



Between Arabic and English: Code-Switching, Code-Mixing and Lexical Choice Across Jordanian Public, Private, and International High School Sectors

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Abstract

Arabic and English use appears to be increasing in the daily communication of young Jordanians, but it may differ across educational contexts. This study analyzed Arabic–English code-switching (CS), code-mixing (CM), and lexical choice among students in public, private, and international schools in Jordan. A quantitative comparative design was used. The research used two instruments to collect data: first, recorded individual interviews conducted with 18 students for the CS and CM analyzes. Second, picture-naming tasks were collected from 347 students in Grades 10–12 to investigate students' lexical choice in expressing familiar concepts. The classification of CS follows Poplack's classification, and CM follows Muysken's typology. Statistical comparisons were made across the school sectors and between genders. The results showed that CS differed significantly across school sectors, occurring among international and private school participants but not among public-school participants. CS (68.9%) was dominated by inter-sentential switching, and no significant gender difference was detected in the interview sample. In contrast, no significant differences in CM frequency across school sectors or between genders were observed, but insertion clearly predominated across all observed CM patterns (94.1%). Picture names varied significantly across sectors. Public-school students preferred Arabic lexical forms, while international-school students preferred English forms, and private-school students often fell between the two groups. The findings point to the need to consider both the educational language environment and individual lexical items when studying bilingual language practices, and indicate that further studies are needed to examine differences in English exposure and proficiency that may be associated with these practices.

1. Introduction

Arabic and English are used together in a range of communicative settings among young Arabic speakers, particularly in educational and digitally mediated contexts (Aburqayiqah et al., 2025; Alrasheed, 2022). Jordanian people obviously use Arabic in daily communication; however, some of them may include an English word, expression, or longer stretch of English. This shift is known in the literature and discussed as Code-Switching (CS) and Code-Mixing (CM), although the conceptual boundaries between CS and CM are not always drawn in the same way in the literature (Ezeh et al., 2022; Muysken, 2000; Myers-Scotton, 1993; Poplack, 1980).

Their occurrence is sociolinguistically important because bilingual speakers' language choices may vary by interlocutor, communicative purpose, and the social setting of an interaction (Altalqani et al., 2024; Androutsopoulos, 2015). High school students are particularly significant in this regard, as their engagement with English spans both formal education and diverse daily communication outside the classroom.

According to the Jordanian Ministry of Education and the National Centre for Curriculum Development (NCCD), Jordanian students study English from the early grades until the end of secondary school. However, Jordanian secondary school students attend various educational sectors, including public, private, and international schools. These sectors provide different environments in terms of curricula, educational resources and materials, and the role of English in the learning process. Therefore, the Jordanian school context provides an important basis for examining the use of CS and CM across these different educational sectors.

Myers-Scotton (1993) broadly defines CS as using two or more linguistic varieties within the same conversation. This might occur within and across sentence boundaries. Meanwhile, Muysken (2000) defines CM as cases in which lexical items and grammatical features from more than one language occur within a sentence, and describes three patterns: First, insertion involves material from one language entering a structure mainly associated with another language. Second, alternation involves a shift between structures from the two languages. Third, congruent lexicalization refers to cases in which material from both languages occurs within a wholly or partly shared grammatical structure.

This study adopts the analytical operational definitions of CS and CM. The first refers to switches between Arabic and English across clauses or sentences, as well as other identifiable switches in discourse. The latter refers to English lexical items or short expressions that occur within an Arabic grammatical frame. This study applies these operational definitions throughout to identify and classify the forms observed in the student data.

Studies conducted in the Jordanian context suggested that Arabic and English CS and CM are associated with different linguistic, topical, academic, and social considerations. Hussein (1999) concluded that Jordanian university students sometimes used English when an Arabic equivalent was unavailable or uncommon. The use of CS and CM is also linked to the nature of the topic under discussion; Al Hayek (2016) found that this occurs when the discussion is about scientific topics. Similarly, Salah (2023) identified academic, linguistic, social, and psychological factors associated with CM. Other studies have examined Jordanian secondary classrooms. For example, Abu Hait (2014) investigated the functions of code-switching among secondary school students in English language learning. Although these studies differ in sample and focus, they collectively show that CS and CM in the Jordanian context are linked to factors beyond mere lexical considerations, extending to academic, social, and contextual dimensions. This study differs from previous studies by examining CS and CM in Jordanian secondary schools across public, private, and international settings.

These school settings provide a relevant basis for comparison. International schools adopt an international curriculum; public schools follow the national curriculum, while private educational institutions may use additional curricula and materials subject to Ministry of Education approval. These differences make the school sector relevant to the present comparison because students may not have the same opportunities to encounter and use English during the school day. This does not indicate that a student's English use depends on their school. Friends, social media, entertainment, and other activities outside school can expose students from all three sectors to English.

This study's research problem is the lack of current knowledge about how CS and CM occur in Jordanian secondary schools across public, private, and international settings. The combined use of Arabic and English in the Jordanian context has been examined in previous studies, but most of the studies have focused on students from universities or on CS in English as a Foreign Language classrooms (Abu Hait, 2014; Al Hayek, 2016; Hussein, 1999). This leaves a knowledge gap about CS and CM patterns, as well as Arabic and English lexical

choices, among students in public, private, and international schools. This is further complicated by a lack of evidence linking students' self-reported linguistic practices to the practices that are observed in their oral interactions and lexical choices. Thus, a comparative study based on a wide range of evidence is needed to better understand Jordanian high school students' Arabic–English linguistic practices and the similarities and differences between the three school sectors.

To address this gap, the present study aims to provide a comparative understanding of Jordanian high school students' Arabic–English linguistic practices across different educational sectors. Accordingly, the study addresses the following objectives:

- To examine the frequency and types of Arabic–English CS among students across the three school sectors in Jordan.
- To examine the frequency and types of Arabic–English CM among students across the three school sectors in Jordan.
- To compare Arabic–English lexical choices for familiar concepts among students across the three school sectors in Jordan.

The study draws on two instruments to collect data: recorded individual interviews and picture-naming tasks. Combining these instruments allows examination of student-reported linguistic practices alongside practices observed in their oral interactions and lexical choices.

This study's contribution lies in this cross-sector comparison. Rather than examining CS only within a university population or a single type of secondary-school classroom, it compares students from public, private, and international high schools. It also examines lexical choice alongside CS and CM, drawing on spoken interaction and picture-naming data. In doing so, the study provides evidence about whether Arabic–English practices vary across educational settings while recognizing that students' exposure to English extends beyond school.

School-Sector Context in Jordan

The school sector provides an important context for this comparison because students do not necessarily encounter English the same way throughout the school day. In Jordan's national curriculum, English is taught as a foreign language across the school grades, with standards extending through the secondary grades (Alhabahba et al., 2016). Public schools work within this national curricular framework, where English is taught as a school subject alongside subjects taught mainly in Arabic. According to the Jordanian Ministry of Education, private and foreign educational institutions also operate under Ministry of Education regulation, including requirements governing their establishment, licensing, and educational programs.

This distinction matters when considering national and international programs. Some Jordanian private schools offer both programs within the same institution. According to the National Orthodox School, it describes its national program as being taught primarily in Arabic and based on the Jordanian Ministry of Education curriculum, while its Cambridge international program is taught primarily in English. This example should not be taken to mean that every private or international school follows exactly the same linguistic arrangement. It does, however, illustrate how the amount and context of English used during the school day can differ according to the program a student attends.

For this reason, the present study treats school sectors as one part of the students' language environment rather than as a substitute for individual English proficiency. A student's contact with English may also come from social media, entertainment, friends, or other activities outside school (Aburqayiqah et al., 2025; Androutsopoulos, 2015). Comparing public, private, and international schools therefore makes it possible to examine whether different educational settings are associated with differences in Arabic–English CS, CM, and lexical choice while allowing for English exposure beyond the classroom.

Theoretical Background: Code-Switching and Code-Mixing

CS and CM are closely related because both involve using more than one language in communication. The literature uses the terms interchangeably (Holmes & Wilson, 2013), but this study treats them as analytically distinct. This matters because switching between linguistic structures and inserting elements from one language into the other are patterns of bilingual language use. For this reason, the study is based on Poplack's (1980) typology of CS, which focuses on the structural position of a switch, and Muysken's (2000) typology of CM.

For code-switching, Poplack (1980) distinguishes three major types: inter-sentential, intra-sentential, and tag switching. Inter-sentential switching occurs when the language changes between sentences or independent clauses, with one segment produced in one language and the following segment in another. Intra-sentential switching occurs within the boundaries of a sentence or clause and therefore involves closer interaction between the grammatical structures of the two languages. Tag switching involves inserting a tag, discourse marker, or short fixed expression from one language into an utterance primarily produced in another. This classification provides a structural basis for identifying where switching occurs within bilingual discourse and is therefore used in the present study to classify the Arabic–English CS produced by students (Gumperz, 1982). Gumperz describes switching connected with quotation and changes in addressee.

Myers-Scotton (1993) takes a broader sociolinguistic view of CS and relates the choice between linguistic varieties to the social meanings available to speakers. In the present research, Poplack's categories help identify where Arabic–English switches occur, while a broader sociolinguistic perspective helps explain why students may make those choices.

This study approaches CM through Muysken's (2000) typology, which distinguishes insertion, alternation, and congruent lexicalization. Insertion refers to incorporating lexical items or constituents from one language into a structure largely organized according to another language. Alternation involves shifting between structures from the two languages within the same utterance. Congruent lexicalization occurs when linguistic material from both languages combines within a grammatical structure that both linguistic systems can share or support. Muysken's framework therefore allows CM to be examined by how material from Arabic and English is structurally combined, rather than simply recording the presence of two languages.

This distinction also serves an important analytical purpose. CS is examined in terms of the location and form of switching between Arabic and English, whereas CM is examined in terms of how linguistic material from the two languages is combined within mixed utterances (Alkhresheh, 2015; Tay, 1989). Treating them separately makes it possible to determine whether students differ not only in how frequently they use Arabic and English together but also in the structural patterns through which this bilingual language use occurs.

These approaches are relevant to the present research because the students' data are examined for both the form of Arabic–English alternation and the context in which it occurs. The reason for a switch often depends on what is happening in the conversation. A speaker discussing a scientific or technical subject, for example, may choose an English term that is familiar in that field. In another conversation, English may be used to clarify or emphasize a point. These choices are not only linguistic. They can shape the social meaning of an interaction and the relationship between participants (Holmes & Wilson, 2013; Myers-Scotton, 1993). Androutsopoulos (2015) further shows the importance of context in understanding bilingual language choice. In the present study, this means an English item cannot be interpreted by form alone; the reason students give for using it and the setting in which it occurs also matter.

Together, Poplack's (1980) and Muysken's (2000) frameworks provide the theoretical foundation for analyzing bilingual interaction in the present study. Rather than treating all instances of Arabic–English language contact as a single phenomenon, these frameworks allow systematic classification of different forms of CS and CM. They are therefore particularly suitable for comparing the frequency and structural patterns of bilingual language use among students in public, private, and international high schools in Jordan.

2. Review of Literature

This section reviews literature relevant to Arabic–English bilingual language use, with special emphasis on the three areas investigated in this study. It covers patterns and processes of CS and CM in educational and bilingual settings, and lexical choice and factors affecting bilingual word selection. These areas provide the theoretical and empirical foundations of the present study and help identify the gaps addressed by the research questions.

Patterns and Functions of Code-Switching in Bilingual Interaction

CS is not merely a reflection of linguistic deficiency but an important aspect of bilingual communication (Bhatt & Bolonyai, 2011). Speakers may switch from one language to another to carry out communicative functions, express identity, manage interpersonal relationships, emphasize meaning, and/or overcome lexical gaps. These functions are especially relevant in Arabic–English situations because the two languages may be accessible to speakers in different areas of daily life. In the school context, this process is further complicated for young speakers because they have different experiences of encountering and using English across schools.

In addition, research has revealed that CS is structurally diverse. Studies typically differentiate inter-sentential, intra-sentential, and tag switching based on Poplack's (1980) framework. However, the literature provides no indication that one form is dominant. Some researchers report inter-sentential switching as a very frequent phenomenon in EFL learners' errors, whereas tag switching is relatively rare (Nisa et al., 2021). Other studies report the opposite pattern. For instance, intra-sentential switching is more common than inter-sentential and tag switching in Jordanian Arabic–English bilinguals (Al Yousef et al., 2025). Likewise, Seddik et al. (2026) reported that intra-sentential switching was predominant in Arabic–English interactions in a university classroom and showed that structural choice was related to the interactional context. Together, the results indicate that the type of CS is not fixed but can change depending on the speaker, proficiency level, interactional context, and opportunities for bilingual interaction.

Jordanian studies have also confirmed the presence of CS among school-aged children. It doesn't have to be random; it can have real-world and interpersonal uses. Secondary school students switched to express emotions, avoid misunderstandings, convey culturally specific meanings, and for the comfort of communication (Abu Hait, 2014). Furthermore, Hussein et al. (2020) found that Jordanian high school students equated CS with continuity of communication, interpersonal relationships, and maintaining rapport. The pedagogical approach showed that regulated CS could be an effective factor in the EFL learning environment in Jordan (Hemedat, 2016) confirming previous studies that the phenomenon is not completely independent of the learning environment.

Yet Jordanian literature remains heterogeneous, as it spans various populations and communicative contexts. Studies have investigated CS among university students, translation students, and Arabic–English bilinguals in terms of structure, gender differences, and communicative functions (Ali, 2023; Alshehab, 2014).

This leaves a significant gap in the secondary school curriculum. Specifically, the evidence of natural CS among students from public, private, and international schools in a similar framework is limited. This is significant because not everyone will likely have access to English in every educational sector. English is used throughout the Jordanian school system, and many private schools use it to teach other subjects, which may lead to varying degrees and types of exposure. More recently, Jordanian studies also portray English as more than a language of schooling (Aburqayiqah et al., 2025); it is also a language of education, media, technology, and social interaction. Thus, although previous studies have documented Arabic–English code-switching in Jordanian bilingual communication, little evidence examines whether its frequency and structural forms vary systematically across public, private, and international high-school settings.

This gap leads to the first research question: How do the frequency and types of Arabic–English code-switching differ among students in public, private, and international high schools in Jordan?

Arabic–English Code-Mixing in Educational and Bilingual Contexts

Many bilingual individuals use elements of two languages in the same communication, a phenomenon called CM (Al Hayek, 2016; Muysken, 2000). The perception of CM as a purely linguistic interference, however, is being perceived as a communicative resource and a way for bilingual speakers to draw on their available linguistic resources to be able to express meanings, to access the lexicon, and to manage interactions (Tay, 1989). The influential work of Muysken (2000) identifies three structural types: insertion, alternation, and congruent lexicalization. This framework has been widely used to analyze bilingual speakers' production of mixed utterances.

Research with students shows these three patterns are not equally frequent. Putri et al. (2021) found that insertion, alternation, and congruent lexicalization were the most common types of lexicalization in 10th-grade students, with insertion being the most common. The study also identified factors such as interlocutors, language habits, confidence, and limited vocabulary as associated with the study variable, CM. This is reflected in classroom interaction. In the study of insertion and congruent lexicalization, nearly all CM was used as insertion, followed by alternation and congruent lexicalization; Salah (2023) found that students used CM partially to overcome limitations in their lexical knowledge and facilitate communication during the learning process. Similarly, Matin and Rozak (2026) found all three types in classroom interactions at university and connected bilingual language use with vocabulary limitations, clarification, classroom atmosphere, and peer solidarity.

Insertion, however, is not a universal dominant type in contexts. Syafrizal and Sari (2017) also identified insertion and alternation as the most dominant types of CM, which accounted for 48.6% in student communication when they studied the lexicalization that had happened in students' conversations on social media, while the congruent lexicalization type accounted for 32.0% and was related to psychological factors. These differences indicate that the CM system cannot be described as a single pattern across populations; it may change depending on the speaker, level of competence, communicative context, or communicative goal.

Evidence from Arabic–English bilingual contexts also highlights the relevance of CM, as Alkhresheh (2015) found that Arabic–English bilingual university students switched and mixed both languages in daily communication. In the context of Arabic–English conversations in Jordan, Aburqayiqah et al. (2025) examined the Arabic–English conversations using Muysken's (2000) framework and identified insertion as the dominant strategy (80%), congruent lexicalization as the second (18.8%) and alternation as the least used (1.2%). Their results also included other relationships between CM and education, technology, globalization, prestige, and social status. This suggests that Arabic–English mixing occurs in modern bilingual communication in Jordan, even in homes outside school.

Despite this body of work, an important gap remains. Much previous work has focused on CM in one classroom, in a university setting, in regular conversation, or in social networks. The current evidence offers little insight into differences in the frequency and structural types of Arabic–English CM across secondary-school contexts in Jordan. However, direct comparisons of students from public, private, and international high schools using the same analytical framework remain limited. This is because these sectors can offer varying amounts and types of exposure to English, and students may also be immersed in broader social and digital contexts that increasingly facilitate access to English. This study addresses this gap by moving beyond whether CM exists to examine how its structural distribution changes across educational contexts.

Accordingly, the second research question is: How do the frequency and types of Arabic–English code-mixing differ among students in public, private, and international high schools in Jordan?

Lexical Choice in Bilingual Language Use

The bilingual language production phenomenon of lexical choice has been a central issue in bilingual language production research because bilinguals may have two lexical representations for the same concept in their language system when producing language. When selecting a word, it is not only necessary to retrieve its meaning but also to choose among rival lexical forms in different languages. Overall, research into bilingual lexical access shows that the two languages are not fully independent (de Groot & Kroll, 2014; Scarborough et al., 1984). Rather, knowledge of both languages affects how easily specific words can be activated and produced. For instance, when highly proficient bilinguals named pictures in their first and dominant language, Ivanova and Costa (2008) found that bilingual experience affected lexical retrieval.

This is especially the case for language experience in explaining variation in lexical accessibility. Regarding individual differences, Peñaloza et al. (2019) showed that age of L2 acquisition, language use, and exposure were related to bilingual lexical access and picture-naming performance. Likewise, studies of bilingual children have shown that increased exposure to a language can enhance the salience of the lexical representations in that language. Cross-linguistic interactions have also been reported in bilingual children, with further evidence suggesting that the lexical representations of two languages can still be linked during processing.

General language dominance, however, is not enough to determine lexical choice. Words can also be distinguished by their characteristics. Faruqi-Shah et al. (2021) showed that factors such as word frequency, age of acquisition, word length, and name agreement influenced picture-naming performance. Similarly, Koutamanis et al. (2024) found evidence of cross-language interaction in bilingual children and found that language dominance and task properties were correlated with lexical processing. This suggests that for bilingual speakers, the language used for a given concept may not be consistent; the ease of retrieving a lexical item may determine which language is retrieved.

Bilingual lexical selection, however, is flexible, not automatic. Hald and Nicol (2021) showed that cross-language activation is not always a determining factor in lexical choice because bilingual speakers can suppress the second language under certain production conditions. Overall, the literature suggests that lexical choice results from language exposure, language dominance, language proficiency, lexical features, and communicative context, not a predetermined preference for one language.

Although research on bilingual lexical choice has increased, little has focused on the link between educational context and Arabic–English lexical choice, especially among school students. No information is available in Jordan on differences in the lexical forms students use in public, private, and international schools to represent familiar concepts. This difference is the starting point for school sector comparisons of lexical options.

Accordingly, the third research question is: How do Arabic–English lexical choices for familiar concepts differ among students in public, private, and international high schools in Jordan?

3. Methodology and Research Design

This section explains the methodology used to examine Arabic–English CS, CM, and lexical choice among Jordanian high school students. It describes the research design, participants and sampling, research instruments, data collection, coding and statistical analysis, and ethical considerations.

Research Design and Sampling

This study used a quantitative comparative design to examine Arabic–English CS, CM, and lexical choice among Jordanian high school students in public, private, and international schools. To obtain variation across educational and geographical contexts, a multi-stage

sampling procedure was used. Schools were purposively selected from Amman (central), Irbid (north), and Ma'an (south), incorporating both urban and rural locations. School selection was also guided by variation in academic performance based on Ministry of Education records on schools' pass rates in the General Secondary Education Certificate Examination (Tawjihi), including relatively high, moderate, and low pass rates, alongside varying school sizes across educational sectors. Within the participating schools, students in Grades 10–12 (aged 15–19) were invited to participate voluntarily; no students were selected on the basis of individual academic achievement. The interview participants were subsequently recruited from students who volunteered to take part in the individual interviews.

Participants and Study Setting

A total of 347 students participated in the study, including 165 males (47.6%) and 182 females (52.4%). The sample comprised 171 (49.3%) public-school students, 115 (33.1%) private-school students, and 61 (17.6%) international-school students. Table 1 presents the distribution of participants by school sector and gender. The three sectors offered different educational experiences in terms of English use and exposure. Arabic was the primary language of instruction at public schools, with English taught as a compulsory subject. International schools tended to offer more opportunities for students to be exposed to English through their curricula and teaching, while private schools varied more in their use of English.

Table 1: Distribution of Participants by School Sector and Gender

School Type	Male	Female	Total
Public School	60	111	171
	35.1%	64.9%	100%
Private School	66	49	115
	57.4%	42.6%	100%
International School	39	22	61
	63.9%	36.1%	100%
Total	165	182	347
	47.6%	52.4%	100%

The sample size for the individual interviews used to explore naturally occurring CS and CM was smaller, at 18 students, comprising nine males and nine females. The interview sample included seven students from international schools, five students from private schools, and six students from public schools.

Research Instruments

This study collected data using two instruments: individual interviews and a picture-naming task. The interviews produced spoken data that explored patterns of CS and CM, and the picture-naming task explored students' choices of Arabic and English words across all three school sectors.

Individual Interviews

Spoken Arabic–English interaction was obtained through individual interviews to analyze CS and CM. Interviews were conducted individually with each of the 18 students and audio-recorded. The interviews took about 5–7 minutes. The interviews gave students a chance to talk about their experience and language use naturally, without having to choose an answer from a set of pre-categorized items. Before recording, each student gave informed consent to audio-record the interview for research purposes. The recorded interactions were then analyzed for the presence of CS and CM. The analysis considered both the language students used and the structure of each occurrence.

Picture-Naming Task

The picture-naming task was used to investigate students' lexical choice in expressing familiar concepts. The task consisted of 32 pictures depicting familiar objects, occupations, places, school-related items, and everyday concepts. It was administered to all 347 participants. For each picture, students wrote the single word or expression they normally used for the object or concept shown. They were free to supply their own answer, as no Arabic or English choices were given. For coding purposes, responses were classified according to the language used. Words written in Arabic were coded as Arabic responses, while words written in English were coded as English responses. Different Arabic labels for the same picture, including colloquial or regional variants, were retained in the original data but grouped under the Arabic category; no further classification by Arabic dialect or lexical variant was made. No participant provided both an Arabic and an English label for the same picture; therefore, no mixed Arabic–English responses were recorded.

Data Collection Procedure

Data were gathered from schools involved in the study in Amman, Irbid, and Ma'an, as well as their villages. The students were administered the picture-naming task individually during the main data collection. The researchers conducted separate one-on-one interviews with the selected 18 students, and recorded them for later coding. Separating the two procedures enabled the study to focus on students' spoken bilingual practices and independent lexical choices.

Coding and Data Analysis

Two codes were developed for CS and CM. The cases of CS were identified according to Poplack's (1980) framework as inter-sentential, intra-sentential, or tag switching. CM was classified according to Muysken's (2000) as insertion, alternation, or congruent lexicalization. The researcher conducted the coding, which a linguistics expert then reviewed to verify the classification of the identified instances.

The researcher conducted the statistical analysis using SPSS. Frequencies and percentages were first calculated to describe the distribution of CS and CM types. Because the interview sample was small and participant-level frequencies were not appropriate for parametric comparisons, the Kruskal–Wallis H test was used to compare overall CS and CM frequencies across the three school sectors. Where the overall test was significant, pairwise comparisons were conducted using Mann–Whitney U tests with Bonferroni adjustment. The Mann–Whitney U test was also employed to assess for gender differences. Where appropriate, descriptive statistics, such as means, standard deviations, medians, interquartile ranges, and mean ranks were reported.

We computed frequencies and within-sector percentages for each lexical response used in the picture-naming task. The chi-square test was used to determine whether there were differences in lexical choices among public, private, and international schools. Monte Carlo two-sided p-values were used for cell frequencies expected to be small. Cramér's V indicated an association between school sector and lexical choice. A p-value of <.05 was defined as statistically significant.

Ethical Considerations

Students were informed about the purpose of the study and their right to both not participate and to withdraw, and participation was voluntary. Data collection was done with the necessary permissions. The dataset and study did not include participants' names or other identifying information. Audio recordings and student responses were only used for research and analysis.

4. Results

This section presents the study results according to the three main areas of investigation. The findings are presented in CS, CM, and the picture-naming task. This approach allows

systematic examination of differences in language use and lexical choices across public, private, and international school students.

Code-Switching Patterns Across School Sectors

The study analyzed the types and distribution of CS across school sectors and by gender. CS occurrences were classified according to Poplack's (1980) framework.

Table 2: Distribution of CS Types by School Sector and Gender

School Sector	Gender		Inter-Sentential Frequency	Intra-Sentential Frequency	Tag Switching Frequency	Total CS Frequency	%
International	Male	F	16	4	1	21	34.4
		%	26.2%	6.6%	1.6%		
	Female	F	18	4	1	23	37.7
		%	29.5%	6.6%	1.6%		
Private	Male	F	4	1	-	5	8.2
		%	6.6%	1.6%	-		
	Female	F	4	8	-	12	19.7
		%	6.6%	13.1%	-		
Public	Male	F	-	-	-	-	-
		%	-	-	-		
	Female	F	-	-	-	-	-
		%	-	-	-		
Total			42 (68.9%)	17 (27.9%)	2 (3.3%)	61	100

Note. Percentages are calculated relative to the total number of coded CS occurrences ($N = 61$).

Table 2 shows a total of 61 CS occurrences. The most common type was inter-sentential switching (42, 68.9%), followed by intra-sentential switching (17, 27.9%), and tag switching (2, 3.3%). Of the 61 CS events, 44 occurred in international-school students, 21 in males and 23 in females. The remaining 17 occurrences were among private-school participants (5 male, 12 female), while no CS occurred among public-school participants. The descriptive distribution therefore indicates that the inter-sentential form of CS was the most concentrated among participants in both international and private schools. The frequencies were then compared across the three school sectors to check for significant differences; descriptive differences were noted.

Table 3: Participant-Level CS Frequencies across School Sectors and Kruskal–Wallis Test

School Sector	N	Mean	SD	Median	IQR	Mean Rank	Kruskal–Wallis H	df	p
International	7	6.29	1.380	6.00	3.00	14.50			
Private	5	3.40	1.673	3.00	3.00	9.70			
Public	6	0.00	0.000	0.00	0.00	3.50			
Overall test	18	—	—	—	—	—	14.348	2	.001

IQR = Interquartile Range. Statistics are based on the total number of coded CS occurrences produced by each participant.

Table 3 presents differences in participant-level CS frequencies across school sectors. International-school participants recorded the highest frequency ($M = 6.29$, $SD = 1.38$; $Md = 6.00$), followed by private-school participants ($M = 3.40$, $SD = 1.67$; $Md = 3.00$). No CS occurred for any of the public-school participants. Mean ranks were 14.50, 9.70, and 3.50, respectively. The Kruskal–Wallis test showed a statistically significant difference in CS frequency across school sectors, $H(2) = 14.348$, $p = .001$. Pairwise comparisons were then conducted to identify which school-sector pairs drove this overall difference.

Table 4: Bonferroni-Adjusted Pairwise Comparisons of CS Frequencies across School Sectors

Pairwise comparison	Mann–Whitney <i>U</i>	<i>z</i>	Exact <i>p</i>	Bonferroni-adjusted <i>p</i>
International vs Private	3.50	−2.302	.018	.054
International vs Public	0.00	−3.180	.001	.003
Private vs Public	0.00	−2.995	.004	.012

The pairwise comparisons showed significant differences between international and public schools ($U = 0.00$, adjusted $p = .003$) and between private and public schools ($U = 0.00$, adjusted $p = .012$), as shown in Table 4. The difference between the international- and private-school groups was not statistically significant after Bonferroni correction ($U = 3.50$, adjusted $p = .054$). Thus, the significant overall sector difference identified in Table 3 was associated with the contrasts involving the public-school group. The distribution of the individual CS types was then explored at the participant level to illustrate the distribution of CS types across the school sectors.

Table 5: Participant-Level Distribution of CS Types across School Sectors

School Sector	N	Inter-sentential M (SD)	Median (IQR)	Intra-sentential M (SD)	Median (IQR)	Tag Switching M (SD)	Median (IQR)
International	7	4.86 (1.68)	4.00 (2.00)	1.14 (1.07)	1.00 (2.00)	0.29 (0.49)	0.00 (1.00)
Private	5	1.60 (0.89)	1.00 (2.00)	1.80 (1.64)	1.00 (3.00)	0.00 (0.00)	0.00 (0.00)
Public	6	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)

Note: IQR = interquartile range. Statistics are based on participant-level frequencies of coded CS occurrences.

Table 5 shows that inter-sentential switching occurred more frequently for participants at the international schools ($M = 4.86$, $SD = 1.68$) than it did for participants at the private schools ($M = 1.60$, $SD = .89$). The mean frequency of intra-sentential switching was, however, slightly higher for the private-school participants ($M = 1.80$, $SD = 1.64$) than it was for the international-school participants ($M = 1.14$, $SD = 1.07$). Tag switching was observed only in the international-school group ($M = .29$, $SD = .49$). Lastly, to assess whether gender differed in CS presence, we compared total CS frequencies between males and females.

Table 6: Gender Differences in CS Frequencies

Gender	N	Mean Rank	Sum of Ranks	Mann–Whitney <i>U</i>	<i>z</i>	Exact <i>p</i>
Male	9	8.61	77.50			
Female	9	10.39	93.50			
Overall test	18	—	—	32.50	−0.722	.489

*Note. The Mann–Whitney *U* test compared participant-level total code-switching frequencies between male and female participants. Exact two-tailed *p*-values are reported.*

The mean rank of female participants (10.39) was slightly higher than that of male participants (8.61), as presented in Table 6. The Mann–Whitney test, however, suggested that this difference was not statistically significant ($U = 32.50$, $z = -0.722$, exact $p = .489$). Therefore, the participant-level analysis provided no evidence of a significant gender difference in CS frequency within this interview sample. In contrast to the significant differences observed across school sectors, CS frequency did not differ significantly between male and female participants.

Code-Mixing Practices Across School Sectors

The CM analysis covered the distribution of its types across school sectors and genders. The types of CM occurrences were categorized according to Muysken (2000) as insertion, alternation, and congruent lexicalization. It also explored whether CM frequency and patterns

differed among participants in public, private, and international schools, and whether CM frequency differed by gender.

Table 7: Distribution of CM Types by School Sector and Gender

School Sector	Gender		Insertion Frequency	Alternation Frequency	Congruent Lexicalisation Frequency	Total CM Frequency	%
International	Male	F	15	-	-	15	22.1
		%	22.1%	-	-		
	Female	F	12	-	1	13	19.1
		%	17.6%	-	1.5%		
Private	Male	F	8	-	-	8	11.8
		%	11.8%	-	-		
	Female	F	9	2	1	12	17.6
		%	13.2%	2.9%	1.5%		
Public	Male	F	9	-	-	9	13.2
		%	13.2%	-	-		
	Female	F	11	-	-	11	16.2
		%	16.2%	-	-		
Total			64 (94.1%)	2 (2.9%)	2 (2.9%)	68	100

Note. F = frequency. Percentages are calculated relative to the total number of coded code-mixing occurrences (N = 68).

Table 7 illustrates that 68 CM occurrences were identified. Insertion was overwhelmingly the most common type (64, 94.1%), followed by alternation (2, 2.9%) and congruent lexicalization (2, 2.9%). Private- and public-school participants gave 20 occurrences each, while the international-school participants gave 28 occurrences. At the gender level, international-school males and females had 15 and 13 occurrences, respectively, while private-school males and females had 8 and 12 occurrences, respectively. In the public school, there were 9 occurrences among males and 11 among females. Overall, the insertion pattern was dominant in all three school sectors for CM patterns. These participant-level frequencies were then compared across the three school sectors to test whether these descriptive differences were statistically significant.

Table 8: Participant-Level CM Frequencies across School Sectors and Kruskal–Wallis Test

School Sector	N	Mean	SD	Median	IQR	Mean Rank	Kruskal–Wallis H	df	p
International	7	4.00	2.380	3.00	4.00	8.93	—	—	—
Private	5	4.00	1.414	3.00	2.00	10.70	—	—	—
Public	6	3.33	0.516	3.00	1.00	9.17	—	—	—
Overall test	18	—	—	—	—	—	0.393	2	.822

IQR = Interquartile Range. Statistics are based on the total number of coded CM occurrences produced by each participant.

The mean frequency for international-school and private-school participants was the same (M = 4.00), but international-school participants showed wider variability (SD = 2.38) than private-school participants (SD = 1.41), as shown in Table 8. The mean frequency (M = 3.33, SD = .52) was slightly lower for public-school participants. Medians were 3 in all three sectors, with private- and public-school mean ranks of 10.70 and 9.17, respectively. These differences were not significant, as indicated by the Kruskal–Wallis test, $H(2) = 0.393$, $p = .822$. Therefore, no pairwise comparisons were conducted. The three CM types were further explored at the participant level to understand how insertion, alternation, and congruent lexicalization were distributed across school sectors.

Table 9: Participant-Level Distribution of CM Types across School Sectors

School Sector	N	Insertion M (SD)	Median (IQR)	Alternation M (SD)	Median (IQR)	Congruent Lexicalisation M (SD)	Median (IQR)
International	7	3.86 (2.27)	3.00 (3.00)	0.00 (0.00)	0.00 (0.00)	0.14 (0.38)	0.00 (0.00)
Private	5	3.40 (1.14)	3.00 (2.00)	0.40 (0.89)	0.00 (1.00)	0.20 (0.45)	
Public	6	3.33 (0.52)	3.00 (1.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	

Note. IQR = interquartile range. Statistics are based on participant-level frequencies of coded CM occurrences.

Table 9 further shows the overall predominance of insertion across the three sectors. The mean insertion frequency was 3.86 (SD = 2.27) for international-school participants, 3.40 (SD = 1.14) for private-school participants, and 3.33 (SD = .52) for public-school participants. Alternation was observed only among private-school participants (M = .40, SD = .89), while congruent lexicalization occurred at low frequencies among both international-school participants (M = .14, SD = .38) and private-school participants (M = .20, SD = .45). Neither alternation nor congruent lexicalization was observed among public-school participants. These participant-level results are consistent with Table 7, which shows that insertion accounted for nearly all CM occurrences. Finally, total CM frequencies were compared between males and females to determine whether CM frequency differed by gender.

Table 10: Gender Differences in CM Frequencies

Gender	N	Mean Rank	Sum of Ranks	Mann–Whitney U	Z	Exact p
Male	9	8.22	74.00	—	—	—
Female	9	10.78	97.00	—	—	—
Overall test	18	—	—	29.00	−1.067	.340

Note. The Mann–Whitney U test compared participant-level total code-mixing frequencies between male and female participants. Exact two-tailed p-values are reported.

Female participants had a higher mean rank (10.78) than male participants (8.22), as shown in Table 10. However, the Mann–Whitney test indicated that this difference was not statistically significant (U = 29.00, z = −1.067, exact p = .340). Therefore, we found no significant difference in CM frequency between male and female at the participant level. Together with the sector comparison in Table 8, the findings suggest no significant difference in total CM frequency across the three school sectors or between male and female participants.

Arabic–English Lexical Choices Across School Sectors: Picture-Naming Task

The picture-naming task analyzed students' lexical selections for 32 familiar concepts and compared the frequency distribution of responses across the public, private, and international school sectors. Data were analyzed using the chi-square test, and Monte Carlo exact p-values were used when expected cell frequencies were small. Cramér's V indicated the association between school sector and lexical choice. Table 11 below presents the responses with statistical comparisons.

Table 11: Distribution of Lexical Choices across School Sectors in the Picture-Naming Task

Image	Lexical response	Public n (%)	Private n (%)	International n (%)	χ^2 (df)	p	Cramér's V
1	Ibreh	94 (55.0)	20 (17.4)	0 (0.0)	94.165 (4)	<.001 ^m	0.368
	Syringe	68 (39.8)	94 (81.7)	61 (100.0)			
	Hukneh	9 (5.3)	1 (0.9)	0 (0.0)			
2	Sayaret Isa'af	122 (71.3)	44 (38.3)	0 (0.0)	98.038 (2)	<.001	0.532
	Ambulance	49 (28.7)	71 (61.7)	61 (100.0)			
3	Mughathi	106 (62.0)	20 (17.4)	0 (0.0)	106.800 (4)	<.001 ^m	0.392
	Drip	60 (35.1)	92 (80.0)	61 (100.0)			

Image	Lexical response	Public n (%)	Private n (%)	International n (%)	χ^2 (df)	p	Cramér's V
	Serum	5 (2.9)	3 (2.6)	0 (0.0)			
4	Rasheh	15 (8.8)	2 (1.7)	0 (0.0)	13.350 (4)	.008 ^m	0.139
	Influenza	154 (90.1)	113 (98.3)	61 (100.0)			
	Mariyd	2 (1.2)	0 (0.0)	0 (0.0)			
5	Saratan	104 (60.8)	50 (43.5)	0 (0.0)	67.431 (2)	<.001	0.441
	Cancer	67 (39.2)	65 (56.5)	61 (100.0)			
6	Daua'a	53 (31.0)	13 (11.3)	0 (0.0)	34.690 (2)	<.001	0.316
	Capsules	118 (69.0)	102 (88.7)	61 (100.0)			
7	Mumarida	75 (43.9)	24 (20.9)	1 (1.6)	49.072 (4)	<.001	0.266
	Nurse	87 (50.9)	83 (72.2)	59 (96.7)			
	Sister	9 (5.3)	8 (7.0)	1 (1.6)			
8	Doctor	171 (100.0)	115 (100.0)	61 (100.0)	—	—	—
9	Inayah murakazeh	58 (33.9)	20 (17.4)	0 (0.0)	32.238 (2)	<.001	0.305
	ICU	113 (66.1)	95 (82.6)	61 (100.0)			
10	Qalam	149 (87.1)	84 (73.0)	25 (41.0)	50.371 (2)	<.001	0.381
	Pencil	22 (12.9)	31 (27.0)	36 (59.0)			
11	Mahayeh	158 (92.4)	85 (73.9)	19 (31.1)	129.200 (4)	<.001	0.431
	Eraser	12 (7.0)	20 (17.4)	10 (16.4)			
	Rubber	1 (0.6)	10 (8.7)	32 (52.5)			
12	Louh	168 (98.2)	91 (79.1)	24 (39.3)	104.400 (2)	<.001	0.548
	Board	3 (1.8)	24 (20.9)	37 (60.7)			
13	Kutub	171 (100.0)	97 (84.3)	30 (49.2)	96.085 (2)	<.001	0.526
	Books	0 (0.0)	18 (15.7)	31 (50.8)			
14	Ustad	151 (88.3)	85 (73.9)	19 (31.1)	75.404 (2)	<.001	0.466
	Teacher	20 (11.7)	30 (26.1)	42 (68.9)			
15	Qalam Heber	147 (86.0)	95 (82.6)	24 (39.3)	58.017 (2)	<.001	0.409
	Pen	24 (14.0)	20 (17.4)	37 (60.7)			
16	Durj	121 (70.8)	37 (32.2)	4 (6.6)	89.013 (2)	<.001	0.506
	Desk	50 (29.2)	78 (67.8)	57 (93.4)			
17	Finjan	136 (79.5)	77 (67.0)	27 (44.3)	26.618 (2)	<.001	0.277
	Cup	35 (20.5)	38 (33.0)	34 (55.7)			
18	koob	15 (8.8)	4 (3.5)	0 (0.0)	8.010 (2)	0.018	0.152
	Mug	156 (91.2)	111 (96.5)	61 (100.0)			
19	Sahen	159 (93.0)	86 (74.8)	10 (16.4)	135.500 (2)	<.001	0.625
	Plate	12 (7.0)	29 (25.2)	51 (83.6)			
20	Ma'alaqa	145 (84.8)	86 (74.8)	12 (19.7)	102.500 (4)	<.001 ^m	0.384
	Spatula	23 (13.5)	26 (22.6)	49 (80.3)			
	Magrafeh	3 (1.8)	3 (2.6)	0 (0.0)			
21	Qanieneh	170 (99.4)	100 (87.0)	21 (34.4)	141.500 (2)	<.001	0.639
	Bottle	1 (0.6)	15 (13.0)	40 (65.6)			
22	Shabakeh	3 (1.8)	2 (1.7)	0 (0.0)	1.082 (2)	.708 ^m	0.056
	WiFi	168 (98.2)	113 (98.3)	61 (100.0)			
23	Shabakeh	5 (2.9)	2 (1.7)	0 (0.0)	2.012 (2)	.356 ^m	0.076
	Internet	166 (97.1)	113 (98.3)	61 (100.0)			
24	Hatif	1 (0.6)	0 (0.0)	0 (0.0)	7.441 (4)	.095 ^m	0.104
	Telephone	166 (97.1)	106 (92.2)	60 (98.4)			
	Mobile	4 (2.3)	9 (7.8)	1 (1.6)			
25	Sama'at	8 (4.7)	0 (0.0)	0 (0.0)	8.428 (2)	.012 ^m	0.156
	Headphones	163 (95.3)	115 (100.0)	61 (100.0)			
26	Hasoob	14 (8.2)	0 (0.0)	0 (0.0)	15.015 (2)	.001 ^m	0.208
	Computer	157 (91.8)	115 (100.0)	61 (100.0)			
27	Tayara	171 (100.0)	111 (96.5)	54 (88.5)	19.342 (2)	<.001 ^m	0.236
	Plane	0 (0.0)	4 (3.5)	7 (11.5)			
28	Sayaret Ujra	7 (4.1)	0 (0.0)	0 (0.0)	7.353 (2)	.032 ^m	0.146
	Taxi	164 (95.9)	115 (100.0)	61 (100.0)			
29	Hiza'a	3 (1.8)	0 (0.0)	0 (0.0)	27.104 (4)	<.001 ^m	0.198
	Boot	165 (96.5)	102 (88.7)	48 (78.7)			
	Sneakers	3 (1.8)	13 (11.3)	13 (21.3)			
30	Kura	11 (6.4)	3 (2.6)	0 (0.0)	5.708 (2)	.054 ^m	0.128

Between Arabic and English: Code-Switching, Code-Mixing and Lexical Choice Across Jordanian Public, Private, and International High School Sectors

Image	Lexical response	Public n (%)	Private n (%)	International n (%)	χ^2 (df)	p	Cramér's V
	Football	160 (93.6)	112 (97.4)	61 (100.0)			
31	Mhkameh	171 (100.0)	110 (95.7)	61 (100.0)	10.234 (2)	.009 ^m	0.172
	Court	0 (0.0)	5 (4.3)	0 (0.0)			
32	Qadi	171 (100.0)	110 (95.7)	61 (100.0)	10.234 (2)	.009 ^m	0.172
	Judge	0 (0.0)	5 (4.3)	0 (0.0)			

Note. Values are presented as n (% within the school sector. Public school, n = 171; private school, n = 115; international school, n = 61; N = 347. χ^2 = Pearson chi-square; V = Cramér's V. ^m Monte Carlo two-sided p-values based on 10,000 sampled tables were reported when expected cell frequencies were sparse. No inferential test was performed for Image 8 because responses were invariant across all school sectors.

As Table 11 shows, lexical options varied widely across school sectors for many picture-naming items. Public-school participants often chose Arabic lexical items, while international-school participants were more likely to use English responses for several concepts. Private-school participants' distributions generally fell between the two groups, but they differed for each item. For example, all international-school participants used Syringe for Image 1 and Drip for Image 3, compared with 39.8% and 35.1% of public-school participants, respectively. Sector differences were significant for both items: Image 1, $\chi^2(4) = 94.165$, $p < .001$, Cramér's V = .368; and Image 3, $\chi^2(4) = 106.800$, $p < .001$, Cramér's V = .392.

Large differences were observed across sectors for a number of school-related and everyday lexical items. For Image 12, 60.7% of the international-school participants selected Board, while 20.9% of the private-school and 1.8% of public-school participants selected Board, $\chi^2(2) = 104.400$, $p < .001$, V = .548. Likewise, for Image 13, 50.8% of the international school and 15.7% of the private school participants chose Books, while all of the public-school participants chose Kutub, $\chi^2(2) = 96.085$, $p < .001$, V = .526. For Image 16, Desk was used by 93.4% of international-school participants, compared with 67.8% of private-school and 29.2% of public-school participants, $\chi^2(2) = 89.013$, $p < .001$, V = .506.

Images 19 and 21 had the most significant differences. In the case of Image 19, 83.6% of international-school participants selected Plate, whereas 25.2% of private-school and 7.0% of public-school participants selected it, $\chi^2(2) = 135.500$, $p < .001$, V = .625. For Image 21, Bottle was selected by 65.6% of international-school participants, 13.0% of private-school participants, and just 0.6% of public-school participants. This item produced the largest effect size in the table, $\chi^2(2) = 141.500$, $p < .001$, Cramér's V = .639. These results reveal significant differences across sectors in the lexemes used to label specific concepts.

However, not all 32 items showed this pattern. No statistically significant sector differences were found for Image 22 ($p = .708$), Image 23 ($p = .356$), Image 24 ($p = .095$), or Image 30 ($p = .054$). Image 8 showed no difference, with all 347 participants labeling the image as Doctor regardless of school sector, so no statistical test was conducted. The unanimous use of Doctor is particularly noteworthy because it shows that some lexical items may be widely shared across educational sectors, even when other items vary considerably by sector.

Overall, Table 11 shows that many, but not all, picture-naming items were associated with school sector. The size of these differences varied by lexical item, while several items showed similar responses across the three sectors.

5. Discussion

The results show that CS varies across sectors. Inter-sentential switching was the most common switching pattern, followed by intra-sentential switching, with tag switching the least common. One possible explanation is that school students might find it easier to switch between complete sentences, as they can switch from Arabic to English and/or vice versa without mixing the grammatical structures of the two languages in the same sentence. Earlier EFL studies found that switching at the sentence or clause level is fairly common, while tag switching is less frequent (Nisa et al., 2021). This suggests that students may prefer safer switching structures in their bilingual communication.

However, inter-sentential switching is not always predominant in all bilingual contexts. Al Yousef et al. (2025) observed that intra-sentential switching was more common among bilingual speakers from Jordan. Likewise, Seddik et al. (2026), examining Arabic–English classroom CS among native Arabic-speaking university students, found intra-sentential switching to be the dominant form. These differences suggest that the predominant type of CS may depend on age, language proficiency, and communicative context. University students, or more advanced bilingual speakers, may be more comfortable incorporating some words from the source language into the target language within a single sentence, while high school students may be more likely to switch between entire sentences.

The most significant aspect of the present study concerns the school sector. CS was highly skewed toward international-school students and private-school students, and was not observed among public-school students. This pattern may be related to differences in the linguistic environments of the three school sectors, although the present study did not directly measure students' exposure to or use of English in their day-to-day school communication. Abu Hait (2014) also reported CS among secondary school students in an international school setting in Jordan. Furthermore, Hussein et al. (2020) concluded that Jordanian secondary students employed CS for interpersonal and communicative functions to sustain communication without misunderstandings and to keep the communication going. Hemedat (2016) also highlighted the importance of CS in Jordanian EFL education for both public-school learners and teachers in public and private schools. This pattern suggests some similarity in the bilingual language practices observed among international- and private-school participants. However, because English exposure and proficiency were not directly measured, the observed sector differences should not be interpreted as evidence of differences in students' English proficiency or exposure.

Lastly, no significant gender difference in CS frequency was detected in the interview sample. Within this sample, variation in CS was more evident across school sectors than between genders. In conclusion, the results support the view that CS is not a set of fixed linguistic habits. Instead, its frequency and forms seem to be dependent on the communicative and educational context in which bilingual interaction occurs.

Overall, these findings answer the first research question by showing that both the frequency and types of Arabic–English CS vary across school sectors. CS was more evident among international- and private-school students, while inter-sentential switching emerged as the dominant form across the observed interactions.

In contrast, the findings show a clear structural tendency in CM: insertion was overwhelmingly dominant, while the other two types of CM, alternation and congruent lexicalization, were very rare. This suggests that students generally integrated language rather than switching between larger structures in their speech; instead, they built elements of one language into an utterance that was mostly the other. This kind of insertion seems to confirm Muysken's (2000) conception of insertion and indicates that CM in the interactions studied here didn't occur at the level of extensive structural mixing, but rather at the lexical level.

This finding is strongly supported by Aburqayiq et al. (2025), who concluded that insertion is the dominant type, followed by congruent lexicalization and then alternation. The authors linked Arabic and English mixing to factors such as education level, technology, globalization, social status, and prestige. This similarity suggests that lexical insertion is not limited to one communicative context in Jordan, as the data come from social media conversations.

This is similar to what has been reported from school students outside of Jordan. Putri et al. (2021) found insertion to be the most frequent type among tenth-grade students, followed by alternation and congruent lexicalization. They also related mixing to interlocutors, frequent language use, confidence, and vocabulary restrictions. Similarly, Salah (2023) reported insertion as the dominant form in classroom interaction, followed by alternation and congruent lexicalization, and linked its use particularly to students' need to compensate for lexical

limitations. These studies support the current finding that adding lexical items can be a more approachable mode of mixing in student communication.

However, this dominance of insertion is not always observed. Among university students, Manihuruk and Hutabarat (2019) found a clear pattern: alternation was strongly represented, with 61.4% of the CM identified in student conversations. This contrast is helpful to remember because it implies that the predominance of insertion in the present study should be viewed as not an essential aspect of student bilingualism. Rather, CM patterns can differ across age, linguistic skill, interactional context and type of communicative activity. Syafrizal and Sari (2017) also identified the same three Muysken types and correlated their use with psychological factors in students' communication on Twitter. Therefore, the relative importance of each flow type seems to vary by context.

Another interesting result is that, although public, private, and international schools differed descriptively, overall CM frequency did not differ significantly. International-school students had slightly more CM occurrences, but when considering participant-level comparisons showed broadly similar levels across the three sectors. Moreover, insertion occurred in every sector. This is because English language education and international education are not the only sources of exposure to English words. Youth have diverse exposure to English through digital media, technology, entertainment, education, and daily life (Aburqayiqah et al., 2025). In other contexts, Alkhresheh (2015) reported that students learning Arabic from various educational backgrounds in their home nations commonly used Arabic and English in daily exchanges.

The sector-specific occurrence of the rarer forms should therefore be interpreted cautiously. Only private-school participants showed alternation, and congruent lexicalization was at low frequencies in international and private schools, and was not represented in the public-school results. Because only two examples of each type were recorded, these differences do not provide enough information to describe a specific school sector. The stronger point is the shared presence across the three sectors; that is, the stronger finding is the shared presence of insertion across all three sectors.

Finally, no significant gender difference in CM frequency was detected in the interview sample. The mean rank for females was slightly higher, but the difference was not statistically significant. Within this sample, gender seems less salient for understanding CM frequency than the broader bilingual communicative context. However, this interpretation should be taken with a grain of salt considering the limited interactional sample.

In summary, the results indicate that the students studied use Arabic–English CM mainly in an insertional/lexical way. Lexical insertion has been found to be more common in other bilingual contexts, a pattern strengthened by the close similarity between the evidence from Jordan and the present study. Concurrently, the absence of statistically significant sector or gender differences in this sample suggests that CM may function as a relatively common bilingual resource across the students studied, although this interpretation should remain cautious given the limited interview sample.

Overall, this discussion answers the second research question by showing that Arabic–English CM was predominantly characterized by insertion across all three school sectors, while alternation and congruent lexicalization were rare. Although some descriptive variation was observed, the overall frequency of CM did not differ significantly among public, private, and international school students, indicating broadly similar levels of CM across the three educational contexts.

The picture-naming task reveals a more complex picture of students' bilingual lexical selections than does a simple division of Arabic and English preferences. Across the 32 concepts, the school sector accounted for a number of label items, with public-school students giving more Arabic labels than international-school students, and private-school students often falling in between. But the trend differed significantly from one concept to another. The main

result, therefore, is not only that differences existed between school sectors, but also that the magnitude of these differences varied by lexical item.

A possible explanation is that students' levels of English exposure vary. Kim and Kim (2021) showed, in a picture-naming task, that the relative amount of L2 input was related to bilingual children's word-production skills. Similarly, Mahmoud et al. (2026) demonstrated in the Jordanian context that differences in English-learning experiences affected vocabulary acquisition and retrieval. The present results suggest that international-school students' use of English labels (Board, Books, Desk, Bottle) may reflect greater familiarity with such labels in their educational experiences, compared with findings from other school studies. Private-school students also tended to fall between the two groups, but this pattern should not be interpreted as evidence of individual differences in English exposure or proficiency, neither of which was directly measured in the present study.

The results become particularly interesting when viewed through the lens of bilingual lexical activation. Alsaigh and Kennison (2017) found evidence for English activation even during Arabic processing, and they linked aspects of this activation to participants' English usage. Saddam H.M. Issa (2020) also found differences in lexical semantic activation in high- and low-proficiency Arabic–English bilinguals during picture naming. The results indicate that, when a familiar object is presented, both Arabic and English lexical representations may be available, and that proficiency level and previous language experience may affect which one is retrieved. The bilingual effects on lexical access, also found by Ivanova and Costa (2008), have also been shown when a bilingual is using their first and dominant language.

This broader view of lexical choice is consistent with Koutamanis et al. (2024), who showed that lexical representations from both languages can compete during word production and that representations from one language may be more accessible than those from the other depending on language dominance and task demands. Hald and Nicol (2021), however, showed that cross-language activation does not always occur and may not be equally strong for all items, as bilingual speakers can inhibit the non-target language under certain naming conditions.

Taken together, the results imply that lexical choice results from an interplay between the educational language environment and the availability of specific words. The school sector is therefore significant but not uniform; some concepts show significant differences in lexical choice between Arabic and English, while others are shared across the three school sectors in this study.

6. Conclusion

This study shows that Arabic–English bilingual practices among Jordanian high-school students included in this study cannot be understood simply in terms of whether students “use English” or “use Arabic”. School sector mattered, but it mattered differently across linguistic practices. Code-switching showed clear sector variation and was observed among international- and private-school participants but not among the public-school participants in the interview sample. Code-mixing, by contrast, occurred at broadly similar frequencies across the three sectors and was overwhelmingly characterized by lexical insertion. Lexical choice revealed another layer of variation: public-school students generally favored Arabic forms, international-school students showed greater use of English forms, and private-school students often occupied an intermediate position. Yet this pattern was not consistent across all concepts, as some words differed strongly by sector while others were shared across students.

The significance of these findings lies in this distinction. Educational environment appears to be associated with some dimensions of bilingual language use, particularly CS and lexical choice, whereas CM frequency showed less variation across school sectors. Attending different school sectors does not translate into a uniform Arabic–English linguistic divide. Students may differ substantially in switching practices or in the lexical label they select for a particular concept while showing similar levels of code-mixing. Likewise, the universal use of doctor

alongside strong sector differences for words such as Bottle/Qanieneh demonstrates that lexical choice is partly word-specific. The findings therefore provide a more nuanced understanding of bilingual practices among the Jordanian high-school students included in this study, in which school environment, language exposure, communicative practice, and the accessibility of individual lexical items may interact rather than operate independently.

Practical Implications and Recommendations

The findings have implications for language education in Jordan. First, Arabic–English language use should not automatically be treated as evidence of linguistic weakness. The dominance of insertion in CM and the selective nature of lexical choice suggest that students draw on English and Arabic resources differently depending on the linguistic task and the concept being expressed. Teachers can therefore distinguish between bilingual practices that facilitate communication and situations in which students need additional support to develop vocabulary in either language.

Second, the sector differences in lexical choice show that students across the three school sectors did not always select the same Arabic or English labels for familiar concepts. These differences should not be interpreted as direct evidence of differences in English proficiency, which was not measured in this study. Vocabulary teaching may therefore benefit from recognizing variation in students' lexical choices without treating school sector as a proxy for English proficiency. Activities that connect Arabic and English labels, meanings, and contexts of use may be particularly useful where one lexical form strongly dominates students' everyday vocabulary.

Finally, the item-specific findings show why language assessment should avoid drawing broad conclusions about bilingual preference from a small number of words. Picture-naming and other lexical tasks should include diverse concepts and domains, since the use of English labels may vary considerably from one concept to another. More broadly, educational planning should recognize bilingual language use as multidimensional: code-switching, code-mixing, and lexical choice capture different aspects of students' linguistic experience and should not be treated as interchangeable indicators of English use.

Limitations and Future Research

Several limitations should be considered. Although the picture-naming task included 347 students, the CS and CM analysis was based on interviews with only 18 participants. The findings concerning spoken CS and CM should therefore be interpreted as patterns within this interactional sample rather than estimates for all Jordanian high-school students. The interviews were also relatively short, lasting approximately 5–7 minutes, which may have limited opportunities for less frequent forms of switching and mixing to occur. In addition, the school sector was used as an indicator of educational environment and should not be interpreted as a direct measure of individual English proficiency or exposure. Students can be exposed to English at home and in social, entertainment, gaming, and other settings outside of school.

Future studies could use larger spoken-language samples, longer interactions, and repeated observations across various communicative situations. It would also be useful to measure each individual's English proficiency and language exposure directly to determine whether the sector differences found here correlate with schooling-related language exposure or broader bilingual experience. Further investigation of lexical selection and CS/CM patterns in a longitudinal study would be valuable to determine whether these patterns differ as students progress through school. Last, the well-documented conceptual variability of the picture-naming task requires more research in larger and more varied sets of concepts.

Ethics and Consent: The Jordanian Ministry of Education granted permission to conduct the study and collect data in Jordanian secondary schools. The study was conducted as part of the first author's approved doctoral research. Before data collection, participants received a written consent form explaining the study's purpose and procedures, the voluntary nature of

participation, their right to withdraw, the confidentiality of their information, and that the collected data would be used solely for academic research. We collected signed consent forms before participation. We kept participants' identities and data confidential throughout the study.

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