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Exploring the Relationship between Code-Switching and Arabic Vocabulary Knowledge in Islamic Boarding School

Amanda Yusri[1]*, Muhammad Taufiq[2]
[1,2]Universitas Islam Negeri Sumatera Utara Medan, Indonesia

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***Correspondence Address:**
amanda0302222067@uinsu.ac.id

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Abstract: Arabic serves as the primary medium for religious learning and daily communication in Indonesian Islamic boarding schools, yet students frequently code-switch into Indonesian. Prior studies have examined this phenomenon mainly in terms of its forms and social motivations, without statistically testing its relationship with vocabulary mastery. This study investigated the correlation between code-switching and Arabic vocabulary knowledge among fifth-grade students at Darul Arafah Raya Islamic Boarding School, Deli Serdang. Using quantitative correlational design, 63 of 161 students were selected via the Slovin formula (10% margin of error) and given a validated code-switching questionnaire and an Arabic vocabulary test. Since vocabulary scores were not normally distributed (Kolmogorov–Smirnov p = .034), Spearman's Rho was applied. Results revealed a weak, non-significant correlation between code-switching and vocabulary knowledge (rs = .124, 95% CI [-.128, .361], p = .332), indicating no meaningful statistical relationship. This finding contributes new quantitative evidence to Arabic code-switching research, which has largely focused on descriptive analyses of forms and motivations. It suggests that code-switching may be more closely linked to context-dependent communicative function than to vocabulary acquisition and highlights the need for further research using larger samples and multiple sites to clarify this relationship.

INTRODUCTION

Arabic is at the heart of Islamic education, serving as the gateway to the Qur'an, Hadith, and centuries of Islamic scholarship. This is why many Islamic schools in Indonesia, especially boarding schools known as pesantren, make the study of Arabic and its daily use a core part of student life.[1] Immersed in Arabic both in the classroom and beyond, students are encouraged to develop the language skills needed to unlock religious texts and express themselves

[1] Fahrurrozi Sihombing, "Perkembangan Dan Pembelajaran Bahasa Arab Di Indonesia," *Ihya Al-Arabiyah: Jurnal Pndidikan Bahasa Dan Sastra Arab* 7, no. 2 (2021): 62–72, https://doi.org/10.30821/ihya.v7i2.15193.

confidently in Arabic.[2] At Darul Arafah Raya Islamic Boarding School in Deli Serdang, North Sumatra, students are immersed in Arabic every day. The school treats Arabic as an official language, weaving it into both lessons and daily conversations. This rich linguistic environment surrounds students with opportunities to expand their vocabulary, a crucial foundation for mastering any new language. With a growing word bank, students can listen, speak, read, and write more fluently, unlocking the full potential of Arabic communication.

Despite being surrounded by Arabic, students still encounter hurdles when speaking exclusively in the language. Observations of fifth-grade girls revealed that many occasionally slipped Indonesian words or phrases into their Arabic conversations when the right word escaped them. Phrases like "*ba'daki ana y*a!" and "*idamuha sop dajajah*" blend Indonesian with Arabic, illustrating code-switching, where speakers move between languages within a single conversation. Itching is common in multilingual communities and has been widely studied in sociolinguistics and bilingual education. In the past, it was often seen as a sign of weak language skills.

Research on Arabic learning shows that students often switch languages because they lack sufficient vocabulary, have difficulty recalling words, or lack confidence in speaking Arabic.[3] Similarly, a sociolinguistic study of Arabic-Indonesian code-switching among pesantren students found that limited vocabulary and grammar mastery is a major factor prompting students to switch into their first language.[4] Other studies in pesantren settings have similarly found that students draw on their first language to sustain classroom conversation. In a study of Qur'anic grammar (*nahwu*) study circles, students were observed switching to Indonesian to fill gaps in conversation.[5] Similar patterns have been documented among students in pesantren dormitory interactions more broadly.[6]

Before examining this relationship further, it is necessary to clarify several key constructs used throughout this study. Code-switching refers to the alternation between two or more identifiable linguistic systems within a single utterance or conversation, generally treated as movement between two separate

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[2] Nikmatus Sakdiah and Fahrurrozi Sihombing, "Problematika Pembelajaran Bahasa Arab," *Sathar: Jurnal Pendidikan Bahasa Dan Sastra Arab* 1, no. 1 (2023): 34–41, https://doi.org/10.59548/je.v1i1.41.

[3] Ahmad Akmal Abdillah, "Students and the Problems in Learning Arabic," *International Journal of Education and Life Sciences (IJELS)* 3, no. 10 (2025): 2859–68, https://doi.org/10.59890/ijels.v3i10.184.

[4] Ruly Syaepul Azhar et al., "Alih Dan Campur Kode Arab-Indonesia : Studi Sosiolinguistik Di Pesantren MIMLAM Cileunyi," *Edumulti: Jurnal Rumpun Ilmu Pendidikan Multidisiplin* 1, no. 2 (2025): 52–62, https://doi.org/10.63142/edumulti.v1i2.332.

[5] Baiq Yulia Kurnia Wahidah, Djatmika, and Sri Marmanto, "Alih Kode Dalam Interkasi Di Lingkungan Pondok Pesantren Ulil Albaab: Kajian Sosiolinguistik," *Cendekia* 11, no. 2 (2017): 143–58, https://doi.org/10.30957/cendekia.v11i2.328.

[6] Nurhikmah Sani et al., "Campur Kode Bahasa Ibu Terhadap Percakapan Bahasa Arab Pondok Pesantren Darul Iman," *Al Mi ' Yar : Jurnal Ilmiah Pembelajaran Bahasa Arab Dan Kebahasaaraban* 6, no. 2 (2023): 773–88, https://doi.org/10.35931/ am.v6i2. 2381.

languages.[7] Translanguaging, by contrast, denotes a broader pedagogical and sociolinguistic framework in which bilingual speakers draw on an integrated linguistic repertoire (rather than two discrete language systems) to construct meaning.[8] Although related, the two constructs are not interchangeable: code-switching describes an observable linguistic behavior grounded in the assumption of separate language systems, whereas translanguaging describes the underlying, more fluid process said to motivate such behavior.

In this study, Arabic vocabulary knowledge refers to students' mastery of Arabic words at a single point in time, encompassing both recall (retrieving the Arabic equivalent of an Indonesian word) and recognition (identifying the meaning of an Arabic word). Theoretically, code-switching may relate to vocabulary knowledge in two competing ways: it may reduce opportunities to practice and consolidate target-language vocabulary, or it may serve as a communicative strategy that helps learners access and reinforce vocabulary they already possess. This study measures students' self-reported code-switching behavior, translanguaging theory is drawn upon only as an interpretive lens for understanding why such behavior may occur, not as a construct measured by the instrument.

However, modern perspectives on bilingualism offer a richer view of code-switching. Rather than seeing it as a weakness, new theories highlight code-switching as a valuable communication strategy.[9] Translanguaging theory suggests that bilingual speakers draw on all their language resources to make meaning, enhance understanding, and communicate more effectively.[10] From this angle, moving between languages can support language learning by allowing students to draw on what they already know while engaging in classroom interaction. This question is especially relevant in Islamic boarding schools, where vocabulary (*mufradat*) mastery is treated as foundational to developing Arabic speaking ability (*maharah al-kalam*). Prior studies in this setting have documented a range of approaches to strengthening mufradat, from qualitative classroom-based instruction[11] to small-group *halaqoh* learning[12] and instructional media such

[7] D R Mabule, "What Is This? Is It Code Switching, Code Mixing or Language Alternating?," Journal of Educational and Social Research 5, no. 1 (2015): 339–50, https://doi.org/10.5901/jesr.2015.v5n1p339.

[8] Ofelia García and Angel M Y Lin, "Translanguaging in Bilingual Education," in Bilingual and Multilingual Education, ed. Ofelia Garcia, Angel Lin, and Stephen May (Cham: Springer International Publishing, 2016), 1–14, https://doi.org/10.1007/978-3-319-02324-3_9-1.

[9] García and Lin.

[10] Ping Wang, "Relooking at the Roles of Translanguaging in English as a Foreign Language Classes for Multilingual Learners: Practices and Implications," *Frontiers in Psychology* 13, no. June (2022): 1–11, https://doi.org/10.3389/fpsyg.2022.850649.

[11] Suandi Munthe, Bambang, and Abdul Halim Hanafi, "Pembelajaran Mufradat Dalam Meningkatkan Maharah Al-Kalam Santri Di Pondok Pesantren," *Jurnal Naskhi: Jurnal Kajian Pendidikan Dan Bahasa Arab* 4, no. 2 (2022): 22–31, https://doi.org/10.47435/naskhi.v4i2.1194.

[12] Julisa Farah and Nuril Mufida, "Management Halaqoh Language To Improve Speaking Skills In Daarul Lughoh Wadda'wah Boarding School Bangil, Pasuruan," *Arkhas: Journal of Arabic Language Teaching* 2, no. 1 (2022): 57–66, https://doi.org/10.35719/arkhas.v2i1.1353.

as vocabulary wheels.[13] Together, these studies underscore how central vocabulary instruction is to Arabic language development in pesantren, even though none of them directly examine the role of code-switching in that process.

The connection between code-switching and vocabulary learning is anything but simple.[14] Working Memory Theory suggests that mastering new words requires students to actively recall and use them, helping to cement them in memory.[15] The Depth of Processing framework adds that deeper thinking about words leads to stronger learning. From these perspectives, relying too much on the first language could limit opportunities to practice the target language, possibly slowing vocabulary growth. [16] Some teachers worry that frequent code-switching makes it too easy to avoid using new words. [17] On the other hand, research also shows that when used wisely, code-switching can clarify meaning, support understanding, and even help students link new words to what they already know.[18] These mixed findings suggest that the relationship between code-switching and vocabulary depends on the context, rather than being uniformly beneficial or detrimental.[19]

While research on code-switching has grown a lot in the last ten years, most studies focus on what it looks like, why it happens, and its social aspects. There are fewer studies that measure how code-switching relates to vocabulary learning, especially in Arabic classes. Most research has looked at general bilingual or English. Although research on code-switching has expanded rapidly over the past decade, several studies have documented its forms and triggering factors in market vendor–buyer interactions.[20] Related work has examined the forms of

[13] Khoirotun Ni'mah, Ida Latifatul Umroh, and Ayu Rohmana, "Penerapan Media Pembelajaran Roda Mufrodat Untuk Meningkatkan Maharah Kalam Siswa Kelas 1 Mts Tanwirul Qulub Sungelebak Karanggeneng Lamongan," *Al-Fakkaar: Jurnal Ilmiah Pendidikan Bahasa Arab* 2, no. 1 (2021): 57–78, https://doi.org/10.52166/alf.v2i1.2375.

[14] Danning Sun, Zihan Chen, and Shanhua Zhu, "What Affects Second Language Vocabulary Learning? Evidence from Multivariate Analysis," Frontiers in Education 8, no. November (2023): 1–12, https://doi.org/10.3389/feduc.2023.1210640.

[15] Nick C Ellis, "The Psychology of Foreign Language Vocabulary Acquisition: Implications for CALL," *Computer Assisted Language Learning* 8, no. 2–3 (June 1, 1995): 103–28, https://doi.org/10.1080/0958822940080202.

[16] Nursyahidatul Urwati, Firman Alamsyah, and Abdul Munip, "Praktik Alih Kode Dan Campur Kode Di Komunitas Ngaji Nahwu : Analisis Sosiolinguistik," *Al Mi ' Yar : Jurnal Ilmiah Pembelajaran Bahasa Arab Dan Kebahasaaraban* 8, no. 2 (2025): 518–27, https://doi.org/10.35931/am.v8i2.5188.

[17] Wahidah, Djatmika, and Marmanto, "Alih Kode Dalam Interkasi Di Lingkungan Pondok Pesantren Ulil Albaab: Kajian Sosiolinguistik."

[18] David L. Fenanlampir, Marce Laimena, and Sophia Binnendyk, "Code-Switching as a Mediational Tool in EFL Classrooms: Students' Attitudes, Perceptions, and Learning Experiences," *Jurnal Tahuri* 21, no. 2 (2024): 84–103, https://doi.org/10.30598/tahurivol21issue2page84-103.

[19] Nurhikmah Sani et al., "Campur Kode Bahasa Ibu Terhadap Percakapan Bahasa Arab Pondok Pesantren Darul Iman," Al Mi ' Yar : Jurnal Ilmiah Pembelajaran Bahasa Arab Dan Kebahasaaraban 6, no. 2 (2023): 773–88, https://doi.org/10.35931/ am.v6i2. 2381.

[20] Siti Rifa Alawiyah, Tanti Agustiani, and Hera Wahdah Humaira, "Wujud Dan Faktor Penyebab Alih Kode Dan Campur Kode Dalam Interaksi Sosial Pedagang Dan Pembeli Di Pasar Parungkuda Kabupaten Sukabumi," *Jurnal Pendidikan Bahasa Dan Sastra Indonesia.* 11, no. 2 (2021): 197–207, https://doi.org/10.23887/jjpbs.v11i2.36023.

code-mixing and code-switching used on social media.[21] Other studies have analyzed the forms, types, and factors underlying code-switching between sellers and buyers in traditional markets.[22] Few studies have explored how code-switching is associated with vocabulary learning in Arabic classrooms. While most research centers on bilingual or English-learning environments, the world of Arabic immersion in Indonesian pesantren remains largely uncharted. In these schools, Arabic weaves through both lessons and daily routines, making it crucial to determine whether students' code-switching habits are linked to their mastery of Arabic vocabulary. This research aims to spark new conversations about code-switching in education and inspire fresh approaches to teaching Arabic and developing language policies in Islamic boarding schools. Specifically, this study examines the extent to which students' self-reported code-switching frequency is associated with their Arabic vocabulary knowledge.

Prior research on Arabic code-switching has largely examined its forms and social motivations (for instance, identifying insufficient vocabulary and low confidence as common triggers for switching) without quantitatively testing whether self-reported code-switching frequency is statistically associated with measured vocabulary outcomes.[23] Investigating Arabic specifically, rather than English, is theoretically warranted because the two languages occupy distinct functional positions for Indonesian learners. English is typically approached as a global lingua franca and elective foreign language, whereas Arabic functions as the liturgical language of Islam, the language of the Qur'an and Hadith, and the medium of classical Islamic scholarship (tafsir, fiqh, and aqidah).[24] This distinct status plausibly shapes learners' motivation, exposure patterns, and the social stakes attached to code-switching in ways that may not generalize from English-medium bilingual research.

The resulting gap in the Arabic language acquisition literature is therefore not merely that fewer studies exist, but that the relationship between code-switching and vocabulary outcomes specifically, as opposed to general proficiency or attitudes, remains empirically untested in Arabic learning contexts. Islamic boarding schools, moreover, constitute a distinctive bilingual ecology: Arabic here is neither a heritage language acquired informally at home nor a foreign language confined to scheduled lessons, but a designated official language

[21] Mahes Solekhudin, Hany Uswatun Nisa, and Robert Rizki Yono, "Bentuk-Bentuk Campur Kode Dan Alih Kode Pada Halaman Facebook Kementerian Kesehatan RI (Kajian Sosiolinguistik)," *Jurnal Ilmiah Wahana Pendidikan* 8, no. 17 (2022): 242–52, https://doi.org/10.5281/zenodo.7072945.

[22] Heru Susanto and Eti Sunarsih, "Analisis Bentuk, Jenis, Faktor Terjadinya Alih Kode Antara Penjual Dan Pembeli Di Pasar Kuala Singkawang," *Jurnal Pendidikan Bahasa* 9, no. 2 (2020): 179–88, https://doi.org/10.31571/bahasa.v9i2.1985.

[23] Ahmed Ibrahim Alsalami, "Foreign Language Acquisition through English–Arabic Code-Switching in EFL Classroom: A Systematic Literature Review," *Saudi Journal of Language Studies* 5, no. 4 (2025): 291–307, https://doi.org/10.1108/sjls-02-2025-0015.

[24] Abdillah, "Students and the Problems in Learning Arabic."

interwoven into both academic instruction and daily pesantren life, creating sustained immersion without native-speaker input. This combination of institutional immersion, religious motivation, and foreign-language status distinguishes the pesantren context from both naturalistic bilingual settings and conventional foreign-language classrooms, making it a theoretically distinct site for examining how code-switching relates to vocabulary knowledge.

This pesantren-specific dynamic also connects to a broader international literature. Studies of Arabic word recognition among adult learners in Morocco have shown that orthographic and phonological transfer between Arabic and a foreign language follows patterns distinct from those documented in Latin-script bilingual pairs,[25] while research on pedagogical translanguaging among foreign-language teachers internationally has found that attitudes toward mixing languages in instruction vary considerably by context and institutional policy.[26] Situating the present findings alongside this international literature helps clarify which aspects of code-switching in Arabic learning may generalize across settings and which are likely specific to the pesantren context.

The remainder of this paper is organized as follows. The Method section describes the research design, participants, and data collection and analysis procedures. The Result and Discussion section presents the statistical findings and interprets them in light of existing theory and literature. The Conclusion summarizes the study's contribution, limitations, and directions for future research.

METHOD

This study was conducted at Darul Arafah Raya Islamic Boarding School in Deli Serdang, North Sumatra. This site was selected because it is one of the relatively few pesantren in the region that formally designates Arabic as an official language of instruction and daily communication, rather than confining it to scheduled lessons, providing a naturalistic setting in which students' code-switching could be examined under conditions of sustained institutional immersion. Fifth-grade students were chosen as the focus and unit of analysis because, at this stage, students have completed enough foundational Arabic vocabulary instruction to allow meaningful variation in vocabulary knowledge to be measured, while still being frequently observed switching to Indonesian in daily interaction, making this cohort well suited to examining the relationship between code-switching and vocabulary mastery.

[25] Noureddine Atouf and Elsayed Issa, "Enhancing Word Recognition Skills in English (FL) and Arabic (L1) through Transfer Effect: An Intervention Study," *Frontiers in Psychology* 16, no. June (2025): 1–14, https://doi.org/10.3389/fpsyg.2025.1564043.

[26] Ömer Gökhan Ulum, "Breaking down Linguistic Barriers: The Radical Impact of Translanguaging on Pre-Service EFL Teachers' Perspectives in Turkey," *PLOS ONE* 19, no. 12 (2024): 1–22, https://doi.org/10.1371/journal.pone.0315982.

This study adopted a quantitative correlational research design, using primary data collected directly from students, to examine how their code-switching habits relate to their Arabic vocabulary knowledge. Out of 161 fifth-grade students enrolled in the 2025/2026 academic year, 63 were selected to participate in the study using the Slovin formula with a 10% margin of error.

Data collection relied on two instruments. The first, a 12-item self-report questionnaire, assessed students' self-reported code-switching behavior through a four-point Likert scale: Always (AL), Often (OF), Sometimes (S), and Never (N). As the responses reflected students' own perceptions, the results captured their self-assessed code-switching rather than observed behavior. Because code-switching is fundamentally a behavioral linguistic phenomenon, this self-report approach captures students' perceptions of their language use rather than their actual, observable language practices, a distinction that should be kept in mind when interpreting the correlational results below.

The second instrument, an Arabic vocabulary test, featured 16 valid multiple-choice questions selected from an original pool of 25 after pilot testing. This test assessed two dimensions of vocabulary knowledge: recall, which assessed students' ability to match Indonesian words with their Arabic counterparts, and recognition, which assessed their skill in identifying the meanings of Arabic words in Indonesian.

Prior to data collection, Arabic language education specialists validated both instruments. Item validity was assessed using Pearson's Product-Moment correlation, with a critical value of $r = .244$ ($n = 63$, $\alpha = .05$). Reliability was measured using Cronbach's alpha. Preliminary analyses included the Kolmogorov–Smirnov normality test and a linearity test to determine the suitability of the statistical procedures. The results indicated that the vocabulary knowledge data were not normally distributed. Therefore, Spearman's Rho correlation analysis was employed to examine the relationship between students' code-switching behavior and Arabic vocabulary knowledge.[27]

RESULT AND DISCUSSION

Validity and Reliability Testing of Research Instruments

Before diving into data analysis, the research team carefully evaluated the validity and reliability of the instruments to guarantee they were fit for collecting meaningful data. To assess item validity, Pearson's Product-Moment correlation was used, setting a critical value of $r = .244$ ($n = 63$, $\alpha = .05$). Any item with a correlation coefficient above this threshold was deemed valid.

[27] Priyono, *Metode Penelitian Kuantitatif*, ed. Teddy Chandra, Revisi (Sidoarjo: Zifatama Publishing, 2008).

The analysis of the code-switching questionnaire (Variable X) revealed that all 12 items passed the validity test. With item-total correlation coefficients spanning from .261 to .734, each item surpassed the critical value of .244, as detailed in Table 1.

Table 1. Results of the Validity Test for Variable X

No Item	r calculated	r table	Notes
X1	.402	.244	Valid
X2	.525	.244	Valid
X3	.612	.244	Valid
X4	.472	.244	Valid
X5	.608	.244	Valid
X6	.672	.244	Valid
X7	.734	.244	Valid
X8	.573	.244	Valid
X9	.614	.244	Valid
X10	.556	.244	Valid
X11	.261	.244	Valid
X12	.515	.244	Valid

The validity analysis of the Arabic vocabulary knowledge test (Variable Y) revealed that 16 of 25 items met the validity criterion, indicating their strength. However, 9 items did not reach the required threshold and were excluded from further analysis. A detailed breakdown of these results can be found in Table 2.

Table 2. Results of the Validity Test for Variable Y

No Item	r calculated	r table	Notes
Y1	.371	.244	Valid
Y2	.173	.244	Invalid
Y3	.292	.244	Valid
Y4	.355	.244	Valid
Y5	.359	.244	Valid
Y6	.311	.244	Valid
Y7	.344	.244	Valid
Y8	.431	.244	Valid
Y9	.224	.244	Invalid
Y10	.371	.244	Valid
Y11	.120	.244	Invalid
Y12	.460	.244	Valid
Y13	.441	.244	Valid
Y14	.493	.244	Valid
Y15	.219	.244	Invalid
Y16	.492	.244	Valid
Y17	.219	.244	Invalid
Y18	.413	.244	Valid
Y19	.352	.244	Valid
Y20	.432	.244	Valid
Y21	.146	.244	Invalid
Y22	.124	.244	Invalid
Y23	-.091	.244	Invalid
Y24	.042	.244	Invalid
Y25	.302	.244	Valid

After carefully assessing validity, 9 invalid items were removed, resulting in a refined Arabic vocabulary knowledge test comprising 16 well-crafted multiple-choice questions.

Reliability was measured with Cronbach's Alpha. The code-switching questionnaire achieved a robust alpha of .786, reflecting strong internal consistency. The Arabic vocabulary knowledge test reached an alpha of .658, surpassing the minimum threshold for exploratory research. While this suggests moderate reliability, results should still be viewed with some caution. In sum, both instruments proved reliable enough to support the aims of this study. [28]

Descriptive Statistics and Score Categorization

To paint a clear picture of our two research variables, we turned to descriptive statistics. The table below showcases the SPSS results for easy reference.

Table 3. Descriptive Statistical Analysis of Variables X and Y

Variable	N	Mean	Standard Deviation	Min	Max
Code-Switching (X)	63	31.87	5.670	15	46
Vocabulary Knowledge (Y)	63	9.17	3.003	3	14

The mean score for code-switching (Variable X) was 31.87 (SD = 5.67), with observed scores ranging from 15 to 46. Meanwhile, the mean score for Arabic vocabulary knowledge (Variable Y) was 9.17 (SD = 3.00), with observed scores ranging from 3 to 14.

To clarify the results, participants' scores were grouped into three distinct levels (high, moderate, and low) based on the Mean ± the Standard Deviation.

Table 4. Categorization of X Variable Scores

Category	Range X	Frequency	Percentage
High	> 37.54	8 dyah	12.7%
Medium	26.20 – 37.54	47 dyah	74.6%
Low	< 26.20	8 dyah	12.7%

Table 5 Categorization of Y Variable Scores

Category	Range Y	Frequency	Percentage
High	> 12.17	5 dyah	7.9%
Medium	6.17 – 12.17	46 dyah	73.0%
Low	< 6.17	12 dyah	19.0%

Table 4 reveals that nearly three-quarters of participants (74.6%) fell into the moderate code-switching category, highlighting how frequently code-switching colours their everyday speech. In a similar vein, Table 5 illustrates that most participants (73.0%) possessed a moderate command of Arabic vocabulary.

[28] Imam Machali, *Metode Penelitian Kuantitatif: Panduan Praktis Merencanakan, Melaksanakan, Dan Analisis Dalam Penelitian Kuantitatif*, ed. Abdaul Qur'ani Habib (Yogyakarta: Prodi Manajemen Pendidikan Islam bekerjasama dengan Perkumpulan Program Studi Managemen Pendidikan Islam (PPMPI), 2018).

Normality Test

To ensure the appropriate statistical approach, a normality test was conducted to assess whether the research data followed a normal distribution. Given the sample size of 63, the Kolmogorov-Smirnov test was chosen as the most suitable method. When the p-value exceeds .05, the data are considered normally distributed. If it falls below .05, normality is not met. The table below presents the results of the normality test.

Table 6 Results of the Normality Test for Variables X and Y

Variable	Kolmogorov-Smirnov	Sig.	*Notes*
Code-Switching (X)	.104	.089	Normal
Vocabulary Knowledge (Y)	.116	.034	Abnormal

The results revealed that while the code-switching variable met the normality assumption (p = .089), the Arabic vocabulary knowledge variable did not (p = .034). Because one variable did not follow a normal distribution, a non-parametric method was required. Therefore, Spearman's Rho correlation analysis was selected to investigate the relationship between code-switching and Arabic vocabulary knowledge. [29]

Linearity Test

A linearity test was used to determine whether there was a linear relationship between code-switching (Variable X) and Arabic vocabulary knowledge (Variable Y). The relationship is considered linear if the significance value for linearity is below .05 and the significance value for deviation from linearity is above .05.

Table 7. Results of the Linearity Test for Variables X and Y

	F	Sig.	Notes
Linearity	.796	.378	Non-Linear
Deviation from Linearity	1.286	.241	-

The analysis revealed a significance value of .378 for linearity, comfortably above the .05 threshold. This suggests that the relationship between code-switching and Arabic vocabulary knowledge does not follow a linear pattern. With a deviation from linearity significance of .241, no distinct pattern emerged. Coupled with the non-normal distribution of vocabulary knowledge data, these results make Spearman's Rho correlation analysis the ideal choice, as it sidesteps the need for normality or linearity.[30]

Correlation Test

To examine how code-switching might relate to Arabic vocabulary knowledge, a Spearman's Rho correlation analysis was conducted with fifth-grade

[29] Sugiyono, *Metode Penelitian Kuantitatif, Kualitatif, Dan R&D*, 19th ed. (Bandung: Alfabeta, 2013).

[30] Machali, *Metode Penelitian Kuantitatif: Panduan Praktis Merencanakan, Melaksanakan, Dan Analisis Dalam Penelitian Kuantitatif.*

students at Darul Arafah Raya Islamic Boarding School, Deli Serdang. The analysis used a significance level of α = .05, meaning any p-value below .05 would indicate a statistically significant relationship between the variables. The results of the correlation test are presented in the following table:

Table 8 Results of the Correlation Test for Variables X and Y

Varible	Correlation Coefficient (rs)	Sig. (2-tailed)	Notes
Code-Switching (X) – Vocabulary Knowledge (Y)	.124	.332	Not Significant

Spearman's Rho analysis revealed only a faint positive link between code-switching and Arabic vocabulary knowledge (rs = .124). Yet this connection did not reach statistical significance, as the p-value (.332) exceeded the .05 threshold, and the 95% confidence interval for the correlation, [-.128, .361], spanned zero, further indicating that a true positive or negative association cannot be confidently inferred from this sample. In the end, no meaningful relationship emerged between code-switching and participants' Arabic vocabulary knowledge. Squaring the correlation coefficient yielded a coefficient of determination (R^2 = .0154), indicating that only 1.54% of the variation in Arabic vocabulary knowledge could be attributed to code-switching scores. This small percentage should be viewed with caution. Since other variables potentially associated with vocabulary knowledge were not explored in this study, the source of the remaining unexplained variance remains a mystery. Therefore, we cannot pinpoint which factors might be linked to differences in students' Arabic vocabulary knowledge.

This study found no statistically significant link between code-switching and Arabic vocabulary knowledge among fifth-grade students at Darul Arafah Raya Islamic Boarding School (rs = .124, 95% CI [-.128, .361], p = .332). The confidence interval's inclusion of zero confirms that a weak positive correlation observed in this sample is also compatible with no relationship, or even a weak negative one, in the broader population. This means that in this study, students' self-reported code-switching was not meaningfully related to their Arabic vocabulary knowledge.

This finding adds a data point to the ongoing debate about code-switching in second language learning. Many have long viewed code-switching as a sign of weak language skills, worrying that relying too much on the first language could limit opportunities to practice and expand vocabulary.[31] However, the non-significant result obtained here means the present data neither confirm nor refute

[31] Odilia Yim and Richard Clément, "Acculturation and Attitudes toward Code-Switching: A Bidimensional Framework," *International Journal of Bilingualism* 25, no. 5 (2021): 1369–88, https://doi.org/10.1177/13670069211019466.

this concern: in this sample, frequent code-switching was not detectably associated with either higher or lower Arabic vocabulary knowledge.

One possible interpretation, consistent with modern bilingual and translanguaging theories, is that code-switching may function as a communicative resource rather than a deficit, helping students keep conversations flowing, clarify ideas, and bridge gaps in vocabulary.[32] This interpretation is offered as a theoretical possibility consistent with the absence of a significant negative association, not as a claim directly supported by the present correlational data.

In educational settings, especially in Islamic boarding schools, research shows that vocabulary often serves as a bridge to understanding rather than a replacement for the target language. Likewise, studies in bilingual and foreign-language classrooms have reported that strategic code-switching can support comprehension, lighten cognitive load, and help learners draw on prior knowledge.[33] This literature suggests that the link between code-switching and vocabulary learning may be more context-dependent than once assumed.[34]

At the same time, the non-significant result in this study should be interpreted as an absence of detected association in this sample, rather than as evidence either for or against a role for code-switching in language learning more broadly. The low coefficient of determination ($R^2 = .0154$) suggests that code-switching explained only a small part of the variation in Arabic vocabulary knowledge, leaving most of the variance to be accounted for by factors outside the scope of this study. Established models of vocabulary acquisition point to several such factors. Input frequency and exposure theory holds that vocabulary is acquired largely as a function of how often and how richly a learner encounters target words, meaning that students' overall exposure to Arabic, through reading, listening, and classroom interaction, likely matters more for vocabulary knowledge than how often they happen to switch codes while speaking.[35]

Relatedly, the depth of vocabulary learning strategies learners use and their motivation toward language learning have both been linked to vocabulary achievement independently of language-mixing behavior.[36] Instructional quality and classroom interaction may matter as well, as higher-quality input and more frequent meaningful interaction generally support stronger vocabulary gains

[32] Alsalami, "Foreign Language Acquisition through English–Arabic Code-Switching in EFL Classroom: A Systematic Literature Review."

[33] Fenanlampir, Laimena, and Binnendyk, "Code-Switching as a Mediational Tool in EFL Classrooms: Students' Attitudes, Perceptions, and Learning Experiences."

[34] Ahmad Muhammad Basachroh et al., "The Phenomenon of Code-Switching and Mixing in Daily Conversations Among Students of the Religious Program at Darussalam Institute, Ciamis, West Java," *El Ibtikar: Jurnal Pendidikan Bahasa Arab* 14, no. 2 (2025): 286–93, https://doi.org/10.24235/ibtikar.v13i2.21852.

[35] Ellis, "The Psychology of Foreign Language Vocabulary Acquisition: Implications for CALL."

[36] Haimanot Ayana, Temesgen Mereba, and Adege Alemu, "Effect of Vocabulary Learning Strategies on Students' Vocabulary Knowledge Achievement and Motivation: The Case of Grade 11 High School Students," *Frontiers in Education* 9 (2024): 1–22, https://doi.org/10.3389/feduc.2024.1399350.

regardless of learners' code-switching tendencies. Finally, the immersive, religiously motivated character of Arabic learning in *pesantren* settings discussed earlier may itself shape vocabulary knowledge through pathways unrelated to code-switching, such as sustained exposure to Qur'anic and classical texts. Read together, these theoretical models suggest that the modest variance explained by code-switching in this study is consistent with a broader literature in which exposure, learning strategies, motivation, and instructional context, rather than code-switching itself, are the more proximal drivers of vocabulary acquisition.

Although this study did not find a statistically significant relationship between code-switching and Arabic vocabulary knowledge, this null finding still carries practical implications for Arabic teachers, since it suggests that code-switching, in itself, is neither clearly beneficial nor clearly harmful to vocabulary learning in this context. Rather than treating code-switching as something to be uniformly prohibited or uniformly encouraged, teachers may instead consider when and how it occurs.

Following recommendations from research on strategic code-switching, teachers might permit code-switching primarily in situations where it serves a clear communicative function, such as clarifying instructions, managing classroom procedures, or helping lower-proficiency students articulate ideas they could not yet express in Arabic, while reserving sustained Arabic use for vocabulary-focused activities such as drilling, reading, and guided practice.[37] This suggests that strict Arabic-only policies may not need to be abandoned, but rather relaxed selectively: allowing brief, purposeful code-switching during transitional or clarification moments, while maintaining consistent Arabic exposure during core instructional activities. Professional development that helps teachers recognize and plan for these moments, rather than treating all code-switching as a lapse in classroom discipline, may be more productive than a blanket policy in either direction.

For teachers seeking to integrate translanguaging principles without sacrificing target-language exposure, research on proficiency-adjusted translanguaging suggests that the appropriate balance depends on learners' current Arabic proficiency. Students with very limited Arabic may need more first-language scaffolding to access content and participate at all, whereas more proficient students can be expected to rely increasingly on Arabic as their competence grows.[38] In practice, this might mean structuring group work and peer discussion, activities in which translanguaging tends to occur naturally,

[37] Alsalami, "Foreign Language Acquisition through English–Arabic Code-Switching in EFL Classroom: A Systematic Literature Review."

[38] Napapat Thongwichit and Mark Bedoya Ulla, "Translanguaging Pedagogy in Thailand's English Medium of Instruction Classrooms: Teachers' Perspectives and Practices," *TESL-EJ* 27, no. 4 (2024): 1–17, https://doi.org/10.55593/ej.27108a7.

around Arabic vocabulary tasks, so that students draw on their full linguistic repertoire to negotiate meaning while still being pushed to produce and encounter Arabic vocabulary as the activity's outcome. Future research could also examine other factors that may be associated with Arabic vocabulary knowledge, such as language exposure, learning strategies, motivation, teaching approaches, and the broader learning environment, for a richer understanding of how vocabulary develops in Islamic boarding schools.[39]

There are a few limitations to consider. First, and perhaps most importantly, code-switching was measured exclusively through a self-report questionnaire, yet code-switching is fundamentally a behavioral linguistic phenomenon. Self-reported frequency may not accurately reflect students' actual language practices, as responses can be shaped by memory, self-perception, or social desirability rather than observed behavior. Without behavioral evidence, the validity of the code-switching variable as measured in this study remains uncertain. Future studies should therefore triangulate questionnaire data with classroom observation, discourse analysis, audio or video recordings, teacher observations, and conversational transcripts to capture code-switching as it actually occurs. Second, the study focused solely on students from a single Islamic boarding school, so the findings may not generalize to other schools or contexts. Third, although the sample size ($n = 63$) was determined using Slovin's formula to ensure adequate representation of the target population, this calculation addresses sample representativeness rather than statistical power. A post-hoc power analysis, based on Fisher's z-transformation, indicates that this sample provides approximately 16% power to detect a correlation as small as the one observed ($r_s = .124$) at $\alpha = .05$, well below the conventional 80% threshold.[40] Detecting an effect of this magnitude with 80% power would require a sample of approximately 500 participants; conversely, with $n = 63$, the study is adequately powered (≥80%) only to detect correlations of $r \geq .35$ or stronger.

This suggests that the non-significant result reported here should be interpreted with particular caution, it may reflect either a true absence of relationships or an underpowered test that failed to detect a real but small effect. Future studies aiming to test weak-to-moderate correlations between code-switching and vocabulary outcomes should therefore prioritize substantially larger samples. Addressing these limitations, particularly through behavioral and observational measures of code-switching, could offer a richer and more valid

[39] Tgk Maya Silviyanti et al., "The Implementation of English and Arabic Practices at an Islamic Bilingual Boarding School," *Jurnal Cakrawala Pendidikan* 43, no. 3 (September 30, 2024): 630–44, https://doi.org/10.21831/cp.v43i3.72204.

[40] Jacob Cohen, "A Power Primer," *Psychological Bulletin* 112, no. 1 (1992): 155–59, https://doi.org/10.1037/0033-2909.112.1.155.

understanding of language learning in Islamic boarding schools and other Arabic-learning environments.

CONCLUSION

This study explored the connection between code-switching and Arabic vocabulary knowledge among fifth-grade students at Darul Arafah Raya Islamic Boarding School in Deli Serdang. The Spearman's Rho analysis revealed a slight positive correlation (r_s = .124, 95% CI [-.128, .361]) that was not statistically significant (p = .332), indicating no statistically detectable association (positive or negative) between students' self-reported code-switching and their Arabic vocabulary knowledge. One plausible interpretation, rather than a direct empirical finding, is that students may have used code-switching as a flexible communicative tool shaped by context rather than as a behavior directly tied to vocabulary knowledge. This interpretation is consistent with modern perspectives on bilingualism and translanguaging. However, because code-switching was assessed through self-report rather than direct observation of language use, the present data should not be read as confirming this interpretation, only as failing to contradict it.

Even though the correlation did not reach significance, this finding still strengthens the broader argument advanced in this study: that claims about code-switching's role in vocabulary learning, whether framed as harmful or beneficial, need to be tested empirically rather than assumed from descriptive or qualitative accounts alone. By quantitatively testing this relationship in an Arabic-medium pesantren, a context that had not previously been examined in this way, the study shows that a student's self-reported frequency of switching languages is not, by itself, a strong indicator of how much Arabic vocabulary that student has mastered. This contributes a data point those existing institutional assumptions about code-switching, common in Islamic boarding school language policy, cannot be taken for granted and should instead be weighed against direct empirical evidence.

At the same time, this conclusion should be read alongside the study's main constraints. Code-switching was measured only through students' self-report rather than through observed classroom behavior, the sample was limited to a single boarding school, and the study was only adequately powered to detect moderate-to-strong correlations, so a small true relationship could easily have gone undetected. Future studies could address these weaknesses by pairing self-report data with classroom observation or recordings, drawing on larger and more varied *pesantren* samples, and examining other factors, such as language exposure, learning strategies, motivation, and instructional quality, that may better explain differences in Arabic vocabulary knowledge.

These findings imply that Arabic teachers and *pesantren* administrators need not treat code-switching as an automatic threat to vocabulary development, but they also should not assume it is harmless without further evidence. Continued research that combines behavioral measures of code-switching with a broader set of vocabulary-related variables would help build a more complete picture of how bilingual practice shapes Arabic language learning in Islamic boarding schools and would allow language policies in these institutions to be grounded in evidence rather than assumption.

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