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Lexical development in an Indonesian-Balinese bilingual child

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ABSTRACT

It is debatable whether bilingual children can distinguish between their two languages from an early age. This study aims to describe how a bilingual infant differentiates between her two languages, focusing on the acquisition of a dual vocabulary. This topic is addressed in a bilingual case study of an infant who acquired a national language (Indonesian) and an indigenous language (Balinese) simultaneously from birth until the age of one year and eleven months. Within the family, the two languages are used interchangeably. The parents' native language is Balinese, and Indonesian is the neighbourhood's lingua franca. However, within the peer group, Indonesian is the dominant language. Daily diaries are used to record the child's vocabulary development in combination with weekly video recordings in the two language settings. The study shows that the child develops vocabulary in both Indonesian and Balinese. Since Indonesian and Balinese are closely related, the child also develops words that are shared by the two languages. During the development of the child's vocabulary, Indonesian words outnumbered Balinese words due to the dominant use of Indonesian in the environment. The research demonstrates that translation equivalents (TEs) mean those language choices are available from the early stages of language development. The study shows that translation equivalents (TEs) demonstrate those language choices are available from the initial stages of language development. The findings highlight that a child who is exposed to two closely related languages can differentiate different language systems from an early age. Despite the child's ability to differentiate between the two languages, the national language develops at a far quicker rate than the indigenous language.

Keywords: Bilingual; development; Indonesian-Balinese child; lexical development; lexicon

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INTRODUCTION

Indonesia is a country with a diverse linguistic ecology. Growing up bilingual is common, as almost every child is born in a bilingual environment. Many of them acquire two languages simultaneously. The national language, Bahasa Indonesia (Indonesian), constantly competes with the indigenous languages, and almost every Indonesian can speak at least two languages with varying degrees of proficiency. Despite this, there is limited scientific research on child bilingualism in Indonesia.

There is a long history of research on child bilingualism that explores numerous elements of language development, and most research focuses on morphosyntactic analysis (Adnyani et al., 2018; Chantal et al., 2022; Herve et al., 2016). However, limited studies have been conducted in the lexicon field. Studies on child language acquisition and lexical development lack common ground, a commonality of results and universality (Dardjowidjojo, 2000). Research results regarding children's lexical acquisition are diverse. Dromi

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(1987) discovered that infants begin to speak one-word utterances at the age of 0;10 while Clark (1993) discovered that children begin to say meaningful words at the age of one year. Children's first words may be difficult to comprehend since they need time to develop the ability to speak like an adult. Dardjowidjojo (2000) found that the child he investigated did not produce forms that could be associated with specific meanings that might be classified as words until the age of one year. Furthermore, Clark (1993) stated that during their development process, children encounter a variety of lexical developments. For instance, some children go through an utterance development phase, in which they produce just one word for months at a time with no evidence of lengthier utterances, whereas other children complete the one-word utterance phase after a few weeks and quickly increase to two-or-more-word utterances.

There is some controversy regarding the early lexical development of bilingual children. Earlier research established that bilingual children first use their two languages as a unified system. Volterra and Taeschner (1978) suggested that bilingual children begin with a single system and reported that the bilingual children in their research employed almost no translation equivalents (TEs) throughout the early stages of their lexical development. However, current bilingual acquisition studies contradict the assertion that bilingual infants begin with a unitary language system (Adnyani et al., 2018; Adnyani & Pastika, 2016; Ge et al., 2017).

Taeschner (1983) believed that the stage model of bilingual development could be developed further. She claimed that the bilingual infant does not initially have any TEs. Clark (1987) introduced the principle of contrast, which predicts that there would be no synonymy in the early stages of lexical growth. This means that each word in a child's lexicon must have a distinct meaning, which suggests that TEs or cross-language synonyms are not accessible from the outset of the child's bilingual development. Other lexical development findings in bilingual acquisition research oppose Clark's principle of contrast.

Pearson et al. (1995) discovered that bilingual children produced TEs from an early stage of their linguistics development. With an average of 30% of all words coded in both languages, TEs were detected in English-Spanish bilingual children. Quay (1995), who studied an English-Spanish bilingual child, stated that children who are exposed to two languages from birth can make choices before the age of two and during the one-word development stage. Schelletter (2002) investigated bilingual children's lexical development of nouns and verbs in connection to their developing bilingual vocabulary. The study's findings highlight the significance of noun form similarity. Bosch and Ramon-Casas (2014) studied Spanish-Catalan children and measured their TEs.

There are a number of studies report the production of TEs in the early lexicon of bilingual children involving various language pairs, Romanian-Italian and Nigerian English-Italian (Barachetti et al., 2022), French–English (Jardak & Byers-Heinlein, 2018; Legacy et al., 2017; Poulin-Dubois et al., 2018), German, Spanish-English (Floccia et al., 2020), Spanish-English (Gimenez-Arce, 2019; Shiro et al., 2020), German-English (De Anda & Friend, 2020), Spanish-Catalan (Mitchell et al., 2022), German-Indonesian (Adnyani et al., 2017). However, most studies on early lexical development in bilingual children involve language pairs from the Indo-European language family. Other language combinations, such as those involving the Austronesian language family, are limited. Therefore, additional research on the use of lexicons during early bilingual language development must be carried out in different language pairings to determine the occurrence of TEs or cross-language synonyms in bilingual infants. Additionally, study on language development in bilingual infants is required, with a focus on the languages spoken in Indonesia, which is well-known as a multilingual country. In spite of the fact that Indonesia is a multilingual nation, there has been little study into how a child becomes bilingual. The limited study on child bilingualism in Indonesia may have a negative impact on the survival of indigenous languages, which are in risk of extinction (Atifnigar et al., 2021; Indriani et al., 2021; Rahmini, 2019; Thamrin, 2018). As a result, doing study on child bilingualism in Indonesia is very important, as it will aid in the mapping of the development of multilingualism in the nation.

Moreover, limited research has observed the development of a child's lexicon starting from the occurrence of their first words. According to Quay (1995), greater emphasis should be given to lexical acquisition at the one-word stage and methodological advancements in the collection of early lexical data, as this would provide an opportunity to witness the production and usage of TEs in two language settings. Additionally, most research on bilingual children's lexicons involves English and another language, where most cross-language synonyms are phonologically different (Friesen et al., 2020; Jouravlev et al., 2021; Nielsen et al., 2017).

Hence, the current study investigates the lexical development of the following unstudied language pair in an Austronesia language family: Indonesia and Balinese. Indonesian and Balinese are closely related. The study focuses on the development of lexicons from birth to 23 months and observes the emergence of TEs in the child's dual vocabulary.

In this case study, Indonesian is the national language, and Balinese is the local language and the mother tongue of the parents. The parents are bilingual Indonesian and Balinese and learnt Indonesian in school. Within the family, the parents

talk to each other in Balinese. However, since they live in the city of Denpasar, where Indonesian is used as a lingua franca in their neighbourhood, the child is exposed to both Indonesian and Balinese. Indonesian is also used by the child's sibling in their peer group. Therefore, Indonesian and Balinese are used interchangeably.

METHOD

Participant and Linguistic Environment

The research is based on a longitudinal case study of a child (Irma) who has been exposed to both Indonesian and Balinese from birth until one year and eleven months. In this research, the age of the child under study is stated as 1;11 (one year eleven months). Balinese is an indigenous language that is spoken in the Indonesian archipelago, whereas Indonesian is the official language and serves as the nation's lingua franca. The family resides in Denpasar in Bali. The parents' native language is Balinese. As many families in the neighbourhood were originally from other parts of Indonesia, such as East Nusa Tenggara, Lombok and Java, Indonesian became the neighbourhood's lingua franca. Within the family, Indonesian and Balinese are used interchangeably. The parents speak Balinese to each other. The father works full-time while the mother looks after the child at home. The child has two older siblings, an eight-year-old brother, and a five-year-old sister, both of whom are bilingual in Indonesian and Balinese. However, Indonesian is the predominant language among their peers.

Instrument and Procedures

The researchers observed the child from birth to the age of 1;11. Data were gathered from spontaneous interactions among family members in the form of conversational text or speech. The data were collected in natural settings when the child and other family members engaged in various everyday activities. This data was collected using diaries accompanied by weekly video recordings. To compile a comprehensive list of the child's productive vocabulary, the parents were asked to record daily any new words that the child may have produced. The mother gathered the diary entries. Video recordings of each language were conducted every other week by an Indonesian and Balinese bilingual person. Each recording lasted for 45 minutes. The child's age and cumulative vocabulary according to the diary record and videotape are shown in the following table.

Table 1
The Child's Age and Cumulative Vocabulary

Age	Number of Indonesian words in the cumulative vocabulary	Number of Balinese words in the cumulative vocabulary	Number of shared Indonesian and Balinese words in the cumulative vocabulary
1; 0	2	3	1
1;1	2	5	1
1;2	6	5	3
1;3	8	6	8
1;4	11	10	10
1;5	23	10	11
1;6	35	14	18
1;7	43	19	25
1;8	62	26	31
1;9	74	31	34
1;10	86	35	37
1;11	107	45	44

Table 1 indicates that the amount of Indonesian lexical items learned is more than twice the number of Balinese vocabularies acquired. This also demonstrates that Indonesian, the national language, is developing at a far faster rate than Balinese, the local language.

Data Analysis

Dromi's (1987) criteria were applied to analyse the data. Dromi suggested that a form may be regarded as a word if it meets the following two criteria: 1) the phonetic form must be identical or comparable to that of adults; and 2) the form and referent must have a consistent correlation. Bloom et al. (1993) agreed that the criteria for determining a child's acquisition of a word are consistency in phonetic form and meaningfulness. The language categories were as follows: Indonesian only, Balinese only, and shared Indonesian and Balinese (adapted from Nicoladis, 1998). The 'shared' language group included terms that could belong to both Indonesian or Balinese, such as proper nouns and other lexical items that are shared by the two languages. To determine inter-rater reliability, two transcribers who were not present during the video recordings transcribed the child's utterances. The words were only counted as part of the child's vocabulary when they were used spontaneously and frequently.

FINDINGS AND DISCUSSION

Canonical Babbling and Comprehension of Two Languages

Language acquisition in children usually progresses through a series of phases from one developmental milestone to the next, increasing the complexity, fluency, and consistency of the language. Early vocal development occurs in a sequential manner, resulting in the development of our complex human speaking capability which caused by social input (Cychosz, et al., 2021; Elmlinger et al., 2022; Ramírez-Esparza et al., 2017; Zhang & Ghazanfar, 2018). Regardless of the underlying theoretical language frameworks or explanatory models, agreement exists that it all begins with the first cry, followed by the production of vegetative and quasi-resonant noises until the first cooing sounds appear at about three months of age (Lang et al., 2019). Infants generally go from producing completely resonant noises, hiccups, and marginal syllables to producing canonical syllables, which serve as the foundation for the production of the first spoken words, which normally emerge around the time of their first birthday. Canonical syllables are made up of a consonant-like element and a vowel-like part that are similar to those found in the target language. Canonical babbling is defined by syllables that include at least one vowel-like element and one supraglottal consonant-like element, as well as a fast, adult-like formant transition between consonant and vowel (phonetical representation: e.g., [pa], [ba], [nana], [tata], [dada]) (Ha et al., 2019; Jang & Ha, 2020; Lee et al., 2018). Canonical babbling could be influenced by the social environment such as by mother, caregivers, and adults (Albert et al., 2018; Pretzer et al., 2019; Ramírez et al., 2019).

In this case study, when Irma was aged 0;8 (eight months), she started to babble certain sounds. The sounds that she produced included [bapa], [apapa], [ababa], [papa], [abapapa] and [papapa]. At the age of 0;11, sounds, such as [mama], [aʔ], [wawa], [ayaʔ] and [yayaya] started to emerge. However, the sounds that she produced could not be connected to entities or activities. At the age of 1;0, the child started to produce sounds that could be associated with certain meanings, as shown in the following Indonesian conversation between the mother and child.

(1) Mother : *Panggil kakak!* ‘call your brother!’
Irma : [aʔ] *kakak* ‘brother’
Mother : *Panggil Bapak!* ‘call your father!’
Irma : [bapaʔ] *bapak* ‘father’

(2) Mother : *Kakak mau pergi. Bilang dadah dulu!* ‘Your brother is leaving. Say good bye!’
Irma : [da da] *dadah* ‘goodbye’

Although the child could only produce a limited number of words that were associated with meaning at the age of 12 months, the child's comprehension of the speech of those around her exceeded her ability to produce speech in both Balinese and Indonesian. For instance, when the mother said in Balinese, *Telpon Bapak malu*! 'Call (phone) your father!', the child instantly put her palm to her ear, as if she were calling her father on the phone. When the mother said, *Alih...alih* 'catch…catch', the child chased after her brother who was carrying a basket. Likewise, when her mother said in Indonesian, *Irma bangun cari ayamnya*! ‘Irma, go and catch the chicken!’, Irma got up from a sitting position and tried to chase the chicken. When she said, ‘*Irma tepuk badut, tepuk badut*!’ 'Irma, clap your hands like a clown!’, Irma clapped her hands. In the recording, the mother spoke with a high intonation and repeated the words to the child. These findings were confirmed by Adnyani et al. (2017), who studied how an Indonesian-German bilingual child could comprehend two languages. The findings indicated that adults' verbal inputs in the form of words spoken to the child were brief utterances, which often included high-pitched sounds and many repetitions of the same sounds (Georgiou, 2019; Kempe et al., 2019; Kirkham & McCarthy, 2021). The child could comprehend terms in both Indonesian and German throughout the pre-production stage, including some bilingual synonyms. This research revealed that the child was able to understand two distinct languages.

Below are other examples of the child who was exposed to Indonesian and Balinese comprehending the two languages at the age of 1;6. Example (3) is when the mother is speaking Indonesian, and Example (4) is when the mother is speaking in Balinese.

(3) Mother: *Mana gigi?* ‘where are your teeth?’
Irma : [ii] *gigi* ‘teeth’ (showing her teeth)
Mother: *Mana perut?* ‘where is your stomach?’
Irma : [pəyʊt] *perut* ‘stomach’ (touching her stomach)
Mother: *Mana tangan?* ‘where is your hand?’
Irma : [tan] *tangan* ‘hand’ (raising her hand)
Mother: *Kepala mana?* ‘where is your head?
Irma : [kaya] *kepala* ‘head’ (pointing her head)
Mother: *Apa itu namanya?* ‘what is it?’
Irma : [uwa] *uang* ‘money’ (taking the money)
Mother: *Untuk beli apa uangnya?* ‘what do you want to buy with the money?’
Irma : [baco] *bakso* ‘bakso’

(4) Mother : *Encen cunguh*? ‘where is your nose?’

Irma	: (touching her nose)
Mother	: *Cokore encen*? 'where is your foot?'
Irma	: (touching her foot)
Mother	: *Tangane encen*? 'where is your hand?'
Irma	: (raising her hand)
Mother	: *Muah malu adike!* 'kiss your brother!' (context: *adike* refers to the baby's cousin)
Irma	: (kissing her brother)
Mother	: *Sayang sayangin!* 'show your love!'
Irma	: (touching her brother's check)
Mother	: *Colek cunguh adike colek!* 'touch your brother's nose!'
Irma	: (touching her brother's nose)

In this case study, the child has the necessary lexical resources to produce words in both Indonesian and Balinese. The development of the child's vocabulary will be discussed in the following section.

Vocabulary Development

Indonesian and Balinese are related to each other. They have several words in common, which were classified as shared by Indonesian and Balinese in this study. Vila's (1985) research on two Catalan-Castilian bilingual infants indicates that the increased quantity of ambiguous words between the two languages reduces the number of recognised equivalents. However, the study by Bosch and Ramon-Casas (2014) on the emergence of TE in Spanish-Catalan bilinguals who were learning two languages with many cognate words, and therefore, two languages with many cross-language synonyms with identical or similar forms, found that phonological form proximity between words across bilinguals' two languages helps with early lexical acquisition in both languages. It was found that translation priming helps children acquire new vocabulary in other language over semantic priming (Goodrich & Lonigan, 2018). Other studies claim that similar word forms in the two languages of bilinguals facilitate early lexical acquisition in both languages (Antovich & Estes, 2018; Birulés et al., 2019; Persici et al., 2019).

In this study, at the age of 1;11, Irma has a total productive vocabulary of approximately 196 words. Of these vocabularies, 55% (107 items) are Indonesian words, 23% (45 items) are Balinese words and 22% (44 items) are shared by both Indonesian and Balinese. The rate of Irma's lexical development each month is shown in Figure 1.

Figure 1

The rate of Irma's vocabulary development

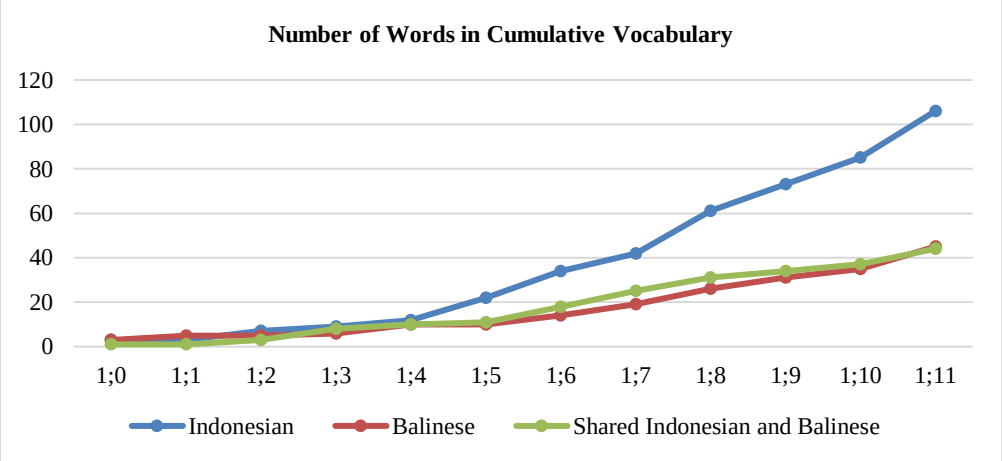


Figure 1 shows that the production of Indonesian words was more than double the production of Balinese words. The number of words that Irma learnt in Indonesian far outnumbered the number of understandable words she learnt in Balinese. Indonesian is the lingua franca in the community where they lived, as many families there come from various parts of Indonesia. Additionally, the child's two siblings learn Indonesian in their schools. As a result, Indonesian is the predominant language, as her siblings bring home school friends with whom they converse in Indonesian. Although Indonesian and Balinese are used interchangeably within the family regarding topics, situations and people, the child is more exposed to Indonesian because her siblings started to bring their friends home. Even though the free alternation of languages is the most natural strategy, it has the disadvantage of gradually establishing the most frequent language as the dominant one (Mifsud & Vella, 2018).

In this case study, the child produced her first words when she was one year old, which is similar to monolinguals. Clark (1993) suggested that children develop their first words with meanings around the age of one. Genesee and Nicoladis (2007) stated that bilingual children begin producing their first words at the same age as monolingual children. There is an astonishingly comparable pattern of development

between monolingual and bilingual children, such that lexical-semantic development occurs simultaneously (De Anda & Friend, 2020). The words acquired by the child can be classified into nouns, verbs, adjectives and adverbs. The nouns produced by the child in Indonesian are illustrated in the following examples.

[titaʔ]	*cicak*	'lizard'
[tan]	*ikan*	'fish'
[uwa]	*uang*	'money'
[ayon]	*balon*	'balloon'
[atu]	*sepatu*	'shoes'
[pi]	*sapi*	'cow'
[titin]	*sisir*	'comb'

The lexical forms of verbs in Indonesian include the following:

[ambin]	*ambil*	'to take'
[yoh]	*taruh*	'to put'
[tutu]	*tutup*	'to close'
[anis]	*nangis*	'to cry'
[ayi]	*lari*	'to run'
[idun]	*tidur*	'to sleep'
[atoh]	*jatuh*	'to fall'

In addition to nouns and verbs, she developed adverbs and adjectives, such as the following:

[papeʔ]	*capek*	'tired'
[tɪʔ]	*cantik*	'pretty'
[ucaʔ]	*rusak*	'broken'
[atan]	*nakal*	'naughty'
[toton]	*kotor*	'dirty'

It can be observed in the above-illustrated examples that the child was talking about the "here and now". She heard about the things that were in her close surroundings, and as a result, there was a considerable agreement in her initial words. From an early age, the child has been noticing the objects in her environment: toys, animals, meals, clothing, and other people. Adults also introduced her to new things and encouraged her to touch, hold, and say things she had never heard before. Children seek the assistance of others in their actions when they are around a year old (Clark & Clark, 1977). The topic "here and now" is conveyed to the child by the grownups in his or her immediate environment. As a result, the child gained knowledge of the vocabulary through conversing with adults, for example: the brother made commentaries on what the child did *Irma mau tidur?* 'Do you want to sleep?', *Awas nanti jatuh* 'Be careful, you can fall down', *Kok Irma nangis?* 'Why are you (Irma) crying?'. The adults around her also talked about objects the child showed interest in: *Apa ini, Irma?* 'What is this, Irma?', *Ini bola* 'This is a ball', *Ambil balonnya!* 'Take the balloon!', *Pakai sepatu dulu!* 'Wear your shoes first!', *Mana sepatunya?* 'Where are your shoes?'.The topic "here and now" is communicated by the adults around the child both in Indonesian and Balinese.

In her Balinese lexicon, the first words emerged at age 1;0. Irma learnt nouns that were associated with words that referred to items surrounding the child during the one-word speech stage in Balinese. Below are examples of nouns that were produced in Balinese.

[dadaʔ]	*jajak*	'cake'
[batɪs]	*batis*	'foot'
[umah]	*umah*	'house'
[pupu]	*pupur*	'powder'
[uwah]	*suwah*	'comb'
[dIs]	*kedis*	'bird'
[ap]	*siap*	'chicken'

In addition to nouns, Irma learnt the following verbs:

[maəm]	*maem/makan*	'to eat'
[maʔ]	*jemak*	'to take'
[daŋ]	*jang*	'to put'
[ayɪh]	*mebalih*	'to watch'
[tʊng]	*entungang*	'to throw'
[yɪŋ]	*ngeling*	*'to* cry'
[andʊs]	*mandus*	'to take a bath'

The other classes of words that she acquired were adverbs and adjectives, such as the following:

[bayaʔ]	*barak*	'red'
[adaŋ]	*gadang*	'green'
[eyʊs]	*belus*	'wet'
[ɪŋ]	*sing*	'no'
[ne]	*ne*	'this'
[yayah]	*lalah*	'tired'
[ati]	*daki*	'dirty'

In addition to words in Indonesian and Balinese, the child acquired words that can be classified as both Indonesian and Balinese. In this case study, 22% (44 items) of the productive vocabulary that was produced by the child are categorised into 'shared', as shown in Table 2.

The words that are listed in Table 2 consist of proper nouns and words that are shared by the two languages. The percentage of the shared lexicon is almost the same as the percentage of vocabulary that was produced in Balinese.

In the child's lexicon, Indonesian, Balinese, and shared Indonesian and Balinese words can be categorised into several domains, as shown in Table 3.

In Table 3, it can be observed that the child mostly talked about things that were in their immediate environment, such as people, animals, cars, clothing, toys, meals, household objects, and utensils, among other things. Many of the first words said by the child were concrete objects (Laing & Bergelson, 2020; Swingley & Humphrey, 2018; Viglioccо et al., 2018).

Table 2
The Productive Vocabulary Produced by Irma that is Categorised as both Indonesian and Balinese

Both Indonesian and Balinese			
Age	**Sound produced**	**Words**	**English equivalent**
1;0	[bapa]	*bapak*	Father
1;2	[i]	*gigi*	Tooth
1;2	[atu]	*sepatu*	Shoes
1;3	[ape]	*HP*	mobile phone
1;3	[uka]	*buka*	to open
1;3	[ompeʔ]	*dompet*	wallet
1;3	[taʔ]	*buka*	to open
1;3	[na]	*bola*	ball
1;4	[iik]	*Dwi*	Dwi
1;4	[wawu]	*warung*	stall
1;5	[baco]	*bakso*	meatball
1;6	[ca]	Alyssa	Alyssa
1;6	[ce]	Michelle	Michelle
1;6	[moʊt]	*remot*	remote
1;6	[pi]	*kopi*	coffee
1;6	[embe]	*ember*	bucket
1;6	[cucu]	*susu*	milk
1;6	[yap]	*lap*	towel
1;7	[ci]	*kelinci*	rabbit
1;7	[dita]	*Dita*	Dita
1;7	[dɛʔ]	*Kadek*	Kadek
1;7	[bebɛʔ]	*Bebek*	duck
1;7	[iya]	*satria*	Satria
1;7	[yu]	*guru*	teacher
1;7	[ayan]	*jalan*	walk
1;8	[dede]	*Dede*	Dede
1;8	[teh]	*teh*	tea
1;8	[pin ipin]	*upin ipin*	Upin Ipin
1;8	[əmʊt]	*semut*	ant
1;8	[aju]	*baju*	clothes
1;8	[maŋ]	*Komang*	Komang
1;9	[duren]	*duren*	durian
1;9	[hao]	*hallo*	hello
1;9	[anun]	*bangun*	to get up
1;10	[de]	*Gede*	Gede
1;10	[atɪt]	*sakit*	sick
1;10	[andan]	*sandal*	sandal
1;11	[los]	*dek Rus*	Dek Rus
1;11	[lous]	*Ros*	Ros
1;11	[pupu]	*kupu-kupu*	butterfly
1;11	[etim]	*es krim*	ice cream
1;11	[otaʔ]	*coklat*	chocolate
1;11	[agət]	*naget*	nugget
1;11	[iyam]	*siram*	watering

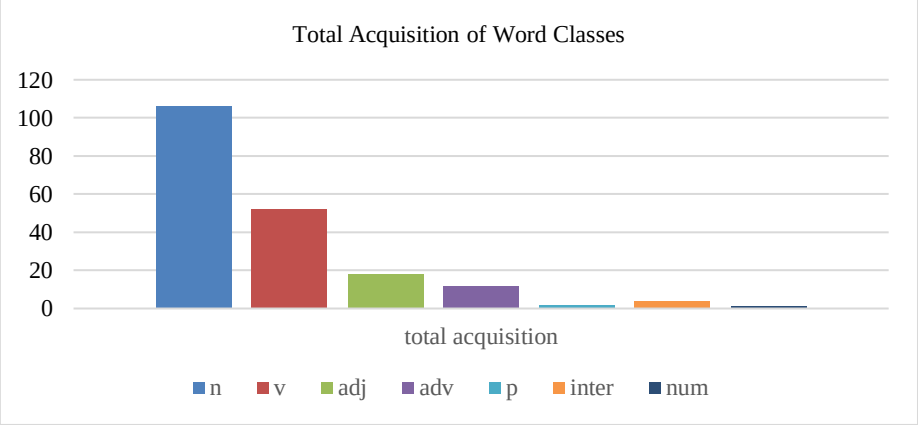
Table 3
The Semantic Domains of Indonesian and Balinese Words

Semantic domains	Indonesian	Balinese	Both Indonesian and Balinese
People	*ibu, kakak, bibi*	*ninik, pekak, memek*	*bapak, Dwi, Alyssa, Michelle, Komang, Kadek, Dita, Satria, guru, Dede, Gede, Dek Rus*
Animals	*cicak, ikan, kucing, ayam, babi*	*cecek, meong, sampi, kucit, dongkang*	*kelinci, bebek, semut, kupu-kupu*
Vehicles	*mobil*	-	-
Body parts	*kepala, perut, mata, rambut, mulut*	*batis, nyonyok*	*Gigi*
Clothing	*celana*	-	*Baju*
Toys	*balon*	-	-
Furniture	*meja*	-	-
Household items and utensils	*sapu, karpet, sisir, telepon*	-	*Lap*
Food	*permen, pisang, air*	*Jajak*	*bakso, naget, es krim, tea*
Properties and states	*bau, cantik, rusak, basah, kotor*	*daki, lalah, belus*	*Sakit*
Activities	*tutup, ambil, taruh, tidur, nyanyi*	*maem, mandus, mebalih, ngeling, jemak*	*siram, bangun, buka*
Colours	-	*barak, gadang,*	-

A conceptual explanation for this early word dominance was suggested by Gentner (1982); A more direct mapping between words and experience occurs for nouns due to the higher perceptual learn capability of their referents throughout the early stages of a child's development.

In this case study, noun acquisition predominated in the growth of the child vocabulary in both Indonesian and Balinese, and it was followed by verb and adjective acquisition, as shown in Figure 2.

Figure 2
The acquisition of word classes



As shown in Figure 2, most of the words that were generated by Irma are nouns. Nouns accounted for 54.35% of all learned word classes. This is consistent with the findings of cross-linguistic research, which indicates that nouns dominate the initial stage of a child's vocabulary. Other words that were acquired by the child include verbs (26.8%), adjectives (9.23%), adverbs (6.2%), interjections (2%) and particles (1%). This study corroborates the findings of other studies that claimed that in comparison to other word classes, noun acquisition was more notable (Adnyani et al., 2017; Dardjowidjojo, 2000).

The finding of this study which shows that nouns are the most often spoken words in a child's vocabulary is consistent with the findings of the Gentner study (1982). Gentner (1982) proposed a theoretical explanation for why nouns are learned before verbs or why the learning of nouns is more dominant than the acquisition of verbs in infant language development. He provided evidence to support his claim. The noun-bias hypothesis is the term that is used to describe this phenomenon. As

described by the noun-bias theory, children tend to acquire nouns faster than other words (Chai et al., 2021; Gentner, 1982; Hartshorne et al., 2021). Objects (things) are more readily learnt by children than actions or conditions, which explains this trend. Several factors contribute to this ease of learning, including the following: (1) perceptually, objects have a clear/real presence; (2) semantically, objects are simpler to learn than predicators; and (3) the object category is innate.

Production of Equivalents

As shown in this case study, Irma had 27 pairs of equivalent terms in her vocabulary by the tenth month of her vocabulary development. Quay's (1995) definition is used to determine whether a word has an equivalent in the other language, where comparable pairings are determined operationally based on the child's interchangeable usage of one word for another to refer to the same object, event or process. For example, Table 4 shows that the words *kucing* and *meong* are regarded as equivalent when Irma applies both terms to refer to the same animal, cartoon character or picture of a cat from any of her favourite books. Additionally, *mandi* and *mandus* are equivalent when both expressions refer to the same type of event for the child, such as when she states that she is taking a shower or bath. This test of synonymy can be used to identify equivalent pairs in the development of bilingual children (Barachetti et al., 2022; Bosch & Ramon-Casas, 2014; Quay, 1995). The list of TEs is shown in Table 4.

Table 4

List of TEs Produced by Irma

Age at which the word appeared	Indonesian	Age at which the TE appeared	Balinese	English TEs
1;2	[titaʔ] *cicak*	1;4	[cəʔ] *cecek*	Lizard
1;2	[dah] *sudah*	1;4	[bə] *suba*	Already
1;3	[tan] *ikan*	1;1	[bɛʔ] *bek*	meat/fish
1;5	[utɪng] *kucing*	1;3	[eyɔŋ] *meong*	Cat
1;5	[uwa] *uang*	1;6	[pɪs] *pis*	Money
1;5	[andi] *mandi*	1;6	[andus] *mandus*	to take a bath
1;5	[bubu] *Mother*	1;6	[memɛʔ] *memek*	Mother
1;6	[itu] *itu*	1;6	[to] *nto*	That
1;6	[ini] *ini*	1;8	[ne] *ne*	this
1;6	[ambɪn] *ambil*	1;8	[maʔ] *jemak*	to take
1;6	[gi] *lagi*	1;8	[bɪn] *buin*	more
1;6	[pi] *sapi*	1;8	[pi] *sampi*	cow
1;6	[mah] *rumah*	1;8	[umah] *umah*	house
1;7	[yʊh] *taruh*	1;8	[daŋ] *jang*	to put
1;8	[taʔ] *tidak/ndak*	1;7	[ɪŋ] *sing/tusing*	no
1;9	[awu] *mau*	1;7	[ñaʔ] *nyak*	to want
1;9	[idun] *tidur*	1;8	[bubʊʔ] *bubuk*	to sleep
1;9	[daʔ] *bedak*	1;9	[pupu] *pupur*	powder
1;9	[anɪs] *nangis*	1;11	[yɪŋ] *ngeling*	to cry
1;9	[uyung] *burung*	1;11	[dis] *kedis*	bird
1;10	[abɪs] *habis*	1;11	[yah] *telah*	run out
1;10	[acah] *basah*	1;11	[eyus] *belus*	wet
1;11	[ayam] *ayam*	1;11	[ap] *siap*	chicken
1;11	[titɪn] *sisir*	1;10	[uwah] *suwah*	comb
1;11	[totɔn] *nonton*	1;10	[ayih] *mebalih*	to watch
1;11	[totɔn] *kotor*	1;10	[ati] *daki*	dirty
1;11	[abi] *babi*	1;11	[tit] *kucit*	pig

Table 4 lists the comparable pairs and the time interval in months between the emergence of a word and its equivalent into Irma's lexicon. The time that it takes for the comparable pairings to develop varies from one word to the next. At the age of 17 months, the child acquired the Indonesian word *uang*, which means ‘money’ in English. When the child was 18 months old, she acquired the Balinese equivalent. On the other hand, the Balinese word *bek* was used when the child was 13 months old. The Indonesian equivalent *ikan* was used two months later.

It is important to note how early equivalent pairs reflect Irma's linguistic development. The list of her first words in the TEs reveals some interesting words that she created. *Cicak-cecek* was the equivalent word that she used to describe a small lizard that crawls on the wall and comes out in the evenings. When a *cicak* crawled up the wall, the mother would usually sing the song *cicak-cicak di dinding* ‘cicak on

the wall' for her. When she finished a task, she said *sudah-suba* to indicate that she had completed it. This word emerged when her mother or sister frequently asked her whether she had finished eating breakfast or showering. Questions, such as *sudah mandi?-sube mandus?* 'have you take a shower? and *sudah makan?-sube maam?* 'have you had your breakfast?', are frequently addressed to the child. As a result, she learnt the words *sudah* and *suba* early on in her language development. She learnt the words *ikan-bek* early because she was frequently exposed to them at mealtimes, such as lunch and dinner. The word *kucing-meong* is also available in her equivalent because this animal lives freely in their neighbourhood and the child sees it daily. Moreover, the word *uang-pis* first appeared in the TEs at an early stage because there is a *warung* close to their home. A *warung* is a small-scale local business that is typically associated with groceries or other food-related products and services. The child was frequently taken there by her siblings to buy items, such as sweets, snacks and ice cream. Therefore, the child learnt the word *uang-pis* early on because she got what she wanted by using this word.

The evidence in Table 4 shows that a bilingual infant produces cross-linguistic synonyms at the beginning of her speech, which she uses to express her needs, interact socially with others, name objects in their environment, express the actions that they are performing and inform others about the environment. This study corroborates with other studies on the early presence of TEs in bilingual children (Adnyani et al., 2017; Gonzalez-Barrero et al., 2020; Quay, 1995; Tsui et al., 2022).

To summarise, in this case, study, despite the fact that the child can distinguish between the two languages, the national language is developing at a much quicker rate than the local language. In other words, there is a trend toward national language dominance at the expense of the indigenous language. A number of studies have shown that indigenous languages in Indonesia are constantly under threat from other languages, such as Indonesian, which has been designated as the country's official language by the government (Abtahian et al., 2016; Dirgeyasa, 2016; Martin-Anatias, 2018; Martono et al., 2022; Simanjuntak, 2017; Siregar, 2022). Thus, as a multilingual nation, Indonesia has a challenge in preserving the indigenous language. To maintain the survival of Indonesia's highly diverse linguistic ecology, Indonesian government needs to formulate policies to ensure that it continues to exist.

CONCLUSION

This study found that the child developed a vocabulary in both Indonesian and Balinese. Since Indonesian and Balinese are closely related, the child also acquired words that are shared by the two languages. During the development of her vocabulary, her production of Indonesian words outnumbered Balinese words, which could be because Indonesian is the dominant language in her environment. Compared to the local languages, Indonesian is growing more popular due to the increasing usage of Indonesian in all aspects of everyday life, both formal and informal. This aids in the development of child bilingualism and language learning. However, although her acquisition of Balinese words was slower than that of Indonesian words, the child produced cross-language synonyms or TEs. The use of TEs proves that the child could distinguish between the two language systems from an early age. This study confirms that a child who is exposed to two closely related languages can produce equivalent terms in both languages, even during the first few months of lexical acquisition and throughout the one-word development phase. Despite the fact that the child is capable of separating between the two languages, the national language develops at a far faster pace than the local language. Thus, there is a tendency toward the domination of the national language at the cost of indigenous languages.

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