

The Role of Socioeconomic Status in Shaping Vocabulary Knowledge in Yemeni Students

Eman H. S. Almoussabi^{1*}, Brajesh Priyadarshi², Razan Almusaddi³, Amal M. S. Abu Khalil³

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Abstract: Vocabulary development is a critical component of language acquisition and academic achievement, serving as the foundation for effective communication and literacy. Vocabulary knowledge (VK)—defined as the depth and breadth of word understanding—plays a central role in enabling learners to comprehend texts and express ideas fluently. This study investigates the impact of socioeconomic status (SES) on vocabulary knowledge among Yemeni students in Grades III through VIII. Utilizing a newly developed Arabic Early Reading Skills (ERS) assessment tool, the vocabulary knowledge component was evaluated among students from government and private schools, representing lower- and higher-SES groups, respectively. The sample comprised 360 typically developing children, stratified by grade level. A quantitative, non-experimental, cross-sectional research design was employed. Findings revealed statistically significant differences in vocabulary knowledge between students from the two school types, underscoring the influence of SES on vocabulary acquisition and development. These results highlight the need to address socioeconomic disparities in language learning and offer practical implications for educational policy and targeted intervention programs in Arabic-speaking contexts.

Keywords: Vocabulary Development, Vocabulary Knowledge, Socioeconomic Status, Arabic-speaking Children, Yemen.

دور الحالة الاجتماعية والاقتصادية في تشكيل معرفة المفردات لدى الطلاب اليمنيين

إيمان حيدر صالح المصعيب^{1*}، وبراجش بريادارش²، ورزان المصعدي³، وأمل مسعود صالح أبو خليل³
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المخلص: تُعد تنمية المفردات عنصراً أساسياً في اكتساب اللغة والنجاح الأكاديمي، إذ تشكل الأساس للتواصل الفعال ومهارات القراءة والكتابة. وتعتبر معرفة المفردات- التي تتضمن عمق واتساع فهم الكلمات- عاملاً محورياً في تمكين المتعلمين من فهم النصوص والتعبير عن الأفكار بطلاقة. تهدف هذه الدراسة إلى استكشاف تأثير الوضع الاجتماعي والاقتصادي على معرفة المفردات لدى الطلاب اليمنيين من الصف الثالث إلى الصف الثامن. وقد تم استخدام أداة تقييم مهارات القراءة المبكرة باللغة العربية، التي طُوّرت حديثاً، لفحص مكون معرفة المفردات بين طلاب المدارس الحكومية والخاصة، والذين يمثلون على التوالي الفئتين ذات الدخل المنخفض والدخل المرتفع. شملت العينة 360 طفلاً من الأطفال الناميين نمواً طبيعياً، موزعين حسب الصف الدراسي. استخدمت هذه الدراسة منهجاً كمياً غير تجريبي وذو تصميم مقطعي. أظهرت النتائج فروقاً ذات دلالة إحصائية في معرفة المفردات بين طلاب المدارس الحكومية والخاصة، مما يسلط الضوء على الدور الحاسم للوضع الاجتماعي والاقتصادي في اكتساب المفردات وتطورها. وتقدم هذه النتائج رؤى مهمة حول كيفية تأثير السياق الاجتماعي والاقتصادي في تنمية المفردات لدى المتعلمين الناطقين بالعربية، كما تقدم دلالات عملية تتعلق بسياسات التعليم وبرامج التدخل المستهدفة.

الكلمات المفتاحية: تنمية المفردات، معرفة المفردات، الحالة الاجتماعية والاقتصادية، الأطفال الناطقون بالعربية، اليمن.

1 Department of Linguistics, Sahyadri Arts College, Kuvempu University, Shivamogga District, Karnataka, India .

2 Department of Speech-Language Pathology, All India Institute of Speech & Hearing, Mysore, India.

3 Department of Linguistics, Central Institute of Indian Languages (CIIL), University of Mysore, Mysore, India.

* Corresponding author: eman60e@gmail.com

1 قسم اللغويات، كلية سهايدري للفنون، جامعة كوفيمبو، مقاطعة شيفاموغا، كارناتاكا، الهند.
2 قسم أمراض النطق واللغة، المعهد الهندي العالي لاضطرابات النطق والسمع (AIISH)، ميسور، الهند.
3 قسم اللغويات، المعهد المركزي للغات الهندية (CIIL)، جامعة ميسور، ميسور، الهند.

* الباحث المراسل: eman60e@gmail.com

Introduction

Vocabulary knowledge (VK) is a central component of language development and a strong predictor of later reading comprehension and academic achievement. Every language possesses a core vocabulary that forms the foundation for comprehension and sentence construction (Miller, 1991). Vocabulary enables individuals to acquire information, generate, and interpret language (Laufer & Nation, 1999). Its knowledge is essential for academic success, literacy, second-language acquisition, and effective daily communication. The broader one's vocabulary, the more efficient their reading, as vocabulary size directly influences comprehension (Biemiller & Slonim, 2001). According to Nation (2001), vocabulary and reading are deeply intertwined; as vocabulary grows, so does reading proficiency.

Recent studies have demonstrated a reciprocal relationship between VK and reading comprehension: vocabulary supports better understanding of texts, and comprehension activities promote vocabulary growth (Storch & Whitehurst, 2021). The National Center for Education Statistics (NCES, 2012) reported that students who performed well on the vocabulary component of the National Assessment of Educational Progress (NAEP) also scored higher in reading comprehension. Stanovich (1986) expanded on Walberg and Tsai's (1983) "Matthew Effect," which explains how early advantages amplify over time, while early disadvantages compound. This phenomenon exacerbates disparities in reading development, as students with well-developed vocabularies—often from more advantaged backgrounds—are more likely to achieve reading fluency and academic success (Kim *et al.*, 2021). Numerous studies argue that restricted vocabulary is a major contributor to reading comprehension difficulties (August & Shanahan, 2006; Droop

& Verhoeven, 2003), and that interventions targeting vocabulary can significantly enhance reading outcomes (Kim *et al.*, 2021). These findings suggest that vocabulary is both a product of language exposure and a mechanism for broader literacy growth.

A growing body of research links VK to socioeconomic status (SES). Children from higher SES households often experience richer linguistic environments, more frequent parent–child interactions, and greater access to books and educational resources—all of which facilitate vocabulary development (Chow *et al.*, 2024; Fernald *et al.*, 2013). Furthermore, studies show that VK can mediate the relationship between SES and word-learning abilities, meaning SES disparities translate into measurable differences in children's language outcomes (Schneider *et al.*, 2023; van der Kleij *et al.*, 2022). Longitudinal evidence suggests that while vocabulary grows across all SES groups, children from higher SES families consistently outperform their lower SES peers (van der Kleij *et al.*, 2022). This supports the value of assessing VK as a lens through which to better understand educational inequality.

Accurate and culturally appropriate assessment tools are essential for measuring VK, particularly in underrepresented contexts. Standardized vocabulary tasks, such as picture naming and definition generation, are widely used to evaluate receptive and expressive vocabulary (Milton & Treffers-Daller, 2013). However, Arabic-speaking populations have been underrepresented in vocabulary research, and limited standardized tools are available in Arabic. In Yemen, where economic inequality is significant and educational infrastructure varies greatly, investigating the relationship between SES and VK is especially important.

Despite the centrality of vocabulary in literacy development, there remains a notable scarcity of empirical research on VK in Arabic-

speaking children, particularly regarding how socioeconomic disparities affect its development. This study addresses this gap by examining how SES influences vocabulary acquisition among school-aged children in Yemen. The findings are intended to inform language instruction and support the development of equitable educational policies in resource-limited Arabic-speaking contexts.

In response to this need, the present study assesses VK using a subcomponent of the Arabic Early Reading Skills (ERS) tool, developed and validated by (Almosssabi, 2023). While the ERS tool evaluates a range of reading-related domains, the present manuscript focuses exclusively on VK and its relationship with SES. The main objective of this study is to examine whether socioeconomic status, as represented by school type, influences vocabulary knowledge among Yemeni students in Grades III through VIII.

Accordingly, the study addresses the following research question:

Does socioeconomic status, as represented by school type (government vs. private), significantly influence vocabulary knowledge among Yemeni students in Grades III to VIII?

To answer this question, the following null hypothesis was tested:

H₀: There is no significant effect of school type (government vs. private) on students' vocabulary knowledge scores.

Literature Review

The connection between socioeconomic status (SES) and vocabulary knowledge (VK) is well-documented in the literature and carries significant implications for literacy development. Children from higher socioeconomic status (HSES) backgrounds tend to experience enriched linguistic environments, which facilitate earlier and broader vocabulary acquisition (Hoff, 2013). This advantage in VK directly contributes to

stronger outcomes in reading comprehension and fluency, as vocabulary serves as a critical foundation for literacy development (Snow & Matthews, 2016).

SES-related disparities in VK often begin as early as the preschool years and may result in a persistent “vocabulary gap” throughout schooling if not addressed (Fernald *et al.*, 2013). Interventions that emphasize language-rich environments, parental engagement, and interactive reading activities have shown promise in promoting vocabulary growth, particularly among children from lower socioeconomic status (LSES) backgrounds (Mol & Bus, 2011).

Recent research in Arabic-speaking populations has revealed parallel trends. A study of novice Arabic readers in Israel found significant SES-related differences in vocabulary, syntax, morphology, and listening comprehension, though not in phonological awareness or early reading components. This highlights the distinct and early-emerging role of vocabulary in language development (Asadi *et al.*, 2023). Similarly, research among Palestinian children showed that SES significantly predicted individual differences across linguistic and cognitive domains—including vocabulary—demonstrating VK's strong sensitivity to social and educational inequality (Asadi *et al.*, 2023). In another study involving Arabic-speaking middle school students in Israel, academic VK varied significantly by SES subgroup. Students from the lowest SES background (Bedouin) scored the lowest, suggesting that vocabulary disparities persist even at higher grade levels (Makhoul, 2017).

Beyond these direct empirical findings, studies from the broader Arab region have highlighted how socioeconomic and contextual factors shape students' learning opportunities. Hamamra *et al.* (2024) showed that

socioeconomic pressures strongly influence students' engagement and academic outcomes, indirectly constraining opportunities for language and vocabulary learning. Aqel (2004) emphasized the classroom environment's role in exposing learners to meaningful vocabulary, while Bataineih (2009) demonstrated that the socio-cultural alignment of textbooks significantly affects linguistic development. Collectively, these studies suggest that access to resources, supportive learning environments, and culturally relevant curricula—all of which are tied to SES—play a critical role in vocabulary acquisition. These findings complement recent empirical evidence and reinforce the argument that SES is both a determinant and a mediator of vocabulary knowledge in underrepresented linguistic contexts such as Yemen.

To fully appreciate the challenges of vocabulary acquisition in these populations, it is important to understand features unique to the Arabic language.

Arabic Language Background

Arabic is a Semitic language spoken by over 400 million people, characterized by a rich history, cultural significance, and linguistic complexity. Its vocabulary is shaped by a root-based morphological structure. Words are generally derived from triliteral roots that convey core semantic meaning, and these roots are expanded into new words through patterns and affixes—a productive system that facilitates broad lexical development (Ryding, 2014). For instance, the root *k-t-b* pertains to writing and can yield words such as *kitāb* (book), *maktab* (office), and *kātib* (writer) (Al Bukhari & Dewey, 2023; Owens, 2013).

Another influential feature is Arabic's diglossic nature. Modern Standard Arabic (MSA) is used in formal contexts, including education and media, while various regional dialects are employed in everyday

communication. These dialects differ significantly across countries and communities, creating potential lexical mismatches between the home language and school instruction that may affect vocabulary development (Albirini, 2016; Bassiouney, 2020). Additionally, Arabic continuously adopts new vocabulary—especially in the fields of science and technology—through borrowing from other languages, enriching its dynamic lexical inventory (Holes, 2019).

Beyond linguistic characteristics, the broader educational context also shapes how Arabic-speaking children acquire vocabulary, particularly in resource-constrained settings such as Yemen.

The Educational System in Yemen

The educational system in Yemen operates through a dual structure of public and private schools, each shaped by distinct socioeconomic realities. Public schools, which serve the majority of Yemeni students, are often characterized by limited resources, political instability, and underfunded infrastructure. These schools typically face overcrowded classrooms, a shortage of qualified teachers, and inadequate teaching materials—factors that restrict effective language instruction and limit opportunities for vocabulary enrichment (World Bank, 2021). The national curriculum, standardized and governed by the Ministry of Education, emphasizes core subjects such as Arabic, Mathematics, Science, and Social Studies (Al-Qadhi, 2019).

In contrast, private education is primarily accessible to families with higher SES. Private schools often feature smaller class sizes, more qualified teaching staff, and enhanced instructional materials. Many also adopt international or bilingual curricula, particularly in urban centers, offering enriched educational experiences that promote vocabulary development and language proficiency

(Muthanna & Sang, 2015). However, the high cost of tuition renders these schools inaccessible to most families, reinforcing educational disparities along socioeconomic lines (UNICEF, 2020).

The divide between public and private sectors directly influences students' exposure to language-learning opportunities. Students in public schools—often from lower-income households—may have limited access to structured reading activities, interactive instruction, and vocabulary-building resources. Meanwhile, students in private schools' benefit from language-rich environments that foster more advanced linguistic development. This gap highlights how school type serves as a proxy for SES and significantly affects students' VK and overall academic achievement (Al-Sadiq, 2017).

Methodology

This study adopted a quantitative, non-experimental, cross-sectional design to investigate the impact of socioeconomic status (SES) on vocabulary knowledge (VK) among typically developing Yemeni students. Using the vocabulary subtests (VKT1 and VKT2) from the validated Arabic Early Reading Skills (ERS) tool, data were collected at a single point in time. School type served as a proxy for SES. Data were analyzed using SPSS, as described in detail in the Statistical Analysis section (3.5). This design ensured objectivity, reliability, and replicability within the Yemeni educational context.

Participants

A total of 360 typically developing children (TDC) participated in this study. The sample was stratified by grade level, with 30 students per grade from Grades III to VIII. The participants were equally divided by gender (180 boys and 180 girls) and by school type: 180 students from government schools (representing lower SES) and 180 students

from private schools (representing higher SES). This stratification aimed to ensure balanced representation across socioeconomic backgrounds.

All participants met specific inclusion criteria: they had no documented history of language, psychiatric, neurological, or sensory disorders, had not repeated any academic grade, and were enrolled in regular school programs. To ensure adequate academic functioning, participants were required to have maintained a minimum of 60% in language and reading subjects, as reflected in their most recent report cards. These conditions helped reduce the risk of including children with undiagnosed or mild language impairments.

Participants were selected from the same geographical region in Sana'a, Yemen, to control for variability related to ethnic and sociolinguistic background. By the time of data collection, all students had completed approximately half of the academic year, which ensured sufficient exposure to school-based vocabulary instruction.

School principals provided official permission to conduct the study, after which teachers nominated students based on the inclusion criteria. The participants were classified into two groups:

- TDCG (Typically Developing Children from Government Schools), representing lower SES
- TDCP (Typically Developing Children from Private Schools), representing higher SES
- To further validate the SES categorization, the Kuppaswamy SES Scale (Kumar *et al.*, 2012) was administered.

Data Collection and Instruments

This study employed the VK section from the *Development of a Tool for Assessing Early Reading Skills in Arabic*, created and validated by (Almoussabi, 2023). The VK component is

part of the broader Arabic Early Reading Skills (ERS) tool, designed during the researcher's doctoral work to assess foundational reading competencies in Arabic-speaking children.

- Vocabulary Knowledge Test (VKT) assessed students' ability to choose contextually appropriate words for sentence completion and to identify semantic relationships between words. The test was administered at two levels:
- Level 1 (VKT1): This subtest evaluated the child's ability to select the most suitable word from three alternatives to complete a sentence meaningfully. It included 10 sentences, each accompanied by three multiple-choice options.
- Level 2 (VKT2): This subtest assessed the child's ability to identify a word within a sentence that could be replaced and then determine whether the replacement preserved or altered the sentence's meaning. This level required deeper lexical awareness and semantic processing.

Procedures

To minimize potential examiner bias, the researcher personally administered the VK tasks, supervised scoring, and conducted data analysis. Each participant was tested individually in a quiet, distraction-free room within their school. The average testing duration per student ranged from 15 to 25 minutes.

During testing, the VK stimuli were presented in a fixed sequence. The researcher provided clear instructions, ensured student comfort, and maintained a consistent testing environment. Audio and video recordings were made of each session to ensure accuracy and allow for post-hoc verification if needed.

A uniform scoring protocol was applied. Each correct response was awarded one point, and total scores were computed for each subtest (VKT1 and VKT2) based on the number of

correct answers. These scores formed the basis for statistical analysis.

Reliability and Validity

The VK subtests demonstrated strong psychometric properties. Internal consistency reliability, as measured by Cronbach's alpha, was 0.851, indicating a high level of internal reliability for the items across the VK tasks.

Content validity was established through expert review by specialists in Arabic language and early childhood education. These experts evaluated the alignment of test items with linguistic and educational standards appropriate for the target age group.

Construct validity was examined through exploratory factor analysis (EFA) during the development and validation of the broader Arabic Early Reading Skills (ERS) tool. The factor analysis supported the theoretical structure of the VK subtests as measuring distinct dimensions of VK.

To further validate the VK subtests within the current study, 20% of the total sample ($n = 72$) was randomly selected and re-tested by a second trained examiner to assess inter-rater consistency and procedural robustness. Additionally, scores from this subsample were used to evaluate the validity of VK measures across age groups.

The means and standard deviations of a subset of 72 typically developing children (TDC) were analyzed. The resulting VK scores for both VKT1 and VKT2 were found to fall within the 95% confidence interval of the normative data established from the full sample of 360 TDC. This finding confirms the representativeness and validity of the VK subtests as tools for assessing VK across the selected grades.

Statistical Analysis

Statistical analyses were conducted using SPSS version 22. Descriptive statistics, including mean, median, and standard

deviation, were computed for the overall VK scores and disaggregated by school type (government vs. private).

To assess the normality of the data, the Shapiro-Wilk test was applied. Results indicated a significant deviation from a normal distribution ($p < .05$), prompting the use of nonparametric statistical procedures.

Results

Table (1): Comparison between Government vs. Private Schools.

Variables	Government			Private			Mann-Whitney U Test	
	Mean	Median	SD	Mean	Median	SD	Z	p-value
Vocabulary knowledge1	6.022	6.000	2.363	7.028	7.000	2.062	4.149	0.000**
Vocabulary knowledge2	7.450	8.000	1.725	7.983	8.000	1.820	3.090	0.000**
Total	13.472	13.000	3.610	15.011	15.000	3.469	4.010	0.000**

* Indicates significant at $P < 0.05$ ** Indicates significant at $P < 0.01$

Table 1 presents the mean scores for vocabulary knowledge (VK) across all variables—VKT1, VKT2, and total scores. Students attending private schools consistently outperformed those in government schools. A Mann–Whitney U test was conducted to determine whether these differences were statistically significant. The results indicated significant differences between private and government school students across all VK measures ($p < .01$). These differences are also visually illustrated in Figure 1.

Accordingly, the Mann–Whitney U test was employed to compare VK scores between students from government and private schools across all grade levels. Statistical significance was evaluated at the .05 and .01 levels, as appropriate.

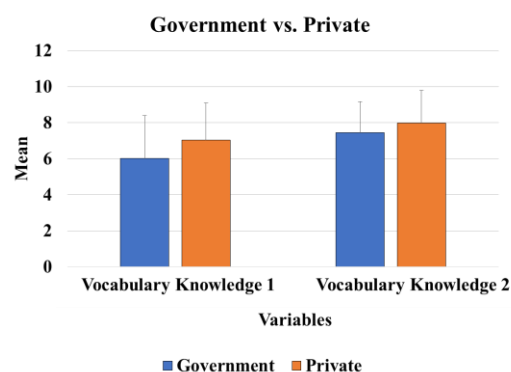


Figure (1): Comparison between Government vs. Private Schools across VKT.

Table (2): Comparison between Government vs. Private Schools across Grades.

Grades	Variables	Government(n=30)			Private(n=30)			Mann-Whitney U Test	
		Mean	Median	SD	Mean	Median	SD	Z	p-value
Grade 3	Vocabulary Knowledge1	3.567	3.500	0.898	4.133	4.000	0.900	2.466	0.014*
	Vocabulary Knowledge2	5.733	6.000	2.664	6.200	6.500	2.280	0.680	0.497
	Total	9.300	10.000	2.718	10.333	10.500	2.397	1.363	0.173
Grade 4	Vocabulary Knowledge1	3.633	4.000	0.890	5.933	6.000	1.143	5.936	0.000**
	Vocabulary Knowledge2	6.467	7.000	1.432	6.733	7.000	1.530	0.340	0.734
	Total	10.100	10.500	1.709	12.667	12.500	2.023	4.393	0.000**
Grade 5	Vocabulary Knowledge1	5.000	5.000	1.203	6.433	6.000	1.406	3.737	0.000**
	Vocabulary Knowledge2	7.367	7.000	0.615	7.633	7.000	0.928	0.773	0.439
	Total	12.367	12.000	1.245	14.067	14.000	1.617	3.958	0.000**
Grade 6	Vocabulary Knowledge1	6.300	6.000	0.596	7.633	8.000	1.129	4.746	0.000**
	Vocabulary Knowledge2	7.833	8.000	0.592	8.467	8.000	1.106	2.219	0.027*
	Total	14.133	14.000	0.900	16.100	16.000	1.689	4.853	0.000**
Grade 7	Vocabulary Knowledge1	8.533	8.000	0.973	8.667	9.000	1.061	0.767	0.443
	Vocabulary Knowledge2	8.433	8.000	0.817	9.167	9.000	0.834	3.228	0.001**
	Total	16.967	17.000	1.299	17.833	18.000	1.464	2.521	0.012*
Grade 8	Vocabulary Knowledge1	9.100	9.000	0.712	9.367	10.000	0.809	1.634	0.102
	Vocabulary Knowledge2	8.867	9.000	0.730	9.700	10.000	0.596	4.272	0.000**
	Total	17.967	18.000	1.033	19.067	19.000	1.048	3.779	0.000**

* Indicates significant at $P < 0.05$ ** Indicates significant at $P < 0.01$

Table 2 presents a grade-wise comparison between government and private school students across all VK measures. For Grade 3, the mean score for VK Level 1 was higher in private schools than in government schools, and the Mann–Whitney U test revealed a statistically significant difference ($p < .05$). Although the mean scores for VK Level 2 and total VK were also higher in private schools, the differences were not statistically significant ($p > .05$). These comparisons are visually illustrated in Figure 2.

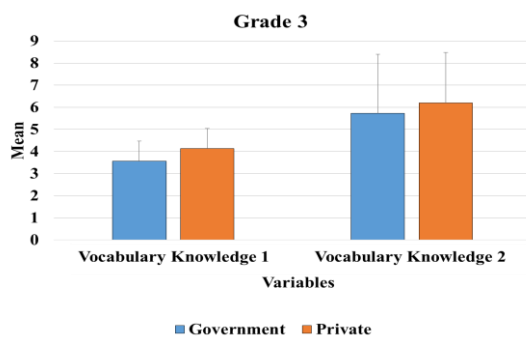


Figure (2): Comparison between Government vs. Private Schools in Grade 3.

For Grade 4, the mean scores for VK Level 1 and total VK were higher in private schools compared to government schools. The Mann–Whitney U test revealed statistically significant differences between the two school types for both variables ($p < .01$). Although the mean score for VK Level 2 was also higher in private schools, the difference was not statistically significant ($p > .05$). These findings are illustrated in Figure 3.

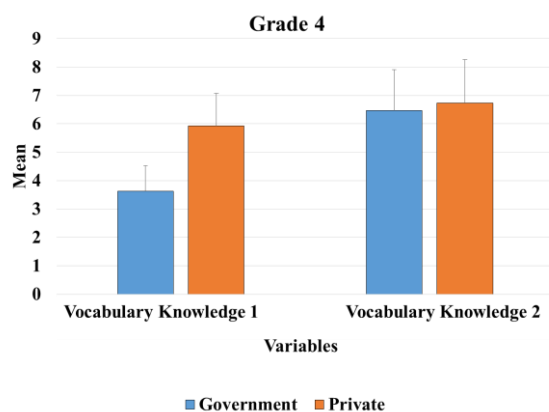


Figure (3): Comparison between Government vs. Private Schools in Grade 4.

The mean scores for Grade 5 students in VK Level 1 and total VK were higher in private schools than in government schools. The Mann–Whitney U test indicated statistically significant differences between the two school types for both variables ($p < .01$). Although the mean score for VK Level 2 was also higher in private schools, the difference was not statistically significant ($p > .05$). These results are presented in Figure 4.

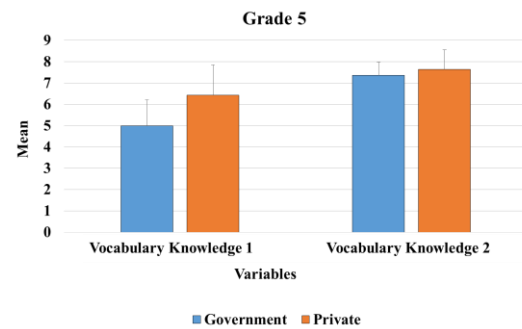


Figure (4): Comparison between Government vs. Private Schools in Grade 5

The mean scores for Grade 6 students in VK Level 1, VK Level 2, and total VK were higher in private schools compared to government schools. The Mann–Whitney U test revealed statistically significant differences between the two school types for VK Level 1 and total scores ($p < .01$), as well as for VK Level 2 ($p < .05$). These findings are illustrated in Figure 5.

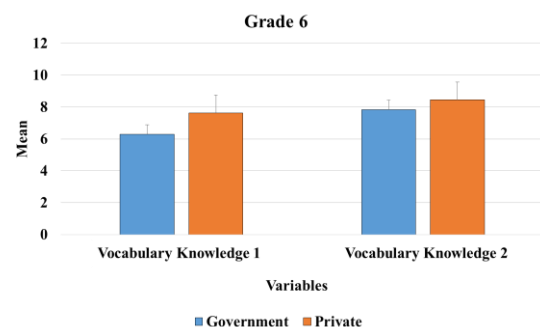


Figure (5): Comparison between Government vs. Private Schools in Grade 6.

For Grade 7, the mean scores for VK Level 2 and total vocabulary knowledge were higher in private schools compared to government schools. The Mann–Whitney U test revealed a statistically significant difference for VK Level 2 ($p < .01$) and total scores ($p < .05$). Although

VK Level 1 scores were also higher in private schools, the difference was not statistically significant ($p > .05$). These results are presented in Figure 6.

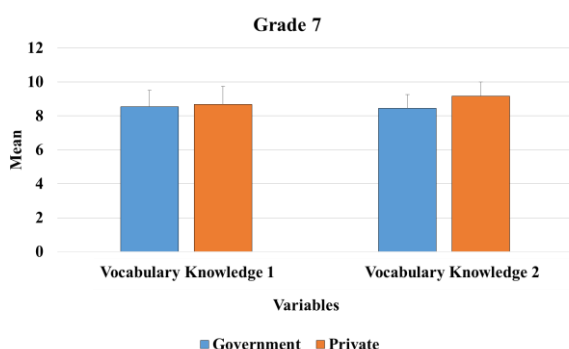


Figure (6): Comparison between Government vs. Private Schools in Grade 7.

For Grade 8, the mean scores for VK Level 2 and total vocabulary knowledge were higher in private schools than in government schools. The Mann–Whitney U test revealed a statistically significant difference for both VK Level 2 and total scores ($p < .01$). Although VK Level 1 scores were also higher in private schools, the difference was not statistically significant ($p > .05$). These findings are illustrated in Figure 7.

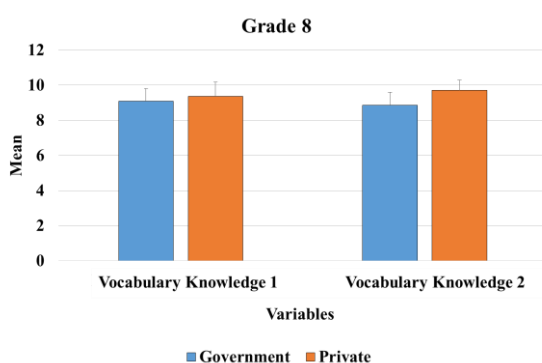


Figure (7): Comparison between Government vs. Private Schools in Grade 8

Discussion

The Mann-Whitney U test demonstrated a statistically significant variation with regard to the type of school (government or private) with ($p < 0.01$). The descriptive analysis of the data set revealed that the mean scores of VK level 1, level 2, and total scores were higher in the private schools (HSES) compared to the government schools (LSES). The findings align

with prior literature asserting that socioeconomic status (SES) is a key predictor of vocabulary development, as students from higher SES backgrounds consistently demonstrate stronger lexical skills compared to their lower SES peers. For instance, Restrepo *et al.* (2006) revealed that the Expressive Vocabulary Test (EVT) results of African American (AA) and White kindergartners were strongly impacted by SES characteristics such as mother's educational qualification, family income, marital status, and family size. The previously stated research on receptive vocabulary by Hart and Risley (1995) also investigated the link between SES and measures of lexical variety. The findings of the study indicated that students from "professional" backgrounds expanded their vocabularies at a higher rate than those from "working class" backgrounds. The size of a child's vocabulary repertoire in English is similarly influenced by SES (Hoff, 2003), and students from low-income households have lower vocabulary abilities than students from high-income households (Chondrogianni & Marinis, 2011; Golberg *et al.*, 2008). Recent research also revealed that SES may be linked to the early cognitive-linguistic and literacy progress of Chinese youngsters, including the acquisition of vocabulary (Chung, 2015; Zhang *et al.*, 2013). In English-speaking youngsters, there is evidence of a relationship between SES and VK. In particular, middle-SES students often have stronger VK than their LSES peers, which may be attributed to the greater parental sensitivity in parent-child interaction (Sohr-Preston *et al.*, 2013). The VK of students from low-income households is a notably well-documented issue of concern (Weisleder & Fernald, 2013; Hoff, 2013). The language gap between school-aged children coming from LSES households and those from HSES households is widening (Farah *et al.*, 2006). This is due to the fact that school-aged pupils

from LSES backgrounds make fewer improvements on vocabulary tests than their HSES counterparts. It is widely established from prior studies that children from lower-income families perform considerably worse on assessments of word knowledge (Ferguson *et al.*, 2007; Ozola, 2008).

Recent empirical studies further affirm the strong link between SES and VK across global settings. In China, Liu *et al.* (2020) observed that children from rural (lower SES) areas had significantly lower vocabulary scores than urban peers, with SES and home literacy environments strongly predicting VK outcomes. A comprehensive meta-analysis involving 36,589 children reported a consistent moderate correlation ($r \approx 0.26$) between SES and vocabulary development across ages and vocabulary types. Another longitudinal study conducted by van der Kleij *et al.* (2022) followed children aged 10–13 and found consistent SES effects on every day and academic vocabulary, though the gap did not widen over time. Moreover, a large infant cohort in Singapore demonstrated that parental education level predicted vocabulary size and that shared reading practices mediated this effect, suggesting the importance of early home literacy in SES-VK relationships.

An additional factor that may compound SES-related differences in vocabulary development in Arabic-speaking contexts is diglossia—the coexistence of Modern Standard Arabic (MSA) and various spoken colloquial dialects. MSA is the language of formal education, media, and writing, while spoken dialects dominate everyday communication. For children from low-SES backgrounds who may have limited exposure to MSA outside school, this diglossic divide can hinder the acquisition of academic vocabulary. Students in higher SES households are more likely to experience enriched language environments that include greater exposure to MSA through

books, media, and parental guidance. As a result, diglossia may exacerbate existing SES-related vocabulary disparities by making formal vocabulary acquisition more difficult for students from under-resourced backgrounds (Albirini, 2016; Bassiouney, 2020; Ferguson, 1959; Maamouri, 1998).

In contrast to the predominant evidence that associates SES with VK, several studies report null SES effects, particularly in specific linguistic and demographic contexts. Thomas Tate *et al.* (2006) observed no significant SES differences in EVT scores among African American kindergarteners, and Obasi (1999) reported no SES–academic achievement relationship in general. Makhoul (2017) made an effort to look at how native Arabic speakers in elementary school developed their understanding of academic Arabic vocabulary while keeping in mind the SES of the Arab minority in Israel. The children in the various age groups of grades (7th, 8th, and 9th) took two academic vocabulary assessments, comprising productive and receptive vocabulary tests. The findings revealed no discernible variation in academic VK was seen between the 7th and 9th grades. Among Arabic-speaking populations, Asadi *et al.* (2023) found no SES-related vocabulary differences within dyslexic subgroups, though SES did differentiate typical readers. Furthermore, Asadi *et al.* (2024) showed that SES had no significant impact on early decoding and reading components, suggesting vocabulary may mediate SES effects selectively. Finally, research on Arabic–Swedish bilingual children ages 4–7 found no significant SES effects on vocabulary comprehension or production in either language (Mansfeldt *et al.*, 2023). These findings suggest that SES influences on vocabulary may vary depending on linguistic environment and subgroup characteristics, emphasizing the need for context-sensitive assessments.

Comparing the outcomes for the students from LSES and HSES showed that the overall differences between HSES and LSES students were seen in all VK levels, and these differences continued over time as students advanced in their grades. Children from HSES showed higher levels of lexical abilities in each grade, and the progress of these lexical skills with grade was evident. This conclusion is in accordance with earlier studies reporting that the VK gap persists throughout school levels (Christ & Wang, 2011; Hoff, 2013).

In summary, it has been proven that students from LSES households demonstrate lower vocabulary scores and slower vocabulary progress over time than their counterparts from HSES households. There may be a variety of causes underlying the disparities in vocabulary proficiency between the two SES categories: word learning strategies and cognitive skills may be contributing factors to the ongoing disparity in vocabulary development. Another cause is the inequalities in the language settings, which are probably the result of variations at home and among schools in low- and high-income communities. In Yemen's context, the disparity likely reflects differences in home literacy environments, parental education, and school resources.

Limitations

This study has several limitations that should be noted. First, its cross-sectional design provided only a snapshot of children's reading abilities at one point in time, limiting the potential to observe developmental progress across different stages. Additionally, because the study sample comprised Arabic-speaking school-aged children in Yemen, the findings may have limited applicability to Arabic-speaking populations in other regions. Moreover, this study did not address certain influential factors, such as children's cognitive abilities, teacher attitudes, instructional

methods, parental education levels, and student maturity, all of which may affect reading outcomes. Another limitation involves the influence of local dialectal variation on vocabulary breadth and depth, especially considering the diglossic nature of the Arabic language. The specific dialect spoken in Sana'a differs from those in other regions of Yemen, which could impact how children acquire vocabulary and comprehend reading materials. Although gender was included as a demographic variable, this study did not conduct in-depth analyses of gender-based differences in VK. As such, the potential influence of gender on VK remains unexamined and should be explored in future studies. Additionally, the study uses school type as a proxy for SES, which may not capture its multidimensional nature. Future research should incorporate direct SES measures (e.g., parental education, income) and explore interactions between VK and other reading subskills.

Implications

This study presents several practical implications for educational practice, policy development, and future research.

First, the findings underscore the critical importance of addressing vocabulary development gaps early in children's academic trajectories. Implementing comprehensive vocabulary instruction before the onset of formal schooling—particularly for children from lower socioeconomic backgrounds—can help mitigate early language deficits. Early intervention programs should incorporate vocabulary-focused activities and promote the use of home-based learning materials that facilitate meaningful parent-child interactions.

Second, the results highlight the urgent need for targeted vocabulary instruction within under-resourced government schools. Teachers should implement evidence-based strategies

such as contextualized learning, storytelling, and interactive language tasks to enhance both oral and written vocabulary. Policymakers must allocate adequate resources to schools serving low-SES populations and invest in teacher training programs centered on language enrichment and inclusive instructional practices.

Third, the linguistic diversity across the Arabic-speaking world—especially the coexistence of Standard Arabic Vernaculars (SAVs) and Modern Standard Arabic (MSA)—may limit the generalizability of the present findings. Further studies are required to examine how cognitive-linguistic skills and vocabulary development interact across different Arabic dialects, sociolinguistic environments, and cultural contexts.

Fourth, due to the cross-sectional nature of this study, longitudinal trends in vocabulary development could not be assessed. Future longitudinal research should explore additional influential variables such as parental education, teacher attitudes, instructional methodologies, and student maturity to provide a more comprehensive understanding of vocabulary acquisition over time.

Finally, there remains a significant scarcity of empirical research examining the relationship between SES and vocabulary development among school-aged children across the Arab world. This study contributes to addressing that gap and underscores the need for further region-specific investigations to inform equitable, culturally responsive language education policies.

Conclusion

This study found that socioeconomic status (SES) significantly influences vocabulary knowledge (VK) among school-aged Yemeni students. The results highlight the urgent need for sustained educational and policy-level interventions to promote equitable language

development opportunities, particularly for students from underprivileged backgrounds. By contributing to the limited body of research on Arabic vocabulary development, this study offers valuable insights for literacy planning and establishes a foundation for future investigations into SES-related disparities in language acquisition.

Disclosure Statement

- **Ethical approval and consent to participate:** This study was conducted in accordance with the applicable ethics guidelines and all participants provided informed consent prior to participation.
- **Availability of data and materials:** The datasets generated and/or analyzed during the current study are available from the corresponding author on reasonable request.
- **Author Contributions:** **Dr. Eman Haidar Saleh Almousabi (Corresponding Author):** Conceptualization of the study, design of the research framework, data collection, data analysis, and drafting of the manuscript. **Dr. Brajesh Priyadarshi:** Supervision, critical review of the methodology, and substantial input in the interpretation of results. **Dr. Razan Almusaddi:** Assistance in data collection, literature review, and contribution to drafting the background section. **Dr. Amal Masoud Saleh Abu Khalil:** Support in data entry, preliminary analysis, and proofreading of the manuscript.
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