

Challenges in Pronouncing English Consonant Fricatives: Insights from Indonesian EFL Learners

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ABSTRACT

This study investigates the pronunciation challenges Indonesian EFL learners face with English consonant fricatives. The research aimed to identify common pronunciation errors, explore underlying causes, and propose strategies for improvement. Using an explanatory sequential design, 30 undergraduate students completed a pronunciation test focusing on fricatives, followed by interviews with 10 students who made the most errors. The analysis revealed frequent mispronunciations of fricatives such as /ʒ/, /v/, and /θ/, often substituted with native sounds like /s/, /z/, and /t/. Voiced fricatives posed greater difficulties than voiceless ones, especially in contexts where Indonesian has no phonetic equivalent. Interviews highlighted a lack of familiarity with these sounds and insufficient pronunciation training as primary challenges. Native language interference and limited exposure to correct English pronunciation were significant factors in these difficulties. The findings call for more targeted instruction in English fricatives within the Indonesian EFL context. Further research with larger sample sizes and longitudinal approaches is recommended to explore long-term outcomes.

I. Introduction

Mastering English pronunciation is essential for effective communication in English as a Foreign Language (EFL) settings, as it directly impacts learners' intelligibility and fluency. Particularly for non-native speakers, consonant fricatives present unique challenges in pronunciation. Due to the lack of these sounds in their native phonological system, fricatives like /ʒ/, /θ/, and /ð/ are particularly challenging for Indonesian EFL learners [1]. As a result, mispronouncing these sounds frequently causes communication breakdowns, underscoring the significance of teaching fricative pronunciation in EFL classes.

Sounds produced by forcing air through a narrow opening and creating friction are known as fricatives. These sounds are put into groups based on whether they have a voice or not. Voiceless fricatives are /f/, /θ/, /s/, and /ʃ/, whereas voiced fricatives are /v/, /ð/, /z/, and /ʒ/. These sounds are frequently absent from the learner's native tongue, making pronunciation difficult for EFL students [2]. Because of the absence of these sounds in Indonesian phonology, learners often have trouble with particular fricatives like /θ/ and /ð/ [1].

In second language acquisition, pronunciation is critical because it directly influences intelligibility. For example, Yoshida (2024) says that bad pronunciation can cause misunderstandings even when grammar and vocabulary are corrected. Fricatives frequently present EFL learners with significant challenges, resulting in communication breakdowns. The need for an effective instruction for pronunciation is apparent in order to help learners to become fluent in their L2 [2]. In the context of Indonesian EFL learners, using fricatives incorrectly can really make it hard to communicate, especially when it comes to sounds that are only found in English and not in Indonesian.

In the Contrastive Analysis Hypothesis (CAH), language learners' challenges can be anticipated by comparing their native and target languages. Since Indonesian doesn't have as many fricatives as

English, it can be hard for learners to get the hang of these sounds. They often use sounds from their native language that are similar in sound [3]. Indonesian learners frequently replace English /θ/ with /t/ or /ð/ with /d/ [4]. This is given that English and Indonesian differ phonologically, leading to these problems.

The Interference Theory describes how learners' first language can impede their ability to acquire a second language, particularly in cases where the two languages differ significantly. When attempting to pronounce fricatives, which are absent from their native tongue, Indonesian English learners frequently experience interference [5]. Systematic pronunciation mistakes are caused by this interference, which are hard to fix without specific instruction and may lead to fossilization [2].

Interlanguage Theory emphasizes that language learners develop an evolving linguistic system combining features of both their native language and the target language. This system, known as "interlanguage," can explain why certain pronunciation errors become fossilized or persistent. Indonesian learners may develop a system where they consistently replace English fricatives with more familiar sounds from their native language, leading to fossilization of errors like substituting /ʒ/ with /z/ [6].

Fossilization in second language acquisition refers to the process where incorrect linguistic features, such as grammar or pronunciation errors, become a permanent part of a learner's language use. Despite continued exposure to the correct forms and even advanced proficiency in other areas, these errors persist and become "fossilized." It typically occurs when learners develop a stable interlanguage—a transitional linguistic system that incorporates elements from both their first language (L1) and the target language (L2)—and certain incorrect forms stop evolving toward the correct usage [6]. In pronunciation, if an Indonesian learner of English consistently substitutes the fricative /θ/ with /t/ and this habit becomes entrenched, the error may fossilize.

Several studies have explored pronunciation challenges in EFL learners, with a specific focus on fricatives. A study examined the production of English fricatives among Indonesian university students and found that voiced post-alveolar fricatives like /ʒ/ were frequently substituted with sounds such as /z/, /s/, or /ʃ/ [1]. Another study also noted that Indonesian learners often substitute unfamiliar English consonants with native language equivalents, struggling with both fricatives and consonant clusters [4]. These findings align with international research, such as a study of Thai learners, which emphasized the influence of the native phonological system on English fricative pronunciation [7]. Furthermore, a similar study showed that incidental learning can significantly improve pronunciation of difficult phonemes, suggesting that alternative pedagogical approaches may benefit EFL learners [8].

Despite these contributions, few studies have focused specifically on the challenges Indonesian EFL learners face with English fricatives. While previous research has documented general pronunciation issues [4], or examined individual consonant difficulties [9], limited attention has been paid to fricative sounds. Furthermore, research on teaching methods targeting fricatives in the Indonesian context is scarce, leaving a gap in the literature regarding effective instructional techniques for these learners.

In order to better understand the unique difficulties Indonesian EFL learners encounter when pronouncing English consonant fricatives, this study will examine those challenges. In order to improve fricative pronunciation in the context of Indonesian EFL, this study aims to identify common pronunciation errors, look into the underlying causes of these issues, and suggest specific strategies.

II. Method

The explanatory sequential design used in this study entails gathering quantitative data first, followed by the use of qualitative techniques to further investigate and clarify the quantitative results. The challenges Indonesian learners have when pronouncing English consonant fricatives can be better understood thanks to this mixed-methods approach. In the first part of the study, learners' pronunciation of fricatives is evaluated, and in the second part, learners' perceptions and pronunciation are explored through interviews.

Thirty undergraduate students who had finished their speaking classes at an Indonesian university participated in the study. The participants ranged in English proficiency from intermediate to advanced, all being EFL learners. Ten students were chosen as a subgroup from this larger group based on how frequently and what kinds of mistakes they made when pronouncing English fricatives

during the pronunciation test. Because they made the most mistakes, these ten students were selected as a representative sample for additional examination.

Data collection occurred in two stages. In the first phase, all 30 participants completed a pronunciation test focused on English consonant fricatives. The test was audio-recorded, and participants were asked to pronounce a list of words containing the fricatives /f/, /v/, /θ/, /ð/, /s/, /z/, /ʃ/, and /ʒ/. These recordings provided the primary data for the quantitative analysis of fricative mispronunciations. In the second phase, the 10 students from the subgroup were interviewed to supplement the quantitative findings. These short, semi-structured interviews aimed to capture the students' reflections on their pronunciation difficulties and their perceptions of why they struggled with specific fricatives. The interviews provided additional qualitative data that were analyzed thematically.

The analysis was divided into two phases to coincide with the primary group and the subgroup. To find common pronunciation challenges of English fricatives, descriptive statistics were used to analyse the transcriptions of the main group's audio recordings. The analysis aimed to discover patterns in the types of mistakes produced by the learners and to ascertain which fricatives were mispronounced most frequently. A more thorough contrastive analysis was carried out for the subgroup. To compare the learners' fricatives with the proper English pronunciations, phonetic transcription of their pronunciation faults was used. In order to find recurrent themes pertaining to learners' perceptions of their pronunciation challenges, thematic analysis was also performed to the pronunciation data and the interview transcripts. These topics offered explanations for their problems and recommended areas for focused pronunciation training.

This study adhered to ethical research standards. All participants were briefed about the study's purpose and procedures, and informed consent was obtained before data collection. Participation was voluntary, and students were assured that their responses and audio recordings would remain anonymous.

III. Results and Discussion

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A. Results

The analysis of pronunciation tests found that the consonant fricatives /v/, /θ/, and /ð/ were the most challenges for Indonesian learners of English. With only 4 of the 30 participants being able to pronounce /v/ correctly, the accuracy percentage was a very low 13.30%. Correct pronunciation of the dental fricatives /θ/ and /ð/ was achieved by 16 and 13 participants, respectively, with accuracy rates of 53.30% and 43.30%. One reason why learners encountered difficulty was the lack of these sounds in the Indonesian phonetic inventory. On the other hand, all participants accurately pronounced fricatives like /s/ and /h/, demonstrating that these sounds are well-represented in their native tongues.

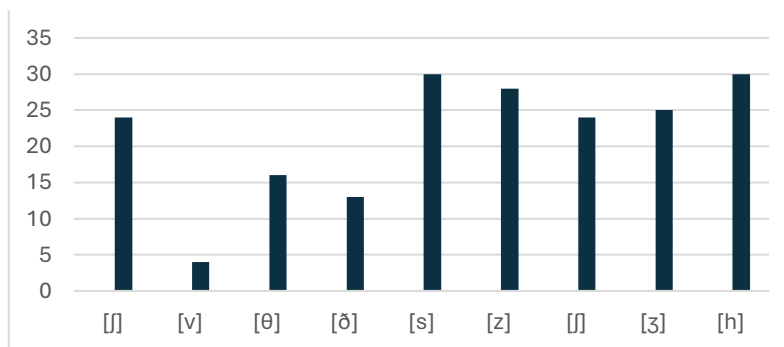


Fig. 1. Frequency of accurate pronunciation.

The types of mispronunciations observed during the pronunciation assessments can be categorized into several distinct patterns. The first pattern is substitution of fricatives with stops. Learners frequently replaced fricatives with stops, particularly for sounds not present in Indonesian. For

instance, "Thank" was pronounced as [tæŋk] instead of [θæŋk], reflecting a substitution of /θ/ with /t/. Similarly, "Father" was produced as [ˈfɑːdər] rather than [ˈfɑːðər], indicating the substitution of /ð/ with /d/. In the case of "Vengeance," participants produced [ˈfɛndʒəns] or [ˈpɛndʒəns] instead of the correct pronunciation, indicating substitutions of /v/ with /f/ or /p/.

The second pattern is mispronunciation of postalveolar fricatives. Challenges were also evident with postalveolar fricatives. For example, "Leisure" was pronounced as [ˈleʃər] or [ˈlesər], demonstrating the substitution of /ʒ/ with /ʃ/ or /s/. Additionally, "Zero" was often pronounced as [jɛrɔ], reflecting a substitution of /z/ with /j/.

The third one is the influence of spelling on pronunciation. The impact of spelling conventions on pronunciation errors was notable. For instance, the word "Philosophy" was pronounced [pˈhɒːləːsəpˈhaɪ] instead of [fɪˈlɒsəfi], with learners substituting /f/ with /p^h/ due to the letter combination "ph."

Additionally, there were other typical errors that occurred, such as the substitution of /ʃ/ with /s/ in terms such as "Shake," which was heard as [seɪk] rather than [ʃeɪk].

By replacing more recognisable phonetic elements from their native tongue for the foreign English sounds, the learners attempted to traverse the language, as seen by these patterns. These alterations can have a big effect on communication, possibly causing miscommunication or less clarity when speaking in English. The challenges encountered by learners in this study highlight the necessity for focused instructional tactics. The capacity to produce these fricatives accurately is essential for effective communication.

A noticeable pattern emerged in the substitutions made by learners, particularly regarding fricatives that do not exist in Indonesian. Sounds such as /θ/, /ð/, /v/, and /ʒ/ were frequently replaced with more familiar stops or fricatives. This tendency was evident across participants of varying proficiency levels, though advanced learners demonstrated a greater ability to produce certain fricatives, such as /ʃ/ and /z/, with higher accuracy. However, inconsistencies arose within specific words, as seen with "philosophy," where different substitutions were made for the same fricative sound, highlighting the complexities learners faced.

Table 1. Common pattern of substitution

Word	Correct Pronunciation	Participant Pronunciation	Fricative Replaced	Substitution
Vengeance	[ˈvɛndʒəns]	[ˈfɛndʒəns], [ˈpɛndʒəns]	/v/	/f/, /p/
Thank	[θæŋk]	[tæŋk]	/θ/	/t/
Father	[ˈfɑːðər]	[ˈfɑːdər]	/ð/	/d/
Leisure	[ˈleʒər]	[ˈleʃər], [ˈlesər]	/ʒ/	/ʃ/, /s/
Philosophy	[fɪˈlɒsəfi]	[pˈhɒːləːsəpˈhaɪ]	/f/	/p ^h /
Zero	[ˈzɪərəʊ]	[jɛrɔ]	/z/	/j/
Shake	[ʃeɪk]	[seɪk]	/ʃ/	/s/

The presence of phonetic features such as voicing and place of articulation plays a significant role in the pronunciation of fricatives. For example, the dental fricatives /θ/ and /ð/ require distinct tongue placements that differ from stops commonly used in Indonesian. This phonetic mismatch may explain the frequent substitutions observed among learners.

Participants identified several key challenges during the interviews. The absence of specific fricatives in the Indonesian phonetic system was frequently cited as the primary obstacle, leading to the habitual substitution of these sounds with more familiar alternatives. The influence of spelling was also mentioned, particularly regarding words like "philosophy," where participants expressed confusion over the appropriate pronunciation of the "ph" combination. Furthermore, many learners reported difficulties with articulating dental and postalveolar fricatives, citing unfamiliar tongue placements and airflow control as significant hurdles.

The challenges may also be attributed to the instructional strategies used in the learners' prior education. Learners' ability to acquire appropriate pronunciation skills may be hampered by a lack of exposure to the subtleties of English phonetics and insufficient practice with fricative sounds. Similar problems with pronunciation are seen in learners from different language origins, according to comparisons with other studies on EFL pronunciation challenges. This suggests that comprehensive approaches to teaching English phonetics are necessary.

The results of this study highlight the considerable difficulties Indonesian EFL learners encounter when trying to pronounce English fricative sounds, especially /v/, /θ/, and /ð/. The main cause of these issues is L1 interference, where more recognizable sounds like /f/, /t/, and /d/ are systematically substituted because the Indonesian phonological system lacks comparable sounds. According to interlanguage theory (Brown, 2014), foreign language learners tend to create an intermediate language system that incorporates elements from their mother tongue and the target language, which explains this sound substitution phenomenon.

B. Phonetic Challenges and Substitution Patterns

The findings of this study reveal significant challenges faced by Indonesian EFL learners in pronouncing English fricatives, particularly those absent from the Indonesian phonetic inventory. Fricatives such as /v/, /θ/, and /ð/ were particularly problematic, as learners frequently substituted these unfamiliar sounds with phonetically similar or more accessible sounds from their native language. These results are consistent with previous studies [1] which found that Indonesian learners struggled with producing the voiced post-alveolar fricative /ʒ/, often substituting it with /z/, /s/, or /ʃ/. Similarly, learners commonly replaced unfamiliar fricatives with native sounds, indicating that the structural differences between English and Indonesian phonologies pose considerable barriers [4].

Substitution patterns, such as replacing /θ/ with /t/ and /ð/ with /d/, are a recurring theme in this study. These substitutions can be explained through the lens of contrastive analysis, which posits that differences between the learner's first language (L1) and the target language (L2) result in predictable pronunciation difficulties. Sundanese learners, for instance, struggled with labiodental consonants, substituting /v/ with sounds that exist in their native phonetic inventory [9]. In a similar vein, this study showed that Indonesian learners substitute /v/ with /f/ or /p/, a substitution also noted in other fricatives, demonstrating the learners' reliance on more familiar phonetic features.

The results of this study suggest that the root of these difficulties lies in the absence of certain fricatives in Indonesian phonology. Indonesian does not include sounds like /θ/, /ð/, or /ʒ/, which forces learners to approximate these sounds using phonemes they are familiar with [4]. This phenomenon of L1 interference is widely recognized as a major factor in pronunciation difficulties. It is argued that learners' phonetic systems are heavily shaped by their L1, making it difficult for them to distinguish and produce sounds not present in their native language [10]. This explains the consistent substitution patterns observed in this study, where learners replaced interdental and labiodental fricatives with dental or alveolar stops, such as replacing /θ/ with /t/ and /v/ with /f/.

Beyond substitution patterns, the influence of orthography on pronunciation emerged as another challenge. The study showed that words like "philosophy" were mispronounced as /p^h/ instead of the expected /f/, demonstrating how learners often rely on written forms to inform their pronunciation, leading to errors. Spelling-based errors are common among EFL learners [11], as they often attempt to map the unfamiliar phonology of the target language to the more familiar written forms. This reliance on orthography can exacerbate pronunciation difficulties, particularly with fricatives, where there is often a disconnect between the written and spoken forms of English words.

These findings have important implications for EFL instruction. The phonetic challenges faced by L2 learners are often exacerbated by insufficient exposure to the target language in communicative contexts [12]. Indonesian learners, for example, may receive limited pronunciation training that specifically targets difficult fricatives, which limits their ability to practice and refine their pronunciation skills. This study supports the argument that focused phonological training, particularly in difficult fricatives, is essential for improving learner outcomes. Techniques such as drilling, phonetic transcription, and task-based pronunciation exercises have been shown to be effective in addressing these challenges [13], [14].

The substitution patterns and phonetic challenges observed in this study are largely attributable to L1 interference and the absence of certain fricatives in Indonesian phonology. The learners' reliance on familiar phonetic structures, combined with the influence of orthography, complicates their ability to produce unfamiliar English fricatives. Addressing these challenges requires targeted instruction that emphasizes the phonological differences between English and Indonesian, along with practical, communicative pronunciation tasks that provide learners with ample opportunities to practice difficult sounds in meaningful contexts.

C. Cultural and Linguistic Influences

The influence of cultural and linguistic factors is central to understanding the pronunciation challenges Indonesian learners face, particularly when it comes to fricatives. One of the most significant influences is the phonological system of the learners' first language (L1), which shapes

their perception and production of sounds in the target language (L2). L1 influence is a powerful force in pronunciation errors, with regional variations often compounding these difficulties [15]. For example, while Indonesian learners from different regions might encounter different consonant issues, the absence of certain fricatives in Indonesian phonology universally impacts learners' ability to accurately produce these sounds in English.

A contrastive analysis of the phonological systems of Indonesian and English shows how these differences create barriers to learning. Vowel differences can hinder pronunciation, a phenomenon that applies equally to fricatives [16]. Learners naturally fall back on the phonemes and articulation patterns they are familiar with, which in the case of Indonesian learners, means substituting difficult fricatives with more familiar stops or approximants. This reliance on familiar phonological structures reflects how deeply rooted linguistic habits from the L1 affect L2 learning.

Cultural factors also play a role in pronunciation learning. L2 learners tend to struggle more with sounds that do not have clear analogs in their L1, which can be compounded by sociocultural attitudes toward the target language [17]. For instance, learners from cultures where English is rarely spoken outside of the classroom may experience additional challenges, as they lack exposure to authentic pronunciation models. This lack of exposure limits their phonological development, pointing out that pronunciation is often neglected in formal EFL instruction [10]. The linguistic structures of the learners' L1, coupled with cultural exposure and attitudes toward English, significantly influence how Indonesian EFL learners approach English fricatives. Addressing these influences in teaching is crucial for improving their pronunciation skills.

D. Impact of Proficiency and Instructional Methods

Proficiency levels and instructional methods play a significant role in how effectively Indonesian learners acquire fricative sounds in English. For instance, studies on learners of other languages, such as Arabic speakers, have shown that incidental learning can have a positive impact on acquiring unfamiliar phonemes like /p/, through repetitive exposure and stress-focused exercises [8]. This insight can be applied to Indonesian learners, particularly when they struggle with English fricatives. A similar approach incorporating repetition and focused listening exercises may yield improvements in the accurate production of fricative sounds.

Another critical factor is the use of metalanguage in teaching pronunciation. Teachers who possess a strong understanding of phonological concepts and who can communicate these effectively to students tend to facilitate better pronunciation outcomes [18]. Explicit pronunciation instruction grounded in phonetic awareness and the use of appropriate metalanguage can bridge the gap between learners' L1 and L2, particularly in teaching fricatives where the sound is absent in the learners' native phonology. This calls for teacher training programs to incorporate more robust components of phonological pedagogy.

Repetition-based methods and phonemic awareness activities have also been demonstrated as useful tools for addressing pronunciation problems [19]. In the case of Indonesian learners, repetition exercises combined with phonetic transcription may help in distinguishing fricatives from other similar sounds. Moreover, perceptual training, such as the use of phonetic symbols and keywords as labels, has shown promising results in improving learners' sound perception [20]. These techniques could be adapted to train learners in the pronunciation of consonant fricatives, leading to improved perceptual awareness and sound production.

Innovative tools and approaches also enhance pronunciation learning. Storytelling as a method significantly improved Thai learners' pronunciation of difficult fricatives, offering an engaging alternative to traditional rote learning [7]. Similarly, technology-driven solutions, such as HTML5-based speech recognition tools, have been found effective in providing immediate feedback and fostering autonomous learning among EFL learners [21]. Such tools allow learners to practice at their own pace, receive personalized feedback, and develop greater phonetic accuracy over time.

Proficiency levels, teaching methods, and technological innovations all play crucial roles in helping Indonesian EFL learners improve their pronunciation of fricatives. The incorporation of focused repetition, phonetic training, and modern educational technology can significantly aid in overcoming the challenges associated with fricative pronunciation.

E. Limitations and Directions for Future Research

While this study sheds light on the phonetic challenges faced by Indonesian EFL learners, particularly with English fricatives, certain limitations must be acknowledged. First, the sample size of 30 participants may not fully capture the diversity of regional dialects and individual differences across Indonesia. Learners from different parts of the country may face distinct pronunciation difficulties due to variations in their L1 phonologies, as noted in research on regional influences in

English pronunciation [15]. Expanding the participant pool to include learners from varied linguistic backgrounds within Indonesia could provide a more comprehensive understanding of fricative production challenges.

Another limitation lies in the study's reliance on audio recordings and interviews for data collection. Although these methods offer valuable insights into learners' performance and perceptions, the study would benefit from integrating more advanced tools like Computer-Assisted Pronunciation Training (CAPT) systems. CAPT tools can provide interactive feedback and allow learners to practice autonomously, leading to more accurate assessments of pronunciation improvement over time [21].

Additionally, the study did not explore the potential role of perceptual training, such as the use of phonetic symbols or visual aids, which could improve learners' ability to distinguish and produce challenging fricative sounds [20]. Future research could explore how perceptual training techniques impact fricative production in Indonesian learners, particularly through the integration of audiovisual aids [14].

Lastly, while this study focused primarily on segmental features like fricatives, future research should consider the impact of suprasegmental features, such as stress patterns and intonation, which have been found to influence overall intelligibility in EFL learners [22]. A broader investigation into both segmental and suprasegmental pronunciation issues would offer more holistic strategies for improving EFL learners' communicative competence.

IV. Conclusion

This study explored the phonetic challenges Indonesian EFL learners encounter when pronouncing English consonant fricatives, shedding light on common pronunciation errors and their underlying causes. It was found that learners frequently struggle with certain fricatives, particularly those that do not have direct equivalents in the Indonesian language, such as the voiced and voiceless interdental fricatives /θ/ and /ð/ and the post-alveolar voiced fricative /ʒ/. Substitution of these sounds with more familiar ones, such as /t/, /d/, or /s/, was a recurring pattern, revealing the influence of learners' first language (L1) on their English pronunciation. This aligns with the findings of previous studies, indicating that learners tend to replace unfamiliar sounds with similar ones from their native phonological system.

Cross-linguistic phonetic differences are the main reason for these pronunciation challenges. These issues are exacerbated by the fact that the Indonesian sound system lacks several fricatives and that EFL students are not exposed to enough real English pronunciation. Learners lack the resources they need to achieve proper fricative pronunciation due to the lack of emphasis on pronunciation instruction in many EFL programs.

Given these results, it is imperative to stress the value of focused pronunciation instruction in the context of Indonesian EFL. Learners can overcome these challenges with the aid of teaching strategies that concentrate on difficult sounds, including fricatives. The pronunciation of learners has been shown to be improved by methods like contrastive analysis, perceptual training, and the use of audiovisual aids. Learners' phonological awareness and proficiency can also be improved by include more task-based, communicative activities that promote practicing fricative sounds in real-world settings.

Building on these findings, future study should carry out longitudinal studies to monitor the evolution of pronunciation over time. This kind of study would yield important data regarding the long-term efficacy of focused interventions on pronunciation. Furthermore, a more thorough knowledge of regional variations in fricative pronunciation challenges would be made possible by increasing the sample size and incorporating participants from a variety of linguistic backgrounds throughout Indonesia. In addition to segmental pronunciation problems, examining the impact of suprasegmental elements like stress and intonation will help provide a more complete picture of the variables influencing the intelligibility of EFL learners.

Despite the fact that Indonesian EFL learners experience major challenges when pronouncing English fricatives, specific teaching strategies have the potential to dramatically enhance their pronunciation and, as a result, their overall communicative proficiency in English.

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