

The Impact of Early Bilingualism on Word Retrieval Accuracy and Speed in Arabic–English Kindergarteners of Saudi Descent

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ABSTRACT

This study investigates the impact of early bilingualism on word retrieval among Saudi kindergarteners, focusing on accuracy and speed in Arabic-English bilinguals compared to Arabic monolinguals. Eighty-four children participated: 42 bilinguals and 42 monolinguals. All completed the Arabic Expressive Vocabulary Test, while bilinguals also took the English Expressive Vocabulary Test. Receptive vocabulary was assessed with the Peabody Picture Vocabulary Test and its Arabic equivalent. Parents of bilinguals completed questionnaires on language exposure and perceived retrieval abilities. Results showed bilinguals had lower accuracy and slower retrieval in Arabic than monolinguals. A notable gap emerged between receptive and expressive vocabulary, with bilinguals demonstrating stronger comprehension than production, especially in their first language. No correlation was found between greater English exposure and improved retrieval, and parents' perceptions did not align with actual performance, underscoring the importance of exposure quality rather than quantity and highlighting the need for targeted strategies to support bilingual development.

Keywords: Bilingualism, Critical Period Hypothesis, Expressive Language, Language Acquisition, Monolingualism, Receptive Language, Word Retrieval

INTRODUCTION

One of the most important stages in our lives is childhood, the age in which many skills and abilities are acquired, including language. Language acquisition plays a significant role in cognitive and linguistic development (Clark, 2004), and the growth of the cognitive and linguistic systems is more challenging in bilingual brains (Tapia & Duñabeitia, 2021). *Bilingualism*, which can be defined as the ability to speak and understand two languages (Rashid, 2021), presents its own practical challenges for children who are developing two linguistic systems. Accordingly, navigating the two languages system simultaneously during a critical developmental stage might influence their word retrieval ability, which eventually could affect their social interactions and pragmatic competence. According to Thomas (1983), who defined *pragmatic competence* as the ability to use language appropriately in a social interaction, there is a clear relationship between bilingualism and effective communication skills. In addition, word retrieval, the process of accessing and producing the correct word, can also be influenced by bilingualism (Gollan & Acenas, 2004). Word retrieval is essential for effective communication and is one of the features of the language system that most concerns researchers who study children (Messer & Dockrell, 2013).

Some studies emphasize the importance of word retrieval for speaking skills (Norton & Wolf, 2012), and many Saudi bilingual kindergarteners have been observed facing more difficulties than monolingual children in word retrieval, which may impact their ability to communicate appropriately and efficiently. The primary purpose

of this research was to determine how the early bilingualism context affects observed issues such as delays in word retrieval, slow response times, code-switching, and errors in word production. Examining these challenges is significant for society and individuals because an increasing number of bilingual children are acquiring a second language at an early age, before their first language system is fully developed, as a result of globalization and educational shifts. So, as a growing phenomenon, early bilingualism can influence not only individual communication abilities but also broader educational and social outcomes, making it a critical area to investigate.

In addition, this research contributes essentially to the fields of language acquisition and bilingualism by assessing the cognitive and linguistics processes of the brains of young children who are developing two language systems simultaneously. It also provides value for multilingual education and international schools by offering insights for educators who aspire to design helpful teaching strategies. Moreover, it gives parents a deeper understanding of language processing, enabling them to make the right decisions to support their children's language development so they may interact and express their needs without any difficulties in this critical period of their age. Additionally, the study opens the door for neurolinguistics studies, particularly those that examine how early bilingualism impacts areas of the children's brain responsible for language, with consequences such as impermanent damage and temporary aphasia in Broca's area in the left hemisphere, which is involved in speech production and word retrieval. Thus, it calls for neurolinguistic researchers to investigate this issue from a physical aspect because the treatment of language processes is limited in the Saudi clinics, which lack magnetic resonance imaging for bilingual brains.

Because limited research has been published on word retrieval in young monolingual children (Kambanaros et al, 2015), there is an even greater gap and less information on the word retrieval skills of bilingual Arabic- and English-speaking children, especially regarding speed and accuracy. Some bilingual kindergarteners have problems with word retrieval, such as difficulty finding appropriate words, slow retrieval speed, or even retrieval failure compared with monolingual children, and the reasons remain unknown. These issues might lead to code-switching caused by the tip-of-the-tongue (TOT) phenomenon, which might lead to bilingual language-processing disorders. So, understanding these problems and their causes is crucial, especially when the development of an L2 overlaps with the ongoing development of the L1 system. This study aims to bridge the gap in knowledge about word retrieval in bilingualism among kindergarteners, particularly in the unique linguistic and cultural context of Saudi Arabia, by answering these questions:

1. To what extent does early bilingualism affect the accuracy and speed of Arabic word retrieval compared to monolingualism in Saudi kindergarteners?
2. To what extent does receptive word proficiency align with word retrieval in Saudi bilingual and monolingual kindergarteners?
3. Do bilingual Saudi kindergarteners demonstrate greater word retrieval speed and accuracy in their first language (Arabic) or their second language (English)?
4. Is there a correlation between high exposure to a second language (English) and word retrieval in Saudi bilingual kindergarteners?
5. To what extent do parents' perceptions align with their Saudi bilingual children's actual performance in word retrieval in English?

LITERATURE REVIEW

Theoretical Framework

Nickel's (1997) review of theoretical approaches investigated how linguistic and social structures can affect word retrieval. Language acquisition in a bilingual context is a dynamic and multifaceted process, and dynamic changes in retrieval occur as bilinguals develop two linguistic systems (Ecke & Hall, 2013). First, from a linguistics perspective, the experience of TOT is more frequent in bilingual than monolingual children because of the activation of both languages (Ecke, 2009). TOT often involves retrieving similar but incorrect words, which reflects the competition between and shared use of cognitive resources (Bowers & Kennison, 2011). Another theory from the linguistic perspective is the developmental interdependence hypothesis (Cummins, 1979), which suggests that proficiency in the first language can enhance second language retrieval and vice versa in a bilingual context. Therefore, introducing the second language before the first is fully developed, as in Saudi kindergarteners, could impact the retrieval process. In addition, the critical period hypothesis (Lenneberg, 1967) is significant in the linguistics field because it suggests that language acquisition is most effective during early childhood, which aligns with the focus of this research on bilingual kindergarteners. Consequently, early bilingualism during this critical period could impact the accuracy and speed of word retrieval.

Second, from the sociolinguistics' perspective, the interactive alignment model (Pickering & Garrod, 2004) offers a valuable insight into bilinguals' word retrieval skills across different societies. It emphasizes how the

interaction of children can influence how they acquire and formulate a language, indicating that social and environmental factors could play a significant role in word retrieval and pragmatic competence. Building on this insight, the interactive alignment model reinforces the importance of social context in shaping kindergarteners' linguistic competence in Saudi society, given that their social linguistic context frequently switches between Arabic and English.

Moreover, the process of word retrieval can be explained through a psycholinguistic model, Levelt's model of speech production. It delineates the sequential stages of conceptual preparation, lexical selection, phonological encoding, and articulation, identifying potential areas of disruption that could slow retrieval or cause errors (Levelt, 1993). Hence, the model provides a framework for examining how the word retrieval accuracy and speed reflected by the stages of lexical selection and phonological encoding could be influenced by early bilingualism in kindergarteners' brains as a result of their different language processing experiences. Another psycholinguistic model, the inhibition control model, supports this research by detailing how bilinguals suppress one language system to access the other, thus expressing different word retrieval processes (Green, 1998). This theory aligns with the bilingual interactive activation plus model, which illustrates how simultaneous activation of two linguistic systems can lead to competition, causing inhibitory control that, in turn, affects the accuracy and speed of word retrieval.

Offering a comprehensive framework by integrating these adoptive linguistic, sociolinguistic, and psycholinguistic theories allows this study to achieve its aim, which is to bridge the gap in our understanding by examining how early bilingualism influences word retrieval accuracy and speed among Saudi kindergarteners.

Simultaneous Bilingualism in Early Childhood

Bilingualism occurs when someone knows two languages (Valdez & Figueora, 1994). But figuring out what it really means to "know" a language can be tricky. Some bilinguals are very good at both languages, whereas others are better at one than the other. So, when we talk about bilinguals, it's important to ascertain how well they know each language and determine whether one is more dominant. Experts say it's rare for someone to be equally good in both languages, like a native speaker. They call this *true* bilingualism. If someone learns both languages from the very beginning at an early age, it's called *simultaneous bilingualism* (De Houwer, 2005). So, bilingualism in early childhood refers to the development of two linguistic systems simultaneously during the critical period before the age of six. Simultaneous bilinguals often need enhanced cognitive resources to navigate and differentiate between the two systems (Genesee, 2010). Additionally, studies show that they are different from their monolingual cohorts, especially in their brain and neural areas.

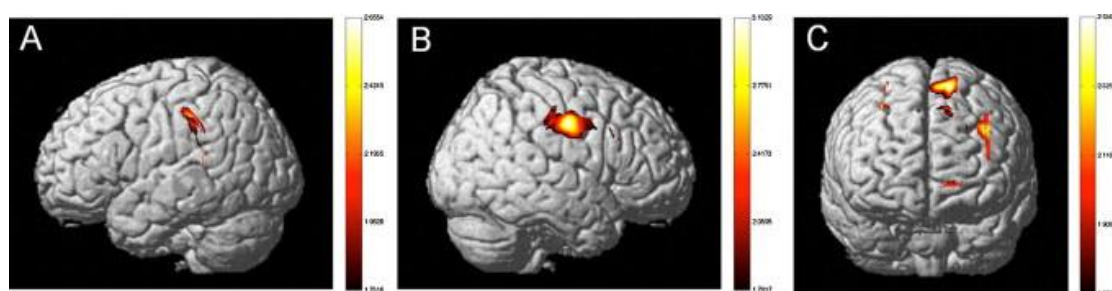


Figure 1: Brain Activation Patterns

Note. Neural activation patterns in early exposed bilingual children compared to monolingual children. Reprinted from "How age of bilingual exposure can change the neural systems for language in the developing brain: A functional near infrared spectroscopy investigation of syntactic processing in monolingual and bilingual children" by K. K. Jasinska & L. A. Petitto, 2013, *Developmental Cognitive Neuroscience*. Copyright 2013 by Elsevier. Reprinted with permission. The figure shows how early bilingualism affects the brains of the children by showing more neural activation in their left (A) and right (B) hemispheres and in their frontal lobes (C).

The literature of early bilingualism includes two contradictory reviews. The first review supports the positive effect of introducing a second language at an early age. Barac and Bialystok (2011) claimed that studying a second language at an early age has positive effects on both cognitive and verbal aspects. However, other research, such as Saer's (1923), argued that bilingualism has a negative effect on the practical and cognitive levels, and researchers such as Aljohani (2016) and Al-Shammmary (1989) have agreed with him. A more recent study by Barak et al., (2022) highlights the second review by suggesting that early bilingualism could lead to developmental language disorders.

Difficulties in Word Retrieval Speed and Accuracy

Word retrieval is a crucial cognitive process in communication and language (Wettler & Glockner-Rist, 1991). *Accuracy* in word retrieval refers to how correctly individuals can access and produce the exact words they want to

use, whereas *speed* is about how quickly they can access and produce vocabulary (McConnell, 2023). The speed and accuracy of word retrieval can influence not only individual communication skills but also social interactions (Farooqi-Shah & Gehman, 2021).

Many psycholinguists have related word retrieval with age, including Facal et al. (2012), who claimed that older speakers may experience TOT with more failure in word retrieval than younger speakers. Also, Harper and Daehler (1982) highlighted the relation between word retrieval and children. As children acquire new words, they may rely more on contextual cues rather than direct access, leading to more challenges when they try to communicate. Conversely, some linguists relate word retrieval to bilingualism; for example, Schmidt (2014) suggested that bilingual individuals may face retrieval challenges and slower processing because of the burden of managing two linguistic systems (see also Gavino & Glodrick, 2022). Additionally, researchers in the neurolinguistics field believe that problems with the accuracy or speed of word retrieval can be caused by injuries to specific brain areas that are responsible for language processing, particularly in the case of Broca's aphasia (Aghaz et al., 2018). For more interpretations, see Table 1.

Table 1 : Reasons for Difficulties in Word Retrieval From Different Fields' Perspectives	
Field	Reasons
Linguistics	Frequency effect, lexical competition, bilingualism, etc.
Neurolinguistics	Brain injury, specific language impairment, neurological diseases, etc.
Sociolinguistics	Code-switching, limited exposure of specific words in a culture, etc.
Psycholinguists	Age, emotional states, cognitive load, etc.

Previous Related Studies

Many studies confirm the positive effects of bilingualism on cognitive development. Metwally (2009) implemented a quasi-experimental study in which 30 Al-Riyadh kindergarten students participated. The objective of the study was to explore the effect of English science education on the cognitive development of children. The sample was divided into two groups: the experimental group ($n = 15$) consisting of children from AlAwqaf kindergarten, and a control group ($n = 15$) of children from the Al-Awa'el local kindergarten at Sebarbai village in Tanta Center. The researcher administered a cognitive development scale that had been distributed to the two groups before the experiment. The proposed approach of the piloted group was implemented for 8 weeks. After experimentation, a posttest was administered to both groups (the cognitive development scale). Findings of the statistical analysis indicated that there were statistically significant differences at 0.05 between the mean scores of the experimental group and the control group on the pretest and posttest in favor of the experimental group.

In a similar study, Aldosari and Alsultan (2017) investigated the impact of early bilingual education (English) on the literacy skills (reading and writing) of Arabic-speaking second graders in Saudi Arabia. They compared 30 monolingual students from a public school with 16 bilingual students from a private school. Results indicated no significant negative impact on Arabic literacy skills due to early English instruction. The findings suggested that introducing English during the first grade does not harm Arabic literacy development, supporting the inclusion of foreign languages in early education.

Another study investigated the acquisition of a second language after the first language system is fully developed in adults. Sullivan et al., (2018) examined why proficient bilinguals experience slower lexical retrieval compared to monolinguals, testing the frequency-lag and competition hypotheses. Results indicated that adult bilinguals and trilinguals performed similarly, with slower retrieval times for low-frequency words, supporting the competition hypothesis. Aging did not reduce lexical retrieval differences among language groups, contradicting the frequency-lag hypothesis. The findings suggest that both linguistic and cognitive processing play significant roles in bilingual lexical retrieval, highlighting the complexity of language processing in multilingual individuals.

A study conducted by Saldaña-Illingworth (2016) investigated the word retrieval skills of bilingual Spanish- and English-speaking children of Mexican descent compared to their monolingual English-speaking peers. The study measured the time participants took to recall labels for familiar nouns and verbs, aiming to uncover correlations between bilingualism and word retrieval speed. The findings revealed significant differences in word retrieval characteristics between the two groups, shedding light on the effects of language exposure on young bilingual children. In contrast, in Saudi Arabia, the processes of globalization and educational reform are more recent and have significantly increased the prevalence of bilingualism, with Arabic as the primary language and English as the secondary language (Al-Jarf, 2022). However, research on the cognitive and linguistic effects of bilingualism in Saudi children remains limited, particularly in areas such as word retrieval accuracy and speed.

Accordingly, recent research has increasingly highlighted the cognitive and linguistic implications of the benefits and challenges of bilingualism. However, few of the studies have explored early bilingualism and none have investigated how managing two languages affects word retrieval in early childhood, particularly in non-Western contexts. Understanding this effect, precisely in its speed and accuracy, is essential for developing effective educational strategies and supporting bilingual children in their language development journey, particularly among Arabic–English bilinguals. Therefore, this research underscores the importance of researching the specific features of specific language systems, because each language has unique characteristics that influence bilingual development (Hulme & Snowling, 2009; Messer & Dockrell, 2013). Also, most of the studies focused on the challenges of bilingualism for older bilingual populations or in different linguistic contexts, leaving a gap in the understanding of word retrieval accuracy and speed experience among bilingual kindergarteners at a critical age in Saudi Arabia.

METHODOLOGY

Design

The study adopted a quantitative cross-sectional approach by collecting the data at a single point in time and ensuring that the findings were valid and reliable, given that numerical data is inherently devoid of bias (Planing, 2014). Three designs were employed to answer the research questions. First, a comparative design was employed to examine whether early bilingualism affects the accuracy and speed of Arabic word retrieval compared to monolingualism among Saudi kindergarteners. Also, this design was used to determine whether the bilingual Saudi kindergarteners demonstrate greater word retrieval speed and accuracy in their first language (Arabic) or their second language (English). This design is suitable for analyzing bilinguals' performance across two conditions (L1 and L2) and within the same group of participants to ensure that individual differences such as cognitive ability or developmental stage do not confuse the results. Second, a correlational design was used to examine the relationship between receptive word proficiency and word retrieval performance in Saudi bilingual and monolingual kindergarteners, allowing for the assessment of how these variables align to provide a basis for evaluating word retrieval. Additionally, the correlational design was used to determine whether there was a correlation between high exposure to a second language (English) and word retrieval in Saudi kindergarteners, given that bilinguals vary widely in aspects such as their age at the onset of bilingualism and amount of exposure to their languages. The third design was a descriptive comparative design that measured the extent of alignment between parents' perceptions and their Saudi bilingual children's actual performance in word retrieval.

Participants

The participants were 84 Saudi kindergarteners who were chosen randomly. They consisted of two groups: bilingual children ($n = 42$) and monolingual children ($n = 42$). All were 5 years old, and none had prior neurological disorders or any speech or language impairment. Also, the participation of the bilinguals' parents ($n = 42$) is included.

Instruments

Criterion-Referenced Tests

Expressive Vocabulary Test. The Arabic Expressive Vocabulary Test (AEVT), which was developed by Shaalan (2010), was taken by the monolingual and bilingual groups to assess their word retrieval accuracy in their native language. This test was adapted from the Expressive One-Word Picture Vocabulary Test (EOWPVT; Brownell, 2000) which is a standardized test that provides assessment for the verbal expressive vocabulary for English individuals aged 2 to over 80 years old. The AEVT was translated into English to produce the EEVT, which was taken by the Saudi bilingual kindergarteners once again but this time in English to assess their word retrieval ability instead of using the EOWPVT because of cultural differences. The two tests followed the same principles of picture display, scoring, and organizing. The test included four trial items designed to familiarize children with the procedures and help them become comfortable with both the examiner and the test format. The materials consisted of a booklet containing 68 pages, with four pages for practice items and 64 pages for test items. Each page featured a single-colored picture sourced from non-copyrighted materials, ensuring consistent visual characteristics across all images. The items were arranged progressively from easy to difficult to reflect the typical expressive vocabulary development of the participants. Additionally, the researcher used a recorder and timer to assess the word retrieval speed of the participants.

Receptive Vocabulary Test. To ensure the reliability of the findings, the receptive word proficiency of the kindergarteners was assessed. The researcher used the Peabody Picture Vocabulary Test-Revised (PPVT-R), a standardized test that was developed in 1981 as a revision of the original PPVT by Lloyd and Leota Dunn to

assess bilingual kindergarteners' receptive word proficiency in their second language (English). The test consists of a series of pictures, with four pictures per page, each numbered. The examiner says a word that corresponds to one of the pictures and asks the participant to either point to or state the number of the picture that matches the word. Additionally, the same test was translated into Arabic and used in its Arabic equivalent (the APVT-R) to assess the kindergarteners' receptive word proficiency in their native language of Arabic. The researcher used the kindergarteners' receptive word proficiency as a basis for credibly evaluating word retrieval.

Questionnaire

The third instrument was the questionnaire, and its reliability, validity, and alignment with the study's objectives were ensured by three experts in the linguistics field. It was distributed to parents in the form of a survey based on a 5-point Likert scale ranging from strongly disagree to strongly agree; the items measured second language exposure and the parents' perceptions of the word retrieval challenges faced by their children. Additionally, the questionnaire was used to obtain the parents' ethical approval of their children's participation and confirm that the children had no known neurological or language disorders.

Ethical Considerations

This study adhered to ethical research guidelines to ensure participant anonymity and data confidentiality. All parents were informed of the study's purpose and provided written consent before their children participated. No personally identifiable information was collected, and all responses were anonymized to protect participant identity. Furthermore, all data were stored securely, accessible only to the researcher. The study received ethical approval from IMSIU, ensuring compliance with ethical research standards.

Procedures

All 84 bilingual and monolingual kindergarteners were asked to complete the AEVT in Arabic, their first language, to assess their word retrieval accuracy, and their answers were recorded in written form. A timer and voice recorder were also used to assess their word retrieval speed. The researcher started with four practice questions to make the children comfortable and familiar with the process of the test. The test consisted of 68 pictures; however, because of the participants' age, they completed only 32 items. The test was structured with a frequency format, beginning with easier items and progressing to more challenging ones to reflect their typical expressive word development. Their results were followed by a descriptive analysis of the children's ability to produce and retrieve words accurately and another descriptive analysis of the speed and number of times they took to respond. The performance of the two groups was subject to a comparative analysis. The bilingual kindergarteners were then asked to complete the test again in their second language, English, (using the EEVT), followed with a comparative analysis to determine the language in which they performed best. Also, the researcher assessed the participants' receptive word proficiency and used it as a basis to credibly evaluate their word retrieval results. First their receptive word proficiency in their native language was assessed by using the Arabic version (the APVT-R). Then the bilingual kindergarteners took it again in English (the PPVT-R) to assess their receptive word proficiency in their second language. Meanwhile, the children's parents completed questionnaires to allow for more a comprehensive framework for evaluating the impact of high exposure to a second language on word retrieval and to record their perceptions of the word retrieval challenges affecting their children.

Data Analysis

The researcher used descriptive statistics for test performance (e.g., accuracy, response times) and parental response (e.g., mean scores, standard deviations). Also, inferential statistics was used (e.g., t-tests, ANOVA) for two comparative analyses of the two groups and for a comparison between the bilinguals' first and second languages. These analyses helped identify any significant correlations within the results, with statistical significance assessed using a p-value threshold of ≤ 0.05 . Additionally, the researcher evaluated the receptive word proficiency of all participants to provide a credible framework for interpreting word retrieval results by using statistical comparisons of receptive vocabulary proficiency and word retrieval performance.

RESULTS

The reliability analysis of the questionnaire was conducted on 13 items (including variables related to second language exposure and parents' perception of word retrieval challenges) using Cronbach's alpha to assess internal consistency. The analysis included 42 participants, with Cronbach's alpha = 0.698. This score indicates acceptable internal consistency for the scale. Although this value is below the ideal threshold of 0.7, it is close enough to suggest moderate reliability, particularly for exploratory research. The scale demonstrates reasonable coherence among the items. It is important to note that this reliability analysis applies only to the parental questionnaire, because the vocabulary tests used in the study were standardized.

The Effect of Early Bilingualism on the Accuracy and Speed of Arabic Word Retrieval Compared to Monolingualism in Saudi Kindergarteners

Table 2. Comparison of the Accuracy and Speed of Arabic Word Retrieval Scores Between Bilingual (N = 42) and Monolingual Kindergarteners (N = 42)

Variable	Group	Mean %	S.D.	Statistic (t)	P-value	Significance
Speed (word retrieval)	Monolingual	94	5.8	t = 2.37	0.020* < 0.05	Significant
	Bilingual	91	5.7			
Accuracy (word retrieval)	Monolingual	87.3	7.6	t = 2.76	0.007* < 0.05	Significant
	Bilingual	82.1	9.8			

Note. * means that there was a significant difference between bilingual and monolingual performance, as confirmed by an independent t-test at $p < 0.05$.

Table 2 presents a comparison of the word retrieval performance of bilingual and monolingual kindergarten-aged children in Saudi Arabia, focusing on the accuracy and speed of Arabic word retrieval. Independent t-tests were used to analyze the differences, with statistical significance set at $p < 0.05$.

The results directly address Research Question 1, which explores how early bilingualism influences the accuracy and speed of Arabic word retrieval. Regarding speed, monolingual children demonstrated significantly higher scores (mean = 94%, SD = 5.8) compared to their bilingual peers (mean = 91%, SD = 5.7), with a statistically significant difference ($t = 2.37$, $p = 0.020$). This finding suggests that monolingual children have an advantage in the speed of Arabic word retrieval compared to their bilingual peers. Additionally, regarding accuracy, the monolingual children outperformed bilinguals, scoring a mean of 87.3% (SD = 7.6) compared to 82.1% (SD = 9.8) for bilinguals ($t = 2.76$, $p = 0.007$). This indicates that bilingual children experienced more difficulty retrieving words.

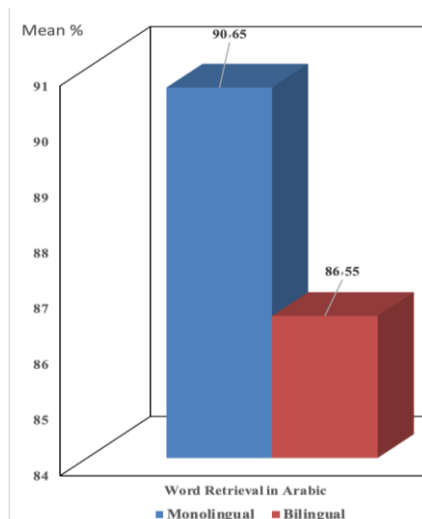


Figure 2: Comparison of Word Retrieval Performance in Bilingual and Monolingual Kindergarteners in Arabic

This figure provides a general overview of word retrieval performance in bilingual children; the average of the accuracy score (82.1%) and speed score (91%) was calculated, resulting in a combined mean of 86.55%. For the monolingual children, the average of the accuracy score (87.3%) and speed score (94%) resulted in a combined mean of 90.65%. These combined percentages offer a simplified overall estimate of word retrieval ability, reflecting both how accurately and how quickly the children retrieved words. Together, these findings provide preliminary support for the idea that early bilingualism affects word retrieval performance. These outcomes form a foundational response to the first study question and set the stage for a deeper exploration of related factors such as receptive words, language exposure, and parental perceptions (addressed in Research Questions 2, 3, 4, and 5).

The Alignment Between Receptive Word Proficiency and Word Retrieval Among Bilingual and Monolingual Saudi Kindergarteners

Table 3: Comparison of Receptive and Expressive Word Performance Among Bilingual and Monolingual Kindergarteners Across All Their Languages

Language	Receptive		Expressive		t-value	p-value	Significance
	Mean %	S.D	Mean %	S.D			
Bilingual in English	95.41	5.26	89.72	9.88	7.383	0.000*	Significant
Bilingual in Arabic	94.53	5.79	86.55	9.77	10.467	0.000*	Significant
Monolingual in Arabic	91.57	5.66	90.65	7.60	5.825	0.000*	Significant

Note. * means that a significant difference was determined by using a paired t-test at $p < 0.05$.

Table 3 presents a comparison of receptive and expressive word performance among bilingual and monolingual kindergarteners in Saudi Arabia.

The results show a consistent and statistically significant drop in performance from receptive word test scores to expressive word test scores across all language groups. For bilingual children assessed in English, the mean receptive test score was high (95.41%, SD = 5.26), whereas the expressive test score dropped notably to 89.72% (SD = 9.88), with a significant difference ($t = 7.383$, $p = 0.000$). Similarly, bilingual children assessed in Arabic also showed a strong receptive test score ($M = 94.53\%$, $SD = 5.79$), but their expressive score decreased further to 86.55% (SD = 9.77), with the highest statistical difference among all groups ($t = 10.467$, $p = 0.000$). Interestingly, monolingual Arabic-speaking children had slightly lower input scores (91.57%, SD = 5.66) compared to bilinguals, but their output scores (90.65%, SD = 7.60) remained relatively close to their input, with a smaller yet still significant gap ($t = 5.825$, $p = 0.000$). These findings align directly with the second research question, revealing that both bilingual and monolingual children experience greater difficulty with word retrieval than with receptive recognition. However, larger gaps were observed among bilinguals, particularly in Arabic.

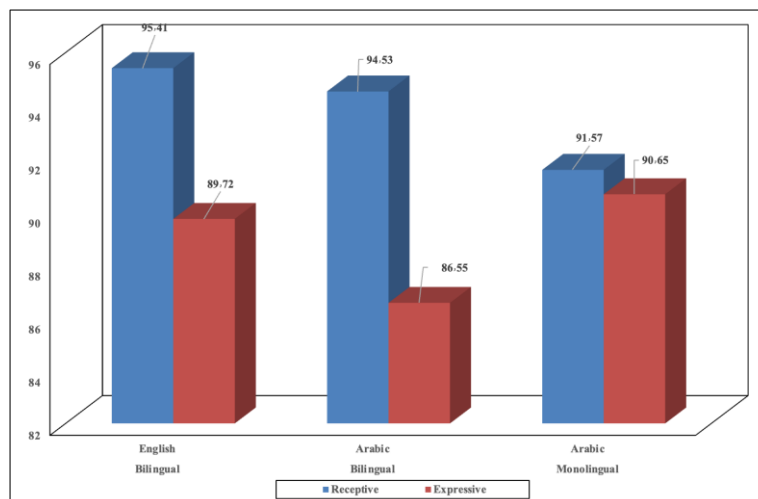


Figure 3: Comparison of Receptive and Expressive Word Performance in Bilingual and Monolingual Kindergarteners Across All Their Languages

Figure 3 illustrates the differences between receptive and expressive word scores among Saudi kindergarteners across three language groups: bilingual English, bilingual Arabic, and monolingual Arabic. The bars representing the performance of receptive word tests are consistently higher than the performance of the expressive word tests in all groups, highlighting a common trend: children are generally better at recognizing words than at retrieving them for production. Among the bilingual children, the English receptive word test scores (95.41%) were slightly higher than the Arabic receptive word test scores (94.53%), yet both groups showed a marked drop in the expressive word performance—to 89.72% for English and a more substantial 86.55% for Arabic. This larger gap between the receptive and expressive word tests scores in Arabic among the bilinguals suggests greater difficulties in word retrieval. In contrast, monolingual Arabic-speaking children had the smallest gap between receptive word test (91.57%) and expressive word test (90.65%) scores, indicating more stable and balanced lexical access in a single-language environment.

Bilingual Saudi Kindergarteners' Word Retrieval in Arabic vs. English

Table 4: Comparison of Word Retrieval Performance in Receptive and Expressive Word Tests in Arabic and English among Bilingual Kindergarteners (N = 42)

Language	Receptive		Expressive		t-value	p-value	Significance
	Mean	S.D	Mean	S.D			
Arabic	94.53	5.79	86.55	9.77	10.47	0.000*	Significant
English	95.41	5.26	89.72	9.88	7.38	0.000*	Significant
t-value	0.87		3.1				
p-value	0.388		0.003*				
Significance	Not significant		Significant				

Note. * means a significant difference was confirmed by using a paired t-test at $p < 0.05$.

Table 4 presents a comparative analysis of the bilingual kindergarteners' word retrieval performance in Arabic and English when taking two types of word test: receptive and expressive. These findings directly address Research Question 3 of the study. In both languages, bilingual children achieved significantly higher word retrieval scores in receptive word tests than in expressive word tests. For Arabic, performance dropped from 94.53% to 86.55% ($p = 0.000$), whereas for English, it decreased from 95.41% to 89.72% ($p = 0.000$). So, a comparison of the languages showed no significant difference in the receptive word tests ($p = 0.388$), indicating that the bilingual children acquired words equally well in Arabic and English. However, in the expressive word tests, retrieval scores were significantly higher in English than in Arabic ($p = 0.003$), suggesting that bilingual children encounter more difficulties in their first language when trying to retrieve words.

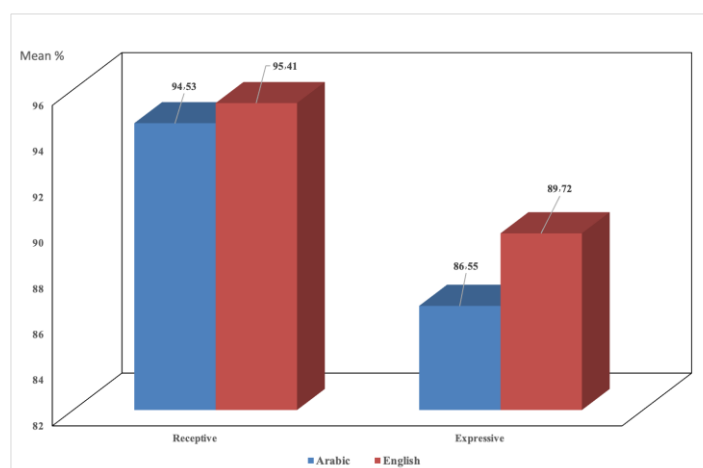


Figure 4: The Means of Word Retrieval Scores for Receptive and Expressive Word Tests in Arabic and English among Bilingual Kindergarteners

Figure 4 visually compares bilingual kindergarteners' word retrieval performance in Arabic and English based on the two types of tests.

Correlation Between High Exposure to English and Word Retrieval Performance in Bilingual Saudi Kindergarteners

Table 5: Parental Reports on Second Language (English) Exposure among Saudi Bilingual Kindergarteners

Item	Statement	SA N (%)	A N (%)	UD N (%)	D N (%)	SD N (%)	Combined Agree (SA+A) N (%)	Mean (SD)
Item1	My child was exposed to their second language (English) before the age of 3.	10 (23.8%)	24 (57.1%)	—	4 (9.5%)	4 (9.5%)	34 (80.9%)	3.76 (1.21)

Item2	My child uses their second language (English) more than their first language (Arabic).	6 (14.3%)	15 (35.7%)	4 (9.5%)	11 (26.2%)	6 (14.3%)	21 (50.0%)	3.10 (1.34)
Item3	My child is exposed to English both at school and at home.	6 (14.3%)	28 (66.7%)	4 (9.5%)	4 (9.5%)	—	34 (81.0%)	3.86 (0.78)
Item4	My child hears English frequently at home through family interactions.	6 (14.3%)	14 (33.3%)	12 (28.6%)	8 (19.0%)	2 (4.8%)	20 (47.6%)	3.33 (1.10)
Item5	My child hears English frequently at home through media.	17 (40.5%)	16 (38.1%)	7 (16.7%)	2 (4.8%)	—	33 (78.6%)	4.14 (0.87)
Item6	My child spends more time interacting in English than in Arabic.	11 (26.2%)	10 (23.8%)	6 (14.3%)	13 (31.0%)	2 (4.8%)	21 (50.0%)	3.36 (1.30)

Note. SA = Strongly Agree (5 points), A = Agree (4), UD = Undecided (3), D = Disagree (2), SD = Strongly Disagree (1). Means (SD) were calculated based on a Likert scale (1–5).

Table 5 provides insights into parental reports of English language exposure among Saudi bilingual kindergarteners, directly supporting the study's investigation into early bilingualism, language dominance, and the influence of exposure type on word retrieval performance. The finding shows the relations among early L2 exposure, passive versus interactive use of English, and parental assumptions about language use in home and school environments.

Regarding early exposure to English (Item 1), 80.9% of parents agreed that their child was exposed to English before the age of 3 (mean = 3.76, SD = 1.21), indicating substantial early bilingual input. As for language dominance (Items 2 and 6), only 50% of parents agreed that their child used or interacted in English more than Arabic (Item 2 mean = 3.10, SD = 1.34; Item 6 mean = 3.36, SD = 1.30). These moderate means and high variability reflect a lack of clear dominance of English in everyday communication, which may preserve stronger Arabic retrieval and suggest limited expressive fluency in English.

In terms of exposure settings (Items 3, 4, and 5), 81% of parents reported that their child was exposed to English both at school and at home (Item 3; mean = 3.86, SD = 0.78), and 78.6% agreed their child heard English frequently through media (Item 5; mean = 4.14, SD = 0.87). However, only 47.6% reported frequent exposure through family interactions (Item 4; mean = 3.33, SD = 1.10), indicating that although structured and passive exposure is high, interactive, spontaneous use of English at home is less common.

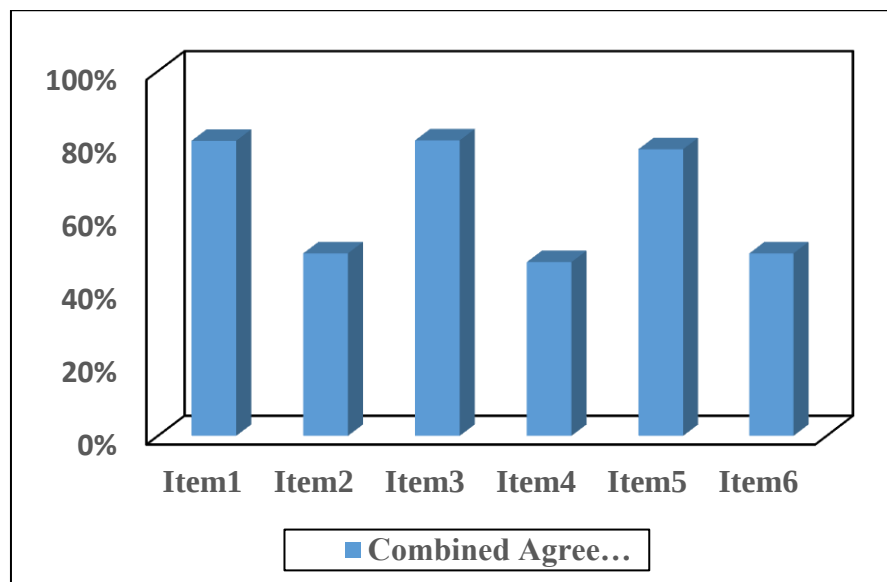


Figure 5: Percentage of Parents Agreeing (Strongly Agree + Agree) with Statements on Early English Exposure

The graph in Figure 5 effectively visualizes key trends in early English exposure, revealing that a majority of parents (80.9%–81.0%) agreed that their children were exposed to English both at school and home (Item 3) and through media (Item 5), whereas only around half (47.6%–50.0%) reported frequent English use in family interactions (Item 4) or dominance over Arabic (Items 2 and 6). The high agreement for media-related exposure (Item 5: 78.6%) contrasts with lower engagement in conversational English at home (Item 4: 47.6%), suggesting that passive exposure (e.g., videos) may outweigh active usage. The mean scores (3.10–4.14) and standard deviations (0.78–1.34) further highlight variability, particularly in Items 2 and 6, where disagreement was notable (26.2%–31.0%). Overall, the graph underscores the roles of institutional and digital exposure in shaping bilingualism, pointing to Arabic's retained dominance in familial settings.

Table 6: Pearson Correlation Between Exposure to English and English Word Retrieval Among Saudi Bilingual Kindergarteners (N = 42)

Variable	1. Bilinguals in English Word Retrieval	2. Exposure to English
1. Bilinguals in English word retrieval	1	-.151
2. Exposure to English	-.151	1
P- value	—	0.341
N	42	42

Note. * There is a significant correlation at $p < 0.05$.

Table 6 presents the Pearson correlation analysis between bilingual Saudi kindergarteners' exposure to English (exposure mean) and their performance in English word retrieval tasks (expressive word test), directly addressing Research Question 4, which investigates whether greater second language (L2) exposure is associated with improved lexical access in English. The analysis revealed a negative, nonsignificant correlation ($r = -.151$, $p = .341$), indicating that increased exposure to English did not correspond to better performance in English word retrieval. Table X suggests that exposure alone may not be a reliable predictor of productive language proficiency among young Saudi bilinguals.

Alignment Between Parents' Perceptions and Their Children's Actual Word Retrieval Performance

Table 7: Parents' Perceptions of Word Retrieval Challenges in Bilingual Saudi Kindergarteners

Item	Statement	SA N (%)	A N (%)	UD N (%)	D N (%)	SD N (%)	Combined Agree (SA+A) N (%)	Mean (SD)
Item1	My child sometimes uses incorrect names for	2 (4.8%)	15 (35.7%)	7 (16.7%)	18 (42.9%)	—	17 (40.5%)	3.02 (1.00)

	objects in Arabic.							
Item2	My child sometimes uses incorrect names for objects in English.	—	11 (26.2%)	6 (14.3%)	18 (42.9%)	7 (16.7%)	11 (26.2%)	2.50 (1.07)
Item3	My child frequently switches between Arabic and English while speaking.	—	18 (42.9%)	2 (4.8%)	22 (52.4%)	—	18 (42.9%)	2.90 (0.98)
Item4	I have noticed my child pauses or hesitates when trying to name objects.	—	11 (27.5%)	13 (32.5%)	16 (40.0%)	—	11 (27.5%)	2.88 (0.82)
Item5	I feel my child is not fluent in English.	—	13 (31.0%)	10 (23.8%)	10 (23.8%)	9 (21.4%)	13 (31.0%)	2.64 (1.14)
Item6	I feel my child is not fluent in Arabic.	6 (14.3%)	4 (9.5%)	6 (14.3%)	19 (45.2%)	7 (16.7%)	10 (23.8%)	2.60 (1.29)
Item7	I believe my child struggles to communicate compared to their peers due to exposure to Arabic and English at one time.	2 (4.8%)	2 (4.8%)	4 (9.5%)	27 (64.3%)	7 (16.7%)	4 (9.6%)	2.17 (0.94)

Note. SA = Strongly Agree (5 points), A = Agree (4), UD = Undecided (3), D = Disagree (2), SD = Strongly Disagree (1). Means (SD) were calculated based on a Likert scale (1–5).

Table 7 provides insights into parental observations of word retrieval difficulties among bilingual Saudi kindergarteners, directly addressing the study's focus on word retrieval in early bilingual development. The findings identify the relations between word retrieval and parental awareness of language-related challenges. Regarding word retrieval errors in Arabic versus English (Items 1 and 2), 40.5% of parents agreed that their child sometimes used incorrect object names in Arabic (Item 1; mean = 3.02, SD = 1.00), but 42.9% disagreed. For English naming errors (Item 2), only 26.2% of parents agreed that their child made such mistakes (mean = 2.50, SD = 1.07), whereas 59.6% disagreed (combining D + SD). Also, more Arabic errors were reported than English errors. Regarding code-switching and hesitation, 42.9% of parents observed frequent switching between Arabic and English (Item 3; mean = 2.90, SD = 0.98), but 52.4% disagreed. Hesitation during naming (Item 4) was reported by 27.5% of parents (mean = 2.88, SD = 0.82), with 40% disagreeing. As for perceived fluency, 31% of parents felt their child was not fluent in English (Item 5; mean = 2.64, SD = 1.14), whereas 45.2% disagreed. For Arabic fluency (Item 6), 23.8% questioned it (mean = 2.60, SD = 1.29), and 61.9% disagreed. Regarding communication difficulties compared to peers (Item 7), 9.6% of parents agreed that their child struggled because of bilingualism (mean = 2.17, SD = 0.94), but 81% disagreed (Disagree + Strongly Disagree).

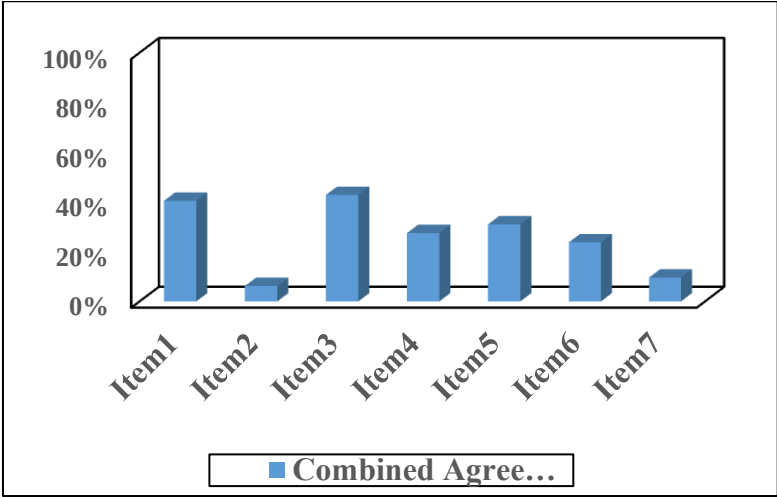


Figure 6: Parental Reports of Lexical Retrieval Performance in Bilingual Kindergarteners

The graph in Figure 6 presents parental observations of word retrieval patterns among Saudi Arabic–English bilingual kindergarteners, revealing several key insights. The data shows that approximately 60–70% of parents reported occasional delays in word retrieval speed (e.g., “My child hesitates when switching between languages”), whereas accuracy challenges (e.g., “Uses incorrect words in the target language”) were reported by 40–50% of respondents. Notably, higher agreement rates (70–80%) appeared for items related to language mixing, suggesting this is a normative behavior in early bilingual development. The standard deviations (± 1.1 – 1.3) indicate moderate variability across the sample, with some children demonstrating more pronounced difficulties than others. The graph highlights how retrieval patterns vary by language context, with English words showing slightly longer retrieval times but comparable accuracy to Arabic in educational settings.

Table 8: Correlation Between Bilingual Word Retrieval and Perception

Variable	Pearson Correlation r with Parental Perceptions Mean	p-value	Significance
Bilinguals in Arabic word retrieval	0.12	p = 0.435	Not significant
Bilinguals in English word retrieval	–0.06	p = 0.713	Not significant

Note. * There is a significant correlation at $p < 0.05$.

Table 8 displays the Pearson correlation between Saudi bilingual kindergartners’ performance in English and Arabic word retrieval tests and their parents’ average perception of their bilingual competence (Parental Perception mean), thereby addressing Research Question 5, which explores the alignment between parental perceptions and their children’s actual performance. The analysis reveals very weak, negative, and nonsignificant correlations between their first and second languages. The correlation between bilinguals in Arabic word retrieval and parental perceptions was ($r = -.12$, $p = .435$), and in their English word retrieval and their parental perceptions was ($r = -.06$, $p = .713$), indicating virtually no relationships between how children performed in English or Arabic word retrieval tests and how their parents perceived their bilingual word retrieval abilities. This result underscores a notable disconnect between perceived and actual bilingual performance. Also, the nonsignificant correlation between parental perception and word retrieval performance in Table 8 reinforces the finding that parental perceptions do not always align with reality.

The result of this research presents a comprehensive overview of the effect of early bilingualism on word retrieval accuracy and speed among Saudi kindergarteners and addresses the five research questions by showing that bilingual children demonstrated lower accuracy and slower speed in Arabic word retrieval compared to the monolingual group. It is important to note that the receptive vocabulary scores were consistently higher than the expressive scores across all groups, with bilinguals showing a larger gap between expressive and receptive scores, particularly in Arabic. Moreover, within the bilingual group, children retrieved words more effectively in English than in Arabic. Notably, no significant correlation was found between increased exposure to English and improved word retrieval performance in English, and parents’ perceptions of their children’s word retrieval abilities did not align significantly with the children’s actual performance. Accordingly, these results indicate key patterns in the data and establish a foundation for further interpretation that will be explored in the discussion below, including comparisons with prior research and considerations for theoretical and practical implications.

DISCUSSION

The Effect of Early Bilingualism on the Accuracy and Speed of Arabic Word Retrieval Compared to Monolinguals in Saudi Kindergarteners

The result from Table 2 offers clear evidence that early bilingualism impacts both the speed and accuracy of word retrieval performance of Saudi kindergarteners. This result confirms that early bilingualism presents certain processing challenges in specific language tasks, particularly in word retrieval, even though it also offers many cognitive and creative capabilities, as Al-Saud (2016) suggests. Additionally, monolingual children outperformed bilingual children with higher mean scores in both retrieval speed (94% vs 91%) and retrieval accuracy (87.3% vs 82.1%) in the Arabic language. These significant differences support the idea that bilingual children face greater cognitive demands when accessing words in their native language because they activate two linguistic systems. Antoniou et al. (2013) suggested that learning and using a second language involves widespread brain activity, particularly in areas linked to cognitive control and attention. This supports the view that bilingual individuals face increased cognitive demands, because both language systems are engaged even when only one is in use.

Regardless of the results, participants in each group committed shared types of errors when tested for word retrieval ability in their native language. First, the bilingual group mainly produced errors and delays that were related to code-switching; for example, when the researcher asked them a question in Arabic, they answered by pronouncing the word in English and then immediately switching to its Arabic equivalent. This code-switching can complicate the production process, indicating that bilinguals may experience unique retrieval challenges during language tasks (Kuiken, 2022). Another common error by bilingual children was the production of words with similar pronunciations and sounds, such as substituting the word eggplant (باننجان) with ginger (زنجبيل). This aligns with Kalashnikova et al. (2019), who claimed that bilingual children are more accepting of lexical overlap because of the similar-sounding words that exist in both languages, which can lead to temporary confusion or word substitution. This acceptance reflects the early influence of bilingualism on the children's word production and retrieval processes when they are managing two linguistic systems, because lexical similarity increases the likelihood of confusion or competition between words during language processing.

However, the bilingual group was better at category shifts and morphosyntactic shifts than the monolingual group. Many monolingual children changed nouns into verbs, for example, pool (مسبح) into swimming (يسبح). This aligns with previous research that indicated that monolingual children, unlike their bilingual peers, rely more heavily on morphosyntactic cues, which may increase their tendency to commit category shift errors such as converting nouns into verbs. In contrast, bilingual children tend to rely more on contextual and semantic cues during language processing, resulting in fewer morphosyntactic errors (Kaushanskaya et al., 2015). Also, the current study revealed that monolingual children frequently committed semantic substitution errors, such as saying clothes (ملابس) instead of t-shirt (قميص) and vegetables (خضار) instead of eggplant (باننجان), indicating a reliance on broader categorical labels when retrieving specific word items. In contrast, bilingual children did not exhibit this type of error, suggesting more precise word access. This aligns with Barac and Bialystok's (2012) finding that the cognitive flexibility and enhanced executive control in bilingual children allow them to manage linguistic information more efficiently and with greater sensitivity to contextual meaning.

Another common error noticed among the monolingual children was the substitution of the word *idea* (فكرة) for *lamp* (لمبة), which appears to reflect a figurative meaning. This type of error highlights the role of cognitive framing, in which people rely on a conceptual metaphor during lexical retrieval (Lakoff & Johnson, 1980). Thus, the metaphorical link between *lamp* and *idea* (with a *lamp* symbolizing a new idea) influenced the monolingual children's word choice, suggesting a greater reliance on figurative meaning than on direct lexical meaning. In contrast, bilingual children tend to rely more on literal meanings, especially during the early stages of L2 development, as they process each language within its specific semantic and syntactic frameworks (Bialystok, 2001; Nicoladis, 2006). Moreover, bilinguals often engage in more controlled lexical access due to the strain of managing two language systems, which can lead to more literal choices when retrieving a word (Costa et al., 2000). Therefore, this difference in error type between monolinguals and bilinguals reflects not just linguistic exposure, but deeper cognitive differences in semantic processing and framing strategies shaped by the bilingual experience. This aligns with the findings of Chiu and Hong (2007), who showed that cultural priming can activate different cognitive frameworks. So, in bilinguals, alternating between linguistic and cultural systems may suppress automatic metaphorical associations that are common in monolingual processing, leading to more literal word retrieval strategies.

The Alignment Between Receptive Word Proficiency and Word Retrieval Among Bilingual and Monolingual Saudi Kindergarteners

The results show a statistically significant discrepancy between receptive word proficiency and word retrieval across the bilingual and monolingual groups, confirming the general linguistic principle that word recognition

tends to precede word retrieval in early language development (Junge et al., 2014). However, the bilingual participants assessed in Arabic scores remained high on the receptive word test ($M = 94.53\%$, $SD = 5.79$), though their expressive scores declined more sharply to 86.55% ($SD = 9.77$), producing the largest gap observed ($t = 10.467$, $p = 0.000$). This greater disparity in Arabic confirms that the bilingual children experienced more difficulty retrieving Arabic words than English words. In addition, the bilingual children assessed in English scored highly on the receptive word test ($M = 95.41\%$, $SD = 5.26$), but their expressive word performance dropped to 89.72% ($SD = 9.88$), showing a significant difference ($t = 7.383$, $p = 0.000$). Even though this gap is smaller than the one observed in their Arabic scores, it still reflects a noticeable gap in their English scores. Conversely, the monolingual children exhibited the narrowest gap between the two tests ($t = 5.825$, $p = 0.000$), with receptive scores averaging 91.57% ($SD = 5.66$) and expressive scores at 90.65% ($SD = 7.60$). This aligns with the claim of DeKeyser (2020) that consistent input and output within a single language support more stable lexical access and word retrieval processes.

Despite the gaps, the bilingual children earned higher scores in the receptive tests (English and Arabic) than the monolingual children. This shows the advantages of early bilingualism, which include a heightened metalinguistic awareness and ability to extract meaning from diverse linguistic contexts, even when expressive output is less developed. Carlson and Meltzoff (2008), claimed that the stronger cognitive control systems found in bilingual children are in areas such as attention shifting, working memory, and inhibitory control. These cognitive abilities allow bilingual children to manage two linguistic systems simultaneously, leading to enhanced executive functioning, which in turn supports more efficient word recognition and comprehension. Studies have shown that bilingualism strengthens cognitive flexibility and selective attention—skills that are essential not only in language processing but also in overall learning and academic performance (Adesope et al., 2010). Thus, the superior receptive performance observed among bilingual children may be the result of both enriched linguistic input and enhanced cognitive resources. Also, this result is consistent with previous research suggesting that bilingual children often develop strong receptive vocabulary skills due to exposure to a broader range of input across two languages (Bialystok, 2009; Hoff et al., 2012).

Bilingual Saudi Kindergarteners' Word Retrieval in Arabic vs. English

There was a significant difference in the bilinguals' word retrieval scores in both languages even though the receptive word scores in Arabic ($M = 94.53\%$) and English ($M = 95.41\%$) did not differ significantly ($p = 0.388$). The result indicates greater difficulty with word retrieval in Arabic ($M = 86.55\%$) than in English ($M = 89.72\%$; $p = 0.003$). This discrepancy may occur for several reasons. First, Arabic is more complex in its structure and richer in its morphology. So, its linguistic variation may lead to a higher cognitive load during retrieval and expressive tests. Cohen-Mimran et al. (2013) found that for Arabic-speaking children, recalling inflected words was significantly more challenging than recalling uninflected words. Their study aligns with the current findings, suggesting that the morphological richness of Arabic imposes additional demands on verbal working memory, which in turn affects word retrieval. Second, even when Arabic is the first language to be acquired, English is often more dominant in international educational settings; in the current study, the test was taken at an international school, potentially leading to more expressive proficiency in English. Al-Jarf, (2022) found that English is stronger and preferred by children in international schools. This preference can be attributed to the fact that English is the medium of instruction in these schools, which enhances the children's expressive abilities in English over Arabic.

However, all bilingual children made the same error in the English test, which was related to culture and religion: none of the children answered "mosque," even though they knew the word in Arabic; they were simply not aware of its equivalent in English. This serves as a reminder that language is more than just a system of letters and words, but a reflection of culture, identity, and shared meaning within a community. As Kramsch (1998) suggested, language is a cultural practice that conveys not only meaning but also values and traditions. This implies that errors in the expressive use of words may not always be caused by cognitive or linguistic limitations, but by differences in cultural exposure. So, when children lack experience using certain culturally embedded terms in one language, even if they understand them in another, they may fail to retrieve them during expressive tasks.

Correlation Between High Exposure to English and Word Retrieval Performance in Bilingual Saudi Kindergarteners

Many studies emphasize the importance of early second language (L2) exposure in the establishment of foundational linguistic competence (Paradis, 2011; Weisleder & Fernald, 2013). However, regarding expressive word retrieval performance, Table 6 reveals a nonsignificant and negative correlation between the amount of exposure and word retrieval outcomes in English ($r = -.151$, $p = .341$), suggesting that quantity of exposure alone does not necessarily translate into more productive vocabulary use. A key factor in interpreting this result

is the distinction between types of exposure, particularly passive versus interactive. Although structured and passive forms of exposure (e.g., school instruction and media content) were reported to be high, with 81% of children exposed to English both at school and home, 78.6% were exposed through media, and only 47.6% of parents reported frequent interactive English use at home. This discrepancy supports prior findings that active and socially contingent language use plays a more critical role in the development of expressive language abilities than does passive exposure alone (Weisleder & Fernald, 2013). The same study found that the amount of interactive, conversational speech directed at children was a stronger predictor of vocabulary growth than the total amount of speech heard indirectly. Similarly, Hoff (2006) emphasized that linguistic input that is rich, engaging, and socially contingent supports lexical development more effectively than passive exposure alone. Overall, frequent exposure to English is necessary but not sufficient for enhancing word retrieval performance. Instead, the quality and context of exposure, especially meaningful and interactive communication, play more critical roles in developing expressive word usage.

Alignment Between Parents' Perceptions and Their Children's Actual Word Retrieval Performance

Although most parents acknowledged that their children sometimes used incorrect names for objects in Arabic, which was reflected in the highest mean score of 3.02 for this item, they largely disagreed with the idea that bilingual exposure causes communication difficulties, as shown by the lowest mean score of 2.17 for the statement "I believe my child struggles to communicate compared to their peers due to exposure to Arabic and English at one time." However, direct language assessments revealed that children exhibited word retrieval challenges in both Arabic and English, with greater difficulty in Arabic. This suggests that although parents notice occasional lexical errors, they may not perceive these as signs of deeper processing challenges, especially when conversational fluency seems intact (Paradis, 2007). It also shows that the parental responses suggest an accurate understanding of bilingualism: they recognize the presence of language errors but do not attribute them to bilingualism itself. This reflects current research findings that early bilingual exposure does not cause confusion or delay, and that bilingual children are capable of learning two languages without harm, provided they receive adequate and balanced support in both (Paradis, 2007). The issue, therefore, lies not in bilingualism, but in the lack of strategic implementation to support vocabulary development and word retrieval in both languages.

Even though a considerable percentage of parents reported noticing word retrieval difficulties in their children (40.5% in Arabic and 26.2% in English), the statistical analysis still revealed a weak and nonsignificant correlation ($r = -.12$, $p = .435$ in Arabic; $r = -.06$, $p = .713$ in English) between parents' perceptions and the children's actual performance on word retrieval tests. This suggests that although there is some general parental awareness, it does not consistently align with individual children's test outcomes, indicating a disconnect between perceived and actual bilingual performance. Such a disconnect between parental perception and the measures of language abilities has been documented in previous research (Hauerwas & Stone, (2000), where parents may either overestimate or underestimate their child's language abilities because of a limited awareness of specific linguistic processes or challenges. However, this study disagrees with the previous one and argues that parents are the closest observers and the most knowledgeable about their children. So, another more realistic reason to explain the weak correlation between parental perceptions and children's actual word retrieval performance is the difference in language use across contexts. At school, children are exposed to structured and clearly separate language environments, with specific classes dedicated to Arabic and to English. This structured setting allows the brain to organize and compartmentalize each language more effectively, supporting clearer lexical access and more consistent language use. In contrast, the home environment often involves frequent code-switching, where both languages are used interchangeably and without clear boundaries. This informal and fluid use of language may result in mental representations that are less organized, making it more difficult for children to retrieve words, especially in the weaker language (Gathercole & Thomas, 2009).

So, the "messiness" of bilingual use at home may not provide the same opportunities for developing strong word-retrieval strategies as the more systematic and structured exposure offered at school. As a result, a child's language performance can differ significantly depending on the setting and context of language exposure: some children may appear fluent at home because of contextual support and familiarity but may struggle in formal assessments or classroom settings that require more precise, decontextualized vocabulary use. This variation underscores the importance of intentional and context-sensitive strategies both at school and at home to support balanced vocabulary growth and improve word retrieval. Therefore, the finding emphasizes that bilingualism is not the cause of language delays; rather, it is a dynamic process influenced by language use, context, and setting. Bilingualism offers well-documented cognitive and social benefits (De Houwer, 2009), but it also requires targeted support. Researchers should conduct more research on the how different types of exposure can influence language abilities rather than researching only the effect of the amount of language exposure. Also, educators and curriculum planners should make use of such research to implement strategies to avoid word

retrieval errors and strengthen vocabulary. Creating structured activities and integrated bilingual teaching methods can help address this gap and promote more balanced development.

CONCLUSION

The objective of this study was to underscore the impact of early bilingualism on word retrieval among bilingual Saudi children by addressing five related research questions. The findings confirm that these children experience word retrieval challenges in both their first and second languages, with more pronounced difficulties in their first language. Additionally, the findings reveal that the type of language exposure and the context of language use are more influential than the amount or timing of exposure when it comes to enhancing word retrieval abilities.

There are several limitations of the present study that need to be addressed in further research. First, the study focuses exclusively on 5-year-old children, and they were chosen because of the importance of the critical period hypothesis, as it is a sensitive stage for acquisition and the brain is highly receptive, so it was expected that interesting word retrieval developments might occur. However, restricting the applicability of the results to other age groups like 7-year-old children could be beneficial. Moreover, the cultural context is specific to Arabic–English bilingual children in Saudi Arabia, making it difficult to generalize the findings to bilingual populations with different linguistic systems and sociocultural backgrounds. This is particularly relevant as the linguistic distance between the languages varies, meaning that bilingual experiences and challenges differ depending on the language pair involved. Furthermore, the study employs a cross-sectional design, capturing data at a single point in time rather than tracking the sequences of second language development. A longitudinal approach could have provided deeper insights by assessing children’s word retrieval abilities before and after they acquire a second language, offering a more comprehensive understanding of developmental changes. Moreover, the same study could be conducted from a neurolinguistic perspective using magnetic resonance imaging while the children are performing the tests to provide a deeper point of view and a better understanding of the mechanisms of word retrieval and the impact of early bilingualism. Another recommendation for practical use and future research is to explore the possible strategies that could be applied to reduce word retrieval problems, particularly by researchers in the fields of curriculum design and teaching methods.

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REFERENCES

- Adesope, O. O., Lavin, T., Thompson, T., & Ungerleider, C. (2010). A systematic review and meta-analysis of the cognitive correlates of bilingualism. *Review of Educational Research*, 80(2), 207–245. <https://doi.org/10.3102/0034654310368803>
- Aghaz, A., Hemmati, E., & Ghasisin, L. (2018). Types of neuroplasticity and factors affecting language recovery in patients with aphasia: A systematic review. *Archives of Neuroscience*, 5(3), e62265. <https://doi.org/10.5812/ANS.62265>
- Aldosari, A., & Alsultan, M. (2017). The influence of early bilingual education (English) on the first language (Arabic) literacy skills in the second grade of elementary school: Saudi Arabia. *Journal of Education and Practice*, 8(5), 135–142. <https://eric.ed.gov/?id=EJ1133114>
- Al-Jarf, R. (2022a). How parents promote English and Arabic language proficiency in elementary school children in Saudi Arabia. *Journal of Psychology and Behavior Studies*, 2(2), 21–29. <https://doi.org/10.32996/jpbs.2022.2.4>
- Al-Jarf, R. (2022b). English language education at the elementary school level in Saudi Arabia: A parent’s perspective. *British Journal of Teacher Education and Pedagogy*, 1(3), 31–44. <https://doi.org/10.32996/bjtep.2022.1.3.4>
- Aljohani, O. (2016). Does teaching English in Saudi primary schools affect students’ academic achievement in Arabic subjects? *Advances in Language and Literary Studies*, 7(1), 214–225. <http://dx.doi.org/10.7575/aiall.v.7n.1p.214>

- Al-Saud, A. J. F. (2016). The impact of bilingualism on the creative capabilities of kindergarten children in Riyadh, Saudi Arabia. *International Education Studies*, 9(10), 263–275. <https://doi.org/10.5539/ies.v9n10p263>
- Al-Shammary, E. A. (1989). Teaching English in Saudi Arabia: To whom, when and how should English be taught? *The Journal of King Saud University*, 1(2), 195–222. <http://jes.ksu.edu.sa/ar/node/5482>
- Antoniou, M., Gunasekera, G. M., & Wong, P. C. M. (2013). Foreign language training as cognitive therapy for age-related cognitive decline: A hypothesis for future research. *Neuroscience & Biobehavioral Reviews*, 37(10), 2689–2698. <https://doi.org/10.1016/j.neubiorev.2013.09.004>
- Barac, R., & Bialystok, E. (2011). Cognitive development of bilingual children. *Language Teaching*, 44(1), 36–54. <https://doi.org/10.1017/S0261444810000339>
- Barac, R., & Bialystok, E. (2012). Bilingual effects on cognitive and linguistic development: Role of language, cultural background, and education. *Child Development*, 83(2), 413–422. <https://doi.org/10.1111/j.1467-8624.2011.01707.x>
- Barak, L., Degani, T., & Novogrodsky, R. (2022). Influences of bilingualism and developmental language disorder on how children learn and process words. *Developmental Psychology*, 58(5), 821–834. <https://doi.org/10.1037/dev0001324>
- Bialystok, E. (2001). *Bilingualism in development: Language, literacy, and cognition*. Cambridge University Press.
- Bialystok, E. (2009). Bilingualism: The good, the bad, and the indifferent. *Bilingualism: Language and Cognition*, 12(1), 3–11. <https://doi.org/10.1017/S1366728908003477>
- Bowers, J. M., & Kennison, S. M. (2011). The role of age of acquisition in bilingual word translation: Evidence from Spanish-English bilinguals. *Journal of Psycholinguistic Research*, 40(4), 275–289. <https://doi.org/10.1007/s10936-011-9169-z>
- Carlson, S. M., & Meltzoff, A. N. (2008). Bilingual experience and executive functioning in young children. *Developmental Science*, 11(2), 282–298. <https://doi.org/10.1111/j.1467-7687.2008.00675.x>
- Chiu, C.-y., & Hong, Y.-y. (2007). Cultural priming effects and the human brain. In S. Kitayama & D. Cohen (Eds.), *Handbook of cultural psychology* (pp. 323–346). Guilford Press.
- Clark, E. V. (2004). How language acquisition builds on cognitive development. *Trends in Cognitive Sciences*, 8(10), 472–478. <https://doi.org/10.1016/j.tics.2004.08.012>
- Cohen-Mimran, R., Adwan-Mansour, J., & Sapir, S. (2013). The effect of morphological complexity on verbal working memory: Results from Arabic-speaking children. *Journal of Psycholinguistic Research*, 42(3), 239–253. <https://doi.org/10.1007/s10936-012-9200-z>
- Costa, A., Miozzo, M., & Caramazza, A. (2000). Lexical selection in bilinguals: Do words in the bilingual's two lexicons compete for selection? *Journal of Memory and Language*, 43(3), 365–397. <https://doi.org/10.1006/jmla.1999.2651>
- DeKeyser, R. (2020). Input is not a panacea. *International Journal of Bilingualism*, 24(1). <https://doi.org/10.1177/1367006918768371>
- De Houwer, A. (2005). Early bilingual acquisition. In J. F. Kroll & A. M. B. De Groot, (Eds.), *Handbook of bilingualism: Psycholinguistic approaches*, (pp. 30–48). Oxford Academic. https://www.researchgate.net/publication/291038824_Early_bilingual_acquisition_Focus_on_morphosyntax_and_the_separate_development_hypothesis
- De Houwer, A. (2009). *Bilingual first language acquisition*. Multilingual Matters.
- Dunn, L. M., & Dunn, L. M. (1981). *Peabody Picture Vocabulary Test-Revised*. American Guidance Service, Inc.
- Ecke, P. (2009). 8. The tip-of-the-tongue phenomenon as a window on (bilingual) lexical retrieval. In A. Pavlenko (Ed.), *The bilingual mental lexicon: Interdisciplinary approaches* (pp. 185–208). Multilingual Matters. <https://doi.org/10.21832/9781847691262-010>
- Ecke, P., & Hall, C. J. (2013). Tracking tip-of-the-tongue states in a multilingual speaker: Evidence of attrition or instability in lexical systems? *International Journal of Bilingualism*, 17(6), 734–751. <https://doi.org/10.1177/1367006912454623>
- Facal, D., Juncos-Rabadán, O., Rodríguez, M. S., & Pereiro, A. X. (2012). Tip-of-the-tongue in aging: Influence of vocabulary, working memory, and processing speed. *Aging Clinical and Experimental Research*, 24, 647–656. <https://doi.org/10.1007/BF03654837>
- Farooqi-Shah, Y., & Gehman, M. (2021). The role of processing speed and cognitive control on word retrieval in aging and aphasia. *Journal of Speech Language and Hearing Research*, 64(3), 949–964. https://doi.org/10.1044/2020_JSLHR-20-00326
- Gathercole, V. C. M., & Thomas, E. M. (2009). Bilingual first-language development: Dominant language takeover, threatened minority language take-up. *Bilingualism: Language and Cognition*, 12(2), 213–237. <https://doi.org/10.1017/S1366728909004015>

- Gavino, M., & Goldrick, M. (2022). Consequences of mixing and switching languages for retrieval and articulation. *Bilingualism: Language and Cognition*, 26(3), <https://doi.org/10.1017/s1366728922000682>
- Genesee, F. (2010). Dual language development in preschool children. In E. E. Garcia & E. C. Frede (Eds.), *Young English language learners: Current research and emerging directions for practice and policy*, (p.p. 59–79). Teachers College Press. https://www.researchgate.net/publication/285844183_Dual_language_development_in_preschool_children
- Gollan, T. H., & Acenas, L.-A. R. (2004). What is a TOT? Cognate and translation effects on tip-of-the-tongue states in Spanish-English and Tagalog-English bilinguals. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 30(1), 246–269. <https://doi.org/10.1037/0278-7393.30.1.246>
- Harper, M. O., & Daehler, M. W. (1982). The influence of encoding context on the false recognition errors of children and adults. *Journal of General Psychology*, 107(1), 57–68. <https://doi.org/10.1080/00221309.1982.9709907>
- Hauerwas, L. B., & Stone, C. A. (2000). Are parents of school-age children with specific language impairments accurate estimators of their child's language skills? *Child Language Teaching and Therapy*, 16(1). <https://doi.org/10.1177/026565900001600106>
- Hulme, C., & Snowling, M. J. (2009). *Developmental disorders of language learning and cognition*. Wiley Blackwell.
- Hoff, E. (2006). How social contexts support and shape language development. *Developmental Review*, 26(1), 55–88. <https://doi.org/10.1016/j.dr.2005.11.002>
- Hoff, E., Core, C., Place, S., Rumiche, R., Señor, M., & Parra, M. (2012). Dual language exposure and early bilingual development. *Journal of Child Language*, 39(1), 1–27. <https://doi.org/10.1017/S0305000910000759>
- Jasinska, K. K., & Petitto, L. A. (2013). How age of bilingual exposure can change the neural systems for language in the developing brain: A functional near-infrared spectroscopy investigation of syntactic processing in monolingual and bilingual children. *Developmental Cognitive Neuroscience*, 6, 87–101. <https://doi.org/10.1016/j.dcn.2013.06.005>
- Junge, C., Cutler, A., & Cutler, A. (2014). Early word recognition and later language skills. *Brain Sciences*, 4(4), 532–559. <https://doi.org/10.3390/BRAINSCI4040532>
- Kaushanskaya, M., Gross, M., & Buac, M. (2015). The role of nonverbal working memory in morphosyntactic processing by school-aged monolingual and bilingual children. *Journal of Experimental Child Psychology*, 132, 90–106. <https://doi.org/10.1016/j.jecp.2015.09.025>
- Kalashnikova, M., Oliveri, A., & Mattock, K. (2018). Acceptance of lexical overlap by monolingual and bilingual toddlers. *International Journal of Bilingualism*, 23(6), 1517–1530. <https://doi.org/10.1177/1367006918808041>
- Kambanaros, M., Michaelides, M., & Grohmann, K. K. (2015). Measuring word retrieval deficits in a multilingual child with SLI: Is there a better language? *Journal of Neurolinguistics*, 34, 112–130. <https://doi.org/10.1016/j.jneuroling.2014.09.006>
- Kramsch, C. (1998). *Language and Culture*. Oxford University Press.
- Kuiken, F. (2022). Linguistic complexity in second language acquisition. *Linguistics Vanguard*, 9(s1). <https://doi.org/10.1515/lingvan-2021-0112>
- Lakoff, G., & Johnson, M. (1980). *Metaphors we live by*. University of Chicago Press.
- Levelt, W. J. (1993). *Speaking: From intention to articulation*. MIT press. <https://hdl.handle.net/2027/heb08442.0001.001>
- Metwally, M. (2009). Child's learning of science education in English and its impact on cognitive development in light of critical age theory. [Unpublished PhD thesis]. Faculty of Education, Tanta University, Egypt.
- McConnell, K. (2023). Individual differences in holistic and compositional language processing. *Journal of Cognition*, 6(1). <https://doi.org/10.5334/joc.283>
- Messer, D., & Dockrell, J. E. (2013). Children with word-finding difficulties: Continuities and profiles of abilities. *First Language*, 33(5), 433–448. <https://doi.org/10.1177/0142723713493345>
- Nickels, L. (1997). *Spoken word production and its breakdown in aphasia* (1st ed). Psychology Press. <https://doi.org/10.4324/9781315804620>
- Nicoladis, E. (2006). Cross-linguistic transfer in adjective–noun strings by preschool bilingual children. *Bilingualism: Language and Cognition*, 9(1). <https://doi.org/10.1017/S136672890500235X>
- Norton, E. S., & Wolf, M. (2012). Rapid automatized naming (RAN) and reading fluency: Implications for understanding and treatment of reading disabilities. *Annual Review of Psychology*, 63(1), 427–452. <https://doi.org/10.1146/annurev-psych-120710-100431>
- Paradis, J. (2007). Bilingual children with specific language impairment: Theoretical and applied issues. *Applied Psycholinguistics*, 28(3), 551–564. <https://doi.org/10.1017/S0142716407070300>

- Paradis, J. (2011). Individual differences in child English second language acquisition: Comparing child-internal and child-external factors. *Linguistic Approaches to Bilingualism*, 1(3), 213–237. <https://doi.org/10.1075/lab.1.3.01par>
- Pickering, M.J., & Garrod, S. (2004). The interactive-alignment model: Developments and refinements—Response. *Behavioral and Brain Sciences*, 27(2), 212–225. <https://doi.org/10.1017/S0140525X04450055>
- Planing, P. (2014). Quantitative research approach. In: *Innovation acceptance* (pp. 71–91). Springer Gabler. https://doi.org/10.1007/978-3-658-05005-4_6
- Rashid, A. W. (2021). Bilingualism and its effect on children learning. *International Journal of Innovative Research in Social Sciences*, 4(1), 37–42. <https://doi.org/10.53894/ijirss.v4i1.54>
- Saer, D. J. (1923). The effect of bilingualism on intelligence. *British Journal of Psychology*, 14, 25–38. <https://doi.org/10.1111/j.2044-8295.1923.tb00110.x>
- Saldaña-Illingworth, C. (2016). A quantitative study comparing the word retrieval speed of first grade monolingual English speakers to bilingual Spanish-English speakers of Mexican descent. (10092278). [Dissertation, Northcentral University]. Proquest. <https://www.proquest.com/openview/2962874970927f5782807894ab86194c/1?pq-origsite=gscholar&cbl=18750>
- Schmidtke, J. (2014). Second language experience modulates word retrieval effort in bilinguals: Evidence from pupillometry. *Frontiers in Psychology*, 5. <https://doi.org/10.3389/fpsyg.2014.00137>
- Shaan, S. (2010) Investigating grammatical complexity in Gulf Arabic speaking children with specific language impairment (SLI). [Doctoral thesis, University College London]. <https://discovery.ucl.ac.uk/id/eprint/20472>
- Sullivan, M. D., Poarch, G. J., & Bialystok, E. (2018). Why is lexical retrieval slower for bilinguals? Evidence from picture naming. *Bilingualism: Language and Cognition*, 21(3), 479–488. <https://doi.org/10.1017/S1366728917000694>
- Tapia, J. L., & Duñabeitia, J. A. (2021). Improving language acquisition and processing with cognitive stimulation. *Frontiers in Psychology*, 12, 663773. <https://doi.org/10.3389/fpsyg.2021.663773>
- Thomas, J. (1983). Cross-cultural pragmatic failure. *Applied Linguistics*, 4(2), 91–112. <https://doi.org/10.1093/applin/4.2.91>
- Valdés, G., & Figueroa, R. A. (1994). *Bilingualism and testing: A special case of bias*. Ablex Publishing. <https://eric.ed.gov/?id=ED383201>
- Weisleder, A., & Fernald, A. (2013). Talking to children matters: Early language experience strengthens processing and builds vocabulary. *Psychological Science*, 24(11), 2143–2152. <https://doi.org/10.1177/0956797613488145>
- Wettler, M., & Glöckner-Rist, A. (1991). Cognitive processes in information retrieval: Production rules and lexical nets. *Neurocomputing*, 2, 243–255. <https://doi.org/10.1016/B978-0-444-88602-6.50017-7>