Communicative, Cognitive and Academic L1 Writing Proficiencies: Exploration into the Mutual Roles of Environmental and Schooling Factors in Arabic-Dominated Communities(*)

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الكفاءات الكتابية التواصلية المعرفية والأكاديمية في اللغة الأولى:
استكشاف الأدوار المتبادلة بين العوامل البيئية والمدرسية
في المجتمعات العربية

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أستاذ مساعد في اللغويات التطبيقية

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الملخص

بالرغم من وجود دراسات تناولت أثر استخدام اللغة الثانية (L2) كلغة تدريس على اللغة الأولى(L1)، فإن الأبحاث التي تدرس هذا الأثر داخل مجتمع اللغة الأولى قليلة، وغالبًا لا تفرق بين الكفاءة التواصلية الأساسية (BICS)، والكفاءة المعرفية/الأكاديمية(CALP)، هدفت هذه الدراسة إلى فحص أثر التدريس باللغة الثانية في مجتمع أحادي اللغة ناطق بالعربية، شملت العينة طالبات الصف الثامن واللاتي قسمن إلى مجموعتين: ثنائية اللغة تتعلم بالإنجليزية(L2)، وأحادية اللغة تتعلم بالعربية فقط، كتبت المشاركات مقالات زمنية قيمت من حيث الطلاقة والدقة، وأظهرت النتائج تفوق المجموعة الثنائية في مقياس الطلاقة، بينما تفوقت المجموعة الاحادية في مقياس الدقة الإملائية والدقة الصرفية–النحوية، لم تظهر فروق أخرى ذات دلالة، كما تفوقت المجموعة الثنائية في مقالاتها بالإنجليزية مقارنةً بالعربية من حيث الطلاقة والدقة، تؤكد النتائج ضرورة استمرارية تكثيف تدريس الجانب المعرفي/الأكاديمي للغة الأولى(L1)، وتشير إلى أن تطوير الطلاقة الكتابية يعتمد على المجتمع اللغوي، بينما تتطلب الكفاءة المعرفية تحسينات في التعليم المدرسي، كما توصي الدراسة بأهمية التمييز بين مهارات (BICS) و(CALP) بمزيد من التعمق في الأبحاث المستقبلية.

الكلمات المفتاحية: المهارات الكتابية، الكفاءة التواصلية الأساسية بين الأفراد(BICS)، الكفاءة اللغوية المعرفية/الأكاديمية(CALP)، اللغة الثانية كلغة التدريس، اللغة العربية.

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Abstract

Although the effect of L2 medium of instruction on L1 has been discussed, considering this effect in the L1 community was rare. Moreover, distinguishing between the sub-skills of basic interpersonal communicative skills (BICS) and cognitive/academic language proficiency (CALP) was neglected. Hence, this study examined the effect of L2 instruction in a monolingual Arabic-speaking community. Participants were eighth-grade girls, divided into two groups: bilingual Arabic (L1) students with English (L2) instruction, and monolingual Arabic students. Participants wrote timed essays, which were scored for fluency and accuracy. Between-group and within-group comparisons of the Arabic essays were conducted. The bilingual group performed better on the fluency measure, and the monolingual group performed better on the spelling and morph-syntactic accuracy measures. No other comparisons between-group were statistically significant. The bilingual within-group comparisons revealed significantly better essay scores for fluency and accuracy in English (L2 and the instruction language) than in Arabic. Combined results underscore the need for continued support of rigorous academic tasks in L1. The study reveals that, while development of L1 writing fluency depends largely on its community, development of L1 writing accuracy requires adjustments in school instruction. The distinction between BICS and CALP should be further studied by researchers. **Keywords**: writing skills, basic interpersonal communicative skills (BICS), cognitive/academic language proficiency (CALP), L2 as a medium of instruction, Arabic language.

Introduction:

In the Saudi educational system, Arabic is the sole medium of instruction (MI) for all courses in regular, public and private, schools with the exception of a limited number of private international schools that use English medium of instruction (EMI). In these schools, Saudi children experience EMI from primary school onward; hence, these schools serve as English immersion programs. These schools use EMI, while Arabic is taught as a separate course where students study the same course curriculum as those in AMI schools. Noticeably, before Saudi students join these EMI schools, they have already acquired L1 (Arabic) verbal skills. However, their literacy-learning often begins with school attendance where they develop literacy in both Arabic and English. Although literacy in both languages develops simultaneously, conditions favor English as it is the MI for all courses. Arabic is taught for one hour daily, thus, there is an imbalance in EMI schools between the amount of instruction and exposure to Arabic and the amount of instruction and exposure to English. As for the writing skill, curriculum for both languages covers all aspects relating to writing composition, including spelling, vocabulary, cohesion, grammar, discourse, types of writing, and punctuation.

Since its wide spread around 2005, there has been a growing interest in EMI programs in SA (Alqarni et al., 2024; Barnawi, 2022; Elyas & Picard, 2020; Ginting, 2020) as a strategic reform of education to improve skills of English language. However, the consequences of this program on the writing skill of the mother tongue of Saudi students have not been thoroughly documented.

This study considers effects of EMI programs on writing skills in L1 (Arabic), specifically in light of hypotheses of bilingual education including Cummins' (2017) interdependent hypothesis, biliteracy in L1 and L2 (Krashen, 1981) and Cook's (2003) hypothesis of multi-competencies, viewing bilingualism as a source for enriching individuals' linguistic and cognitive competencies. Additionally, a basic assumption of the present study is based on Cummins' (2021) distinction between two types of language proficiency: basic interpersonal communicative skills (BICS) and cognitive/academic language proficiency (CALP). Students' development of these two skills is affected differently by the instruction language and the

role of schooling in terms of amount of instruction and balanced biliteracy. This effect is determined further by the role of the environment—whether L2 is the MI in the L1 or the L2 community. Thus, EMI schools in SA provide an ideal context for this study, which considers English use as the instructional L2 in the Arabic community.

Statement of the problem:

The second language affects the mother tongue. The influence of English as a Medium of Instruction (EMI) on Arabic (L1) writing proficiency is a practical fact even in a monolingual Arabic-speaking context. This influence extends to cover both skills of basic interpersonal communicative skills (BICS) and cognitive/academic language proficiency (CALP).

Objectives of the Study:

This study aims at:

Investigating whether English (L2) as the MI negatively affects Arabic (L1) writing basic interpersonal communicative skills (BICS) for school students living in Arabic-speaking communities.

Investigating whether English (L2) as the MI negatively affects Arabic (L1) writing cognitive/academic language proficiency (CALP) for school students living in Arabic-speaking communities.

Examining the role of environment and schooling in maintaining (BICS) and (CALP) for EMI school students living in Arabic-speaking communities.

Research Questions:

Specific study questions are:

1. To what extent, if any, does EMI have a negative influence on fluency and accuracy in Arabic L1 writing?
2. To what extent do Arabic L1 students in EMI schools have comparable writing fluency in Arabic and English?
3. To what extent do Arabic L1 students in EMI schools have comparable levels of writing accuracy in Arabic and English?

Significance of the Study:

There is a consensus in Arab countries and in SA that EMI negatively impacts Arabic writing development (Alqarni et al., 2024; Elyas & Picard, 2020; Hopkynz & Elyas, 2022; Hussien, 2014). In the present context, it is true that Arabic literacy continues to develop, as it is taught as a school

course, but the time devoted to Arabic is less than that in AMI schools. Controversially, this imbalance could be offset by the fact that the broader community supports the continued use of Arabic.

This skeptical situation of the influence of EMI on SA students' Arabic writing proficiency has not received enough systematic attention particularly at school level. While there is a number of studies investigating EMI in Saudi higher education, there is insufficiency in considering schools (Alqarni et al., 2024). Hence, this study bridges this gap, enriching the comparisons between monolingual and bilingual students.

Theoretical Background:

Cummins and Swain (2014) argue that bilingualism has positive cognitive and educational consequences for students. These positive effects are evident only when students have a strong ability in both L1 and L2. Cummins (2017) further explains this concept of developing bilingualism with the interdependence hypothesis. In Cummins' view (2017), instruction in one language helps to develop the other language because there are some linguistic aspects of proficiency that are cross-lingual (Cummins & Swain, 2014). Krashen (1981) also supports Cummins' claim of the development of an underlying proficiency. Similarly, in his multi-competency hypothesis, Cook (2003) proposes that learning an L2 helps to reorganize one's linguistic system and improve general cognitive abilities.

Obviously, an essential component of Cummins' interdependence hypothesis is the need for continuous and parallel development of L1 along with L2. And here emerges the interwoven effect of environment and schooling. Cummins (2017) believes that when the surrounding environment supports L1 development while students acquire L2, it is likely that L2 will be mastered without any negative influence on L1. Krashen (1981) gives additional weight to environmental effects on L1 development, with less emphasis on the instructional language used in school. Krashen asserts that learning L2 in an L1 community is achievable without any effect on L1. While students learn L2 in school, their L1 continues to develop because society encourages its use. However, it is unclear whether the language community, outside of the formal educational system, provides the support required to develop CALP.

As previously mentioned, Cummins (2021) distinguishes two types of proficiency: the communicative skills (BICS) and possessing cognitive/academic proficiency (CALP). Cummins (2021) assumes that using a language for interaction does not necessarily mean that one is competent in that language. Moreover, he notes that literacy-related aspects of language proficiency develop mainly through school instruction. Researchers have actually recognized this distinction, reporting that while students possess fluent interpersonal communicative skills (BICS) gained via implicit exposure and interaction in a language, they show shortfall in its cognitive and academic skills (CALP) due to insufficient schooling instruction (Ballera & Beup, 2025; Weeraratna et al., 2023).

In Cummins' view of CALP, developing cognitive aspects of writing ability and using them in academic tasks requires continuous planned instruction and organized exposure. In fact, to master writing skills, one must achieve fluency and a high level of accuracy, that is, mastery of quantity and quality. Fluency refers to a learner's ability to present a large number of meaningful units of words within a short period while accuracy in writing requires mastery of grammar (morph-syntactic rules), vocabulary, spelling, punctuation, paragraphing, and other conventions of discourse besides clarity of handwriting (Majidi et al., 2020).

L2 Influence on L1:

The direction and amount of influence between L1 and L2 depend on which language is dominant in the learners' environment rather than on their proficiency in either language (Kim & Yim, 2024; Nyoni, 2023; Weeraratna et al., 2023). Besides, Cummins (2017) and Krashen (1981) note that, to a large extent, schooling determines the influence of one language on the other. Cummins (2017), hence, refers to the importance of providing students with instruction in either L1 or L2, along with motivation and exposure to both languages to develop the proficiency of underlying bilingualism.

According to Krashen (1985), using L2 as the MI does not harm L1 when it is learned in an L1 community. Nevertheless, to develop students' CALP, an additional condition is required to avoid a negative influence of L2 on L1 in bilingual education. This condition is the continuous and organized development of L1 together with L2 learning (Al dohon, 2014).

Learning L2 in L1 communities can occur in monolingual countries. In these cases, the possible influence of L2 on L1 in overwhelmingly L1-dominant communities is less emphasized (Krashen, 1981). However, the situation could threaten L1 for majority-language children if they receive their basic education, starting from primary school, in a foreign language. That is, L1 is the language of the community, but in school it is taught as an academic course for four or five hours a week while L2 is the instruction language for all other courses. There are fears that in such an immersion program, L2 could negatively influence L1 skill development, specifically with respect to literacy and writing.

Literature Review:

When L2 is the instruction language beginning in primary school, writing skills in L1 can be influenced negatively. However, opinions and findings in this respect are inconclusive. Altaweel and Alsager (2024), Elyas and Picard (2020) and Al-Shboul (2022) found that L1 is affected negatively by L2. On the other end of the spectrum, Zhang and Treiman (2021) found that, in L2 immersion programs, L1 literacy including spelling and grapheme-phoneme patterns continued to develop through implicit exposure of the students' domestic environment.

Similarly, Hussien (2014) has investigated the effect of L2 as an instruction medium on L1 proficiency in Egypt. He compared the Arabic proficiency of two groups in elementary schools: Arabic monolingual children instructed in Arabic, and Arabic–English bilingual children in EMI schools. The study has developed two measures to examine the skills of reading and spelling in L1. It found no negative influence of EMI on Arabic. Moreover, Hussien found that "the bilingual students (Arabic–English) performed better than their monolingual (Arabic) counterparts on oral reading accuracy and spelling accuracy measures" (2014, 92).

Al dohon (2014) conducted a similar study in Abu Dhabi, UAE. He studied the effect of EMI on 80 male and female Arabic-speaking students with respect to their oral reading and vocabulary skills in Arabic. Students were enrolled in two public elementary schools, one with a monolingual AMI and the other with a bilingual EMI. The researcher used reading accuracy and expressive vocabulary measures. Similar to Hussien's (2014) study, this study revealed no negative influence of L2 on the L1 skills tested. Moreover, bilinguals surpassed monolinguals in these skills in Arabic.

In a recent and more relevant study, Altaweel and Alsager (2024) have examined the effect of EMI on the Arabic syntactic proficiency of 107 male and female Saudi students in primary schools in Riyadh. Researchers employed an elicited repetition task. The study revealed a negative influence of EMI on the students' syntactic proficiency of their L1, Arabic. This harmful effect increased gradually as students progressed more in this educational curriculum.

While these studies are of special interest, they differ from the present study in their methodology and scope. As for Altaweel and Alsager's (2024) study, though it studies the influence of EMI on L1 writing skill, it focuses solely on the syntactic structure, while the present study extended its interest to cover more domains of accuracy and fluency, employing even a different methodology. Further, the present study deals with the intermediate level, serving to provide more reliable evidence on the effect of the use of L2 as the MI on L1 writing skills than do results with regard to the primary level, whose initial results could eventually change.

Methodology:

Research Design:

The study followed a causal–comparative approach to trace the effect of L2 MI as it appears in the actual contexts and then with respect to the scholastic environment and non-school community. This approach enabled identification of the possible causes of a variable by comparing two groups of learners after the action has occurred. All study procedures were reviewed and approved by our institutional authorities regulating ethics in research. Informed consent was obtained from participants and their parents.

Participants:

Participants were 91 Saudi eighth graders studying in Jeddah, SA. All participants were female—as the researcher had better access to the female schools—and were 13–14 years old. The participant students were formed into two groups: 45 from four private schools with EMI and 46 from four private schools with AMI. The academic courses were the same for both groups; the distinction was in the instruction language. In AMI schools, all courses were taught in Arabic. In EMI schools, all courses were taught in English, and all participants had experienced EMI since grade one or even earlier in kindergarten. They also study the same textbooks and curriculum

of Arabic language as those in AMI participants since they all follow Saudi Ministry of Education guidelines.

Purposive sampling ensures that all participants in both EMI and AMI groups met the following criteria: a) Arabic was their L1 and English their L2, b) those who have been abroad—in English-speaking countries-- for a considerable time were excluded and c) they had similar socioeconomic status. All demographic data were collected from parent responses to formal letters. This sample was selected to maximize equivalence between groups and consequently elevate the reliability of outcome measures. Although bias is inherent in purposive sampling, such sampling serves the goal of the study of in-depth understanding of the concerned context rather than broad generalization. To mitigate bias, the aforementioned explicit and pre-defined criteria were followed in selecting the participants.

Data-Collection Procedures:

The instrument used to collect data was essays written in response to a specific prompt. Initially, students in the EMI schools were given 15 minutes to write an essay in English on the topic "Advantages and disadvantages of mobile phones". One week later, the procedure and topic were repeated, only this time EMI students wrote their essays in Arabic. To allow for the comparison of results, the 46 AMI students also wrote essays in Arabic on the same topic, within the same allotted time. All essays were written during class time in the presence of the researcher and the class teacher.

Data Analysis:

An error analysis of the participant essays was conducted by five teachers from different schools and universities—three Arabic and two English. Teachers reviewed every essay, and any disagreements in scoring were discussed and reviewed again to establish consensus. The essays were assessed in terms of fluency and accuracy. Fluency scores for both the Arabic and English texts were obtained by measuring written words per minute (WPM), the total number of words divided by the time spent writing (15 minutes).

Accuracy analysis for both Arabic and English essays included spelling, vocabulary (using appropriate and varied lexicon), grammar (morph-syntactic errors, including wrong morphemes and erroneous syntactic utterances), and cohesion (using cohesive devises and transitional words).

Errors were counted, classified, and arranged in a devised score sheet. To ensure reliability of raters' judgment, and to quantify raters' agreement across multiple assessments, Pearson's correlation coefficient was calculated between the raters' evaluation as shown in Tables (1, 2 and 3) below.

Table (1)

Pearson Correlation of Arabic texts written by EMI students

Domain	Rater	Rater 1	Rater 2	Rater 3
Writing Fluency/ WPM	Rater 1	1	.993**	.994**
	Rater 2	.993**	1	.996**
	Rater 3	.994**	.996**	1
Spelling	Rater 1	1	.966**	.944**
	Rater 2	.966**	1	.981**
	Rater 3	.944**	.981**	1
Vocabulary	Rater 1	1	.965**	.965**
	Rater 2	.965**	1	.953**
	Rater 3	.965**	.953**	1
MorphoSyntactic	Rater 1	1	.955**	.948**
	Rater 2	.955**	1	.996**
	Rater 3	.948**	.996**	1
Cohesion	Rater 1	1	.984**	.976**
	Rater 2	.984**	1	.997**
	Rater 3	.976**	.997**	1

**. Correlation is significant at the 0.01 level (2-tailed).

Table (2)

Pearson Correlation of Arabic texts written by AMI students

Domain	Rater	Rater 1	Rater 2	Rater 3
Writing Fluency/ WPM	Rater 1	1	1.000**	1.000**
	Rater 2	1.000**	1	.999**
	Rater 3	1.000**	.999**	1
Spelling	Rater 1	1	.933**	1.000**
	Rater 2	.933**	1	.933**
	Rater 3	1.000**	.933**	1
Vocabulary	Rater 1	1	.992**	.996**
	Rater 2	.992**	1	.979**
	Rater 3	.996**	.979**	1
MorphoSyntactic	Rater 1	1	.998**	1.000**
	Rater 2	.998**	1	.998**
	Rater 3	1.000**	.998**	1
Cohesion	Rater 1	1	.998**	.999**
	Rater 2	.998**	1	.999**
	Rater 3	.999**	.999**	1

**. Correlation is significant at the 0.01 level (2-tailed).

Table (3)

Pearson Correlation of English texts written by EMI students

Domain	Rater	Rater 1	Rater 2
Writing Fluency/ WPM	Rater 1	1	1.000**
	Rater 2	1.000**	1
Spelling	Rater 1	1	.997**
	Rater 2	.997**	1
Vocabulary	Rater 1	1	.593**
	Rater 2	.593**	1
MorphoSyntactic	Rater 1	1	1.000**
	Rater 2	1.000**	1
Cohesion	Rater 1	1	.999**
	Rater 2	.999**	1

**. Correlation is significant at the 0.01 level (2-tailed).

The result revealed a strong statistically significant correlation at the 0.01 significance level across all domains which indicated a high degree of inter-rater consistency and concordance among the raters' assessments. These statistical procedures revealed a robust agreement between the raters which suggested a reliable assessment process for the present study. Spreadsheets were then prepared for statistical analysis. Descriptive statistics were used to explain participants' scores in measures of writing fluency and accuracy. The Kolmogorov–Smirnov test was used to evaluate normality of the distribution: all data were normally distributed. Besides, Levene's test for equality of variances was applied as shown in Tables (4 and 5) below.

Table (4)

Levene's Test for Equality of Variances of writing fluency between-group

Levene's Test for Equality of Variances	
F	Sig.
1.920	.167

Table (5)

Levene's Test for Equality of Variances of writing accuracy between-group

Domain	Levene's Test for Equality of Variances	
	F	**Sig.**
Spelling	**2.622**	**.097**
Vocabulary	**.354**	**.553**
Morph-syntactic Errors	**1.786**	**.185**
Cohesion	**.022**	**.883**

Data exhibited homogeneity of variance, validating the use of independent samples t-test. T-test analyses were then performed on the independent variables to compare Arabic writing fluency and accuracy between the EMI and AMI groups and between Arabic and English essays within the bilingual EMI group.

To quantify the effectiveness of the statistical significance (*p* value), the effect size was calculated by measuring eta squared with independent-sample t-test and Cohen's *d* with paired-sample t-test. It was found that the effect size of significance obtained via the *t* test ranged from very large effect to moderate effect. Noticeably, in educational research, the moderate effect is regarded as substantial. This result of the effect size helped in interpreting findings with more reliability.

Results: Our first research question was to what extent, if any, EMI has a negative influence on fluency and accuracy in Arabic (L1) writing. Results for the between-group comparison addressing this question are shown in Table (6) and Table (7).

Table (6)

Writing fluency between-group comparison

Domain	Group	N	Mean	SD	T	df	Sig. Value	95% Confidence Interval of the Difference		Eta2	Level of Effect size
								Lower	Upper		
Writing Fluency	**EMI**	45	136.11	9.946	15.808	88	.000	23.936	30.820	.74	**Large**
	AMI	46	108.73	6.005							

p ≤ 0.05

Table (7)

Writing accuracy between-group comparison

Domain	Group	N	Mean	SD	T	df	Sig. Value	95% Confidence Interval of the Difference		Eta2	Level of Effect size
								Lower	Upper		
Spelling	EMI	45	9.82	3.055	6.360	88	.000	2.139	4.083	.315	large
	AMI	46	6.71	1.199							
Vocabulary	EMI	45	4.33	1.610	.065	88	.948	-.655-	.699	-	-
	AMI	46	4.31	1.621							
Morph-syntactic Errors	EMI	45	4.80	2.312	3.569	88	.001	.916	3.218	.126	Medium
	AMI	46	2.73	3.122							
Cohesion	EMI	45	7.47	3.094	.069	88	.945	-1.235-	1.323	-	-
	AMI	46	7.42	3.011							

p ≤ 0.05

Table (6) shows that the significant value is less than (0.01), and (*t*) calculated is more than (*t*) tabulated. This means there are statistically significant differences at (α ≤ 0.05) between the AMI and EMI groups in writing fluency. The mean results show that the number of words written in the Arabic texts within the allotted time was higher for the EMI group.

Table (7) shows that the level of significance is less than 0.01, and (*t*) calculated is more than (*t*) tabulated. This means that there are statistically significant differences at (α ≤ 0.05) between AMI and EMI groups in relation to the accuracy of spelling and morph-syntactic rules. The means of spelling error and morph-syntactic error rates were higher in the EMI group. However, the between-group differences at (α ≤ 0.05) for vocabulary, and cohesion were not statistically significant.

Within-group, between-language comparisons were used to address the second research question, which was the extent to which Arabic L1 students in EMI schools have comparable writing fluency in Arabic and English. Table (8) shows that the level of significance is less than 0.01 and that (*t*) calculated is more than (*t*) tabulated. This means there were statistically

significant differences at (α ≤ 0.05) between fluency in Arabic writing and in English writing. These differences favored English writing.

Table (8)

EMI within-group comparison for writing fluency in Arabic and English

Domain	N	Mean	SD	T	df	p-value	95% Confidence Interval of the Difference		Cohen d	Level of Effect size
							Lower	Upper		
Arabic Writing	45	**136.11**	**9.946**	**11.744**	**44**	**.000**	**67.615**	**47.807**	**1.75**	**Large**
English Writing		**193.82**	**32.995**							

p ≤ 0.05

Within-group, between-language comparisons were conducted for spelling, vocabulary, morph-syntactic errors and cohesion, to answer the third question, which was the extent to which Arabic L1 students in EMI schools have comparable levels of writing accuracy in Arabic and English. As shown in Table (9), the significant value is less than (0.01), and (*t*) calculated is more than (*t*) tabulated. This means there were statistically significant differences at (α ≤ 0.05) between writing accuracy in Arabic and in English. The mean number of errors committed in Arabic writing was higher.

Table (9)

EMI within-group comparison for writing accuracy in Arabic and English

Domain	Language	N	Mean	SD	T	df	p-value	Cohen d	Level of Effect size
Spelling	**Arabic Writing**	45	**9.82**	**3.05**	**10.82**	**44**	**.000**	**1.61**	**Large**
	English Writing		**8.09**	**2.27**					
Vocabulary	**Arabic Writing**	45	**4.33**	**1.61**	**14.80**	**44**	**.000**	**2.20**	**Large**
	English Writing		**1.91**	**1.06**					

Domain	Language	N	Mean	SD	T	df	p-value	Cohen d	Level of Effect size
Morph-syntactic Errors	**Arabic Writing**	45	4.80	2.31	12.78	44	.000	1.90	**Large**
	English Writing		2.47	1.31					
Cohesion	**Arabic Writing**	45	7.47	3.094	16.33	44	.000	2.43	**Large**
	English Writing		3.51	1.62					

Discussion:

This study investigated the potential influence of L2 (English) as the medium of instruction on the writing fluency and accuracy of Arabic in EMI schools as compared with AMI schools. The study considers the supporting role of the L1 environment, as participants' English-language schools were in an Arabic-speaking community. It also assesses the role of schooling and the MI in developing L1 writing skills along with L2.

When the EMI group's essays in Arabic were compared with those of their AMI Arabic-only peer group, results showed that bilingual students wrote longer compositions. At a minimum, this result shows that using L2 as a medium of instruction does not negatively influence L1 writing fluency. This supports Krashen's (1985) supportive view of the role of environment. Specifically, L2 as the medium of instruction should have no negative influence on L1 if participants resided in an L1 community (Krashen, 1985). This result is attributed partly to the environment of our context which favored Arabic. From another angle, this finding of better performance by bilingual students as compared with monolingual students on the writing fluency measure is also consistent with Cook's (2003) hypothesis of multi-competency. This suggests that L2 medium of instruction does not impede cognitive processes, nor does it exert a negative impact on the storage and processing of language.

However, comparisons of writing accuracy in Arabic revealed a significant difference in the spelling error and morph-syntactic error rates between groups. The error rate of each of these domains was higher for the

bilingual group than for the monolingual peer group, indicating less orthographic and grammatical accuracy in written Arabic for the bilingual group. This indicated a negative effect of EMI on the accuracy of bilingual students' Arabic writing. Though bilingual participants wrote longer compositions, these compositions did not reflect better writing accuracy. Clearly, L1 community support ensured that L2 instruction did not diminish students' ability to communicate their ideas in Arabic; yet it could not eliminate negative consequences on L1 academic skills. In other words, L1 BICS were not negatively affected by L2 immersion instruction, since these skills were supported by the participants' broader L1 environment. However, L1 CALP skills were affected negatively by L2 instruction, despite the L1 community context. Therefore, the role of environment on some aspects of literacy is weak, and the situation depends more on formal instruction. Students' low accuracy in Arabic is attributed not to limited exposure to L1, which is facilitated by the outer community, but rather to the insufficiency of planned instructive exposure and schooling.

In contrast to the higher spelling error and morph-syntactic error rates for the EMI group, analysis showed no significant group differences between bilingual and monolingual groups in vocabulary, or cohesion. This result can be attributed to a number of factors, most importantly perhaps to the input available in the environment outside school. Moreover, it can be explained as positive cross-language influences between English and Arabic, consistent with Cummins' interdependent development hypothesis (1981). That is, English instruction helps to develop some literacy skills in Arabic.

The significantly lower level of spelling and morph-syntactic writing accuracy as compared with fluency for the EMI group was related to the role of instruction, specifically to the lack of intensive and organized instruction in L1. This supports Cummins' (2017) view that there are writing-related tasks that require more intensive and direct instruction, even in L1 communities. These involve cognitive and academic language tasks (e.g., CALP). Therefore, L2 as a medium of instruction had no negative effect on L1 BICS, but it had a negative effect on L1 CALP due to a lack of intensive, systematic L1 instruction.

Results reveal that bilingual students surpassed their monolingual counterparts in the writing fluency measure in Arabic. Notably, the within-

group comparison revealed that writing fluency for bilingual students was higher in their English than in their Arabic essays. While the bilingual group's mean writing fluency for Arabic was $M = 136.11$, their mean writing fluency for English was $M = 193.82$. Although Arabic was their native tongue and they had levels of L1 comparable to that of their monolingual counterparts on two aspects of writing accuracy, they were able to write more fluidly in English than in Arabic. This high level of writing fluency is attributed to the role of formal education and the effect of using EMI (Cummins, 2017; Krashen, 1981). Developing writing fluency requires continual practice, and using EMI ensures that students can write lengthy compositions in all course content, in addition to English writing courses.

In contrast, in EMI schools, opportunities for writing in Arabic are limited to a single Arabic-language course. It is also possible that the prominence of English and intensive instruction in it may affect students' attitudes toward writing in Arabic, to the extent that they do not practice writing Arabic extensively outside of school.

Results of the first study question—whether EMI has a negative impact on L1 writing accuracy—are consistent with those of the third question, concerning bilingual students' writing accuracy in Arabic and English. Analysis revealed that there was a significant difference between Arabic and English essays written by bilingual students (EMI) in terms of their writing accuracy. The level of accuracy in Arabic texts was lower than in English texts. The number of errors (spelling, vocabulary, morph-syntactic, and cohesion) in Arabic essays was significantly higher than in the English essays. That is, bilingual participants had the ability to write academically in English, while they were less skilled in writing academic essays in Arabic. In other words, their Arabic CALP was affected negatively by English immersion instruction.

Although the environment favored L1 (resulting in a non-significant difference in between-group means-comparisons for vocabulary, and cohesion), the role of schooling (intensive instruction or number of teaching hours) negatively influenced general L1 writing accuracy. These findings are in line with the view of Cummins (2021) in his distinction between two levels of language, BICS and CALP. Notably, these findings do not

contradict Krashen's view of the supporting effect of the L1 community. Yet, while BICS develop with the support of the L1 community, CALP requires more planned, intensive instruction in school.

Findings from this study do not fully support those of Hussien (2014). In his study, bilingual students outperformed their monolingual counterparts in the accuracy measure of oral reading and spelling. However, findings in our study revealed that bilingual students' performance on the spelling and morph-syntactic writing accuracy measure was lower than that of their Arabic monolingual counterparts. This can be attributed to the fact that these two studies involve two distinct skills: reading (a receptive skill) and writing (a productive skill).

Findings of the present study are partially in consistent with Krashen's (1985) proposal that L2 has no influence on L1, since it was taught in an L1 community. Negative impact on Arabic (L1) for current participants is minimized. That is, L2 as a medium of instruction in the L1 community did not harm L1 BICS, although it affects L1 CALP. In addition, these findings are consistent with that of Altaweel and Alsager's (2024) study which reveals a harmful effect of EMI on the students' syntactic proficiency of their L1.

In summary, continual development of L1 literacy along with L2 reduces the negative effects of L2. It also helps students attain writing fluency and some aspects of writing accuracy. This highlights the role of schooling and supports implications of the interdependent hypothesis on the positive effect of continual development of L1 along with L2. Additionally, the negative influence of L2 as the MI is reduced, since it is used in an L1 community, in accordance with Krashen's (1985) hypothesis of the educational environment.

In the present study, the bilingual group had a higher level of writing fluency compared with their monolingual counterparts, which can be explained by reference to Cook's (2003) proposition that bilingual students are affected positively by acquiring more languages. This grants them greater ability to engage in linguistic manipulation. Nevertheless, the bilingual group's writing accuracy in Arabic was lower than in English. This can be explained by reference to Cummins'(2021) proposition, which distinguishes two aspects of language use, BICS and CALP. While BICS

depend on the context and situation, CALP needs direct, intensive instruction. Fluency and accuracy involve two distinct cognitive processes. Developing Arabic accuracy depends on schooling and requires intensive instructional development. Hence, the lower level of accuracy in this study suggests that Arabic instruction in EMI schools needs to be expanded and enhanced to achieve optimal outcomes.

Conclusion:

It is noteworthy that there are different bilingual programs, and the effect of L2 could differ accordingly. The present study finds that, in SA, bilingualism and maintenance of Arabic is possible without risk from L2 if more intensive instruction is given to Arabic. In EMI, Arabic is taught only as a course, but it is the language of the broader community. Despite community support for L1, this scenario allows only for BICS development. Therefore, it is necessary to increase the instruction of Arabic and practice for academic skills, including writing accuracy, to elevate L1 CALP. To enhance these skills, it is recommended to increase teaching hours and maximizing its effectiveness by emphasizing practice-based activities. Teachers can incorporate frequent daily brief exercises which targets students' difficulties. Supplementing online instruction can also compensate with any shortage. This study calls for a need for tailored and balanced instruction of both L1& L2 schooling for better outcomes of (CALP) as exposure to L1 even in its community does not grantee proficiency of its academic skills (Ballera & Beup, 2025; Santiago & David, 2022). Authorities may consider a reform of the curriculum, adopting a modified version of dual-language program in order to address existing imbalances. This recommendation is significant to the current context since our bilingual participants use L1 for interaction, yet they are not academically competent in it.

Noticeably, the population of the study is limited to females studying in private schools which limit generalizability of the results. It is, hence, suggested for further research to include other populations, and to cover further contexts as well since this study was limited to the monolingual community of SA. Moreover, other measures of writing fluency and accuracy can be employed in future research. Nonetheless, the present paper enriches the literature on L2 as the MI and its effect on L1 by focusing on L2 learners in an L1 community, a context that requires additional study. This study also highlights the shifting roles of environment and education.

The study also contributes to the research on language acquisition. While earlier research shows that learners' manifestation of morphological and orthographical complexity is language-specific determined (Brezina & Pallotti, 2019), the present study implies that acquisition by its speakers of such morphological complexity in a relatively complex morph-syntactic system, such as Arabic, is further affected by bilingualism. In particular, further research is required to examine the case of orthographic and syntactic complexity.

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Data of the study are available from the corresponding author upon reasonable request.

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