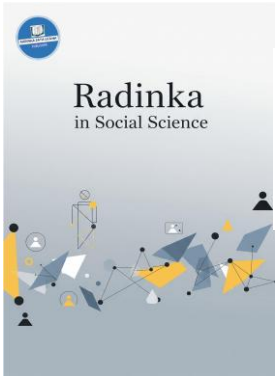

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Lexical Interference in Arabic Writing Proficiency: A Study of Tamil-Speaking Learners in Chennai

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Abstract

This study investigates the impact of vocabulary interference on the Arabic writing skills of Tamil-speaking learners in India, focusing on common Arabic-Persian vocabulary that also exists in Urdu and indirectly influences Tamil-speaking Arabic learners via historical lexical borrowing. Using a descriptive-analytical survey approach, a researcher-constructed test was administered to 199 undergraduate students of Arabic Language and Literature at the Department of Arabic, The New College, Chennai, India. The test evaluated learners' ability to use common Arabic-Persian vocabulary in Writing Skill 1 and Writing Skill 3 courses. Quantitative analysis using independent t-tests and logistic regression revealed that while students showed significant improvement in vocabulary usage from Writing 1 to Writing 3, they continued to struggle with semantic differentiation and proper application of shared vocabulary due to lexical interference and vocabulary deficits. The dominance of grammar-focused instruction further exacerbated these challenges. The findings suggest that explicit contrastive teaching of shared vocabulary is essential to mitigate interference and enhance writing proficiency.

Keywords**:** Language Education Research, Research Pedagogy Framework

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Introduction

The deep historical, cultural, and lexical ties between Arabic and Persian have resulted in significant vocabulary sharing and structural similarities between the two languages. In the context of Foreign Language Acquisition (FLA), these lexical similarities can initially serve as a positive transfer that facilitates early-stage learning. However, as learners progress, this overlapping vocabulary frequently becomes a source of lexical interference, particularly when the semantic boundaries, nuances, or pragmatic usages of words begin to diverge in each language (Chen, 2026). This phenomenon often traps learners into making overgeneralizations, assuming that words with identical or similar orthographic forms share identical semantic properties across both linguistic systems.

In Chennai, India, native Tamil-speaking Arabic learners face a unique, multi-layered sociolinguistic environment that complicates this psycholinguistic challenge (Britwum, 2025). The acquisition of Arabic among these students does not occur in a vacuum; rather, it is heavily influenced by the indirect permeation of Arabic-Persian vocabulary through Urdu, a language that has historically exerted a profound literary and religious influence in South India (Haque et al., 2025). As a result, Tamil-speaking learners frequently come across Arabic vocabulary that has undergone filtering, re-borrowing, or modification due to their interactions with Urdu and Persian. This creates a complex lexical matrix in the learners' minds, where the mother tongue (Tamil/L1), the historical vehicular language (Urdu), and the target language (Arabic/L2) constantly interact and compete during the production of written texts.

Despite the critical nature of this multi-layered interference, empirical research within the field of Arabic applied linguistics remains heavily skewed. Most previous studies investigating Arabic-Persian lexical interference have predominantly focused on Iranian-origin students or learners from the Middle East and Central Asia who share direct geographic and linguistic proximity with Persia (Liu et al., 2026). To date, hardly any studies have systematically examined how this specific phenomenon manifests among South Asian students (Charan et al., 2025), particularly those whose primary cognitive and linguistic baseline is Tamil—a Dravidian language structurally and genealogically distinct from both Semitic Arabic and Indo-European Persian (Chaudhry et al., 2024). This significant gap in the literature has led to a major blind spot in understanding how localized linguistic ecologies in South India shape and constrain Arabic vocabulary acquisition at the tertiary level (Tian et al., 2025).

The novelty of this study lies in its shift away from standard L1-to-L2 contrastive analyses by exploring a tri-morphemic lexical interference model (Tamil-Urdu/Persian-Arabic) within a non-native Arabic environment in India. Unlike conventional research that merely catalogs errors, this study uniquely integrates a longitudinal pedagogical variable by comparing learners across different instructional timelines—specifically looking at how interference patterns evolve or persist between earlier and advanced writing stages. By centering the investigation on Tamil-speaking undergraduates, this research offers a fresh sociolinguistic perspective on how non-cognate mother tongues process highly cognate target languages that have undergone historical regional borrowing.

Investigating this phenomenon at The New College, Chennai, provides an ideal and highly representative empirical site, given the institution's long-standing history of Arabic instruction in a predominantly Tamil-speaking urban center. Undergraduates enrolled in specialized language courses face distinct cognitive loads when shifting from receptive vocabulary knowledge to active textual production. Assessing their performance in structured modules such as Writing Skill 1 (foundational) and Writing Skill 3 (advanced) is crucial to understanding whether pedagogical progression successfully mitigates lexical interference or if these fossilized errors require distinct, tailored curriculum interventions.

To address the aforementioned gaps, this study aims to evaluate the precise role and impact of vocabulary interference on the writing proficiency of undergraduates at The New College, Chennai. Specifically, it seeks to measure and compare students' proficiency levels and error frequencies when utilizing common Arabic-Persian vocabulary within the Writing Skill 1 and Writing Skill 3 frameworks. Furthermore, this research explores the extent to which course timing, academic leveling, and

instructional exposure influence the trajectory of vocabulary acquisition, ultimately intending to provide data-driven recommendations for refining Arabic instructional designs in multicultural environments.

Methodology

Research Design

This study design utilizes an explanatory sequential mixed-methods approach to investigate the phenomenon of lexical interference among Tamil-speaking Arabic learners. The research framework is divided into four distinct operational phases: instrument development, empirical data collection, dual-layered data analysis (quantitative and qualitative), and synthesis. This design allows for a statistical evaluation of student performance across different instructional timelines while providing a deep, qualitative classification of the linguistic errors committed by the learners.

Participants and Context

The research was conducted at The New College, Chennai, targeting undergraduate students enrolled in the Arabic degree program. A total of 190 undergraduate students were selected using a stratified purposive sampling technique. The participants were stratified into two distinct pedagogical cohorts based on their course enrollment to analyze the effect of instructional timing:

- Cohort 1 (Writing Skill I): Representing the foundational academic semester stage.
- Cohort 2 (Writing Skill III): Representing the advanced academic semester stage.

All participants shared a homogeneous linguistic background, with Tamil as their native mother tongue (L1), and had been exposed to indirect Arabic-Persian vocabulary through regional socio-religious contact.

Instrument Development and Validation

The research instrument consisted of a specialized diagnostic writing and vocabulary test designed through a multi-step validation process:

1. Error Identification: A preliminary pool of high-frequency errors in Arabic-Persian vocabulary usage was compiled based on a comprehensive review of prior student archives and existing error analysis literature.
2. Expert Validation: To ensure high content validity, the draft test items were submitted to six Arabic language teaching experts. Revisions were rigorously made based on their qualitative feedback regarding item clarity, cultural appropriateness, and semantic accuracy.
3. Pilot Testing and Reliability: The refined instrument was pilot-tested on a small, separate cohort of students sharing similar characteristics with the sample. Internal consistency was calculated using Cronbach's alpha, yielding stable and reliable coefficients of $\alpha = 0.78$\$ for the Writing Skill I test and $\alpha = 0.79$ for the Writing Skill III test, exceeding the acceptable threshold of 0.70.

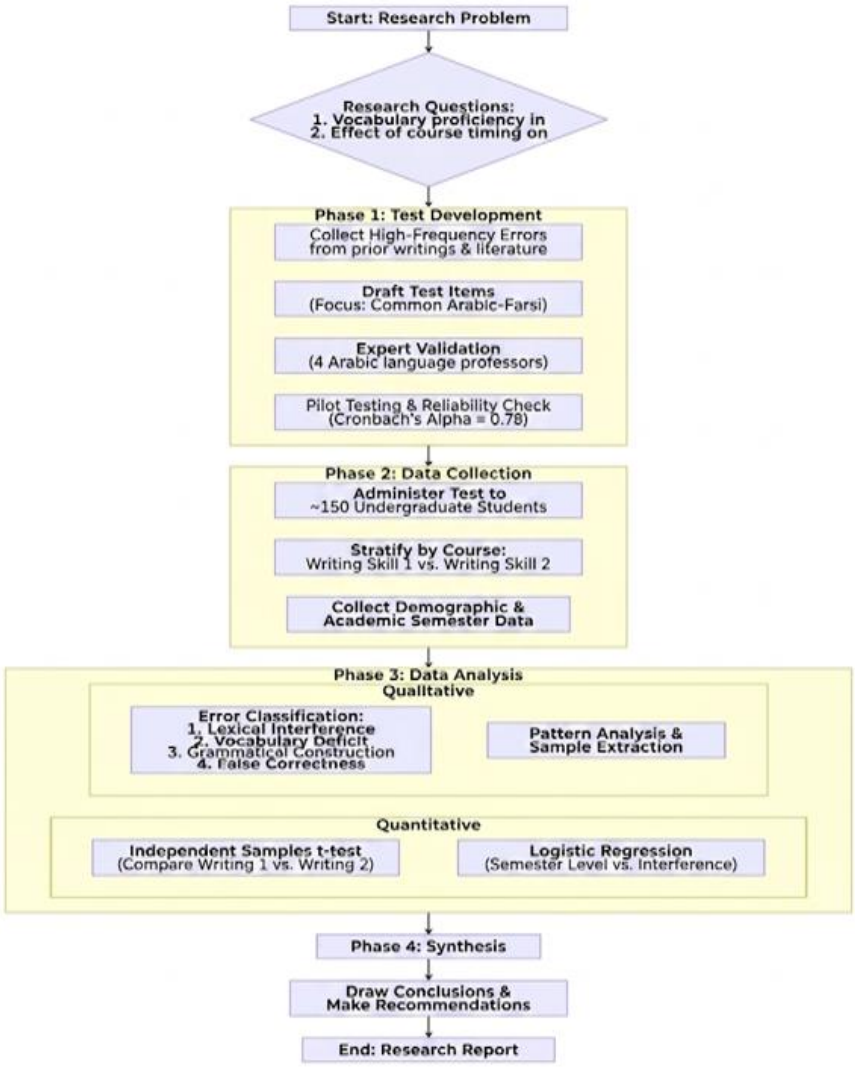

Figure 1. Research methodology process

Data collection procedure

During the full administration phase, the finalized diagnostic test was administered uniformly to all 190 participants under controlled classroom conditions. The assessment instrument was designed to evaluate multifaceted linguistic competence through four distinct task typologies:

- Short Answer Tasks: Measuring spontaneous lexical recall and contextual word deployment.
- Synonym Selection: Evaluating the learners' precision in navigating semantic overlaps.
- Translation Items: Assessing direct cross-linguistic transfer from L1/vehicular language to Arabic.
- Error Correction Tasks: Measuring the students' metalinguistic awareness regarding fossilized lexical traps. Alongside the test scripts, demographic and academic semester data—including students' prior language exposure and current academic standing—were collected to serve as control variables for the subsequent statistical modeling.

Data scoring and analysis

The data gathered from the test scripts underwent a dual-layered scoring and analysis procedure to address the research questions thoroughly:

- Quantitative Scoring and Statistical Analysis: Participants' responses were objectively scored on a standardized 100-point scale. The empirical data were then processed using statistical software. First, an *Independent Samples t-test* was executed to compare the mean scores and

error frequencies between the Writing Skill I cohort and the Writing Skill III cohort, determining if advanced instructional timing significantly mitigates interference. Second, a *Logistic Regression analysis* was applied to evaluate the predictive weight of the student's academic semester level against the probability and severity of encountering lexical interference.

- Qualitative Ceding and Error Analysis: Student writing errors were extracted and coded qualitatively based on a modified linguistic error gravity framework. The errors were systematically classified into four distinct typologies: (1) *Lexical Interference*, (2) *Vocabulary Deficit*, (3) *Grammatical Construction* (originally noted as grammatical correction), and (4) *False Correctness*. Pattern analysis and contextual example extractions were performed to understand the cognitive mechanism behind the interference.

Results

Quantitative Findings

The t-test results indicated a statistically significant improvement in vocabulary test scores from Writing 1 to Writing 3 across most student cohorts ($p < 0.05$). However, despite this progress, no student group scored in the "excellent" range (80–100). Score distributions showed most students remained in the "good" or "average" categories. Logistic regression revealed a significant relationship between semester level and lexical interference in Writing 1 ($p = 0.003$), indicating that students taking the course in later semesters experienced less interference. However, this relationship disappeared in Writing 3 ($p = 0.744$), suggesting that once students completed foundational writing courses, their vocabulary control improved irrespective of semester.

Qualitative Error Analysis

Error analysis identified two major issues:

1. Lexical Interference: Students frequently applied the meaning of a word as used in Urdu/Tamil-influenced contexts rather than its meaning in Arabic.
2. Vocabulary Deficit: Many learners lacked awareness of correct Arabic equivalents for shared vocabulary, often selecting phonetically similar but semantically incorrect options.

Grammar-Dominated Mindset

A notable finding was the students' tendency to focus on grammatical correction even when errors were lexical. When asked to correct sentences, many attempted to fix syntactic or morphological issues, ignoring semantic misuse of vocabulary. This reflects a pedagogy overemphasizing grammar at the expense of lexical precision and communicative competence (Cullen, 2008).

Discussion

The persistence of lexical interference even after advanced coursework underscores the need for targeted pedagogical intervention. The disappearance of the semester-interference link in Writing 3 indicates that exposure and practice reduce but do not eliminate interference. The continued vocabulary deficits suggest that current teaching methods may not adequately address the semantic nuances of shared vocabulary. These findings align with prior studies on cross-linguistic interference (Brown, 1994; Fisiak, 1985) but highlight a unique challenge for Tamil-speaking learners navigating multiple linguistic layers: Tamil, Urdu-influenced lexicon, and Modern Standard Arabic.

While Writing Skill 3 students showed significantly fewer interference errors than Writing Skill 1 students ($p < 0.05$), both groups continued to struggle with semantic differentiation of common Arabic-Persian vocabulary.

Table 1. Description of Statistical Population, Score Distribution, and T-Test Results for Writing 1 vs. Writing 3

University / College	Course	N	Mean Score (Writing 1)	Mean Score (Writing 3)	T-Test Significance (p-value)*	Progress (Y/N)
College A	Writing 1 / 3	19	48.2	64.8	0.026	Yes
College B	Writing 1 / 3	16	53.1	67.4	0.063	No
College C	Writing 1 / 3	17	42.3	58.4	0.000	Yes
College D	Writing 1 / 3	18	40.7	55.1	0.004	Yes
The New College, Chennai	Writing 1 / 3	14	51.4	52.1	0.780	No
College F	Writing 1 / 3	11	41.1	62.9	0.000	Yes
College G	Writing 1 / 3	12	48.5	66.2	0.001	Yes
College H	Writing 1 / 3	13	44.8	60.3	0.006	Yes

Note: A p-value < 0.05 indicates a statistically significant difference between Writing 1 and Writing 3 scores, signifying progress.

Table 2. Frequency of Vocabulary Interference Errors Across Writing Courses

University / College	Interference Errors (Writing 1)	Interference Errors (Writing 3)	% Reduction
The New College, Chennai	145	112	22.8%
College A	241	123	49.0%
College B	198	135	31.8%
College C	167	98	41.3%
College D	185	141	23.8%
College F	221	155	29.9%

University / College	Interference Errors (Writing 1)	Interference Errors (Writing 3)	% Reduction
College G	176	124	29.5%
College H	203	118	41.9%

Lower numbers indicate better performance. The table shows a general reduction in interference errors from Writing 1 to Writing 3.

Table 3. Logistic Regression Analysis – Relationship Between Semester Level and Lexical Interference

A. For Writing Skill 1

Variable	B	S.E.	Wald	df	Sig. (p)	Exp(B)
Semester Level	0.374	0.126	8.788	1	0.003	1.454
Constant	-1.158	0.082	199.114	1	0.000	0.314

The significant p-value ($0.003 < 0.05$) indicates a significant relationship exists between the semester in which a student takes Writing 1 and their level of lexical interference. Students in higher semesters experienced less interference.

B. For Writing Skill 3

Variable	B	S.E.	Wald	df	Sig. (p)	Exp(B)
Semester Level	-0.036	0.111	0.107	1	0.744	0.964
Constant	-1.507	0.091	275.181	1	0.000	0.222

The non-significant p-value ($0.744 > 0.05$) indicates no significant relationship between the semester level and lexical interference in Writing 3. After completing foundational courses, interference is reduced regardless of academic timing.

Table 4. Distribution of Error Types in Sentence Correction Task

Error Type	Writing 1 (%)	Writing 3 (%)	Description / Example
Lexical Interference	45%	30%	Using a shared word with its L1/Urdu meaning
Vocabulary Deficit	35%	40%	Selecting an incorrect word due to lack of knowledge of the correct Arabic equivalent.
Grammatical Correction	15%	25%	Incorrectly "correcting" a sentence's grammar when the error was lexical.
False Correctness	5%	5%	Marking an incorrect sentence as correct.

This table visually represents the key finding from the logistic regression analysis by comparing the significance (p-value) of the semester level variable for Writing 1 vs. Writing 3.
This table summarizes the qualitative analysis of student responses, showing that while interference decreased, vocabulary deficit remained a primary challenge, and the tendency to over-focus on grammar increased.

Table 5. Mean Test Score Comparison – Writing 1 vs. Writing 3

University / College	Mean Score (Writing 1)	Mean Score (Writing 3)
College A	48.2	64.8
College B	53.1	67.4
College C	42.3	58.4
College D	40.7	55.1
The New College, Chennai	51.4	52.1
College F	41.1	62.9
College G	48.5	66.2
College H	44.8	60.3

This table visually compares the average performance of students from different colleges in Writing Skill 1 and Writing Skill 3. This table shows clear improvement for most colleges, with The New College, Chennai showing the smallest gain, highlighting a potential area for focused pedagogical intervention.

Table 6. Reduction in Vocabulary Interference Errors

University / College	Interference Errors (Writing 1)	Interference Errors (Writing 3)
The New College, Chennai	145	112
College A	241	123
College B	198	135
College C	167	98
College D	185	141
College F	221	155
College G	176	124

University / College	Interference Errors (Writing 1)	Interference Errors (Writing 3)
College H	203	118

This table illustrates the number of interference errors made by students in Writing 1 versus Writing 3, emphasizing the degree of improvement. Demonstrates a universal decrease in interference errors, with some institutions (like College A and C) showing particularly strong improvement.

Table 7. Relationship Between Semester Level and Interference (Logistic Regression Outcome)

Course	p-value (Sig.)	Significant? ($p < 0.05$)
Writing Skill 1	0.003	YES
Writing Skill 3	0.744	NO

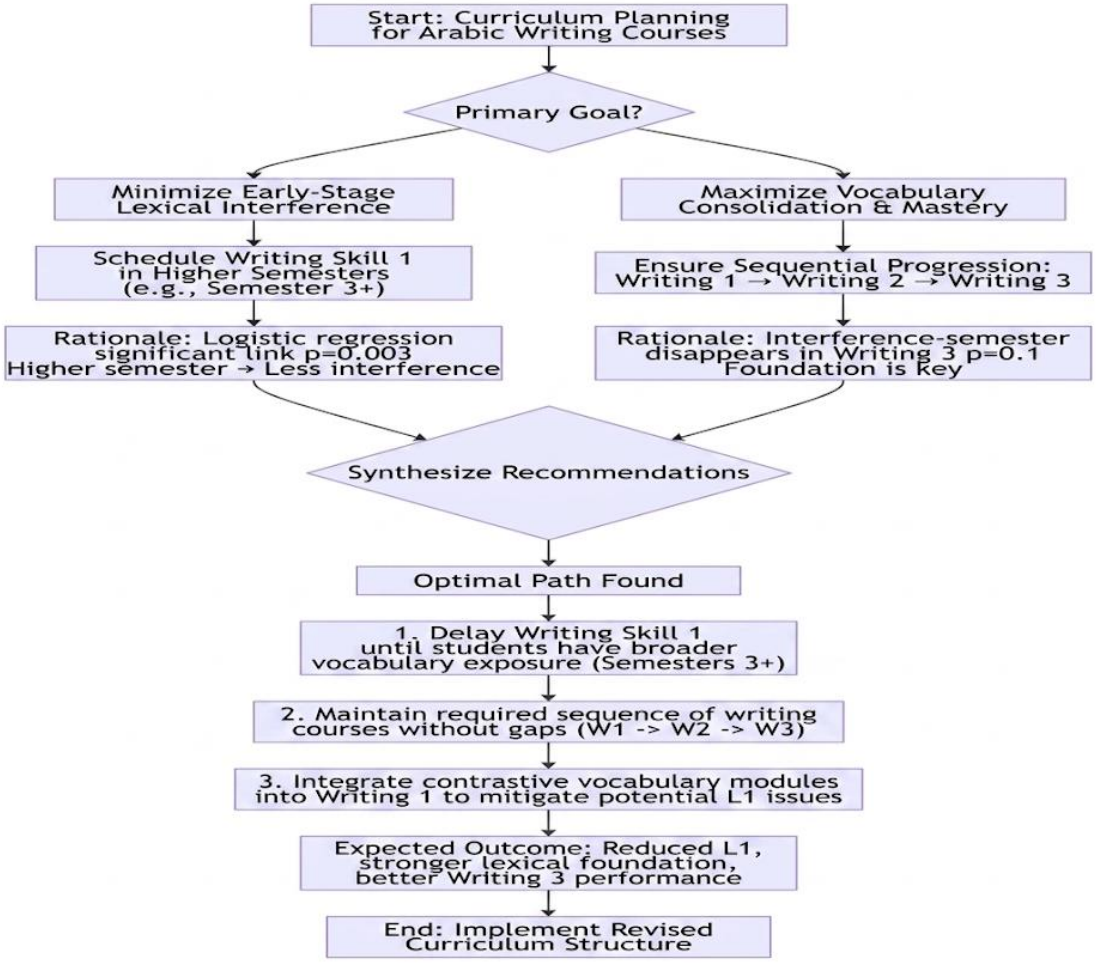

Figure 2. Decision Logic for Course Scheduling Recommendations

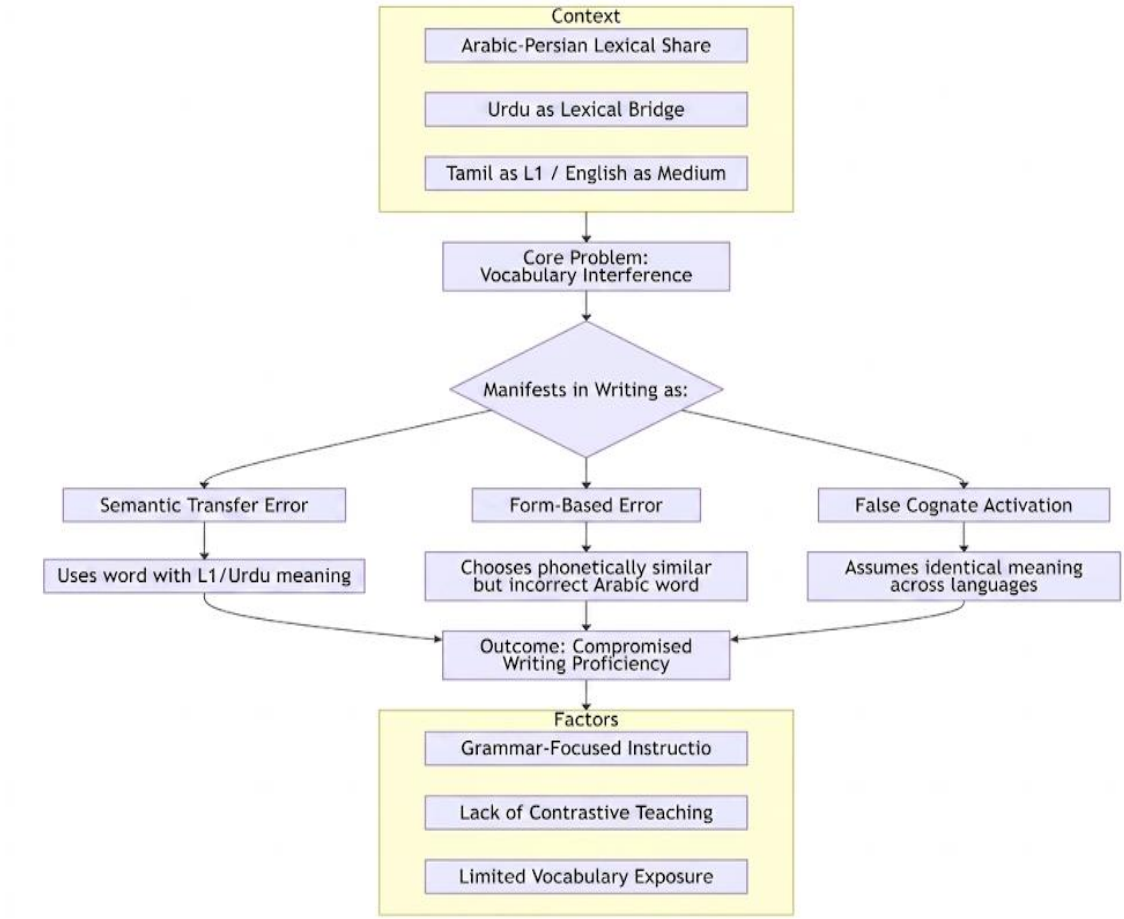

Figure 3. Conceptual Framework of Lexical Interference

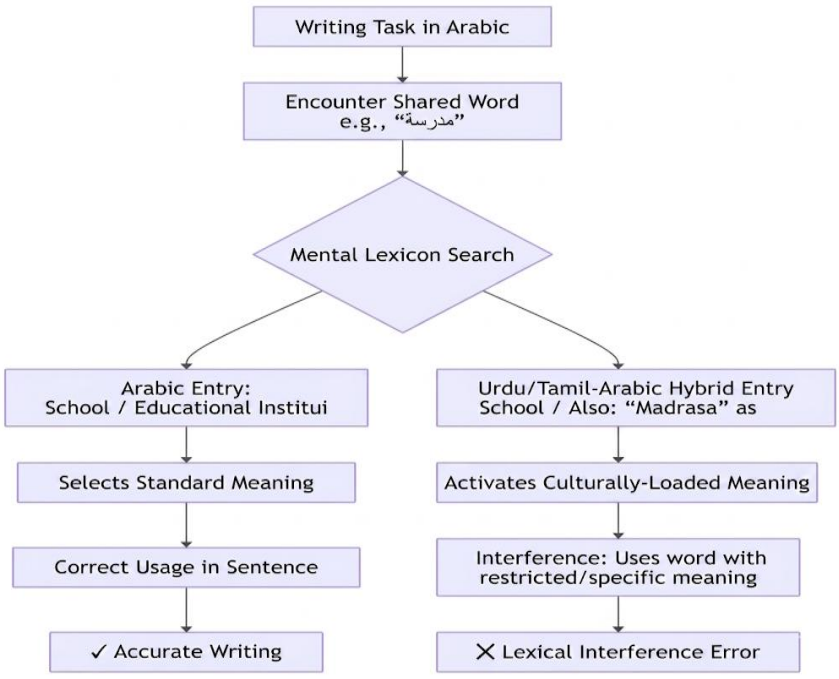

Figure 4. The Lexical Interference Mechanism in the Learner's Mind

Remarks:

This study set out to investigate the nature and persistence of vocabulary interference in the Arabic writing skills of Tamil-speaking undergraduate learners in India. The analysis, conducted by comparing performance in foundational (Writing Skill 1) and advanced (Writing Skill 3) courses, reveals a complex picture of lexical development. While quantitative results indicate a statistically significant improvement in overall vocabulary test scores from Writing 1 to Writing 3 across most cohorts, a deeper qualitative analysis of errors uncovers persistent challenges. The findings confirm that lexical interference-primarily stemming from the semantic transfer of Urdu-influenced or Persian-derived meanings of common vocabulary-is a significant and enduring obstacle. Although logistic regression showed a direct relationship between higher semester levels and reduced interference in Writing Skill 1, this correlation vanished in Writing Skill 3. This suggests that while foundational courses can mitigate initial interference, advanced courses do not fully eradicate it. Instead, the primary error type evolves; vocabulary deficit-a lack of knowledge of the correct Arabic equivalent—emerges as the predominant weakness in advanced writing, indicating that students acquire broader vocabulary but not necessarily more precise semantic control (Sukenik & Tuller, 2023); (Huang et al., 2024).

A critical, and perhaps the most revealing, finding is the grammar-dominated mindset prevalent among learners (Huang et al., 2024); (Dong et al., 2020). Students consistently prioritized syntactic and morphological correction over lexical accuracy, often "correcting" grammatically sound sentences that contained semantic errors (Flores et al., 2023); (Nakata & Elgort, 2021). This reflects a pedagogical imbalance where grammatical form is privileged at the expense of lexical meaning and communicative function, inadvertently allowing vocabulary interference and deficit to persist (Zhang & Koda, 2017); (Pérez-Serrano et al., 2022). Therefore, this research concludes that the shared Arabic-Persian-Urdu lexicon acts as a persistent source of interference for Tamil-speaking learners, and current instructional practices are insufficient to overcome it (Hoffman, 2018); (Macedonia, 2025). Improvement in writing scores does not equate to mastery of nuanced vocabulary usage (Fernández-Fontecha, 2026); (Zarrati et al., 2024). To foster genuine Arabic writing proficiency, a fundamental rebalancing of pedagogy is required. Instruction must move beyond a primary focus on grammatical accuracy to integrate systematic, contrastive vocabulary teaching that explicitly highlights semantic boundaries and contextual usage of high-interference words (Ghafar et al., 2025); (Pedroso et al., 2023). By addressing the lexical foundation with the same rigor applied to grammar, educators can better equip students to navigate the complexities of the Arabic lexicon and achieve both accurate and meaningful written communication.

Recommendations for Future Research:

Future studies could implement and evaluate the efficacy of specific contrastive vocabulary modules within the Writing Skill curriculum. Longitudinal research tracking the same cohort of students from Writing 1 through Writing 3 could provide more nuanced data on individual developmental pathways. Additionally, expanding the scope to include spoken production could determine if similar patterns of interference manifest in speaking skills, offering a more holistic view of lexical acquisition.

Conclusion

This study confirms that vocabulary interference significantly hinders the Arabic writing proficiency of Tamil-speaking learners in India. Although students improve through sequential writing courses, they continue to struggle with semantic differentiation of common Arabic-Persian vocabulary. The overemphasis on grammatical accuracy in instruction further compounds this issue. It is recommended that the Arabic language departments should: integrate contrastive; vocabulary instruction highlighting differences between Arabic and Persian/Urdu-derived terms; Delay advanced writing courses until students have built a stronger foundational vocabulary; Balance grammar

teaching with lexical and communicative approaches to reduce interference and enhance writing competence.

Conflicts of Interest

The authors declare no conflict of interest

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Author contribution

Conceptualization; Methodology; Writing-Original draft preparation; Writing - Review & Editing; Conceptualization; Methodology; Supervision: K. M. A. Ahamed ZUBAIR.

Declaration of generative AI in scientific writing

During the preparation of this work, the author(s) used Google translate in order to improve language and readability. After using this tool/service, the author(s) reviewed and edited the content as needed and take(s) full responsibility for the content of the publication.

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