Journal on Interdisciplinary Studies in Humanities
Volume 9 Issue 2, 2026
DOI: https://doi.org/10.34050/elsjish.v9i2.50878
Homepage: journal.unhas.ac.id/index.php/jish

When Acehnese Meets English: An Optimality-Theoretic Analysis of Phonological Interference in Multilingual Learners at IAIN Langsa

Dedy Suhery[1], Zahratul Idami[1], Israul Husna[2], Muhd Hamid Raza[3]

[1]IAIN Langsa Aceh, Indonesia
[2]Banking and finance, Akademi Keuangan Perbankan Nusantara, Aceh, Indonesia
[3]Institute of Applied Science & Humanities, GLA University, Mathura (Uttar Pradesh), India
*Correspondence: dedysuhery@iainlangsa.ac.id

ABSTRACT

Multilingualism in Indonesia is a daily reality, with individuals frequently shifting between languages and dialects. At Institut Agama Islam Negeri (IAIN) Langsa, students in the English Education Department embody this dynamic environment, speaking Acehnese (L1), Bahasa Indonesia (L2), and English (L3). This study investigates how Optimality Theory explains the phonological patterns shaped by multilingual interaction. Data were collected through fieldwork, interviews, and audio recordings of four students, focusing on phonological interference and multilingual dynamics. Findings reveal that language contact strongly influences English pronunciation. The Acehnese phonological system, in particular, affects how learners articulate English sounds. The most consistent interference involves the voiceless alveolar stop /t/, which is aspirated as [tʰ] in word-initial and medial positions but not in final position. Examples include table /ˈteɪ.bəl/ → [ˈtheɪ.bəl], cutie /ˈkjuː.ti/ → [ˈkjuː.thi], and tooth /toːθ/ → [toːθ], with /θ/ often replaced by [t]. These patterns highlight systematic transfer of phonetic features—aspiration, intonation, and accent—from L1 into English. Such interference complicates mastery of English phonology, underscoring the profound role of L1 influence in multilingual speech production and the challenges learners face in aligning with target-language norms.

ARTICLE HISTORY
Published June 12th 2026
Check for updates

KEYWORDS
Multilingualism, Linguistic interference, Optimality theory.

ARTICLE LICENCE
© 2026 Universitas Hasanuddin
Under the license CC BY-SA 4.0

1. Introduction

Multilingualism in Indonesia is widespread, shaped not only by the country's vast regional language diversity but also by the accelerating forces of globalization. Population mobility across provinces, intercultural marriages that blend linguistic repertoires, and an education system that increasingly emphasizes foreign-language proficiency have all contributed to the prevalence of bilingualism and multilingualism. This linguistic ability provides significant cognitive and social advantages: it broadens intellectual horizons, strengthens communication across diverse cultural backgrounds, enhances adaptability in global interactions, and fosters improved memory, creativity, and problem-solving skills (Swandayani et al., 2026; Rahman, 2024; Asba et al., 2020). In this way, multilingualism functions as both a cultural resource and a strategic competence, equipping Indonesians to thrive in local, national, and international contexts.

Globalization and enhanced connectivity have further reinforced multilingual practices in Indonesia, making the use of multiple languages not only common but also socially and culturally significant (Prihandoko et al., 2022; Adinda et al., 2025; Pratiwi et al., 2026). Many Indonesians seamlessly navigate between regional dialects, the national language (Bahasa Indonesia), and foreign languages such as English, Mandarin, or Arabic. This linguistic repertoire reflects both the country's cultural richness and the adaptability of its people in responding to diverse communicative demands. Language use itself mirrors social structures, as individuals participate in multiple communities and adjust their speech according to context, interlocutors, and social roles (Holmes, 1994). Such adaptability highlights the dynamic nature of multilingualism as a social practice. Importantly, children also acquire multilingual skills early, through formal education in schools and informal interactions at home, demonstrating that multilingual competence is not limited to adults but is deeply embedded in everyday life and intergenerational transmission. In this way, multilingualism in Indonesia functions as both a cultural heritage and a strategic resource for global engagement.

Related to the multilingual contexts, language interference, the influence of one language on another, frequently arises as a natural byproduct of language contact. Such interference may manifest in phonological, lexical, or syntactic deviations from the target language norms, often producing inaccuracies in speech or writing. Yet, interference is not solely negative; it can also foster integration, creativity, and the blending of linguistic resources that enrich communication. Scholars have long recognized this dual nature. Weinreich (1953) defined interference as departures from the standard patterns of one language in the speech of bilingual or multilingual individuals, caused by their knowledge of another language. Arifin (2016) emphasized its inevitability in linguistically diverse societies, while Calabria et al. (2018) highlighted its cognitive dimension, noting how interference reflects the brain's management of multiple linguistic systems. Similarly, Alkhudiry and Al-Ahdal (2020) described it as a deviation shaped by the multilingual repertoire of speakers, underscoring its role in both challenges and opportunities for language learning. Taken together, these perspectives position interference not merely as error, but as a dynamic process central to the lived reality of multilingual communication.

This phenomenon is particularly evident in educational settings, especially at universities striving to achieve global standards and international recognition. At IAIN Langsa, for example, students who come from Acehnese language backgrounds frequently encounter phonological interference when speaking English. Such interference manifests in the substitution, omission, or modification of certain sounds that are absent or differently realized in their native language, leading to systematic deviations from English phonological norms. These patterns highlight how the influence of one's mother tongue remains a central factor in foreign language acquisition, shaping pronunciation, fluency, and overall communicative competence. More broadly, the persistence of native language transfer underscores the importance of integrating phonological awareness and contrastive analysis into language education, ensuring that learners can consciously navigate the challenges of multilingual speech while developing proficiency in global languages.

1.1 Multilingualism

The term 'multilingual' or 'multilingualism' refers to the use of two or more languages by individuals or communities (Carson, 2016). It encompasses the utilization of multiple languages, people's proficiency in these languages, and the language dynamics within a specific region or society. This concept differs from 'plurilingualism,' which pertains to individuals who can communicate in multiple languages. Communication in both monolingual and multilingual environments offer cognitive advantages compared to monolingual individuals. These advantages arise from the fact that bilingual individuals experience benefits in their language development, largely due to their ability to manage attention and adapt to two distinct grammatical structures (MacWhinney, 2005; Kaharuddin et al., 2025).

When learning a new language, the non-native language (L2) can have a more significant impact than the native language (L1), even if the person is more proficient in their L1 (Puig-Mayenco et al., 2020). Multilingual individuals exposed to multiple languages simultaneously may encounter challenges in acquiring language proficiency. However, contrary to this statement, empirical evidence suggests that multilingual individuals have the potential to reach a level of proficiency in multiple languages comparable to that of native speakers (Dewaele et al., 2018; Andini et al., 2026). On the other hand, the concept of multilingualism pertains to a community's ability, where its members can use more than two languages to communicate with each other (Kelly-Holmes, 2014). This phenomenon is evident in linguistically diverse communities across various prominent urban areas in Indonesia. Societal multilingual-interlingual interference in multilingualism, often referred to as a multilingual society, arises due to various factors, including Indonesia's geographical characteristics as an island nation with a diverse ethnic population (Wafa & Wijayanti, 2018).

1.2 Interference

Linguistic interference is essentially a bi – (or multi -) lingual phenomenon. Bilingualism can be defined as divided linguistic allegiance or the practice of alternately using two languages. A bilingual is a person capable of using two languages with equal ease. As long as as a person succeeds in keeping the two languages apart, he behaves like two separate speakers living in one person and this would be quite a miraculous accomplishment, where lives no bilingual complexity. But when this ideal situation does not prevail, there exists "linguistic interference" which is defined as deviation from the norm of either language. Weinreich (1953, p. 1) observes there is occurrence of linguistics interference during a bilingual conversation. In practice "interference" takes many forms described in literature as "foreign accent", "language mixture", unidiomatic expression", "loan words", "loan translations".

When two languages come into contact, foreign elements are introduced into the structured domains thereby affecting the phonemic system, morphology, syntax, and some areas of vocabulary. The result is a repatterning or reorganization of the system of the language exposed to contact. This is a manifestation of linguistic interference. As Vogt, H (1954) puts it (599,35), "every enrichment or impoverishment of a system involves necessarily the reorganization of all

the old distinctive oppositions of the system. To admit that a given element is simply added to the system which receives it without consequences for this system would ruin the very concept of system". According to Weinreich (1953, p. 1) "the greater the difference between the system, i.e. the more numerous the mutually exclusive forms and patterns in each, the greater is the learning problem and the potential area of interference".

1.3 Optimality Theory

The initial exposure of Optimality Theory (OT) to prominent linguistic theory occurred during the 1991 Summer Institute of the Linguistic Society of America, where Alan Prince and Paul Smolensky were instructors. The earliest complete exposition of the theory was published for the first time in 1993. The objective of generative phonology was to establish a distinct domain within the discipline of linguistics that focuses on the study of natural sound systems. Its primary aim was to explicitly delineate the relationship between the potential linguistic forms, known as candidates, and the many constraints that govern phonological processes (Prince, A., & Smolensky, P., 2004). According to Gussenhoven, C., & Jacobs, H. (2017), Optimality Theory (OT) is a field of phonology that focuses on a collection of universally applicable limitations organized hierarchically, with rankings specific to each language. The core concept of Optimality Theory (OT) posits that the surface structures of linguistic expressions reveal the resolution of conflicts between several levels of constraints, ultimately resulting in the selection of the most optimal lexical item (Kager, 1999). Furthermore, the existence of established phonological mappings demonstrates a systematic nature. However, it is well-recognized that Optimality Theory (OT) incorporates more complex mechanisms (Lamont, 2021). Strict domination involves multiple violations of lower-ranked constraints.

. The strict dominating features and the violation of the constraints

/input/	C1	C2
a. ☞ candidate 'a'		**
b. candidate 'b'	*!	

In Tableau 1, candidate a incurs both violations and a fatal violation at the highest-ranked constraint, which disqualifies him from being the optimal output. Candidate a. similarly fails, as the least number of violations, all occurring at the lowest-ranked constraints. The violation violates constraint 2 at a higher rank that involves a fatal violation. Candidate a, however, demonstrates the violates constraint 2 at a higher rank that involves a fatal violation. As a result, candidate a is identified as the optimal candidate, since his output most closely aligns with the linguistic features of the input form. In this analysis, the symbols are used as follows: an asterisk (*) marks a violation, an asterisk with an exclamation (!) indicates a fatal violation, and the pointing finger (☞) designates the optimal candidate.

2. Methodology

Applying qualitative research aligns with the fundamental characteristics of this study. In qualitative research, the pursuit of an absolute "truth" is not the objective; instead, the focus is on elucidating, portraying, and scrutinizing evidence (Ansell et al., 1994). Four students from IAIN Langsa's English education department were selected for this research. Three specific words, namely, table, cutie and tooth, were identified by consistently recording their spoken language. The primary goal was to analyze the phonological characteristics exhibited by these English words in diverse speech contexts. Data collection involved using a TASCAM Digital audio recorder, and the transcriptions were done in the International Phonetic Alphabet (IPA). Ultimately, at IAIN Langsa, the researcher employed Optimality Theory to investigate key linguistic aspects influenced by multilingual learners.

3. Results and Discussion

This section presents the findings and discussion; it investigates the common characteristics of Acehnese pronunciation variations made by multilingual learners at IAIN Langsa's English Department when they read three English words. It can be seen from the findings and discussion below:

Tableau 1. The classification of the input and output features of the candidates

/ˈteɪ.bəl/	SG	*HIGH-V	IDENT-IO
a. [ˈteɪ.bəl]	*!	*	
☞ b. [ˈtʰeɪ.bəl]		*	*

In tableau 1, it is generalized that the candidate 'a' is satisfied only with the lower rank of the constraint IDENT-IO while fatal violated and violated to the highest and higher rank of the constraints SG and *HIGH-V. The candidate 'b' is the winning candidate because it violates two lower-ranked constraints. and it is satisfied with the highest rank of the constraint SG while violated to the higher and lower as *HIGH-V and IDENT-IO. So, based on OT principles, it is evaluated that the candidate 'b' has most of the ranking features similar to the input candidate compared to the candidate 'a'. So, we can say that the candidate 'b' is the best candidate as marked as an optimal candidate in English indicated by ☞. There is the hierarchy of the constraints to know the power of OT principles began from left to right. The left-most constraint is the most powerful and the right-most is the least powerful.

SG >> *HIGH-V >> IDENT-IO

Tableau 2. The classification of the input and output features of the candidates

/ˈkjuː.ti//	SG	*DIP	IDENT-IO
a.[ˈkjuː.ti]	*!	**	
☞b.[ˈkjuː.tʰi]		**	*

In tableau 2, it is generalized that the candidate 'a' is satisfied only with the lowest rank of the constraint IDENT-IO while fatal violated and violated to the highest and higher rank of the constraints as SG and *DIP. The candidate 'b' is the winning candidate because, although it violates two lower-ranked constraints. And it is satisfied only with the highest rank of the constraint SG while violated to the higher and lowest *DIP and IDENT-IO. So, based on OT principles, it is evaluated that the candidate 'b' has most of the ranking features similar to the input candidate compared to the candidate 'a'. Thus, candidate 'b' emerges as the optimal output, as indicated by the ☞ symbol, because it best satisfies the hierarchy of constraints in Optimality Theory. In this framework, constraints are ranked from left to right, with the leftmost constraint being the most dominant (highest-ranked) and the rightmost being the least dominant (lowest-ranked).

SG >> *DIP >> IDENT-IO

Tableau 3. The classification of the input and output features of the candidates

/toːθ/	SG	*HIGH-V	IDENT-IO
a.[toːθ]	*!	*	
☞ b. /toːt/		*	*

In tableau 3, it is generalized that the candidate 'a' is satisfied only with the lower rank of the constraint IDENT-IO while fatal violated and violated to the highest and higher rank of the constraints SG and *HIGH-V. The candidate 'b' is the winning candidate because, although it violates two lower-ranked constraints. It is satisfied with the highest only with the highest rank of the constraint SG while violated to the higher and lowest *HIGH-V and IDENT-IO.

According to the principles of Optimality Theory, candidate 'b' is evaluated as the optimal output because it better satisfies the ranked constraint hierarchy than candidate 'a', despite violating some lower-ranked constraints. As marked by the ☞ symbol, candidate 'b' is selected as the best candidate in this analysis. In Optimality Theory, constraints are arranged in a strict hierarchy from left to right, where the leftmost constraint is the most dominant (i.e., carries the greatest weight), and the rightmost is the least dominant.

SG >> *HIGH-V >> IDENT-IO

The hierarchy *SG >> HIGH-V >> IDENT-IO in Optimality Theory shows the relative importance of constraints in evaluating possible candidates. At the top, SG (Sonority Gradient) dominates all others, meaning that any candidate violating sonority sequencing principles is immediately ruled out, regardless of other features. Next, *HIGH-V penalizes

the presence of high vowels in marked positions, so candidates that break this rule are less optimal unless they already fail SG. Finally, IDENT-IO (Identity Input–Output), which requires faithfulness between input and output, is ranked lowest. This means that preserving the exact features of the input is only considered when it does not conflict with higher-ranked constraints. In short, the ranking indicates that sonority structure takes priority, avoidance of high vowels comes second, and faithfulness to the input is the least important, with the evaluation process always favoring candidates that best satisfy the higher-ranked constraints.

4. Conclusion

This study examined phonological patterns in the English pronunciation of multilingual learners at IAIN Langsa's English Education Department, focusing on the influence of their native Acehnese phonology through the lens of Optimality Theory (OT). The analysis of three target English words, namely, /ˈteɪ.bəl/ ("table"), /ˈkjuː.ti// ("cutie"), and /toːθ/ ("tooth")—revealed consistent pronunciation deviations shaped by underlying phonological constraints rooted in the speakers' L1 (Acehnese) and L2 (Indonesian) systems.

To address these questions, the research focuses on the language spoken by multilingual learners proficient in Acehnese, Bahasa Indonesia, and English at IAIN Langsa. Besides, the findings investigated sounds are limited to one plosive: /t/. The speech production is observed from continuous speech and single-word production. The results showed that out of all of the phonemes produced by the participants, there is one main type of interference made by the participants: devoicing.

Across all three tableaux, the optimal output forms consistently prioritized the high-ranked constraint SG (Singleton Generalization), which favors the realization of voiceless aspirated stops (e.g., [tʰ]) over unaspirated or non-native segments. Although the winning candidates violated lower-ranked constraints such as *HIGH-V (prohibiting high vowels in certain contexts), *DIP (discouraging diphthongs), and IDENT-IO (requiring faithfulness to the input), they were selected as optimal because they satisfied the most dominant constraint in the hierarchy. This demonstrates that Acehnese-influenced phonological preferences actively restructure English sound production in favor of native phonotactic and articulatory norms.

Notably, the substitution of the English interdental fricative /θ/ with the alveolar stop [t] in "tooth" reflects a clear case of phonological interference, where the absence of /θ/ in both Acehnese and Indonesian leads learners to replace it with the closest native equivalent. Similarly, the insertion of aspiration ([tʰ]) in "table" and "cutie" aligns with Acehnese phonological tendencies, even when such aspiration is not present in standard English pronunciation.

These findings underscore that multilingual learners at IAIN Langsa do not produce English sounds in isolation but rather through a dynamic interplay of their linguistic repertoires, governed by a ranked system of universal constraints. Optimality Theory effectively captures this process by illustrating how language-specific constraint rankings account for systematic pronunciation patterns. Ultimately, the study confirms that L1 phonological transfer—particularly from Acehnese plays a decisive role in shaping English pronunciation, and that such interference is not random but rule-governed and analyzable within formal phonological frameworks. This insight has implications for English language teaching in multilingual contexts, suggesting the need for targeted phonological instruction that addresses learners' native language influences.

References

Alkhudiry, R. I., & Al-Ahdal, A. A. M. H. (2020). Analysing EFL Discourse of Saudi EFL Learners: Identifying Mother Tongue Interference. The Asian ESP Journal, 89–109.

Adinda, R., Sosrohadi, S., Syafitri, B. A., & Andini, C. (2025). Cognitive And Cultural Barriers In Synonim Acquisition: A Psycolinguistic Study Of Indonesian Learners Of Korean. *TPM–Testing, Psychometrics, Methodology in Applied Psychology*, *32*(4), 881-888.

Andini, C., Youngsun, K., Sunnuraini, S., & Warouw, D. S. (2026). Developing a Chunk-Based Learning Model to Improve

Korean Speaking Skills for Beginner Learners. *International Journal of L2CT*, *1*(2), 156-172.

Ansell, J., & Phillips, M. J. (1994). Practical Methods for Reliability Data Analysis (No. 14). Oxford University Press.

Arifin W. L. (2016). Interference: It's Role in Target Language Mastery to Indonesian Learners. Register Journal, 4(1).

Asba, A. R., Evita, A. L., Rahman, F., & Nur, N. (2020, October). The globalizing of copra and coconut oil industry of Makassar before the second world war. In *IOP Conference Series: Earth and Environmental Science* (Vol. 575, No. 1, p. 012094). IOP Publishing.

Baghirova, S. M. (2021). The Kinds of the Linguistic Interference. Theory and Practice in Language Studies, 11(2), 176–181.

Calabria, M., Costa, A., Green, D. W., & Abutalebi, J. (2018). Neural Basis of Bilingual Language Control. Annals of the New York Academy of Sciences, 1426(1), 221–235.

Carson, L. (2016). The Sights and Sounds of the Multilingual City. Bristol: Multilingual Matters.

Dewaele, J. M., Petrides, K. V., & Furnham, A. (2018). Effects of Trait Emotional Intelligence and Socio-biographical Variables on Communicative Anxiety and Foreign Language Anxiety Among Adult Multilinguals: A Review and Empirical Investigation. Language Learning, 58(4),911–960.

Gussenhoven, C., & Jacobs, H. (2017). Understanding Phonology. Routledge.

Holmes, J. (1994). An Introduction to Sociolinguistics. New York. Longman Publishing.

Kager, R. (1999). Optimality Theory. Cambridge University Press.

Kaharuddin, Rahman, F., Abbas, A., & Hasjim, M. (2025). The vowel structure of Proto-Makassar: A phonological reconstruction of five dialects. *Journal of Language Teaching and Research, 16*(3).

Kelly-Holmes, H. (2014). Linguistic Fetish: The Sociolinguistics of Visual Multilingualism. Visual Communication, 4, 135–151.

Lamont, A. (2021). Optimality Theory Implements Complex Functions with Simple Constraints. Phonology, 38(4), 729–740. https://doi.org/10.1017/S0952675721000361.

MacWhinney, B. (2005). A Unified Model of Language Acquisition in Handbook of Bilingualism: Psycholinguistic Approaches, eds Kroll J. F.,De Groot A. M. B. (Oxford). Oxford University Press.

Nair, R. B. (2003). A Troika For 21st-Century Indian Linguistics: Pragmatics, Cognition, and Language Acquisition. In Language Studies in India: Cognition, Structure, Variation. Springer Nature Singapore.

Pratiwi, N. I., Sosrohadi, S., Rahman, F., Dalyan, M., Andini, C., & Muliyani. (2026). The use of code-mixing by edu-influencers in social media: A communication strategy in sociolinguistic perspective. *International Journal of Research and Innovation in Applied Science (IJRIAS), 11*(1), 1034–1042. https://doi.org/10.51584/IJRIAS.2026.11010088

Prihandoko, L. A., Al Ahmad, A. S. M., Fredy, F., & Rahman, F. (2022). Multi-regression analysis of factors influencing perceived academic writing competence (PAWC) of Vocational School Students. *OKARA: Jurnal Bahasa dan Sastra*, *16*(2), 329-348.

Prince, A., & Smolensky, P. (2004). Optimality Theory: Constraint Interaction in Generative Grammar. Optimality Theory in Phonology: A Reader, 1–71.

Puig-Mayenco, E., González Alonso, J., & Rothman,J. (2020). A Systematic Review of Transfer Studies in Third Language Acquisition. Second Language Research, 36(1), 31–64.

Rahman, F. (2024, May). Cyber Literature and ChatGPT in the Global of IoT Connectivity. In *4th International Conference on Linguistics and Culture (ICLC-4 2023)* (pp. 344-348). Atlantis Press.

Raza, M. H. & Suhery, D. (2019). A Phonological Property of Syllable Structure and Economy in Urdu: An OT Account. Asia Proceedings of Social Sciences, 80–84.

Suhery, D., Meutia, C. I., Raza, M.H & Idami, Z. (2023). Interlingual Interference in Multilingual Students: An Optimality Theory Approach. RETORIKA: Jurnal Ilmu Bahasa, 9(3), 275-283. https://doi.org/10.55637/jr.9.3.8875.275-283.

Suhery, D, & Raza, M. H. (2019). An Optimality Theory Account of English Loanwords in Pilibhit Hindi-Urdu (Uttar Pradesh) India. International Journal of Engineering and Advanced Technology (IJEAT), 8(5c). https://doi.org/10.35940/ijeat.E1108.0585C19.

Swandayani, N. E., Rahman, F., Sulastri, T., & Sosrohadi, S. (2026). The Use of Language Styles in Multimodal Texts on the Facebook Account â€ œHTâ€. *International Journal of Research and Innovation in Applied Science*, *11*(1), 447-456.

Syafutri, T., & Saputra, A. (2021). The First Language Interference toward Students' English Speaking as Foreign Language. Linguists: Journal Of Linguistics and Language Teaching, 7(1), 39–51. https://doi.org/http://dx.doi.org/10.29300/ling.v7i1.4327

Vogt, H. (1954). Language Contacts. Word,10(2–3), 365–74

Wafa, A., & Wijayanti, S. (2018). Signs of Multilingualism at Religious Places in Surabaya: A Linguistic Landscape Study. 228 (Klua), 34–41. https://doi.org/10.2991/klua-18.2018.5

Weinreich, U. (1953). Language in Contact: Findings and Problems. The Hague Mouton.