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ACEHNESE INTERFERENCE IN STUDENTS' SPOKEN ARABIC: A MULTI-LEVEL CROSS-LINGUISTIC ANALYSIS IN AN INDONESIAN ISLAMIC BOARDING SCHOOL

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ABSTRACT

Although numerous studies have examined Arabic language interference among Indonesian learners, detailed analyses integrating multiple linguistic levels within a single Acehnese-speaking institutional context remain a significant gap in the literature. This study addresses that gap by investigating cross-linguistic influence in students' spoken Arabic at Dayah Babul Maghfirah, an Islamic boarding school in Aceh that formally enforces Arabic-only communication. Adopting a qualitative descriptive approach, the study analyzes naturally occurring oral interactions collected through non-participant observation over one week. Data were examined using Miles, Huberman, and Saldaña's interactive model. The findings reveal systematic Acehnese interference across four linguistic levels: 1) phonological substitutions of marked Arabic consonants; 2) morphological projection of Acehnese particles and affixes; 3) syntactic transfer of Acehnese-dominant structural templates; and 4) lexical insertion of discourse markers and interjections. These patterns demonstrate that local linguistic repertoires remain structurally active even within immersion-oriented institutional settings, challenging assumptions that policy-driven environments suppress first-language influence. By providing a systematic multi-level mapping of interference within a single pesantren environment, this study contributes empirically to cross-linguistic influence research and extends Indonesian interference scholarship to an underrepresented regional context. The findings offer evidence-based insight for Arabic pedagogy in multilingual religious education settings where immersion policies coexist with deeply entrenched vernacular linguistic identities.

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INTRODUCTION

The Arabic language has long occupied a central position in Islamic education across Southeast Asia, functioning not only as a liturgical language but also as a medium for instruction, scholarly transmission, and identity formation (Bustamam-Ahmad, 2015; Sopian et al., 2025; Yenprasit & Naknawa, 2025). In recent decades, the role of Arabic has expanded further as learners increasingly engage with transnational networks of Islamic scholarship, digital learning platforms, and online religious communities (Arifianto et al., 2025; Haddad-Najjar & Abu-Rabia, 2024). These developments reinforce the sociolinguistic understanding that language learning is embedded within specific cultural, institutional, and interactional contexts (Erdocia et al., 2024; Indarti et al., 2026). Nevertheless, achieving oral proficiency in Arabic as a second or foreign language remains a complex challenge, particularly in environments where learners' first languages differ substantially from Arabic in their phonological and structural systems.

Indonesia represents one of the world's largest institutional settings for Arabic language learning, with more than 28,000 Islamic boarding schools (*pesantren* or *dayah*) operating nationwide. Many of these institutions adopt Arabic-only policies to create immersive environments that accelerate the development of spoken competence (Muttaqin et al., 2024; Solehudin & Arisandi, 2024). Despite such efforts, a growing body of research demonstrates that learners' local languages continue to influence Arabic speech in both informal and formal settings. Studies across different regions of Indonesia document persistent interference from Indonesian and regional languages (Javanese, Sundanese, Sasak, and Banjar) into Arabic production, affecting pronunciation, word formation, and sentence structure (Mustofa, 2018; Robbani & Zaini, 2022; Sholihah, 2020; Wahyuni, 2018). Similar patterns have also been observed in classroom discourse, where Indonesian–Arabic transfer shapes phonological realization and syntactic construction even under instructional conditions that prioritize Arabic use (Amatullah & Aziza, 2020; Wafi et al., 2023). Research in second language acquisition further suggests that the use of a first language remains a common feature of early and intermediate stages of learning, as learners draw on familiar linguistic resources to manage cognitive and communicative demands (Al-Abbasi & Alkhafaji, 2022).

Within this broader landscape, Aceh provides a particularly revealing context for examining Arabic language use. Acehnese (*Bahasa Aceh*) is a well-documented regional language with a long historical relationship to Arabic through trade, religious transmission, and Islamic scholarship. Despite this historical contact, Acehnese differs markedly from Modern Standard Arabic in its phonological inventory, syllable structure, and syntactic patterns (Aziz et al., 2023; Firdaus et al., 2024). Recent phonological research highlights the strength of Acehnese influence across languages: Acehnese speakers exhibit systematic devoicing and consonantal variation when producing Indonesian, reflecting the transfer of core first-language features into additional linguistic systems (Aziz et al., 2023; Suhery et al., 2024). Comparable findings across other linguistic contexts demonstrate that greater phonological distance between languages often results in greater difficulty in second-language production. For instance, Chinese and Minangkabau learners of Arabic encounter persistent challenges due to contrasts between tonal and stress-based prosodic systems (Kharisma et al., 2021; Maamoun, 2022).

In Aceh, many *Dayah* implement structured Arabic communication programs designed to cultivate immersion-like environments within dormitory life. Daily

muḥādathah sessions, vocabulary memorization routines, and peer monitoring systems are commonly adopted to strengthen spoken proficiency (Muttaqin et al., 2024; Solehudin & Arisandi, 2024). Despite these institutional regulations, Arabic interaction in *dayah* settings often coexists with strong vernacular linguistic identities. Dayah Babul Maghfirah represents an instructive institutional case. While it enforces designated Arabic-only hours and structured language activities, students share a homogeneous Acehnese first-language background and maintain intensive peer interaction within dormitory spaces. This sociolinguistic configuration creates a dynamic environment in which immersion policies operate alongside deeply entrenched local discourse practices. Such a setting provides a contextually appropriate opportunity to examine how Acehnese linguistic structures surface within Arabic communication, even under formal institutional regulation.

The phenomenon underlying these patterns is commonly described as linguistic interference or cross-linguistic influence, referring to the transfer of phonological, morphological, syntactic, or lexical features from a first language into second language production. The concept of interference was first systematically articulated by Weinreich (1953), who defined it as the structural influence of one language upon another in bilingual speech. Contemporary research reframes this phenomenon as cross-linguistic influence (CLI), emphasizing that bilingual language systems are simultaneously activated and can produce both facilitative and interfering effects depending on linguistic similarity and processing context (Bailey et al., 2024; Kim, 2025). From a psycholinguistic perspective, such influence is shaped not only by structural overlap but also by cognitive factors such as working memory and processing load (Flores-Salgado & Gutiérrez-Koyoc, 2024). Therefore, interference is no longer viewed solely as learner error but as a natural outcome of bilingual language processing shaped by co-activation of linguistic systems, cognitive control mechanisms, and interactional context (Green & Abutalebi, 2013; Qu et al., 2016; Sovinaz et al., 2025).

Phonological studies further demonstrate that learners tend to assimilate unfamiliar second-language sounds into existing first-language categories, particularly when L1 phonemic contrasts are absent (Al-Kinany et al., 2022; Alasmari, 2024). Recent cross-scriptal research further indicates that orthographic and phonological systems interact during second language production, especially when learners navigate distinct writing systems (Shepperd, 2024). In contexts such as Arabic learning in Indonesia, where students move between Latin-based and Arabic scripts, phonological adaptation may be reinforced not only by articulatory familiarity but also by orthographic influence. Similar mechanisms have been identified among Indonesian learners of Arabic, where phonological substitution, morphosyntactic transfer, and lexical insertion reflect the influence of Indonesian and regional linguistic systems (Mustofa, 2018; Robbani & Zaini, 2022; Wahyuni, 2018; Zulharby et al., 2022). Research conducted in Lombok, Madura, and South Kalimantan further documents the projection of Sasak, Madurese, and Banjar features into Arabic speech, underscoring the pervasive role of local languages in shaping Arabic production across Indonesia (Rohman et al., 2025).

Despite this expanding body of research, studies that offer a detailed and integrated account of interference across multiple linguistic levels within a single institutional setting remain limited, particularly in the Acehnese context. While some interference patterns observed in Arabic speech may overlap with forms commonly associated with Indonesian, their frequency, pragmatic deployment, and interactional function in Acehnese-speaking environments align more closely with Acehnese linguistic structures. Existing work often focuses on isolated aspects of pronunciation or grammar,

leaving few integrated accounts that systematically examine phonological, morphological, syntactic, and lexical interference as interconnected phenomena in natural spoken interaction. Addressing this gap is important not only for understanding Arabic language learning in Aceh but also for contributing to broader discussions of cross-linguistic influence in multilingual religious education environments where immersion policies coexist with strong vernacular identities.

While translanguaging theory conceptualizes multilingual practice as the flexible deployment of an integrated linguistic repertoire, the present study adopts an interference-based framework grounded in Weinreich's (1953) structural perspective. The analytical focus is therefore directed toward identifying systematic structural projections from Acehnese into Arabic rather than examining multilingual fluidity as a communicative strategy. This distinction is essential to avoid conflating interference with code-switching or pedagogically motivated translanguaging practices in classroom discourse. This study, therefore, focuses on identifying and describing the forms of Acehnese interference in students' spoken Arabic at Dayah Babul Maghfirah, an Islamic boarding school in Aceh that promotes Arabic as a daily medium of communication. Through qualitative analysis of naturally occurring oral interactions, the study addresses the following research question: What forms of Acehnese interference appear in students' spoken Arabic across different linguistic levels? The study examines how Acehnese linguistic features surface in Arabic speech across phonological, morphological, syntactic, and lexical levels. By providing a systematic description of these interference patterns, the study seeks to contribute empirical evidence to research on language contact and cross-linguistic influence in Islamic boarding school contexts.

METHOD

This study employs a qualitative descriptive design to identify and systematically describe forms of Acehnese interference in students' spoken Arabic in natural interaction. Rather than quantifying error frequency, the study focuses on capturing recurrent linguistic patterns emerging from authentic speech events within a multilingual boarding school environment. This approach is well-established in linguistic and educational research, where the objective is to document naturally occurring cross-linguistic influence and relate it to observable linguistic structure. The analysis proceeded inductively, moving from individual utterances to broader categories of interference across phonological, morphological, syntactic, and lexical levels. The research was conducted at one campus of Dayah Babul Maghfirah, Cot Keueng, Aceh Besar, an Islamic boarding school that enforces Arabic as a daily medium of communication during designated hours. The communal living arrangement, combined with institutional language regulation, provides a data-rich context for observing naturally occurring spoken interaction. The primary data source consisted of students who routinely used Arabic in daily communication. Approximately 150 students were present in the observed setting during the data collection period.

Observations were conducted over one week, covering both dormitory and classroom interactions during Arabic-only hours. Students were not treated as individual case informants but as a speech community, and no personal identifiers were recorded. To ensure the validity of language attribution, the observed students shared a common linguistic background: Acehnese as their first language, with Indonesian as an additional language acquired through formal education. No participants were identified as native speakers of other regional languages. This linguistic profile was verified

through institutional records and preliminary fieldwork, allowing the researcher to reasonably attribute recurring interference patterns to Acehnese rather than to other regional languages. In addition to student observation, two female Arabic language supervisors (*mushrifah*) residing in the dormitory were involved in the study. Their role was limited to contextual clarification and verification, not as primary sources of linguistic data. They were consulted to confirm the typicality of observed patterns and to clarify institutional language practices. No Arabic language supervisor beyond these two *mushrifah* was involved, ensuring consistency with the revised research focus.

Data were generated primarily through non-participant observation of naturally occurring spoken Arabic during daily activities, including dormitory interactions, informal peer conversations, and classroom communication. The researcher observed interactions without intervening in speech production to preserve natural language use. Utterances identified as exhibiting possible Acehnese influence were noted in field notes and, where feasible, audio-recorded with participants' awareness. Field notes documented contextual information, including the interactional setting, interlocutor relationships, emotional tone, and communicative purpose. This contextual data supported the interpretation of linguistic forms without relying on participants' self-reports. No elicitation tasks or controlled speech activities were employed. Short semi-structured interviews were conducted with the *mushrifah* solely to verify observational interpretations, such as whether certain forms were commonly used among students and whether they aligned with known Acehnese linguistic structures. These interviews did not generate independent linguistic data and were not used to infer causal factors or institutional effectiveness.

Data analysis followed the interactive qualitative model consisting of data condensation, data display, and conclusion drawing/verification as proposed by Miles et al. (2014). Recorded utterances were transcribed and, when necessary, transliterated into Arabic script or IPA. Each utterance was examined for structural features corresponding to Acehnese linguistic patterns. During data condensation, only utterances meeting the following criteria were retained: 1) The utterance occurred during Arabic-only communication periods; 2) The speaker was identified as an Acehnese L1 speaker; 3) The linguistic feature corresponded to documented Acehnese phonological, morphological, syntactic, or lexical patterns as described in prior linguistic literature; 4) The form could not be sufficiently explained by Standard Indonesian or common learner simplification patterns alone. For the fourth criterion, determination was made through systematic comparison of each candidate utterance against documented Indonesian–Arabic interlanguage features reported in prior studies; only forms exhibiting structural correspondence exclusive to Acehnese were retained. Determination of Acehnese-specific interference was based on structural correspondence with documented Acehnese linguistic features and systematic comparison with Indonesian–Arabic interference patterns reported in prior studies.

Utterances that could plausibly be attributed to Indonesian influence or general interlanguage phenomena without clear Acehnese correspondence were excluded to maintain analytic precision. This exclusion criterion ensured that the analyzed data reflected Acehnese-specific cross-linguistic influence rather than shared features of Indonesian–Arabic interlanguage common among Indonesian learners more generally. Retained utterances were then coded into four categories of interference: phonological, morphological, syntactic, and lexical. In the data display phase, examples were organized into tables that presented the students' Arabic utterances alongside their intended meanings and the corresponding Acehnese source structures. This comparative format

enabled systematic identification of recurring interference patterns. Throughout the analysis, analytic memos were maintained to document coding decisions and emerging regularities. Interpretations derived from student speech data were cross-checked with the *mushrifah* interviews to confirm that the identified forms were recurrent and recognizable within the institutional context. The analytic process continued until no new interference categories emerged from the data.

RESULT

The analysis identified four interconnected forms of Acehnese interference in students' spoken Arabic: phonological, morphological, syntactic, and lexical. These categories emerged inductively from recurring patterns observed in natural interaction. The following sections present detailed findings for each linguistic level. The classification of interference and its distribution are shown in Table 1 below.

Table 1. Classification and Distribution of Acehnese Interference

No	Type of Interference	Occurrence	Percentage
1	Phonological interference	10	25.0%
2	Morphological interference	7	17.5%
3	Syntactic interference	15	37.5%
4	Lexical interference	8	20.0%
	Total	40	100%

Phonological Interference

Phonological interference primarily involves the substitution of articulatorily demanding Arabic consonants—such as /ʕ/, /q/, /ẓ/, /z/, and /ḥ/—with phonetically closer segments found in Acehnese or Indonesian. Table 2 summarizes several recurring patterns.

Table 2. Examples of Phonological Interference in Students' Arabic Utterances

No.	Intended Arabic Form	Students' Pronunciation	Meaning	Main Substitution
1	عفوًا /ʕafwan/	أفوا /afwan/	*sorry*	/ʕ/ → zero
2	تنظر /tanẓuru/	تنجر /tanjuru/	*see*	/ẓ/ → /j/
3	زهرة /zahrah/	جحرة /jaḥrah/	*flower*	/z/ → /j/, /h/ → /ḥ/
4	شيء /shayʔ/	سيء /sayʔ/	*something*	/ʃ/ → /s/
5	قل /qul/	كل /kul/	*say*	/q/ → /k/
6	ذهب /ðahaba/	جهب /jahaba/	*go*	/ð/ → /j/

The substitutions in Table 2 echo broader trends in Indonesian learners' Arabic pronunciation, particularly when articulating consonants absent from their L1 phonological inventories. In Row 1, *ʕafwan* becomes *afwan* because Acehnese lacks pharyngeal consonants entirely, leading to total deletion of /ʕ/ rather than approximation — a strategy consistent with the complete suppression of unmarked segments when no phonological category exists in the L1. In Row 2, the emphatic /ẓ/ is replaced with /j/, a consonant more accessible to Acehnese speakers, reflecting the learner's mapping of an unfamiliar emphatic to the nearest available palatal. In Row 3, learners shift both /z/ and /h/ toward Acehnese-like realizations, producing *jaḥrah*. The

simplification of /ʃ/ to /s/ in Row 4 illustrates avoidance of unfamiliar fricatives, a pattern also noted in reading-based Arabic phonological errors. In Row 5, the uvular /q/ is replaced with the more universal /k/, a substitution widely documented across typologically diverse L1 backgrounds. In Row 6, the interdental /ð/ is substituted with /j/, aligning with common regional tendencies to replace interdentals with alveolars or palatals. Taken together, these patterns reflect systematic, patterned adaptation of Arabic phonology to learners' L1 articulatory constraints, rather than random or idiosyncratic errors.

Morphological Interference

Morphological interference refers to the deviation of word forms in a language due to the influence of word formation rules from another language mastered by the speaker (bilingual/multilingual). This occurs when morphemes from L1 are carried over into the structure of L2, resulting in non-standard word forms. In this study, morphological interference arises when Acehnese particles or suffixes are attached to Arabic forms, altering their pragmatic or grammatical force. Table 3 summarizes the observed patterns.

Table 3. Examples of Morphological Interference in Students' Arabic Utterances

No.	Interfered Arabic form	Intended meaning	Acehnese element	Function
1	تدخل فقط ... *oy*	*just come in, oy.*	*oy*	Vocative marker
2	ذلك *hai*	*that one, hai.*	*hai*	Emphasis
3	نعم *ee*	*yes, ee.*	*ee*	Emphasis
4	أنا عفوًا *kan*	*forgive me.*	*-kan*	Imperative suffix

The examples in Table 3 indicate that learners often drew on Acehnese morphological resources, especially particles that mark emphasis, stance, or informality, when they lacked equivalent Arabic devices. In Row 1, *oy* functions as an Acehnese-style casual vocative, whereas Arabic would use expressions such as *tafaḍḍal* or *udkhul*. In Rows 2–3, *hai* and *ee* are imported to reinforce statements, functioning as discourse markers rather than grammatical elements, consistent with how speakers draw on L1 pragmatic particles in bilingual interaction. In Row 4, the Indonesian/Acehnese suffix *-kan* is applied to *ʿafwan*, effectively recategorizing it as a verb parallel to *forgive*, illustrating direct morphological projection from L1 onto Arabic. These patterns suggest that students drew on L1 morphological resources as part of their available communicative repertoire during informal peer interaction. Although some elements, such as the suffix *-kan*, are also present in Indonesian, their use in this context reflects shared morphological resources in Acehnese–Indonesian bilingualism, with pragmatic functions that are more salient in Acehnese everyday interaction.

Syntactic Interference

Syntactic interference refers to the transfer of first-language structural patterns into second-language production, resulting in clause constructions that deviate from target-language norms. In the present study, syntactic interference emerges when Acehnese-dominant regional structures, which may partially overlap with colloquial

Indonesian, are mapped onto Arabic utterances. Table 4 presents recurrent examples observed in students' spontaneous speech.

Table 4. Examples of Syntactic Interference in Students' Arabic Utterances

No.	Interfered Arabic	Acehnese-dominant source structure	Intended meaning
1	قلب قلب فى الطريق	*hati hati beh*	*be careful on the road*
2	حَبٌّ جدًّا	*sayang that*	*very pitiful*
3	إنسان ذلك	*awak nyan*	*this/that person*
4	لا كمًا	*bek lee*	*don't do it again*
5	أين كراسة أنتِ	*pat buko tuleh kah*	*where is your notebook?*

The constructions in Table 4 illustrate direct syntactic projection from Acehnese-dominant patterns into Arabic, even when superficially similar expressions also exist in Indonesian. The students' shared linguistic background supports this attribution: all were identified as Acehnese first-language speakers, with Indonesian as an additional language acquired through formal schooling rather than acquired as a home or community language. This distinction is analytically significant, as it suggests that Indonesian structural patterns, though present in the learners' repertoire, occupy a less automatized position than Acehnese when spontaneous speech production is required. Thus, while some structures may appear pan-Indonesian, their ordering, pragmatic function, and frequency of use more closely reflected Acehnese interactional norms than those of their Indonesian equivalents. The higher activation of Acehnese templates in spontaneous peer interaction is consistent with research indicating that the most deeply entrenched L1 structures surface preferentially under conditions of reduced monitoring. Accordingly, the term Acehnese-dominant is used here to acknowledge overlap with colloquial Indonesian while emphasizing that the observed syntactic ordering and pragmatic functions align more closely with Acehnese interactional norms.

In Row 1, the reduplication of *qalb* 'hati' imitates the Acehnese warning strategy *hati-hati beh*, where repetition serves as an imperative intensifier; Arabic, however, does not express warnings through noun reduplication, instead favoring idiomatic expressions such as *al-salāmah fī al-ṭarīq*. In Row 2, *ḥabbun jiddan* reflects a semantic transfer from Acehnese *sayang* 'lovely', which in this context denotes *pity* rather than affection, resulting in semantic distortion. In Row 3, *insān dhālik* mirrors Acehnese demonstrative sequencing *awak nyan* 'they/that person', whereas Arabic typically encodes such reference through personal pronouns such as *hum* 'they (masculine)' or *hunna* 'they (feminine)'. In Row 4, *lā kaman* represents a literal calque of *bek lee* 'don't again', differing structurally from standard Arabic prohibitive constructions. In Row 5, the use of the independent pronoun *anti* reflects analytic possession patterns common in Acehnese and Indonesian *buku kamu* 'your book', rather than Arabic's suffix-based possessive form *ki* 'yours'. These examples confirm that syntactic interference in the data reflects recurring Acehnese-dominant syntactic templates, which learners drew on when producing Arabic spontaneously.

Lexical Interference

Lexical interference is particularly evident in the insertion of Acehnese discourse particles and interjections into otherwise Arabic utterances. These elements primarily operate at the pragmatic level, conveying stance, emotion, or interpersonal nuance, and

were often retrieved automatically during spontaneous interaction. Table 5 summarizes representative examples of lexical interference.

Table 5. Examples of Lexical Interference in Students' Arabic Utterances

No.	Interfered Arabic	Acehnese Element and Gloss	Intended Meaning
1	*Beh*، إنسان هذا تذهب أيضًا	*beh* = *"lah/loh"* (surprise)	*lah, she also went (it turns out).*
2	*beh* شكرًا	*beh* = *"ya"* (softener)	*thank you, ya.*
3	*kan* لا صحيح	*kan* = confirmation tag	*that's not right, kan?/ isn't that wrong?*
4	*Jeh*، لماذا تأتي؟	*jeh* = *"lah/loh"* (surprise)	*loh, why did you come?*

The forms in Table 5 are categorized as lexical interference rather than code-mixing or translanguaging. Code-mixing often involves the identifiable insertion of lexical items from one language into another, whereas the Acehnese elements observed in this study function as routinized discourse markers embedded within otherwise Arabic utterances. In the recorded interactions, these particles appeared integrated into the flow of speech without explicit signaling of language shift or reformulation, suggesting that they operate as part of the speakers' habitual multilingual repertoire rather than as marked switches between languages. In Row 1, *beh* conveys surprise and evaluation, functioning as a pragmatic marker rather than a content word. In Row 2, the same particle softens an expression of gratitude, paralleling colloquial Indonesian affirmative particles such as *ya*, even though Arabic encodes politeness through different pragmatic means. In Row 3, *kan* serves as a confirmation tag commonly used in Acehnese and Indonesian interaction, with its closest Arabic equivalent being *a-laysa ka-dhālik*. In Row 4, *jeh* expresses mild astonishment, a nuance that Arabic typically marks through intonation or contextual inference rather than lexicalized particles.

Although similar discourse markers are also attested in Indonesian, their emotional salience, high frequency, and pragmatic versatility in Acehnese interaction support their interpretation as Acehnese-driven interference in this context. The density and automaticity with which these particles surface in otherwise Arabic utterances further indicate that they function as deeply routinized features of the speakers' communicative repertoire rather than as incidental borrowings. These findings suggest that when learners lack readily accessible Arabic equivalents for pragmatic functions, they rely on highly entrenched L1 discourse resources, resulting in persistent lexical interference in spoken Arabic. This reliance is particularly evident in emotionally charged or informal exchanges, where attentional monitoring of language output is reduced, and L1 pragmatic defaults become more readily activated. Although *mushrifah* was not treated as a primary data source, brief interviews confirmed that substitutions involving /q/, /ʕ/, and /ẓ/ are frequently heard in daily interaction, and that Acehnese discourse particles such as *beh*, *jeh*, and *kan* recur in spontaneous exchanges.

DISCUSSION

This study identified four systematic levels of Acehnese interference in students' spoken Arabic: phonological substitution of marked consonants, morphological projection of Acehnese particles and affixes, syntactic transfer of Acehnese-dominant clause structures, and lexical insertion of discourse markers. These patterns demonstrate that interference operates not only at the segmental level but across

structural and pragmatic domains. This multi-level pattern aligns with contemporary cross-linguistic influence research, demonstrating that phonological, lexical, and morphosyntactic systems interact dynamically during bilingual processing (Bailey et al., 2024; Kim, 2025). Rather than operating independently, these domains reflect the co-activation of linguistic representations across levels of structure. The findings are therefore consistent with models of bilingual production that conceptualize interference as an emergent outcome of interacting subsystems rather than as isolated transfer phenomena. Mapping these multi-level interactions within a single institutional context provides a more integrated understanding of how local linguistic systems shape Arabic production in immersion-based pesantren environments. In the case of Dayah Babul Maghfirah, the findings illustrate how Arabic-only policies, despite structural enforcement, do not suppress L1 activation in spontaneous peer interaction.

The findings of this study indicate that Acehnese interference in students' spoken Arabic at Dayah Babul Maghfirah can be understood as a form of cross-linguistic influence shaped by established phonological patterns, discourse routines, and locally embedded interactional practices. The phonological substitutions observed—such as the replacement of /q/ with /k/, /ʃ/ with /s/, and the deletion of /ʕ/—mirror patterns widely documented among Indonesian learners of Arabic. Similar tendencies have been reported in reading-based phonological errors (Wulandari, 2020) and in broader studies of phonological interference across language pairs (Al-Kinany et al., 2022; Maamoun, 2022). In the Acehnese context, comparable phonological influence has also been observed in the pronunciation of Indonesian (Suhery et al., 2024), indicating stable cross-linguistic interaction within multilingual repertoires. These parallels suggest that the substitutions identified in this study reflect patterned features of multilingual speech rather than isolated deviations.

Beyond phonology, discourse elements such as *hai*, *ee*, *beh*, and *jeh* illustrate how learners draw on familiar pragmatic resources during Arabic interaction. These particles carry interpersonal and affective meanings in Acehnese communication and reappear in Arabic utterances, particularly in spontaneous exchanges. Similar permeability between local discourse features and L2 production has been documented in Indonesian sociolinguistic contexts (Firmansyah, 2021; Kholida, 2022). From this perspective, interference extends beyond structural transfer and reflects the interaction of multiple linguistic systems within everyday communication. This interpretation resonates with studies on code-switching and multilingual classroom discourse in Arabic-related educational contexts (Sari et al., 2025; Syahid et al., 2025; Vrika & Rezi, 2022). However, unlike deliberate pedagogical code-switching observed in classroom settings, the present data reflect structural interference embedded within spontaneous peer interaction rather than instructional strategy.

Brief consultations with language supervisors further confirmed that substitutions involving /q/, /ʕ/, and /ẓ/, as well as the insertion of Acehnese discourse particles, are recurrent features of daily interaction within the institution. The supervisors noted that these patterns persist even among students enrolled for more than one academic year, suggesting that institutional exposure to Arabic does not automatically attenuate deeply entrenched L1 phonological and pragmatic features. These confirmations serve as contextual validation of the observed patterns rather than as independent explanatory evidence. Comparable observations in bilingual speech research note that L1-based discourse markers often co-occur with L2 production in informal settings, particularly where interlocutors share the same first-language background and social monitoring pressures are low. These institutional observations are consistent with broader

sociolinguistic research showing that local languages continue to function alongside Arabic and other languages within educational environments (Firdaus et al., 2024; Sovinaz et al., 2025). Within such multilingual ecologies, cross-linguistic interaction in speech production reflects the coexistence of multiple linguistic systems operating simultaneously rather than in strict alternation.

The institutional language environment also provides an important backdrop for interpreting these findings. Dayah Babul Maghfirah formally promotes the use of Arabic through structured language activities, including *muḥādathah* sessions, vocabulary enrichment programs, and grammar instruction. Research on bilingual language control describes how multilingual speakers navigate the activation of multiple linguistic systems (Festman et al., 2010; Green & Abutalebi, 2013; Qu et al., 2016). Cognitive research further suggests that working memory capacity and attentional control influence the degree to which first-language structures surface during second-language production (Flores-Salgado & Gutiérrez-Koyoc, 2024). In spontaneous peer interaction, where monitoring demands may be lower than in formal instructional settings, L1-based structures may therefore become more visible in speech. In the present data, interference appears across interactional contexts, including both structured and informal exchanges, with greater visibility in spontaneous peer interaction. Similar coexistence of Arabic-only policies and ongoing L1–L2 interaction has been documented in other Indonesian pesantren (Muttaqin et al., 2024; Solehudin & Arisandi, 2024; Zulharby et al., 2022). These parallels indicate that institutional immersion policies and multilingual speech practices operate simultaneously within educational settings.

Situated within the broader landscape of Arabic learning research in Indonesia, this study contributes in several ways. *First*, it provides focused documentation of Acehnese–Arabic interference, addressing a regional gap in scholarship that has predominantly examined Javanese, Sasak, Madurese, and Banjar learner backgrounds (Mustofa, 2018; Robbani & Zaini, 2022; Rohman et al., 2025; Wahyuni, 2018). Despite Aceh's long-standing Islamic scholarly tradition and historical engagement with Arabic, its specific linguistic ecology has received limited empirical attention. *Second*, the study integrates analyses across phonological, morphological, syntactic, and lexical levels, demonstrating how these domains intersect within a single utterance. This multidimensional perspective resonates with research highlighting interactions among linguistic subsystems in bilingual production (Haddad-Najjar & Abu-Rabia, 2024) and extends Indonesian interference studies that have often treated categories separately (Amatullah & Aziza, 2020; Sholihah, 2020; Wafi et al., 2023; Zulharby et al., 2022). *Third*, by situating micro-level linguistic patterns within an institutional context, the study connects structural analysis with educational practice to discussions of Arabic immersion models in pesantren settings (Muttaqin et al., 2024; Solehudin & Arisandi, 2024).

CONCLUSION

The findings demonstrate that interference is not random but systematically patterned across four linguistic levels: phonology, morphology, syntax, and lexicon. Phonological interference is manifested through recurring substitutions of Arabic consonants that do not occur in Acehnese, indicating stable cross-linguistic phonetic influence. Morphological and syntactic interference appears when Acehnese particles, affixes, or structural patterns are projected onto Arabic constructions. Lexical interference, particularly the insertion of Acehnese interjections and discourse markers,

occurs most prominently in spontaneous interaction where pragmatic expression is foregrounded. By documenting Acehnese–Arabic interference within an Islamic boarding school context, this study contributes empirical evidence from a region that has received limited attention in Arabic linguistics research. It highlights the significance of local linguistic ecologies in shaping Arabic production, even in institutions that formally promote target-language use. The findings expand the scope of interference studies in Indonesia by incorporating data from Aceh and by integrating analysis across multiple linguistic levels rather than isolating a single domain.

This study is limited by its focus on a single institutional context in which most students share Acehnese as their first language, and by its reliance on one week of observational data. Future research may extend this work by comparing interference patterns across different pesantren environments, incorporating learners from diverse linguistic backgrounds in Aceh (such as Gayo, Alas, Jamee, and Simeuleu), and applying quantitative or longitudinal designs to examine the frequency and distribution of interference over time. Controlled elicitation tasks or audio-recorded corpora could complement observational data and enable more precise measurement of interference rates across different proficiency levels. Additionally, studies comparing Acehnese–Arabic interference with that of other regional languages within the same institutional setting would clarify the extent to which observed patterns are Acehnese-specific rather than pan-Indonesian. Such approaches would provide a broader empirical basis for understanding cross-linguistic interaction in Arabic learning within multilingual Islamic educational settings, with direct implications for curriculum design and language policy in pesantren contexts.

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AUTHORS' CONTRIBUTIONS

The first author conceived and designed the analysis, organized and conducted the qualitative coding, performed the analysis, wrote the manuscript, and translated and proofread the final version of the paper. The second author supervised the research process, provided conceptual and methodological guidance, reviewed and validated the analytical procedures, contributed expert input, and critically revised the manuscript for intellectual content. The third author collected field data at Dayah Babul Maghfirah, assisted with organizing observational notes and audio recordings, contributed contextual information about the research site, and supported the verification of the utterances used as examples in the analysis.

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