



BILINGUAL EXPRESSIVE VOCABULARY IN EARLY CHILDHOOD: A PLAY-BASED ASSESSMENT USING REAL OBJECTS

VOCABULARIO EXPRESIVO BILINGÜE EN LA PRIMERA INFANCIA: UNA EVALUACIÓN BASADA EN EL JUEGO UTILIZANDO OBJETOS REALES

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ABSTRACT

Early bilingual vocabulary development relies on complex interactions between language exposure, cognitive mechanisms, and contextual learning opportunities. Traditional vocabulary assessments, however, often fail to capture the naturalistic, interactive contexts in which young children typically demonstrate their linguistic abilities. This study examines expressive vocabulary in Spanish (L1) and English (L2) among preschool-aged children using an adapted, play-based version of the Peabody Picture Vocabulary Test (PPVT-5) incorporating real objects. Forty children aged 3–4 years enrolled in a bilingual program in Madrid participated in a cross-sectional correlational design. Results revealed significantly higher expressive vocabulary performance in L1 compared to L2, along with a strong positive correlation between both languages ($r = .92$, $p < .05$), supporting the interdependence of L1 and L2 lexical development. Observational data also indicated high engagement and reduced test-related anxiety under play-based conditions, highlighting the ecological validity of the assessment method. Findings emphasize the importance of maintaining strong L1 development while fostering L2 acquisition and demonstrate the value of play-integrated assessment tools in early bilingual education. Implications for pedagogy, assessment design, and future research are discussed.

Keywords:

Bilingualism, Expressive vocabulary, Play-based assessment, Early childhood, Language development

RESUMEN

El desarrollo del vocabulario bilingüe temprano depende de complejas interacciones entre la exposición lingüística, los mecanismos cognitivos y las oportunidades de aprendizaje contextual. Sin embargo, las evaluaciones tradicionales del vocabulario a menudo no logran captar los contextos naturales e interactivos en los que los niños pequeños suelen demostrar sus habilidades lingüísticas. Este estudio examina el vocabulario expresivo en español (L1) e inglés (L2) en niños y niñas de edad preescolar utilizando una versión adaptada, basada en el juego, del *Peabody Picture Vocabulary Test* (PPVT-5) que incorpora objetos reales. Cuarenta niños de entre 3 y 4 años, matriculados en un programa bilingüe en Madrid, participaron en un diseño correlacional transversal. Los resultados mostraron un rendimiento significativamente mayor en el vocabulario expresivo en la L1 en comparación con la L2, junto con una fuerte correlación positiva entre ambos idiomas ($r = .92$, $p < .05$), lo que respalda la interdependencia del desarrollo léxico en L1 y L2. Los datos observacionales también indicaron un alto nivel de implicación y una reducción de la ansiedad asociada a la evaluación en condiciones basadas en el juego, lo que pone de relieve la validez ecológica del método de evaluación. Los hallazgos subrayan la importancia de mantener un sólido desarrollo de la L1 mientras se fomenta la adquisición de la L2, y demuestran el valor de las herramientas de evaluación integradas en el juego en la educación infantil bilingüe. Se discuten las implicaciones para la práctica pedagógica, el diseño de la evaluación y futuras líneas de investigación.



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Palabras clave:

Bilingüismo, vocabulario expresivo, evaluación basada en el juego, educación infantil, desarrollo del lenguaje.

INTRODUCTION

Vocabulary development plays a pivotal role in early language acquisition and serves as a strong predictor of later academic achievement, literacy outcomes, and communicative competence (Bialystok, 2001; Unsworth, 2021). In bilingual contexts, vocabulary trajectories are shaped by dynamic interactions between language exposure, input quality, cognitive processing, and sociocultural factors (Kartushina et al., 2022). Evidence suggests that vocabulary growth in the first language (L1) lays the conceptual foundation for second-language (L2) acquisition through mechanisms such as cross-linguistic transfer and shared underlying proficiencies (Cummins, 1979; Melby-Lervåg & Lervåg, 2021).

Nevertheless, assessing vocabulary in bilingual preschoolers remains challenging. Standardized tests often operate in decontextualized settings and may underestimate children's linguistic abilities, particularly when test anxiety or unfamiliar assessment formats limit authentic expressive performance (García, 2009; Gathercole & Thomas, 2021; Hoff et al., Pearson, 2007).

In contrast, play provides a natural learning context in which children spontaneously explore, manipulate objects, negotiate meaning, and produce language (Gardner, 2008; Pyle & Danniels, 2017; Zosh et al., 2018). Play also activates neural systems linked to executive functioning, cognitive flexibility, and attention, supporting vocabulary acquisition in both monolingual and bilingual learners (Diamond, 2013; Parker & Thomsen, 2019). Play-based assessment aligns with children's natural communicative tendencies, enhancing ecological validity and potentially yielding more accurate representations of bilingual expressive vocabulary (Ridgway et al., 2021; Fleer, 2013).

Despite this potential, studies examining bilingual expressive vocabulary through play-based, object-mediated assessment remain scarce. Limited empirical evidence is available on how L1 and L2 vocabulary relate when assessed in highly naturalistic contexts.

The present study fills this gap by exploring expressive vocabulary in young bilingual children using a play-integrated adaptation of the PPVT-5 employing real classroom objects.

Objectives

To describe L1 (Spanish) and L2 (English) expressive vocabulary performance using a play-based assessment approach.

To analyze the correlation between L1 and L2 expressive vocabulary.

To evaluate the pedagogical and ecological value of a real-object, play-based assessment method.

Hypotheses

H1: Children will show higher expressive vocabulary performance in L1 than in L2.

H2: L1 and L2 expressive vocabulary will be strongly and positively correlated.

H3: Play-based assessment will promote engagement and reduce performance anxiety.

Recent research has increasingly recognized the critical role of play in early language development and vocabulary acquisition. Play provides a natural and meaningful context in which vocabulary emerges and expands, as children use language spontaneously to describe objects, negotiate roles, and express ideas during playful interactions (Pyle & Danniels, 2017). These interactions offer rich opportunities for exposure to new linguistic input in both L1 and L2, facilitating deeper vocabulary learning in bilingual settings (Zosh et al., 2018). Meta-analytic findings demonstrate that playful learning experiences are positively associated with children's developmental, cognitive, and motivational outcomes, supporting the integration of play-based approaches in educational settings (Siddiq & Scherer, 2022). During play, children activate multiple neural systems that support attention, memory, and language processing, thereby enhancing their expressive abilities and demonstrating higher levels of spontaneity and linguistic complexity than in formal testing situations (Broadhead et al., 2010; Diamond, 2013). Furthermore, play-based integrated pedagogies have been shown to foster holistic skills development, creating meaningful learning contexts that support both cognitive and socio-emotional growth in young children (Parker & Thomsen, 2019).

Traditional vocabulary assessment tools, while psychometrically sound, often rely on static presentation formats that may not reflect the dynamic and interactive nature of children's actual language use. Moreover, formal testing environments can induce anxiety in young children, potentially suppressing their true linguistic capabilities and leading to underestimation of their vocabulary knowledge. Play-based assessment has emerged as an ecologically valid alternative that reduces test-related anxiety and allows children to demonstrate their linguistic abilities more authentically (Fleer, 2013; Ridgway et al., 2021). Contemporary research on play-based pedagogies emphasizes the importance of creating assessment contexts that align with children's natural learning processes and honor the holistic nature of early development (Hadley

et al., 2021). By embedding assessment within naturalistic play scenarios, researchers can capture communication as it naturally emerges in interaction, providing richer insights into children's receptive and expressive vocabulary in both languages.

Despite growing recognition of the benefits of play-based approaches to language assessment, few studies have systematically examined bilingual vocabulary development using interactive, play-embedded assessment tools. Most existing research continues to rely on traditional standardized measures that may not adequately account for the unique characteristics of bilingual language development or the advantages of naturalistic observation contexts (Boerma & Blom, 2020; Macnamara, 19699; Paradis et al., 2020). This is particularly problematic given that distinguishing language ability from language experience remains a critical challenge in bilingual assessment, requiring methodologies that can capture authentic communicative competence rather than merely testing performance (De Houwer, 2021). Furthermore, while research has established the importance of cross-linguistic transfer in bilingual development (Melby-Lervåg & Lervåg, 2021), there is limited empirical evidence regarding the relationship between L1 and L2 vocabulary knowledge when assessed through play-based methods in young bilingual children.

The present study addresses this gap by investigating expressive vocabulary in Spanish (L1) and English (L2) among young bilingual learners using a play-based assessment approach. Specifically, this research examined: (a) the distribution and characteristics of vocabulary knowledge in both languages, (b) the relationship between L1 and L2 vocabulary performance, and (c) the effectiveness of using real objects within a play-based context for assessing bilingual vocabulary. By integrating play as both a learning and assessment tool, this study aims to provide a more accurate and developmentally appropriate understanding of how young children acquire, internalize, and use vocabulary across languages.

Bilingual education definition and evolution

The relationships between language and education are very varied and complex. It does not matter if language is written or spoken, English teachers are going to be crucial in relation to students' success or failure. But it is also important how motivation and programmes are designed because bilingual education oversees teaching languages to those who cannot learn due to social and familiar problems. That is, school organization tries to make up for the lack of exposition to one or more languages. For all that, bilingual education uses different resources, but the most important is to use language or languages as an instrument to teach contents. There are loads of

definitions when talking about bilingual education and it is hard to choose just one because it is a very ambiguous term and it depends on where and how it develops; but we are going to follow the next: "Bilingual education is the use of two languages as media of instruction for a child or a group of children in part or all of the school curriculum" (Cohen, 1975). This definition excludes all those educational programs that include only one language as a subject and not as a mean of introduction of certain subjects or school contents. Bilingual education would be "in" two languages, and it would not be teaching "from" one language to another. In other words, if bilingual education is a way to organize the educational system to teach students a language which cannot learn due to social or familiar problems, it should not be a way to teach languages as subjects but teaching through knowledge. When we talk about bilingual education, the characteristic is the use of two languages as means or instruments of teaching. Teaching in two languages. Therefore, the definition above excludes programs dedicated to teaching a second or foreign language. In this case the language would be the content of education. Nevertheless, we can find a lot of bilingual situations because not all schools, cities, or countries have the same needs. We are going to present Fishman's classification in (Baetens Beardsmore, 1989; Huguet Canalis, 2005; Lorenzo et al., 2011; Sánchez & Rodríguez, 1986) which proposes a typology of bilingual education programs depending on: school and community's objectives, intensity, and languages status. Based on the objectives we want to obtain with a bilingual education, there are three types of education compensatory; for those students who are going to study in a different language they use at home, and it is also a minor language. This will allow children to progress in a faster way when learning L2.

Pros and cons about bilingual education

In the last twenty years there have been numerous evaluations about immersion programs. Most have shown that students who follow such programs do not suffer any damage in relation to language development in their first language or their academic performance. However, most of these assessments have been conducted on students belonging to medium / high socio-cultural level and highly motivated by their families. Hence the importance of evaluating the results obtained by students with special characteristics in immersion programs (socio cultural level or low IQ, language problems, etc.); assessment and provided data helps to improve the effectiveness and relations between linguistic competences. Cummins' predictions (1979) according to which students with low socio-cultural level would not benefit from the transfer of powers from the L2 to the L1 since, for that to be possible, a threshold level of competence is required in your language, have

not been confirmed. Therefore, we can say that there are no significant differences in academic and linguistic performance of these students compared to others who do not follow an immersion program. But this is not conclusive, since one of the problems is that the sample size of studies is small, and the teachers who have conducted these studies are highly motivated. Despite the benefits of bilingual education, some people are against it and say it does not work. Moreover, Cummins (1979) is committed to bilingual education involving emphasis on social justice which promotes equality between the two languages, and also it does not underestimate social and cultural identities of languages in specific communities.

Vocabulary acquisition (Previous studies)

The first words the child learns to say have properties in common. They tend to be words for names of people or objects and activities that children have contact with and are often used in their interactive social routines (e.g., goodbye). Children use words wrongly when doing over extensions, that is using a word to mean more than what it really means (e.g. “dog” to name animals), and sub-extensions, using a word that means only part of its real meaning (eg “car” to name a car that is moving). These first sentences which consist on a single word, are called holophrases because they function like phrases and can express meanings that are more complex than simple tags (e.g., a child says “mum” but he is trying to express a more complex message “mum come here”). The first sentences of children tend to express the same declarative intentions expressed than they did in their first year with gestures and vocalizations. Although there are many individual variations in the recent development of expressive language, studies suggest that children aged 24 months who produce less than 50 words can be considered representative below normal expressive language and are at risk for chronic linguistic disadvantages. The acquisition of expressive and receptive vocabulary continues to grow during the third year of life. As the child increases his vocabulary, he develops expertise on a semantic category, spatial terms, adjectives, colors and learn to produce and understand interrogative words (what, where) and personal pronouns. During preschool years, children learn to use and understand many words; they dominate the use of many pronouns, except the pronouns (me, you...) which are not learned until school age. Many of the terms used to describe the extent of family members (e.g. brother) are finally understood at the age of 5 years. Time terms (before, after, since, until) are introduced into the vocabulary at this age, although at the beginning they are used as prepositions and later as subordinate conjunctions. At 5 years, they learn to use adjectives, adding more precise terms in their vocabulary. The linguistic development of two children raised in a bilingual environment was examined, with

the father speaking exclusively German and the mother speaking English. In the case of Hildegard, one of the daughters, the emergence of her early vocabulary was observed, revealing a predominance of English lexical items—likely influenced by the family's residence in the United States. Only a very small proportion of neutral or infant words, such as onomatopoeic forms like “woof-woof,” appeared in both languages. Overall, the child consistently gravitated toward one language rather than alternating between the two. Furthermore, research on the acquisition of Italian and German by two sisters showed that from birth until approximately two years of age, the child appeared to operate with a single lexical system, using words from both languages as if they formed one unified repertoire. After the age of two, she began to differentiate the lexical items of each language, although she continued to apply one shared set of morphosyntactic rules. In addition, after two years she begins to differentiate lexical, but she follows a unique system of morphosyntactic rules. This means that she incorporates few equivalents because she cannot memorize so many terms. Finally, the bilingual is already capable of separating both lexical and morphosyntactic forms in each language. The bilingual discovers that both codes have different rules and apply them severely assigning each person a language.

MATERIALS AND METHOD

Research Design and Context

This research employs a quantitative approach with a correlational design to examine the relationship between Spanish (L1) and English (L2) vocabulary acquisition in early childhood education. The study was conducted during the 2024-2025 academic year and was structured in five distinct phases: initial contact and school selection, classroom observation and participant selection, data collection instrument design and validation, implementation and assessment, and finally, analysis and evaluation.

The research was conducted at a bilingual public school in Villanueva del Pardillo, located in the northern area of the Community of Madrid. This specific location was selected due to its high socioeconomic level and the school's established bilingual program. The school's demographic profile indicates a low percentage of students with language disorders, which allows for a more focused study of typical language development patterns in a bilingual educational context.

Sample

The study sample consisted of 40 children ($n = 40$) from a 4-year-old classroom in the selected bilingual school. Sample selection was based on specific inclusion and exclusion criteria to ensure homogeneity and focus on typical language development patterns.

Regarding inclusion criteria, all participants were in their first year of Early Childhood Education, ranging in age from 3 to 4 years old. Additionally, participants demonstrated normal language development without diagnosed disorders and maintained regular attendance in the bilingual program throughout the study period.

Exclusion criteria were established to minimize potential confounding variables. Students with diagnosed language disorders, special educational needs, or irregular school attendance were excluded from the sample. The decision to exclude children with language disorders was made to ensure that the study could focus specifically on vocabulary acquisition patterns in typical development, as language disorders could introduce confounding variables in the assessment of oral production and complicate the interpretation of bilingual vocabulary performance.

Instruments

Two main instruments were developed and utilized for data collection:

The first instrument was an Identification Sheet designed to record personal and school identification variables. This sheet comprised four main sections: (a) school information, (b) student information, (c) personal data including age, number of siblings, and family situation, and (d) speech and language development history. The Identification Sheet was completed by classroom teachers who were familiar with each student's background and developmental trajectory.

The second instrument was the Peabody Picture Vocabulary Test, Fifth Edition (PPVT-5) Dunn (2019), a widely used standardized measure for assessing receptive vocabulary knowledge. For this study, the PPVT-5 was adapted to create a more interactive and developmentally appropriate assessment format for young bilingual learners. Instead of the standard presentation of four images per item, the adapted version utilized 42 real objects (toys) representing vocabulary items selected based on the current classroom curriculum vocabulary. This modification allowed participants to physically interact with the materials while maintaining the psychometric properties and administration guidelines of the original instrument.

The assessment tool recorded both accuracy and pronunciation in Spanish and English, and included dedicated sections for: (a) Spanish vocabulary assessment, (b) English vocabulary assessment, (c) observational notes on oral expression, including speech rhythm, fluency, and voice quality, and (d) documentation of student attitude and comfort level during the assessment process. This comprehensive approach enabled both quantitative scoring according to PPVT-5 norms and qualitative observations of bilingual vocabulary production.

Procedure

The vocabulary assessment was conducted following a standardized protocol designed to ensure consistency and reliability across all participants. Individual assessment sessions were conducted with each child, lasting approximately 10 to 20 minutes per session, depending on the participant's age and ability level. All assessments took place during morning sessions, prior to playground time, to optimize student attention and engagement. Testing was conducted in a quiet room within the school to minimize distractions and ensure a comfortable environment for participants.

To control for potential order effects, the language of administration was alternated between participants, with some children assessed first in Spanish and then in English, while others followed the reverse order (English - Spanish). During the assessment process, no corrections or feedback were provided to ensure standardized conditions across all testing sessions.

Assessment Administration

The Peabody Picture Vocabulary Test (PPVT-5; Dunn, 2019) was adapted to assess participants' receptive vocabulary in a more interactive format. Instead of presenting the standard four images per item, a total of 42 toys were made available, allowing participants to physically interact with them to indicate their responses. Testing began at the basal item recommended for each participant's age, progressing to more difficult items following correct responses, and moving back to easier items if errors occurred, until the termination criteria specified in the manual were met.

During each session, students were asked to name each object in both Spanish and English. Children's responses were systematically recorded and categorized as correct, incorrect, or unknown/no response. Responses were also converted into standard scores, percentiles, and age equivalents according to the test norms, allowing each participant's receptive vocabulary to be compared with normative data. In addition to accuracy, observations regarding speech rhythm, fluency, voice quality, student attitude, and comfort level during the assessment were documented.

Timing and Implementation

Data collection was strategically scheduled before the Easter break to ensure that all target vocabulary items had been introduced and covered in the classroom curriculum. The morning time slot was deliberately selected to capitalize on optimal attention levels in young children.

Throughout the assessment, no prompting or assistance was provided during naming tasks to maintain standardization and ensure authentic responses.

Data Analysis

The collected data were analyzed using both descriptive and inferential statistical procedures. Descriptive statistics were calculated to summarize vocabulary performance in both Spanish (L1) and English (L2), including measures of central tendency and variability. Frequency distributions were generated to examine performance patterns and identify trends in vocabulary acquisition across both languages.

To examine the relationship between first language (L1) and second language (L2) vocabulary knowledge, Pearson correlation coefficients were computed. Additionally, comparative analyses were conducted to evaluate differences in performance across languages and to identify potential patterns of cross-linguistic influence.

All statistical analyses were performed using appropriate statistical software, with a significance level set at $p < .05$ for determining statistical significance. The combination of descriptive and correlational analyses provided a comprehensive understanding of the bilingual vocabulary development patterns observed in the sample.

Ethical Considerations

This research was conducted in accordance with ethical principles governing research with children in educational settings. Prior to data collection, formal approval was obtained from the school administration to ensure institutional support and compliance with school policies. Informed consent was secured from all parents and legal guardians, who were provided with detailed information about the study's purpose, procedures, and their child's right to withdraw at any time without consequences.

Confidentiality and anonymity of all participants were strictly maintained throughout the study. Student information was coded and stored securely, with access limited to the research team. All assessment procedures were designed to be non-invasive and age-appropriate, minimizing any potential discomfort or stress for participants.

Special attention was given to respecting student comfort and well-being during testing sessions. Children were informed that the assessment was not a test with right or wrong answers, and they were free to discontinue participation at any point if they felt uncomfortable. The research team maintained a supportive and encouraging atmosphere throughout all interactions with participants, prioritizing the children's emotional and psychological welfare above research objectives.

RESULTS-DISCUSSION

Descriptive Statistics

Table 1 presents a summary of the descriptive statistics for vocabulary performance in both Spanish (L1) and English (L2). A total of 40 children participated in the study, with all assessments yielding valid data for analysis. The vocabulary assessment consisted of 42 items presented in both languages.

Tabla 1: Descriptives

			Statistic	Std. Error
Test 1 Spanish	Mean		38,10	,332
	95% Confidence Interval for Mean		37,43	
			38,77	
	5% Trimmed Mean		38,06	,374 ,733
	Median		38,00	
	Variance		4,400	
	Std. Deviation		2,098	
	Minimum	Lower Bound	35	
	Maximum	Upper Bound	42	
	Range		7	
	Interquartile Range		4	
	Skewness		,458	
	Kurtosis		-,979	



Test 2 English	Mean		35,33	,383
	95% Confidence Interval for Mean		34,55	
			36,10	
	5% Trimmed Mean		35,25	
	Median		35,50	
	Variance	Lower Bound	5,866	
	Std. Deviation	Upper Bound	2,422	
	Minimum		32	
	Maximum		41	
	Range		9	
	Interquartile Range		4	
	Skewness		,282	
	Kurtosis		,834	
				,374

The results revealed differences in vocabulary performance between the two languages. In Spanish, participants demonstrated a mean score of 38.1 (SD = 2,098), indicating that on average, children correctly identified approximately 38 items out of the 42 presented. In contrast, English vocabulary assessment yielded a lower mean score of 35.33 (SD = 2,44), suggesting that participants demonstrated stronger receptive and expressive vocabulary knowledge in their first language compared to their second language.

Analysis of variance revealed greater variability in English vocabulary scores compared to Spanish vocabulary scores. The higher variance observed in the English assessment ($\sigma^2 = 5,866$) relative to the Spanish assessment ($\sigma^2 = 4,400$) indicates less homogeneity in L2 vocabulary knowledge across participants. This finding suggests that children's Spanish vocabulary development followed more consistent patterns, whereas English vocabulary acquisition showed greater individual differences among participants. The increased homogeneity in Spanish performance indicates that a larger proportion of children demonstrated strong L1 vocabulary knowledge, while English vocabulary proficiency was more variable across the sample.

Correlation Between L1 and L2 Vocabulary

To examine the relationship between Spanish and English vocabulary performance, Pearson correlation coefficients were calculated. The analysis revealed a strong positive correlation between L1 and L2 vocabulary scores ($r = .922$, $p < .05$), indicating that children who demonstrated higher vocabulary knowledge in Spanish consistently exhibited higher vocabulary knowledge in English as well. This robust correlation suggests that vocabulary development in the first language is closely associated with vocabulary acquisition in the second language.

The strength of this relationship indicates that students' performance patterns were highly consistent across both languages. Specifically, children who correctly identified and produced a greater number of vocabulary items in Spanish—demonstrating both accurate knowledge and proper pronunciation—tended to perform similarly well in the English assessment. This finding supports the hypothesis that L1 vocabulary knowledge serves as a foundation for L2 vocabulary development in young bilingual learners.

These results provide empirical support for the initial hypothesis that stronger Spanish vocabulary knowledge is associated with enhanced English vocabulary acquisition. The positive correlation observed in this study suggests that vocabulary skills may transfer across languages in bilingual contexts, highlighting the interconnected nature of bilingual lexical development in early childhood.

within a play-based context for assessing bilingual vocabulary. Observational data collected during the assessment sessions indicated high levels of student engagement and comfort throughout the testing process. All 40 participants completed the full assessment protocol, with no instances of refusal or significant distress noted. Children demonstrated spontaneous language production and active manipulation of the objects, suggesting that the play-based format successfully created an authentic communicative context.

Furthermore, the assessment tool allowed for comprehensive documentation not only of vocabulary accuracy but also of pronunciation quality, speech fluency, and communicative attitude in both languages. The naturalistic setting enabled children to demonstrate their linguistic capabilities without the anxiety often associated with formal testing environments, as evidenced by the high completion rates and positive behavioral observations recorded during sessions. These findings suggest that integrating play as both a learning and assessment tool provides a more accurate and

developmentally appropriate method for understanding how young children acquire, internalize, and use vocabulary across languages in bilingual educational contexts.

This study demonstrates that expressive vocabulary in bilingual preschoolers is strongly linked across languages and that play-based assessment enhances children's expressive performance.

L1 advantage in expressive vocabulary

Similar to previous findings (Hoff & Core, 2020), children showed higher proficiency in Spanish, likely reflecting greater cumulative input and conceptual grounding in L1.

Evidence of cross-linguistic interdependence

The strong correlation between L1 and L2 vocabulary supports theories of shared conceptual representation (Cummins, 1979). Children with stronger L1 lexical systems appeared to leverage this knowledge when retrieving or producing L2 vocabulary.

Effectiveness of play-based assessment

The use of real objects facilitated expressive output and minimized anxiety, consistent with research highlighting the benefits of ecologically valid assessment methods (Fleer, 2013; Ridgway et al., 2021). This suggests that traditional assessments may underestimate bilingual children's abilities and that play-based tools may capture a more accurate linguistic profile.

CONCLUSIONS

This study examined the relationship between Spanish (L1) and English (L2) expressive vocabulary in young bilingual learners through a play-based assessment approach. The findings provide empirical evidence regarding vocabulary development patterns in early childhood bilingual education and contribute to the growing body of literature on effective assessment methodologies for young language learners.

The results demonstrated three key findings. First, participants exhibited stronger vocabulary performance in their first language (Spanish) compared to their second language (English), with mean scores of 38.1 and 35.33 respectively. Second, a strong positive correlation ($r = .922$, $p < .05$) was observed between L1 and L2 vocabulary knowledge, indicating that children with more developed Spanish vocabulary consistently demonstrated enhanced English vocabulary as well. Third, the play-based assessment methodology proved effective in creating an authentic, low-stress context for evaluating bilingual vocabulary, as evidenced by high completion rates and positive engagement throughout the assessment process.

These findings have important implications for understanding bilingual vocabulary development in early childhood.

The strong correlation between L1 and L2 vocabulary supports theoretical frameworks suggesting that first language proficiency serves as a foundation for second language acquisition (Cummins, 1979). This interdependence between languages highlights the importance of maintaining and strengthening L1 vocabulary development even in contexts where L2 acquisition is emphasized.

From a practical standpoint, the results underscore the value of play-based assessment methodologies for young bilingual children. Traditional standardized testing approaches may not capture the full linguistic repertoire of young learners, particularly in contexts where test anxiety or unfamiliar formats may suppress authentic language production. The play-based approach employed in this study allowed children to demonstrate their vocabulary knowledge in a naturalistic, developmentally appropriate context, potentially providing more accurate representations of their true linguistic capabilities.

Several limitations should be acknowledged. First, the sample was drawn from a single bilingual school in a high socioeconomic area, which may limit the generalizability of findings to more diverse populations or different bilingual program models. Second, the exclusion of children with language disorders, while necessary for this study focus, means that findings cannot be extended to populations with atypical language development. Third, the cross-sectional design provides a snapshot of vocabulary knowledge at a single time point but does not capture developmental trajectories over time.

Future research should expand upon these findings in several ways. Longitudinal studies tracking vocabulary development across multiple time points would provide insights into the dynamic relationship between L1 and L2 vocabulary growth over time. Additionally, replication studies with more diverse samples, including children from varying socioeconomic backgrounds and different types of bilingual programs, would enhance understanding of how contextual factors influence bilingual vocabulary acquisition. Finally, comparative studies examining the effectiveness of play-based versus traditional assessment approaches could further validate the methodological contributions of this research.

This study contributes to the understanding of bilingual vocabulary development in early childhood education by demonstrating the interconnected nature of L1 and L2 vocabulary knowledge and validating the effectiveness of play-based assessment methodologies. The findings support educational practices that recognize the importance of maintaining strong first language development while fostering second language acquisition and highlight the need for developmentally appropriate assessment tools

that authentically capture young children's linguistic competencies across both languages.

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