

First Words and Expressive Vocabulary Growth in Toddlers: A Cross-Sectional Study

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ABSTRACT

Background: The early years of life are critical for language acquisition, with toddlerhood marking a pivotal period for vocabulary expansion. Early words offer valuable insight into children's cognitive, linguistic, and social development, yet evidence from Malaysian populations remains limited. This study aims to: (i) identify the first words produced by toddlers aged 12-35 months; (ii) analyse the word classes represented in these first words; (iii) determine the expressive vocabulary size of the toddlers; and (iv) determine the effect of age group on early vocabulary size in toddlers. **Method:** A cross-sectional survey design was employed involving 40 caregivers of typically developing toddlers in Kuantan, Malaysia. Data were collected via a questionnaire comprising demographic information and six items assessing expressive vocabulary, including the first words, the first 10 words, and the estimated total vocabulary size. Descriptive statistics summarised lexical content, and the Mann-Whitney U test compared vocabulary size across age groups. **Result:** Toddlers' first words were predominantly nouns (90%), especially parental terms such as *mama* and *ayah*. Analysis of the first 10 words showed a similar dominance of nouns (65.1%), followed by verbs (18.6%) and social terms (5.1%). Vocabulary size differed significantly by age, with younger toddlers clustered in the <10 and 10-49-word ranges, and older toddlers demonstrating broader vocabularies, some exceeding 500 words. **Conclusion:** The findings indicate that Malaysian toddlers' early lexicons mirror cross-linguistic trends, with a strong bias towards nouns. However, vocabulary growth appeared to be slower than established norms, possibly due to the small sample size. These results underscore the need for culturally sensitive benchmarks.

Keywords:

first words; vocabulary size; toddlers; word class

INTRODUCTION

The early years of a child's development are critical for language acquisition, with toddlerhood being particularly pivotal for vocabulary growth. The emergence of first words represents an essential milestone that not only reflects cognitive and linguistic maturation but also signals broader communicative abilities fundamental to social interaction. Mastery of vocabulary has been identified as a cornerstone of language competence, forming the basis for subsequent syntactic and pragmatic development (Kelley & Goldstein, 2019). The expansion of vocabulary in the second year of life reflects the interaction of neurological maturation, environmental input, and growing social-cognitive awareness (Tomasello, 2003).

Numerous studies have shown that children's first words typically emerge toward the end of the first year, followed by a period of gradual vocabulary accumulation and, eventually, a rapid acceleration in word learning often described as the "vocabulary spurt" (Chow & Wehby, 2018; Hung & Chang, 2024). This developmental progression has been consistently documented across various linguistic and cultural contexts, highlighting both universal and language-specific features of early lexical growth (Bornstein et al., 2004).

In a cross-linguistic investigation, Bornstein et al. (2004) examined twenty-month-old children acquiring Spanish, Dutch, French, Hebrew, Italian, Korean, and American English. They found that children with vocabularies ranging from 51 to 200 words produced significantly more nouns than any other word class (verbs, adjectives, and

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closed-class words). However, this noun advantage was not evident among children with fewer than 50 words. Similarly, Hung and Chang (2024), in their longitudinal study of Mandarin-speaking children, reported that children at 20 months produced slightly more nouns than verbs, but verbs became dominant by 26 and 36 months. Although the populations in these two studies differed in age, they are comparable. Typically developing children between 18 and 23 months usually possess 70–100 words (Rescorla et al., 2014), placing 20-month-old children in Hung and Chang's study within the same vocabulary range (51–200 words) as those in Bornstein's study. This suggests that the predominance of nouns during early lexical development is a typical pattern across both Western and East Asian languages, though the timing and rate of shift toward more verb use may vary by language typology and input characteristics.

Despite extensive data from Western and East Asian languages such as English, Spanish, and Mandarin, there remains limited evidence from Malaysia, particularly regarding how early lexical categories and vocabulary size develop during toddlerhood. Understanding these patterns in Malaysian children is crucial for establishing culturally and linguistically appropriate benchmarks for early language assessment and for identifying deviations that may indicate developmental delays. Therefore, this study aims to (i) identify the first words produced by toddlers aged 12–35 months; (ii) analyse the word classes represented in these first words; (iii) determine the spoken vocabulary size of the toddlers; and (iv) examine the effects of age group (12–23 months vs. 24–35 months) on vocabulary size.

METHODOLOGY

Sample Size

An a priori power analysis was conducted using GPower 3.1 to estimate the required sample size for detecting age-related differences in vocabulary size between groups. Effect size estimation was informed by Rescorla et al. (2014), who reported a very large effect for age on vocabulary development (partial $\eta^2 = .38$), with older children demonstrating significantly higher vocabulary scores than younger children. This corresponds to a large standardised effect (Cohen's $f \approx 0.78$).

Based on a two-tailed significance level of $\alpha = .05$ and a desired statistical power of 0.80 for detecting a large effect, GPower indicated a minimum required total sample of 34 participants for a two-group comparison. To improve reliability and accommodate potential data loss, the target sample size was set at 40 participants. This sample size

yields an estimated achieved power exceeding 0.85 for detecting large age-related effects in vocabulary size.

Participants

The inclusion criteria included caregivers of typically developing toddlers aged 12–35 months residing in Kuantan, Malaysia. As Malay and English are the most widely used languages in Malaysia, this study only included caregivers of toddlers who used Malay or English as their primary language. For this study, primary language was operationally defined as the language(s) the toddler most frequently used to communicate at home, as reported by caregivers in the survey. Caregivers were asked to estimate the percentage of exposure to each language when more than one language was used. Following the operational definition proposed by Levey and Cruz (2003), toddlers were classified as bilingual if caregivers reported approximately equal exposure to Malay and English during adult–child interactions (i.e., 50% input in each language). Toddlers were classified as monolingual if a single language accounted for the majority of daily communication.

In addition, the exclusion criteria included a history of neurological conditions, sensory impairment (e.g., hearing loss), autism spectrum disorder, intellectual disability, global developmental delay, or other diagnosed developmental conditions known to affect language acquisition.

Instrumentation

A survey consisting of two components was developed and administered. The first component collected personal information, including the toddler's date of birth, gender, name, medical history (if any), and the caregiver's relationship to the toddler. The second component comprised six questions designed to assess spoken word production. These questions addressed (1) the toddler's primary language(s), (2) the first word produced, (3) expressive ability compared with peers, (4) the first ten words produced, (5) length of utterance currently produced, and (6) estimated vocabulary size. To facilitate responses to the fourth question, participants were provided with examples of early words categorised according to the MacArthur-Bates Communicative Development Inventory (CDI) checklist (Fenson et al., 2007). In addition, for Question 6 (estimated vocabulary size), caregivers were provided with structured categorical ranges (<10, 10–49, 50–199, 200–499, >500 words) rather than open-ended responses to reduce estimation error and improve consistency in reporting. All questions were prepared and administered bilingually in Malay and English to accommodate participants' language

preferences and to maximise comprehension and response accuracy.

Before data collection, the survey was reviewed by the research team, which included a certified speech-language therapist and an academic with expertise in language development, each with more than five years of professional experience. Due to the descriptive and exploratory nature of the study, formal reliability testing was not conducted. The finalised list of questions was then used in both pen-and-paper surveys and an online platform.

Procedures

This cross-sectional study employed convenience sampling and was approved by the International Islamic University Malaysia Research Ethics Committee. In this study, the researcher used the same set of questions for both the online platform and the pen-and-paper format.

The study was advertised through personal messages, viral Facebook postings, and forwarded messages via WhatsApp. For participants who were interested in responding via the online survey, a link to the survey was provided in the advertisement. For those who preferred the pen-and-paper version, the survey was distributed to them personally. Informed consent was obtained from all participants prior to data collection. Specifically, written consent was obtained from participants completing the paper-based questionnaire, while online participants provided electronic consent before accessing the survey. To protect confidentiality, all responses were anonymised using identification codes, and no personally identifying information was retained in the dataset.

All questionnaires were completed independently by the participants. To ensure that participants met the inclusion criteria, reminders of the requirements were provided prior to them beginning the survey. These reminders were included in the viral messages, as well as in the first section of the online survey, before participants provided their consent.

Data Analysis

All data were analysed using IBM SPSS Statistics Version 27. Descriptive statistics, including frequencies and percentages, were computed to summarise the children's vocabulary size and word classes. Prior to inferential analysis, the normality of vocabulary size distributions was assessed using the Shapiro–Wilk test, as the sample size was less than 50. The results indicated a non-normal distribution ($p < 0.05$), warranting the use of a non-

parametric approach. Accordingly, the Mann–Whitney U test was employed to compare vocabulary size between the two age groups (12–23 months versus 24–35 months).

RESULTS

A total of 40 caregivers of typically developing toddlers participated in the study. The analysis of caregiver reports indicated that 18 toddlers (45%) were males, while 22 toddlers (55%) were females. In terms of language background, 24 toddlers (60%) were monolingual Malay speakers, three toddlers (7.5%) were monolingual English speakers, and 13 toddlers (32.5%) were bilingual speakers of Malay and English. For analysis purposes, the toddlers were divided into two age groups: 12-23 months ($n = 24$) and 24-35 months ($n = 16$). Participant demographics are summarised in Table 1.

Table 1: Demographic characteristics of toddlers (N = 40)

Variables	n	%
Gender		
• Male	18	45.0
• Female	22	55.0
Age Group		
• 12-23 months	24	60.0
• 24-35 months	16	40.0
Language Background		
• Malay monolingual	24	60.0
• English monolingual	3	7.50
• Malay-English bilingual	13	32.5

First Words

Analysis of toddlers' very first words showed that the majority were nouns ($n = 36, 90%$), followed by verbs ($n = 3, 7.5%$) and exclamations ($n = 1, 2.5%$). Within the noun category, the most frequent first words referred to parents. Specifically, 15 toddlers (37.5%) produced words for "father," including "papa", "ayah", "abah", "baba", and "daddy", while 17 toddlers (42.5%) produced words for "mother," such as "mama", "ibu", "mak", and "mommy".

In addition to parental terms, several other words appeared as toddlers' first utterances, reflecting both basic needs and salient elements of the environment. The verb "nak" (want) was reported by three toddlers (7.5%), suggesting that expressions of desire emerge early as part of social interactions. Two toddlers (5%) used the word "air" (water), a term strongly tied to daily routines such as drinking. Single reports were also noted for "kereta" (car) ($n = 1, 2.5%$) and "atuk" (grandfather) ($n = 1, 2.5%$).

Word Class Composition of the First 10 Words

Caregivers reported a total of 312 words across toddlers' first 10 words. The majority of these words were nouns (n = 203, 65.1%), followed by verbs (n = 58, 18.6%), social terms (n = 16, 5.1%), adjectives (n = 10, 3.2%), pronouns (n = 8, 2.6%), interjections (n = 6, 1.9%), onomatopoeia (n = 6, 1.9%), adverbs (n = 3, 1.0%), and prepositions (n = 2, 0.6%). This distribution indicates that nouns were by far the largest category of words reported in the early lexicons of toddlers in this study.

Within the noun category, words referring to family members and names accounted for the largest proportion (n = 109, 53.7%). Other common subcategories of nouns included food and drinks (n = 28, 13.8%), animals (n = 26, 12.8%), and body parts (n = 19, 9.4%). Less frequently reported nouns included those related to furniture and household items (n = 8, 3.9%), transportation (n = 7, 3.5%), clothing (n = 3, 1.5%), and toys (n = 3, 1.5%).

With regards to verbs, the commonly reported verbs included "nak" (want), "duduk" (sit), and "makan" (eat). Social terms reported included greetings and expressions such as "hi". Adjectives (n = 10, 3.2%) included descriptive words such as "sakit" (pain) and "sejuk" (cold). Pronouns (n = 8, 2.6%) included items such as "itu" (that) and "ini" (this).

The most frequently reported words overall were "nak" (n = 20, 6.4%), "mama" (n = 15, 4.8%), "susu" (milk) (n = 11, 3.5%), "ibu" (n = 10, 3.2%), "ayah" (n = 10, 3.2%), and "papa" (n = 10, 3.2%). Other common words included "abah" (n = 8, 2.6%), "abang" (brother) (n = 8, 2.6%), and "air" (water) (n = 8, 2.6%). In addition, words such as "cat", "kakak" (sister), and "tak nak" (do not want) were each reported by six toddlers (1.9% each). These high-frequency items represent the lexical entries most commonly found within the toddlers' first 10 words, particularly nouns and

verbs. A detailed distribution of words across categories is presented in Table 2.

Vocabulary Size

To analyse vocabulary size, toddlers were classified into five groups: category 1, fewer than 10 words; category 2 10–49 words; category 3, 50–199 words; category 4, 200–499 words; and category 5, more than 500 words. The mean vocabulary category for toddlers aged 12–23 months (n = 24) was 1.71 (SD = 0.86), reflecting the clustering in the lower categories. Ten toddlers (41.7%) were reported to produce fewer than 10 words, and 13 toddlers (54.2%) were in the 10–49-word range. None of the toddlers in this age group were reported to have vocabularies of 50 to 199 words or 200 to 499 words. Interestingly, one toddler (4.2%) demonstrated a vocabulary exceeding 500 words, indicating an exceptionally advanced lexical profile compared to peers in the same age range.

The mean vocabulary category for toddlers aged 24–35 months (n = 16) was 3.13 (SD = 1.36), indicating a broader distribution across larger vocabulary ranges. The largest proportion (n = 6, 37.5%) was in the 50–199-word range. One toddler (6.2%) had a vocabulary between 200 and 499 words, while four toddlers (25.0%) exceeded 500 words. Smaller vocabulary sizes were less frequent in this age group: three toddlers (18.8%) were in the 10–49-word range, and only two toddlers (12.5%) produced fewer than 10 words.

Overall, younger toddlers (12–23 months) were clustered in the <10 and 10–49-word ranges, while older toddlers (24–35 months) were more evenly distributed across larger vocabulary ranges, including several with vocabularies exceeding 500 words. The full distribution of vocabulary sizes by age group is illustrated in Figure 1.

Table 2: The word class of the first 10 words reported by caregivers. Numbers in brackets indicate the frequency of reported words.

Word Classes/ Category	Words (in English)	Words (in Malay)
Nouns (203)		
Food and drinks (28)	Milk, banana	<i>Gula, Susu (11), nasi (4), air (8), mi, 'nenen'</i>
Animals (26)	Duck (2), cat (6), dinosaur (2), bird, fish (2), dog (3), monkey, Shark	<i>Burung, ayam, cicak, haiwan, gajah (2), Kuda, kucing</i>
Transportation (7)	bus, car (2), lorry	<i>Kereta (2), lori</i>
Toys (3)	Ball (3)	
Clothing (3)	Shoe (2)	<i>kain</i>

Family members/ Names (109)	Papa (9), mama (15), mom, mommy (3), daddy (3)	Parents: <i>ibu (10), abah (8), mak (2), ayah (10), abi, umi, baba (4)</i> Grandparents: <i>Wan, atok (6), opah, nenek (5), nana, tok ki</i> Siblings' nicknames: <i>abang (8), kakak (6), adik, acih, usu, yayah, along, baby</i> Cartoon character: <i>Bing, Didi</i> Own's name: <i>Jah, Wawa</i>
Body parts (19)	teeth, tummy, eye (2), leg (2), finger, hair (2), foot, head, nose	<i>tangan (2), mata, mulut, kaki (2), bibir</i>
Furniture and house items (8)	pillow, chair, TV	<i>Kerusi, bunga, lampu, kipas, pintu</i>
Verbs (55)	Stop, brush, shower, want	<i>Nak (20), tak nak (6), makan (5), main, mandi (2), duduk (5), pergi, bak, boleh, jap, keluar, mintak, jom, duduk, tidur (2), minum, tak payah</i>
Adjectives (10)		<i>Sakit (2), habis, geli, diam, Sejuk (2), panas, pedas, lapar</i>
Pronoun (8)		<i>Itu (3), apa, ini (3), lagi</i>
Adverb (3)		<i>tak (2)</i>
Preposition (2)		<i>Tepi, nu (disana)</i>
Interjection (9)	yeay (2), wow, okay (3)	<i>wah (3)</i>
Onomatopoeia (6)	Meow (5), woof	
Social terms (16)		Hi (16)

Differences in Vocabulary Size Across Age Groups

A Mann-Whitney U test was conducted to examine whether there were differences in vocabulary size between the two age groups of toddlers. The analysis revealed a statistically significant difference in vocabulary size between toddlers aged 12-23 months (Mdn = 2.0) and those aged 24-35 months (Mdn = 3.0), $U = 69.50$, $Z = -3.56$, $p < 0.001$. The effect size was large ($r = 0.56$, 95% CI [0.30, 0.74]), indicating that younger toddlers generally produced fewer words and consequently had lower vocabulary size scores than older toddlers.

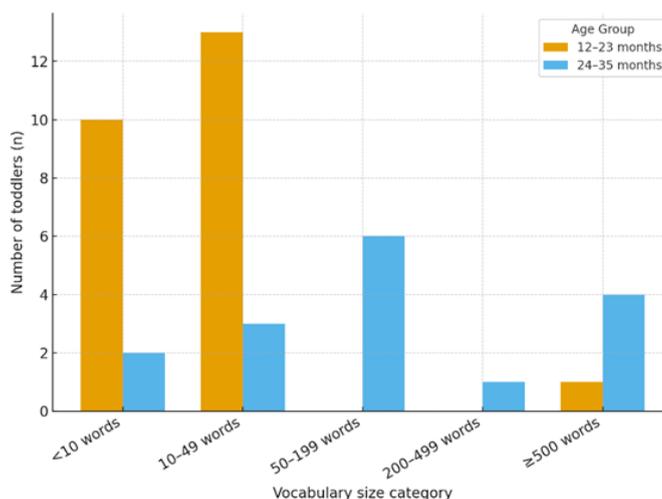


Figure 1: Vocabulary size distribution by age group (12-23 months and 24-35 months).

DISCUSSION

This study examined early lexical development in toddlers by analysing first words, word class composition of the first 10 words, and vocabulary size across two age groups (12–23 months and 24–35 months). The first words were predominantly nouns, especially parental terms such as "mama" and "ayah." Analysis of the word classes of the earliest 10 words revealed the same finding, in which family names, food, and animals were the most frequent, while verbs and other word classes appeared less frequently. Vocabulary size differed significantly between groups: younger toddlers were clustered in the <10 and 10-49-word ranges, whereas older toddlers were more evenly spread across larger ranges, with some exceeding 500 words.

Despite individual variation, the early lexical categories observed in this study were consistent with those reported in other populations. Previous research has shown that children's first words often cluster around important people, social routines, animals, and foods (Schneider et al., 2015; Tardif et al., 2008), and our findings reflected a similar distribution. Family members accounted for the largest proportion of first words, followed by food and drinks, animals, and body parts. Such parallels highlight the universality of early lexical content across languages and cultures, suggesting that children's initial vocabularies are rooted in the immediate and familiar environment. Large-scale cross-linguistic work has further shown that frequently heard words, particularly concrete nouns, are acquired earlier (Braginsky et al., 2019). In line with this, the predominance of parental names and other salient nouns in our data underscores the role of input frequency and communicative relevance in shaping the earliest lexicons. By contrast, Hung and Chang (2024) found that although nouns slightly outnumbered verbs at 20 months, verbs became dominant by 26 and 36 months. Such developmental shifts could not be captured in our study, which relied solely on parent reports of the earliest 10 words.

Vocabulary size further illustrated developmental progression in our sample, although the pace appeared somewhat slower than that reported in other studies. Younger toddlers (12-23 months) were clustered in the <10 and 10-49-word ranges, while the older group (24-35 months) displayed more advanced lexical growth, with the majority exceeding 50 words and some surpassing 500 words. In contrast, normative data suggest that typically developing children between 18 and 23 months usually have 70–100 words (Rescorla et al., 2014), and by 30 months, often reach 150-200 words (Rescorla et al., 2000, 2014).

While our findings confirm the positive relationship between vocabulary size and age, the lower ranges in the younger group and the wide variability in the older group suggest that lexical growth in this sample may appear less advanced. This difference may be partly attributable to the relatively small sample size, which could magnify variability and limit generalizability. Additionally, culturally specific interaction patterns may have influenced vocabulary growth. Studies conducted in non-Western contexts such as Iran and Turkey have shown that mothers' directives during parent-child interactions tend to be more dominant than other communicative behaviours (Ashtari et al., 2020; Diken, 2009). Directives are more likely to shut down conversation rather than invite children to respond verbally, thereby limiting verbal participation and potentially hindering language development (Ratner, 2013; Conway et al., 2017). Other unmeasured factors, including socioeconomic status and parental education, may also have contributed and should be considered in future research.

Of particular concern, a subset of children in the 24–35-month group were still reported by parents as having fewer than 50 words, and these parents still perceived this level of vocabulary as normal, indicating a limited awareness of developmental milestones. Clinically, this is significant because restricted expressive vocabulary at this age is considered a red flag for language delay. Although the percentile benchmarks proposed by Thal and Tobias (1994) were derived from Western populations, they are commonly used as reference points for identifying children at risk. Children older than 24 months may be considered at risk if their vocabulary size falls below the 10th percentile of a normative sample or if they produce fewer than 50 words or fail to combine words (Buschmann et al., 2009; Rescorla, 1989). We acknowledge that Malaysian-specific norms are not yet established, and caution should be exercised when interpreting these benchmarks. These findings emphasise the importance of parent education and the development of local normative data for early identification of language delays.

CONCLUSION

This study highlights that toddlers' earliest vocabularies are dominated by nouns, particularly parental names and other familiar items, reflecting both universal patterns and the influence of environmental frequency. Vocabulary size increased with age, although growth appeared somewhat slower than normative benchmarks. Some children over 24 months were still reported to have fewer than 50 words, a clinical red flag often overlooked by parents. While the small sample size and reliance on parent-reported first

words limit generalizability, the findings highlight the importance of cross-linguistic perspectives and increased parental awareness in supporting the timely identification of language delays.

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REFERENCES

- Ashtari, A., Samadi, S. A., Yadegari, F., & Harooni, G. G. (2020). The relationship between Iranian maternal verbal responsiveness styles and children's communication acts with expressive and receptive vocabulary in 13–18-month-old typically developing children. *Early Child Development and Care*, 190(15), 2392–2401. <https://doi.org/10.1080/03004430.2019.1573227>
- Bornstein, M. H., Cote, L. R., Maital, S., Painter, K., Park, S.-Y., Pascual, L., Pêcheux, M.-G., Ruel, J., Venuti, P., & Vyt, A. (2004). Cross-Linguistic Analysis of Vocabulary in Young Children: Spanish, Dutch, French, Hebrew, Italian, Korean, and American English. *Child Development*, 75(4), 1115–1139. <https://about.jstor.org/terms>
- Braginsky, M., Yurovsky, D., Marchman, V. A., & Frank, M. C. (2019). Consistency and variability in children's word learning across languages. *Open Mind*, 3, 52–67. https://doi.org/10.1162/opmi_a_00026
- Buschmann, A., Jooss, B., Rupp, A., Feldhusen, F., Pietz, J., & Philippi, H. (2009). Parent based language intervention for 2-year-old children with specific expressive language delay: A randomised controlled trial. *Archives of Disease in Childhood*, 94(2), 110–116. <https://doi.org/10.1136/adc.2008.141572>
- Chow, J. C., & Wehby, J. H. (2018). Associations Between Language and Problem Behavior: a Systematic Review and Correlational Meta-analysis. *Educational Psychology Review*, 30(1), 61–82. <https://doi.org/10.1007/s10648-016-9385-z>
- Conway, L. J., Levickis, P. A., Smith, J., Mensah, F., Wake, M., & Reilly, S. (2017). Maternal communicative behaviours and interaction quality as predictors of language development: Findings from a community-based study of slow-to-talk toddlers. *International Journal of Language & Communication Disorders*, 52(6), 717–732. <https://doi.org/10.1111/1460-6984.12352>
- Diken, I. H. (2009). Turkish mothers' self-efficacy beliefs and styles of interactions with their children with language delays. *Early Child Development and Care*, 179(4), 425–436. <https://doi.org/10.1080/03004430701200478>
- Fenson, L., Marchman, V., Thal, D., Dale, P., Reznick, J., & Bates, E. (2007). *MacArthur Communicative Development Inventories: Users' Guide and Technical Manual* (2nd Edition). Baltimore: Paul H Brookes.
- Hung, Y. F., & Chang, C. J. (2024). Developing early lexical composition in Mandarin-speaking children: A longitudinal study. *Journal of Child Language*, 51(4), 903–924. <https://doi.org/10.1017/S0305000922000654>
- Kelley, E. S., & Goldstein, H. (2019). Examining Performance on a Process-Based Assessment of Word Learning in Relation to Vocabulary Knowledge and Learning in Vocabulary Intervention. *Seminars in Speech and Language*, 40(5), 344–358. <https://doi.org/10.1055/s-0039-1688447>
- Levey, S., & Cruz, D. (2003). The First Words Produced by Children in Bilingual English/Mandarin Chinese Environments. *Communication Disorders Quarterly*, 24(3), 129–136. <https://doi.org/10.1177/15257401030240030401>
- Ratner, N. B. (2013). Why talk with children matters: Clinical implications of infant- and child-directed speech research. *Seminars in Speech and Language*, 34(4), 203–214.
- Rescorla, L. (1989). The Language Development Survey: A Screening for Delayed Language in Toddlers. *Journal of Speech and Hearing Disorders*, 54(November), 587–599.
- Rescorla, L., Frigerio, A., Sali, M. E., Spataro, P., & Longobardi, E. (2014). Typical and Delayed Lexical Development in Italian. *Journal of Speech, Language, and Hearing Research*, 57, 1792–1803. <https://doi.org/10.1044/2014>
- Rescorla, L., Mirak, J., & Singh, L. (2000). Vocabulary growth in late talkers: Lexical development from 2;0 to 3;0. *Journal of Child Language*, 27(2), 293–311. <https://doi.org/10.1017/S030500090000413X>
- Schneider, R. M., Yurovsky, D., & Frank, M. C. (2015). Large-scale investigations of variability in children's first

words. Proceedings of the Annual Meeting of the Cognitive Science Society, 0, 37.

Tardif, T., Fletcher, P., Liang, W., Zhang, Z., Kaciroti, N., & Marchman, V. A. (2008). Baby's First 10 Words. *Developmental Psychology*, 44(4), 929–938. <https://doi.org/10.1037/0012-1649.44.4.929>

Thal, D., & Tobias, S. (1994). Relationships Between Language and Gesture in Normally Developing and Late-Talking Toddlers. *Journal of Speech and Hearing Research*, 37, 157–170.

Tomasello, M. (2003). *Constructing a Language: A Usage-Based Theory of Language Acquisition*. Harvard University Press.