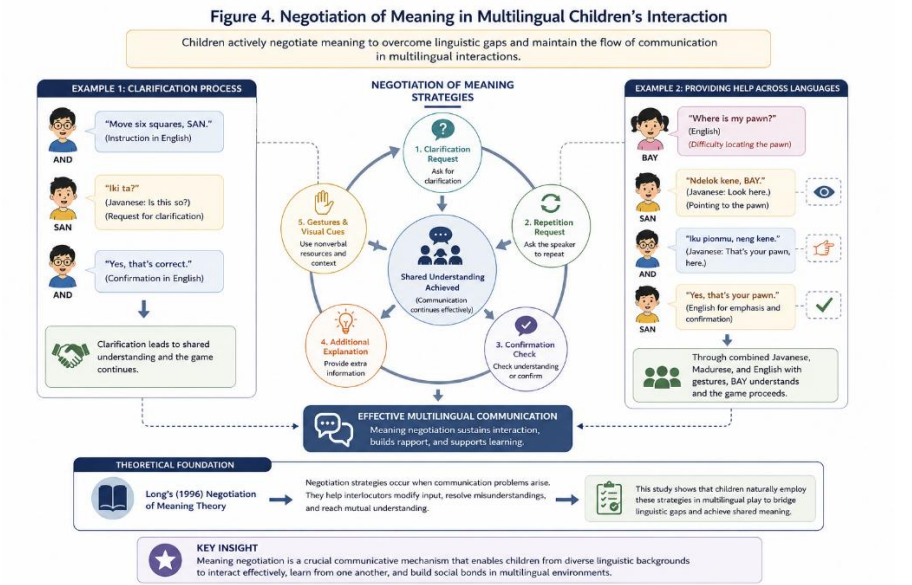


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Figure 3. Translanguaging as a Language Acquisition Strategy

Figure 3 illustrates translanguaging as a language acquisition strategy that enables children to utilize their entire linguistic repertoire in an integrated manner within a single communicative event. Observational findings indicate that children flexibly combine Indonesian, regional languages, and English to maintain the fluency of interaction, convey meaning, and achieve communicative goals effectively. These findings confirm that translanguaging is not a reflection of limited language competence but rather a communication strategy that supports the development of multilingual competence, sociolinguistic awareness, and meaningful social interaction.

With regard to Language Exposure Intensity and the Development of Linguistic Competence, the findings of this study indicate that the level of language exposure is strongly correlated with the development of children's linguistic competence. Participants who received high and consistent language exposure from their families, peers, school environments, and the media demonstrated faster development in vocabulary and communication skills compared to participants who received more limited language exposure. For example, AND and NAD, who received intensive exposure to English, demonstrated a greater ability to use more complex vocabulary, sentence structures, and communication strategies than SAN and BAY. These findings are consistent with various studies showing that the frequency and quality of language exposure are key predictors of children's linguistic development in multilingual environments (De Houwer, 2021; Hoff, 2023; Sun et al., 2024). (see Figure 4).



Note. This figure was designed by the authors and visually refined using OpenAI's ChatGPT (GPT-5.2). AI was used solely to improve the visual presentation; all concepts, interpretations, and scientific content are the authors' own.

Figure 4. Meaning Negotiation in the Spoken Interactions of Multilingual Children

Meaning negotiation is a communicative mechanism that enables children to maintain the fluency of interaction in multilingual environments. Children use strategies such as requesting clarification, asking for repetition, confirming understanding, providing additional explanations, and utilizing gestures and visual context to bridge linguistic gaps and build shared understanding. These findings confirm that negotiation of meaning supports effective communication and contributes to the development of communicative competence and the ability to interact adaptively in multilingual contexts.

Meanwhile, regarding the aspect of negotiating meaning in multilingual interactions, conversation analysis indicates that children actively negotiate meaning to maintain the fluency of communication. Various strategies identified include requests for clarification, requests for repetition, confirmation of understanding, provision of additional explanations, and the use of gestures and visual context to aid understanding. For example, when AND gave the instruction "Move six squares, SAN," SAN responded with the question *"Iki ta*?" before receiving the confirmation "Yes, that's correct." This interaction demonstrates a process of clarification that enables the achievement of shared understanding. Similarly, when BAY had difficulty finding his piece, SAN and AND provided linguistic support through a combination of Javanese, Madurese, and English, ensuring that communication remained effective. The finding that children actively negotiate meaning to maintain the fluency of communication supports Long's (1996) *'Negotiation of* Meaning' theory, which states that the process of negotiating meaning helps communication participants bridge linguistic gaps and enhance mutual understanding. In this study, the negotiation of meaning functions as a crucial mechanism that enables children from different linguistic backgrounds to continue to interact effectively in a multilingual environment.

Ecological Factors in Children's Language Acquisition

Based on a cross-case analysis, six main ecological factors were identified that influence children's language development. Firstly, the intensity of language exposure. **The intensity of language exposure** refers to the frequency, duration, and quality of a child's interactions with a language in various everyday contexts, such as within the family, with peers, at school, and via digital media. The more frequent and meaningful this exposure is, the greater the likelihood that the child will develop language competence naturally. In the ELAM study, the intensity of language exposure was evident in the development of SAN's English language skills. At the beginning of the observation period, SAN primarily spoke Indonesian and Javanese. However, after six months, their English proficiency improved due to regular interaction with BAY, NAD, and, in particular, AND, who had a higher level of exposure to English. Another example is seen in AND, who demonstrated the best English language competence due to direct exposure from his father, a native English speaker, although he continued to use Indonesian and Javanese for everyday communication. These findings indicate that the intensity of language exposure, occurring consistently through meaningful social interaction, is a key factor in strengthening language acquisition in multilingual children.

Secondly, *family language policy*. ***Family language policy*** refers to the patterns, rules, and practices of language use that family members, whether consciously or unconsciously, apply in their daily lives to determine which language is used in interactions at home. This policy plays a vital role in shaping the intensity of language exposure, preserving the mother tongue, and simultaneously expanding children's acquisition of other languages. In the ELAM study, a concrete example is seen in AND, who received consistent exposure to English from his father—a native English-speaking person—whilst his mother and other family members continued to use Indonesian and Javanese in their daily communication. This pattern of language use enabled him to develop a higher level of English proficiency without losing his ability to speak Indonesian and Javanese. Another example is seen in SAN, who more frequently used Indonesian and Javanese within the family environment; consequently, these two languages formed the basis of his linguistic competence before his English language skills developed through more intensive interaction with peers. These findings indicate that family language policies not only determine the first language a child masters but also lay the foundation for the development of multilingual competence through consistent and meaningful language exposure.

Thirdly, the educational environment. **The educational environment** is a learning ecosystem that provides opportunities for children to acquire, use, and develop various languages through interaction with teachers, peers, learning activities, and educational media. From the ELAM perspective, the educational environment functions not only as a place for the transfer of knowledge but also as a social space that enriches language exposure and encourages the contextual use of various linguistic resources. A concrete example from the ELAM study is the 'Snakes and Ladders' game activity, which was designed as part of naturalistic observation. The 'Snakes and Ladders' game activity was designed as part of a naturalistic observation. During this activity, all four participants actively used Indonesian, a regional language, and English to provide instructions, seek clarification, provide feedback, and negotiate meaning. For example, AND used the English instruction *"Move six squares, SAN,"* to which SAN responded with the question *"Iki ta?"* before receiving the confirmation *"Yes, that's correct."* Such interactions demonstrate that an educational environment offering collaborative activities is capable of creating authentic opportunities for children to develop

multilingual competence, communicative competence, and sociolinguistic awareness simultaneously.

Fourthly, social networks and peers. This aspect constitutes an interactive environment that enables children to gain natural exposure to language through everyday communication, playing together, and collaborative activities. From the ELAM perspective, peers act as both a source *of language input* and communication partners who encourage children to use various languages flexibly according to the needs of the interaction. A concrete example from the ELAM study can be seen in the development of SAN's English language skills, which improved after six months due to regular interaction with BAY, NAD, and, in particular, AND, who possessed a higher level of English proficiency. Furthermore, during a game of Snakes and Ladders, the four participants provided each other with linguistic support, engaged in translanguaging, and negotiated meaning when faced with communication difficulties. For example, SAN and AND helped BAY locate his game piece by combining Javanese, Madurese, and English, thereby ensuring communication continued smoothly. These findings demonstrate that social networks and interactions with peers serve as authentic language-learning contexts, broadening linguistic exposure and accelerating the development of children's multilingual and communicative competences.

Fifth, cultural practices and linguistic identity. The aspect of cultural practices and linguistic identity refers to language use influenced by cultural values, social norms, and the ethnolinguistic identity of the speaker and their community. From the ELAM perspective, language functions not only as a tool for communication but also as a representation of cultural identity that shapes children's language choices in various social situations. A concrete example in the ELAM study was observed when SAN used Javanese while interacting with NAD's mother, who had a Javanese linguistic background, but switched to Indonesian when speaking with her father, who was less fluent in Javanese. Furthermore, SAN and BAY consistently maintained vocabulary characteristic of their regional dialects during a game of snakes and ladders without hindering mutual understanding among the participants. These findings indicate that children are able to link language choice to the linguistic identity of their interlocutors and the cultural context underpinning the interaction; thus, cultural practices and linguistic identity become key factors in the development of multilingual competence, sociolinguistic awareness, and the ability to communicate adaptively.

Sixth, the experiences of translanguaging in everyday life are important. This aspect involves the integrated use of a child's entire linguistic repertoire to construct meaning and achieve communicative goals across various social contexts. From an ELAM perspective, translanguaging is not merely a shift from one language to another but a communication strategy that enables children to utilize Indonesian, regional languages, and English flexibly according to the needs of the interaction. A concrete example in the ELAM study was observed during a game of Snakes and Ladders, when AND began the game with the utterance *"Okay guys, let's start,"* which was then followed by the Javanese phrase *"Aku sing paling gede."* NAD also combined Madurese and English through the expressions *"This is awesome!"* and *"You can catch up,"* while SAN and BAY continued to use vocabulary characteristic of their regional dialects without hindering mutual understanding. These findings demonstrate that translanguaging experiences, which occur naturally in everyday life, strengthen multilingual competence, enhance communicative fluency, and build children's ability to select and integrate various linguistic resources effectively in accordance with the context of interaction.

These six factors do not operate in isolation but rather interact with one another to form an ecological environment that influences the development of children's linguistic

competence. These findings form the basis for the development of *the Ecological Linguistic Acquisition Model* (ELAM), which views language acquisition as the result of a dynamic interaction between an individual's linguistic capacity and the various environmental systems surrounding them.

The Role of Family Language Policy in the Development of Linguistic Competence

Analysis of the interviews indicates that *family language policy* plays an important part in deciding which languages The interviews reveal that family language policy significantly influences the languages children maintain and develop. by children. The parents of SAN and BAY consciously employ the use of regional languages in everyday communication as a strategy to preserve their cultural identity and the family's linguistic heritage. These findings indicate that the family functions not only as the primary environment for language acquisition but also as a social institution that determines the direction of a child's linguistic repertoire development (King et al., 2023; De Houwer, 2021). Interview data with SAN parents reveal a strong awareness of the importance of preserving the regional language:

Data Corpus E-154: Interviews with SAN Parents

"We deliberately use Javanese when speaking to our child so that they do not lose their ability to speak Javanese even though they live in England."
This policy has a direct impact on SAN's ability to understand and use Javanese vocabulary, expressions, and pragmatic variations in various contexts of family communication. During the observation period, SAN consistently used vocabulary typical of East Java when interacting with family members who shared the same linguistic background. In contrast, the NAD family more frequently used Indonesian as the primary language of household communication, meaning that the use of Madurese was relatively more limited. Consequently, NAD's proficiency in Madurese developed more slowly compared to their command of Indonesian and English.

These findings indicate that the intensity of language use within the family environment has a significant influence on the level *of* language maintenance and the development of children's linguistic competence. These research results are consistent with the findings of De Houwer (2021) and King et al. (2023), which indicate that the success of intergenerational language transmission is heavily influenced by the consistency of language use within the family. Thus, the family functions as the primary agent of language, cultural, and linguistic identity transmission, shaping children's language development from an early age.

The Role of Social Networks in the Development of Communicative Competence

The results of the observations indicate that social networks and interactions with peers make a significant contribution to the development of children's communicative competence. Children not only learn language structures but also develop the ability to understand norms of language use, select appropriate language varieties, and adapt communication strategies based on the characteristics of their interlocutors and the social situations they face (Vygotsky, 1978; Tomasello, 2023).

Data Corpus A-014: Third Observation; Context: NAD playing with an English friend.
English friend:

Do you want to play?
NAD:

Yes, let's play together.
[Five minutes later, when NAD meets SAN, an Indonesian friend].

NAD:

Let's play hide and seek.

The data show that NAD—despite still being a child—is able to adapt their language choice rapidly in accordance with the linguistic identity of their conversation partner. When interacting with an English-speaking friend, NAD uses English as their primary means of communication. Conversely, when interacting with SAN, who has an Indonesian linguistic background, NAD immediately switches to Indonesian without experiencing any communication difficulties.

This ability demonstrates the development of sociolinguistic and pragmatic competence, enabling the child to understand the relationship between language, social identity, and the context of communication (Lightbown & Spada, 2021; Ortega, 2024). These findings support Vygotsky's (1978) sociocultural perspective, which emphasizes that language development occurs through active participation in social interaction. Furthermore, the research findings also indicate that social networks function as an ecological space that broadens children's opportunities to gain diverse linguistic experiences and accelerates the development of their multilingual abilities.

Cultural Practices as a Context for Language Acquisition

The results of the observations show that family and community cultural practices play a significant role in enriching vocabulary, broadening children's understanding of the social meaning of language, and strengthening their linguistic identity. The cultural activities most frequently observed during the study included family religious study sessions, storytelling sessions, Eid al-Fitr celebrations, Indonesian student community gatherings, and various social activities involving the use of both Indonesian and regional languages.

Data Corpus A-112: 4th Observation; Context: Family storytelling session with SAN..
Father:

Timun Mas fled from Buto Ijo.
SAN:

Is Buto Ijo a giant?
Father:

Yes, a giant from Javanese folklore.

This interaction demonstrates that cultural activities serve not only as a form of entertainment but also as a vehicle for acquiring language rich in meaning. Through folk tales and cultural traditions, children acquire new vocabulary, understand local cultural concepts, and develop the ability to connect language with the social values that are alive within their community.

This finding aligns with the ecolinguistic perspective, which views language as part of a broader cultural ecosystem (Haugen, 1972; Stibbe, 2021). In the context of this study, cultural practices act as a medium linking language to social experiences and collective identity. Consequently, language acquisition involves not only mastering linguistic structures but also the process of internalizing the cultural meanings embedded in everyday communicative practices.

Furthermore, these findings indicate that the family and cultural community function as an ecological environment that provides linguistic and cultural resources for children.

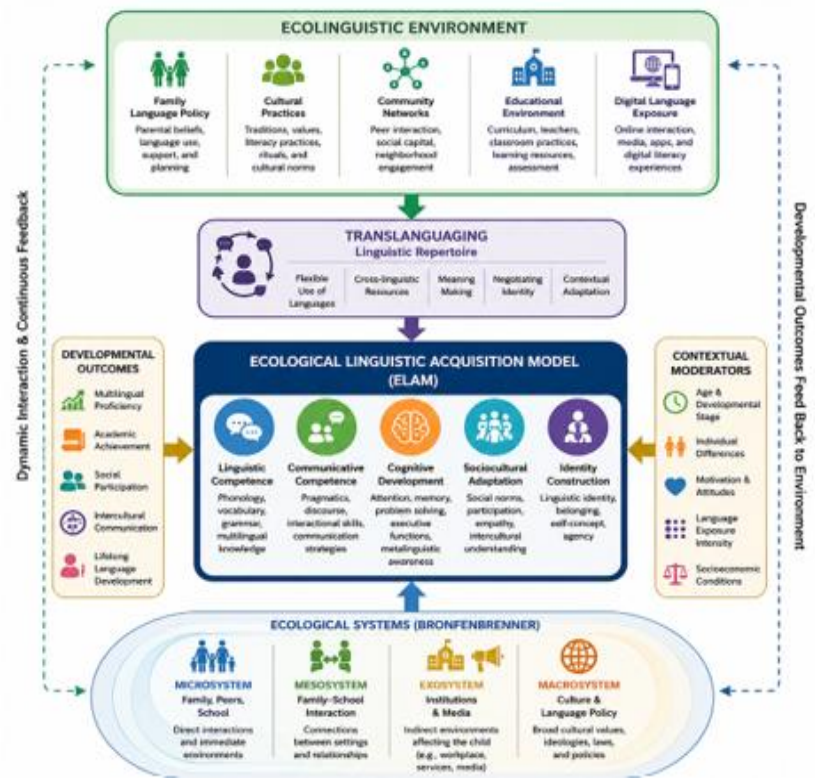
Through participation in various cultural activities, children not only learn to use language but also construct a linguistic identity that connects them to their social community and cultural heritage. Thus, cultural practices constitute one of the key ecological factors contributing to the development of children's linguistic competence and multilingual identity, as outlined in the *Ecological Linguistic Acquisition Model* (ELAM).

Empirical Validation of the Ecological Linguistic Acquisition Model (ELAM)

Based on a synthesis of all empirical findings, this study identifies six key components that shape children's language acquisition processes in a multilingual environment, namely (1) *language exposure*; (2) *family language policy*; (3) *social networks*; (4) *cultural practices*; (5) *educational* environment; and (6) translanguaging as a mediating mechanism linking the various linguistic resources possessed by the child.

The ELAM model demonstrates that language development does not proceed in a linear fashion nor is it determined solely by internal individual factors; rather, it is shaped through the reciprocal relationship between the ecolinguistic environment, the child's developmental ecological system, translanguaging practices, and the resulting linguistic competence. In this model, the child is positioned as an active agent who continuously interacts with various social and linguistic environments that influence the development of their language repertoire (Bronfenbrenner & Morris, 2006; Tomasello, 2023).

Unlike traditional language acquisition theories, which tend to emphasize a single specific dimension, ELAM views language acquisition as a multidimensional process involving the simultaneous interaction of biological, cognitive, social, cultural, and ecological factors. Thus, this model seeks to bridge the various perspectives that have hitherto developed relatively in isolation within the field of language acquisition research (Ortega, 2024). The model was validated through cross-case *analysis*, triangulation of data sources, *member checking*, and theoretical comparison with the theories of Chomsky, Piaget, Vygotsky, Bronfenbrenner, Haugen, and García and Wei. The validation results indicate that ELAM is capable of explaining various phenomena of language acquisition that cannot be adequately explained if each theory is applied in isolation. (See Figure 5).



Note. This figure was designed by the authors and visually refined using OpenAI's ChatGPT (GPT-5.2). AI was used solely to improve the visual presentation; all concepts, interpretations, and scientific content are the authors' own.

Figure 5. Ecological Linguistic Acquisition Model (ELAM)

Specifically, Chomsky's theory (1965) explains the innate linguistic capacity that enables humans to acquire language but fails to account for variations in language development influenced by the social and cultural environment. Piaget's theory (1970) emphasizes the relationship between cognitive development and language but does not account for the influence of the wider social system. Vygotsky's (1978) perspective successfully explains the role of social interaction in language development, yet does not explicitly incorporate the factors of multilingualism and translanguaging. Meanwhile, Bronfenbrenner (1979) explains the influence of a multi-layered environment on child development but does not specifically address the mechanisms of language acquisition. Haugen (1972) links language to the social and cultural environment, while García and Wei (2014) describe translanguaging practices as multilingual communication strategies. ELAM integrates all these perspectives into a single coherent conceptual framework, thereby explaining language acquisition as an ecological process taking place within contemporary multilingual societies.

One of the main aims of validating the model is to answer the question of why the intensity of language exposure has such a significant influence on the development of a child's linguistic competence. Data analysis shows that every instance of language exposure provides an opportunity for the child to build increasingly robust linguistic representations in their long-term memory. The more frequently a language form is

used in everyday interactions, the greater the chance that a child will master the phonological, lexical, morphological, syntactic, and pragmatic aspects of that language (Hoff, 2023; De Houwer, 2021).

Table 3. Impact of Language Exposure on Linguistic Components

Linguistic Component	Impact of Language Exposure
Phonology	Helps children recognise and distinguish speech sounds.
Vocabulary	Increases the number of words understood and used.
Morphology	Facilitates an understanding of word-formation patterns.
Syntax	Develops the ability to understand sentence structure.
Pragmatics	Enhances the ability to use language appropriately in social contexts.

These findings indicate that language exposure not only increases vocabulary size but also contributes to the development of the child's entire linguistic system. The research results indicate that the language receiving the highest intensity of exposure tends to become the dominant language, while languages that are rarely used experience slower development or even *language attrition* (Montrul, 2023).

With regard to 'The Relationship Between Language Exposure Intensity and Translanguaging,' an analysis of the four participants revealed a consistent pattern between language exposure intensity and the frequency of translanguaging. SAN, who received very high exposure to Javanese (80 percent), demonstrated relatively low use of translanguaging, as the majority of their communication needs could be met through a single dominant language. Conversely, NAD and AND, who received high exposure to more than one language, exhibited a significantly higher frequency of translanguaging in spontaneous communication. These findings indicate that translanguaging does not arise due to linguistic limitations but rather because of the development of an increasingly complex linguistic repertoire (Wei, 2022; Cenoz & Gorter, 2023). Children who have access to various languages tend to utilize all available linguistic resources to achieve their communicative goals more effectively. Based on the validation results, ELAM regards the intensity of language exposure as the primary ecological factor linking the linguistic environment to the development of children's language competence. However, language exposure does not operate in isolation. The influence of language exposure is mediated by family language policies, social networks, the educational environment, cultural practices, and the translanguaging experienced by children in their daily lives.

Consequently, ELAM rejects the view that language acquisition is determined solely by innate capacity or the frequency of language use alone. Instead, this model demonstrates that language development is the result of a dynamic interaction between the child and the various ecological systems surrounding them. The richer the available linguistic environment and the higher the quality of social interaction experienced by the child, the greater the opportunity for linguistic, communicative, and sociocultural competences to develop simultaneously.

Table 4. Language Exposure, Dominant Language Environment, Translanguaging Frequency, and Predicted Contributing Factors

Childs	Language	Exposure (%)	Exposure Level	Source of Exposure	Dominant Language Environment	Frequency of Translanguaging	Predicted Contributing Factor
SAN (6)	Javanese (East Java)	80	Very High	Nuclear family	Household where a regional	Low	Strong preservation of

	Indonesian	15	Low	Nuclear family	language is the main language		heritage-language identity.
	English	5	Low	School			
BAY (7)	Malay	60	High	Nuclear family	Balanced multilingual environment	Good	Gradual shift towards multilingual adaptation.
	Indonesian	20	Low	Nuclear family			
	English	20	Low	Family and school			
NAD (8)	Madurese	10	Low	Mother	English-dominant multilingual environment	Very Good	A cross-linguistic family background promotes language flexibility.
	Indonesian	20	Low	Nuclear family			
	English	70	Very High	Family and school			
AND (8)	Javanese (Central Java)	10	Low	Mother	English-dominant multilingual environment	Very Good	Sustained exposure to English in both home and school contexts.
	Indonesian	10	Low	Nuclear family			
	English	80	Very High	Family and school			

These findings reinforce the argument that language acquisition in multilingual societies needs to be understood as an ecological process involving reciprocal relationships between individuals, language, culture, and the social environment. Therefore, *the Ecological Linguistic-Acquisition Model* (ELAM) offers a new, more comprehensive conceptual framework for explaining children's language development in the context of contemporary multilingualism.

Conclusion

The intensity of language exposure is a key factor in language acquisition, as it provides the linguistic input that forms the basis for the development of a child's language system. Various studies spanning more than three decades have shown that the quantity, frequency, and duration of language exposure are strongly correlated with the development of a child's vocabulary, grammar, phonology, and communicative skills. In other words, children do not acquire language primarily by memorizing rules but rather through continuous interaction with language within their social environment. These findings provide a strong foundation for the ecological approach to language acquisition, which positions the linguistic environment as the primary driver of children's language development.

These findings lead to the main theoretical proposition of this study, namely that children's language acquisition in a multilingual society is a multidimensional ecological process that develops through dynamic interactions between language exposure, the family environment, social networks, cultural practices, the educational environment, and translanguaging, which occur continuously across various communicative contexts. This proposition serves as the conceptual foundation for ELAM and constitutes the main theoretical contribution of this study to the development of research on children's language acquisition in multilingual communities. This proposition serves as the conceptual foundation for ELAM and constitutes the main theoretical contribution of this study to the development of research on children's language acquisition in multilingual communities.

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This research was inspired by the linguistic and cultural diversity of Indonesian students and immigrant communities in the UK, which served as a natural laboratory for children's language development. The authors therefore hope that the findings of this study will contribute to the development of language acquisition theory, multilingual education, and language policies that are more responsive to the linguistic realities of contemporary society.

AI Declaration

In compiling this manuscript, the author utilized the **TubeMate** application to process video recordings, as well as the **Transkriptor** application to transcribe audio and video data into written text (December 2024–January 2026). The author also utilized the ChatGPT 5.2 application to assist in creating images to improve their visual presentation and the **Grammarly and Qillbot Premium** applications to help enhance the clarity of the text's delivery and the accuracy of its grammar (March–April 2026). All outputs generated by this software have been critically reviewed, edited, and verified by the author. Consequently, the author takes full responsibility for the accuracy of the data, the interpretations, and all conclusions presented in this scientific paper.

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