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Pronunciation Challenges Faced by Libyan EFL Leaners

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ABSTRACT

Effective interaction in English requires accurate pronunciation skills, particularly in mastering consonant clusters. Understanding the specific challenges faced by learners can help educators develop targeted strategies to improve these skills. This study investigates the pronunciation challenges encountered by Libyan university students in the English Department at Fezzan University, focusing specifically on difficulties with two-initial and three-initial consonant clusters. The research involved (13) participants and indicated that while the students displayed a commendable proficiency in pronouncing two-initial clusters—averaging 13 correct pronunciations with a low error rate of 13.3%—their performance on three-initial clusters was significantly weaker, averaging only 4.31 correct pronunciations and exhibiting an error rate of 69.2%. These results highlight the considerable difficulties associated with complex consonant combinations, which are further complicated by interference from their first language. The findings emphasize the need for targeted instructional strategies to improve pronunciation skills and enhance the overall communicative competence of Libyan learners of English.

التحديات النطقية التي يواجها متعلمو اللغة الإنجليزية كلغة أجنبية في ليبيا

*هدى بكوري و إيمان الصوفي

قسم اللغة الإنجليزية ،كلية التربية تراغن ،جامعة فزان ، ليبيا

الكلمات المفتاحية:
مجموعة الحروف الساكنة
المتعلمين الليبيين للغة الإنجليزية كلغة أجنبية
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تحديات النطق
الحروف المعقدة

الملخص

يتطلب التواصل الفعّال باللغة الإنجليزية مهارات نطق دقيقة، خاصة في إتقان مجموعات الحروف الساكنة. يمكن أن يساعد فهم التحديات المحددة التي يواجها المتعلمون اللغة في تطوير استراتيجيات مستهدفة لتحسين هذه المهارات. تستقصي هذه الدراسة التحديات في النطق التي تواجه طلاب الجامعة الليبيين في قسم اللغة الإنجليزية بجامعة فزان، مع التركيز بشكل خاص على الصعوبات المتعلقة بمجموعات الحروف الساكنة ذات الحرفين وثلاثة أحرف. شملت الدراسة 13 مشاركًا وأشارت إلى أنه بينما أظهر الطلاب كفاءة ملحوظة في نطق مجموعات الحروف الساكنة ذات الحرفين - بمتوسط 13 نطقًا صحيحًا مع معدل خطأ منخفض قدره 13.3% - كانت أدائهم في مجموعات الحروف الساكنة ذات الثلاثة أحرف أضعف بكثير، حيث بلغ متوسط النطق الصحيح 4.31 فقط مع معدل خطأ قدره 69.2%. تسلط هذه النتائج الضوء على الصعوبات الكبيرة المتعلقة بالتركيبات المعقدة للحروف الساكنة، والتي تتعقد أكثر بسبب تأثير لغتهم الأم. تؤكد النتائج على الحاجة إلى استراتيجيات تعليمية مستهدفة لتحسين مهارات النطق وتعزيز الكفاءة التواصلية العامة للمتعلمين الليبيين للغة الإنجليزية.

1. Introduction

English is recognized as an international language, widely used by people across various countries for communication. As a result, mastering English is essential for effective interaction in a global context. A critical component of learning English as a foreign language is pronunciation, which refers to how individuals articulate words. The meaning of words and sentences is often conveyed through pronunciation, making it a vital aspect of communication. Effective pronunciation not only enhances speech intelligibility but also ensures that messages are clearly understood. However, many students encounter significant challenges in acquiring accurate pronunciation Second language (L2) learners often struggle with mastering the pronunciation of the target language, especially when its phonetic system differs substantially from that of their first language (L1). Pronunciation errors can impact various linguistic features, including spelling and speaking abilities. Among English as a Second Language (ESL) learners, challenges related to aspects such as intonation, stress, and linking are common. This study concentrates specifically on the challenges associated with consonant cluster pronunciation, focusing

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exclusively on onset consonant clusters rather than coda clusters. In the onset position, the English consonant cluster system accommodates two-consonant clusters (CC-), such as /sp-/ in 'spoon', as well as three-consonant clusters (CCC-), like /spl-/ in 'spleen'. In contrast, coda clusters, which occur at the end of syllables, are not examined in this research. By focusing on onset consonant clusters, the study aims to identify and analyze the specific pronunciation challenges that learners face in mastering these structures (Dalton,1998, Gilbert,1994, Saidat,2010)

Consonant clusters, particularly at the onset of words, present significant difficulties for ESL learners. Many second-language learners tend to insert a vowel between consonants to facilitate pronunciation, often leading to inaccuracies. For example, the word "green" might be pronounced as /girin/, where a vowel is added between the first two consonants, while the last consonant becomes a separate syllable. Similarly, "strike" may be articulated as /sitraik/.

This study investigates the pronunciation difficulties faced by students at Traghen College when articulating words with initial consonant clusters. These challenges stem from various factors, with the most significant being the interference between the phonetic systems of the learners' first and second languages (Dalton,1998, Gilbert,1994, Saidat,2010).

Research on English pronunciation among non-native speakers has gained considerable attention, focusing on the specific challenges faced by learners from diverse linguistic backgrounds. Previous studies have explored various aspects of pronunciation acquisition, revealing factors that affect learner proficiency and strategies to overcome difficulties. For example, recent research by Chen and Wang (2023) examined the phonological challenges encountered by Mandarin-speaking learners of English, highlighting the relevance of both segmental and suprasegmental features for pronunciation accuracy. Their findings emphasize the need for targeted instruction and practice to master English phonetics.

Similarly, García et al. (2022) investigated how social factors, such as language attitudes and identity, influence the pronunciation development of Spanish-speaking learners. Their research underscored the intricate relationship between linguistic and sociocultural elements in shaping learners' pronunciation progress. Kim and Lee (2021) demonstrated the effectiveness of technology-enhanced pronunciation instruction in improving the phonetic accuracy of Korean learners, showing that interactive multimedia tools can facilitate pronunciation acquisition while boosting learners' confidence in spoken English.

Moreover, Johnson (2024) explored the effectiveness of explicit pronunciation instruction combined with technology-based practice activities, providing valuable insights into successful pedagogical interventions for enhancing phonological accuracy among diverse learner populations.

Through these insights, this study aims to build on existing research and provide a deeper understanding of the pronunciation challenges faced by Libyan university students, ultimately contributing to more effective teaching strategies in English language education.

1.1 Research Problem

It has been noticed that many EFL learners, particularly Libyan university students at the University of Fezzan, face significant challenges in pronouncing English initial consonant clusters, which are combinations of two or more consonants at the beginning of a word. These phonetic structures pose unique difficulties for non-native speakers, especially for Libyan students whose native language lacks similar constructs, leading to pronunciation errors that hinder intelligibility and effective communication. Despite the importance of pronunciation in language acquisition, there is a notable lack of empirical research specifically focused on these challenges faced by Libyan learners. This gap in the literature prevents a comprehensive understanding of the obstacles these students encounter and the instructional strategies that could be employed to address them. Consequently, this study aims to investigate the persistent pronunciation difficulties Libyan university students experience and to explore pedagogical approaches to improve their pronunciation skills, thus enhancing their overall communicative competence in English.

1.2 Research Questions

The present study is guided by two research questions: a main research question and a sub-research question.

Main research Question:

- What specific pronunciation challenges do Libyan university students at the University of Fezzan encounter with English initial consonant clusters?

Sub-Research Question:

- Do L2 learners experience greater difficulties when pronouncing two-initial consonant clusters compared to three-initial consonant clusters?

1.3 Hypotheses

Based on the research questions provided, the following hypotheses are proposed:

Libyan university students at the University of Fezzan face significant challenges in pronouncing English initial consonant clusters, which include specific difficulties related to phonetic articulation and cluster complexity.

L2 learners experience greater pronunciation difficulties with three-initial consonant clusters than with two-initial consonant clusters, leading to a higher rate of pronunciation errors in the former.

1.4 Objectives

Based on the research questions, the following objectives are established:

To identify and analyze the specific pronunciation challenges faced by Libyan university students at the University of Fezzan when articulating English initial consonant clusters.

To compare the pronunciation difficulties encountered by L2 learners with two-initial consonant clusters versus three-initial consonant clusters, assessing the frequency and nature of errors in each category.

1.5 Significance of the Study

This study investigates the pronunciation challenges of Libyan university students at the University of Fezzan, focusing on English initial consonant clusters. It aims to inform curriculum design and develop targeted teaching strategies, ultimately enhancing students' pronunciation skills and communication abilities for academic and professional success. By identifying these challenges, the research provides valuable insights for educators and linguists, addressing the specific needs of non-native English speakers and filling a gap in the literature on Arabic phonetics and English pronunciation. Improved pronunciation not only boosts students' confidence but also prepares them for a competitive job market. Furthermore, the study promotes awareness among educators, influencing inclusive teaching practices and language policy. It serves as a foundation for future research on phonetic difficulties in language learning.

2. Literature Review

This section addresses the challenges associated with pronouncing consonant clusters among foreign learners of English and examines whether these difficulties arise from discrepancies between the structure of the target language (English) and the learner's first language (L1), a phenomenon known as first language interference.

2.1 Phonetics and Phonology

Phonetics is defined as the study of human speech sounds, focusing on their physical properties. In a linguistic context, it encompasses three primary aspects: articulation how sounds are produced, acoustics (how sounds are transmitted, and auditory perception how sounds are perceived. Conversely, phonology refers to the scientific study of sound systems within languages, elucidating how sounds function, the patterns they create, and the rules governing their combinations and pronunciation (David, 2005). Effective pronunciation, which involves both phonetics and phonology, is a vital aspect of language learning as it underpins successful communication.

2.2 Definition of Pronunciation

Pronunciation is a crucial element of communicative competence that significantly impacts language instruction. Learners with strong pronunciation skills are often able to enhance their overall language abilities more effectively than those with weaker pronunciation (Gilakjani, 2012, Gilakjani & Sabouri, 2016). Yates and Zielinski (2009) describe pronunciation as the manner in which sounds are produced to convey meaning. This definition encompasses consonants, vowels, and prosodic features such as intonation, stress,

rhythm, and voice quality. Since these elements work together, difficulties in one area can adversely affect others, ultimately influencing the clarity of speech.

Moreover, weak pronunciation can undermine a learner's self-confidence and hinder effective communication. Therefore, mastering pronunciation from the beginning of language learning is crucial to building a strong communicative foundation. English pronunciation is fundamental for effective communication. Regardless of a learner's vocabulary or grammar proficiency, poor pronunciation can hinder comprehension (Zielinski & Yates,2014). Learners must master the sounds, rhythms, and other sound features to ensure their speech is understandable. Even if a learner makes mistakes in grammar or vocabulary, strong pronunciation can still facilitate understanding. Conversely, those with weak pronunciation often struggle to be understood. Consequently, early mastery of pronunciation is paramount for successful language acquisition.

Pronunciation also influences intelligibility (the ability to produce recognizable sound patterns, comprehensibility the ability to understand the meaning of spoken words), and interpretability (the ability to grasp the speaker's intent. Research highlights that clear and accurate pronunciation significantly enhances a learner's overall communicative effectiveness.

2.3 Phonological Framework of Consonant Clusters

The phonological framework of consonant clusters encompasses the systematic examination of the patterns and phonetic structures formed by sequences of two or more consonants at the onset of a syllable. Consonant clusters refer to sequences of two or more consonants appearing together without intervening vowels. Betti (2023) defines consonant clusters as occurring initially, medially, or finally within English syllables. Roach (2009) further elucidates that consonant clusters consist of combinations of consonants and can be classified as initial (onset), medial, or final (coda). Initial consonant clusters, which typically comprise two or three consonants, present particular pronunciation challenges for ESL learners. English features two primary types of initial two-consonant clusters: one type features a pre-initial /s/ followed by a limited set of consonants such as /t/, /w/, and /m/, while the other begins with approximately fifteen consonants followed by /l/, /r/, or /w/ (Roach, 2009). In many languages, particularly English, these initial consonant clusters pose unique challenges for learners, especially for non-native speakers whose native tongues may lack equivalent structures (Goo, 2012). The complexities of these clusters can lead to significant difficulties in articulation, as learners must navigate the coordination of multiple consonant sounds without the support of intermediary vowel sounds. The phonological framework also investigates the rules governing permissible consonant arrangements within clusters, including constraints on which sounds can co-occur and their implications for syllable structure. Understanding this framework is crucial for identifying the specific linguistic challenges learners encounter, as it elucidates the articulatory and perceptual factors that can influence their pronunciation skills and overall language acquisition (Flege, 1995).

2.4 Acquisition of Consonant Clusters

The acquisition of consonant clusters is a critical aspect of phonological development in language learning, particularly for non-native speakers. Research indicates that learners often face significant challenges in mastering these clusters due to the phonetic characteristics of their native languages, which may not include similar sound combinations. For instance, studies have shown that children acquiring English as a first language typically simplify complex consonant clusters during early speech development by deleting or substituting sounds ((Flege, 1995, Goo, 2012). In second language acquisition, non-native speakers frequently struggle with pronunciation and intelligibility when faced with initial consonant clusters, resulting in difficulties in communication (Flege, 1995). This phenomenon underscores the importance of targeted phonetic training and explicit instruction to enhance the pronunciation skills of learners, particularly those from linguistic backgrounds devoid of consonant cluster features (Goo, 2012).

2.5 Consonant Clusters in Second Language Acquisition

For non-native speakers, English consonant clusters can present considerable pronunciation challenges that significantly impact their communicative competence. Studies indicate that the phonological structure of a learner's first language largely influences their ability to perceive and produce these clusters (Flege, 1995; Dupoux et al., 2020). Non-native speakers may find themselves simplifying or altering clusters to align with their native phonetic patterns, leading to decreased intelligibility (Kabak & Idsardi, 2007). Effective teaching strategies, including focused phonetic training, practice through drilling, and the use of auditory discrimination tasks, have been shown to enhance learners' abilities to accurately produce consonant clusters (Goo, 2012; Mendez & McCullough, 2021). By addressing these challenges through targeted instructional methods, educators can facilitate improved pronunciation skills in their students, thereby enhancing overall language acquisition.

2.6 Psycholinguistic Aspects of Consonant Clusters

From a psycholinguistic perspective, the processing of consonant clusters presents a significant cognitive load that can influence speech production and fluency. Research has shown that fluent speakers tend to favor consonant clusters that align with their phonotactic experiences—the rules governing permissible sound combinations in a given language—thereby affecting their perceptual and articulatory strategies (Schwartz et al., 2024). This preference can result in easier processing for familiar clusters while creating difficulties for less common combinations, particularly for non-native speakers who may not have similar phonotactic rules in their first. Furthermore, the cognitive factors involved in recognizing and producing these clusters can contribute to increased processing times and errors in speech production, highlighting the need for targeted phonological training to enhance fluency and accuracy in language use (Darcy,2018, Koehler et al., 2017). Understanding these psycholinguistic aspects is crucial for informing effective teaching strategies in second language instruction.

2.7 Comparative Analysis of Consonant Clusters in Arabic and English: Implications for Language Acquisition

The comparison of consonant clusters in Arabic and English reveals notable differences that can affect language acquisition for Arabic speakers learning English. English allows for a greater variety of consonant clusters, particularly at the onset of syllables, such as "spr," "st," and "str," which are relatively rare in Arabic (Al-Hattami, 2010). In contrast, Arabic clusters tend to be less complex, often limited to pairs of consonants, and are influenced by specific phonological rules within dialectal variations. Consequently, Arabic speakers may encounter difficulties in mastering English consonant clusters, as they might simplify or omit sounds that are not natural in Arabic phonology. Understanding these phonological differences is essential for developing effective teaching strategies that address the specific challenges faced by Arabic learners of English, including targeted practice with pronunciation and listening tasks that enhance their ability to perceive and produce complex clusters (Al-Jarf, 2022)

2.7.1 Phonological Challenges for Arabic Learners of English

Arab learners, particularly Libyan, introduces specific phonological challenges for English learners. The differences in phonetic systems create obstacles in mastering English pronunciation, particularly concerning consonant clusters. Libyan Arabic presents several phonological challenges for learners of English, primarily due to significant differences in phonetic systems.

Key difficulties include the complexity of English consonant clusters, which often consist of multiple consonants without intervening vowels, leading to common mispronunciations among Libyan learners. For instance, words like "strength" and "splendid" contain intricate clusters that can be difficult for learners, resulting in substitutions such as /girin/ for "green" and /sitraik/ for "strike" (Al-Yami and Al-Athwary 2021).

Additionally, Arabic's limited vowel sounds and lack of long-short vowel distinctions complicate pronunciation, as demonstrated by learners conflating words like "bit" and "beat" (Al-Yami and Al-Athwary 2021). Variations in regional dialects further complicate sound production and interpretation, as different phonetic realizations in Libyan Arabic can lead to inconsistencies in English pronunciation. Psychological factors, such as anxiety and self-confidence, also impede effective practice, as many Libyan learners may feel self-conscious when speaking English, which deters them from practicing effectively (Al-Yami and Al-Athwary 2021, Tushyeh,1996).

Addressing these challenges through targeted instruction and supportive learning environments is essential for enhancing Libyan

learners' English pronunciation and overall communicative competence**.** It is essential to understand these challenges to develop effective teaching strategies tailored to the specific needs of Arabic learners, enhancing their ability to navigate these pronunciation obstacles and improve their overall communicative competence in English. Future research could focus on developing targeted interventions that address these identified challenges, thus better supporting learners in their language acquisition journey.

2.8 Previous Studies

This section reviews relevant studies on English pronunciation, focusing on the challenges faced by ESL (English as a Second Language) and EFL (English as a Foreign Language) learners in mastering pronunciation. Research from both local and international contexts has identified these difficulties as prevalent issues, highlighting a need for further investigation.

Al-Yami and Athwary (2021) found that English pronunciation is essential for effective communication and intelligibility. Their study examined phonological pronunciation difficulties in the onset and coda positions encountered by 134 Saudi EFL learners. Using pronunciation tests and questionnaires, the results indicated that these learners struggled with consonant clusters in both positions, with coda consonants, especially four-consonant clusters, presenting the most significant challenges.

Khanh and Thi (2022) conducted a study to identify common mistakes in pronouncing English consonant clusters made by 36 Vietnamese ESL learners. Employing quantitative methods and pronunciation tests, the findings revealed that the types of mistakes varied based on the consonant cluster, suggesting that learners often transferred aspects of their L1 phonology into their English acquisition.

Hago and Khan (2015) emphasized the significance of pronunciation in English language learning. Their study investigated pronunciation difficulties experienced by 60 Saudi secondary students through questionnaires and recorded pronunciation samples. The results indicated that participants struggled with eleven consonant sounds and frequently inserted short vowels to separate consonant clusters.

Al-Samawi (2014) explored the impact of Arabic vowel points (Harakaat) on the pronunciation of initial and final English words among 40 students. The study demonstrated that learners pronounced vowelized consonant clusters more accurately than those without vowelization, highlighting the influence of L1 features on L2 pronunciation.

Alotaibi (2021) examined the differences between Arabic and English phonology, focusing on how these differences impacted English consonant clusters among 12 Saudi Arabic ESL participants aged 26. The study involved a reading list of six sentences, revealing that learners tended to transfer their L1 phonological syllable structure to the syllable structure of English.

Albasi, Khan, and Safi (2024) investigated the phonology and syllable structure challenges faced by Pahari ESL learners. Involving 10 participants, the study utilized audio recordings of pronunciation to assess how participants modified consonant clusters through deletion, lenition, and fortition strategies.

Hasan and Na'mat (2024) examined the phonotactic constraints of various languages, focusing on the production of English consonant clusters by 50 Bahdini Kurdish learners. Their pronunciation tests indicated that incorrect pronunciation was primarily due to syllable structure transfer from Kurdish to English, with fourth-year students showing better performance than second-year peers.

Jabbari and Samavarchi (2011) explored the syllabification of English consonant clusters among Persian learners of English, specifically 12 children aged 4 to 6. Their oral pronunciation study revealed that participants identified onset clusters effectively.

Khodijah, et al. (2023) analyzed Indonesian EFL learners' performance in pronouncing consonant clusters, focusing on five first-grade high school students. Their pronunciation tests identified specific difficulties with clusters such as [ʃ], [θ], [gh], [Id], and [st], attributing these challenges to factors like sound substitutions, vowel insertions, and cluster deletions.

Saidat (2010) noted that Arab English learners often insert a short, high front vowel /ɪ/ when addressing cluster de-clustering issues. For example, "splash" and "spleen" are pronounced as /sɪblʃ/ and /sɪblɪːn/. Research indicated that ESL students apply varied strategies based on their native languages; Spanish speakers, for instance, often use prothesis for initial /s/ clusters.

Al-Otaibi (2021) conducted a phonological analysis of L2 coda clusters produced by Saudi Arabian learners. The results revealed that Arabic phonology significantly influenced the production of target clusters, with speakers modifying these clusters through epenthesis or deletion due to the phonemic absence of certain sounds in their L1.

Mir and Afzal (2022) studied interlanguage syllabification among Hindko speakers, focusing on stop clusters at the medial position. They established that speakers frequently employed epenthesis and ambi-syllabicity, influenced by faithfulness and markedness constraints. Their findings highlighted the myriad strategies used by learners to address challenges in cluster pronunciation.

These studies collectively underscore the common phonological challenges faced by learners across various linguistic backgrounds, reinforcing the need for targeted pronunciation instruction that considers the influence of learners' first languages on their English

In conclusion, the literature on English consonant clusters underscores their complex role in phonological systems and the specific challenges faced by learners from Arabic-speaking backgrounds. Key difficulties arise from first language interference, as differences in phonological structures significantly hinder the acquisition of English consonant clusters. Libyan learners often struggle due to Arabic's simpler syllabic structure, limited vowel systems, and distinct stress patterns, compounded by psychological factors like anxiety that impact pronunciation.

To address these challenges, tailored instructional strategies are necessary, emphasizing the importance of innovative pedagogical approaches in teaching consonant clusters in ESL settings. Future research should focus on developing targeted interventions that meet the unique needs of Arabic learners, thus facilitating their language acquisition and enhancing their English pronunciation skills for improved communicative competence.

3. Methodology

3.1 Study Design

This section outlines the methodology, and procedures used to investigate the challenges faced by EFL (English as a Foreign Language) learners at the Faculty of Education in Traghen, Libya, with a focus on mastering English pronunciation, particularly consonant clusters.

The methodology was developed to achieve key objectives: identifying common pronunciation difficulties among learners from diverse linguistic backgrounds and analyzing how their first languages (L1) impact their English pronunciation. This study aims to uncover the phonological challenges specific to this context. To meet these objectives, a quantitative approach was employed, utilizing structured pronunciation assessments to gather data. Additionally, a review of relevant literature contextualizes the findings within existing EFL pronunciation research, highlighting the phonetic challenges arising from L1 influences. By employing this structured approach, the research aims to provide valuable insights into the pronunciation

difficulties faced by Libyan learners, ultimately guiding effective instructional strategies to enhance their pronunciation skills and overall language proficiency.

3.2 Participants

The study included 13 Libyan EFL learners from the English Department at the Faculty of Education in Traghen, Fezzan University, all in their second and third academic years. This stage is critical as they transition from basic to advanced English skills.

These participants were selected to investigate their challenges with English pronunciation, particularly with consonant clusters. Their focused enrolment in the English Department makes them ideal candidates for this research, which aims to identify difficulties influenced by their native language.

3.3 Procedure

Data collection process for the study primarily involved pronunciation tests designed to evaluate participants' ability to articulate English consonant clusters, thereby shedding light on the phonological challenges influenced by their first languages (L1). The tests consisted of controlled pronunciation tasks in which participants read aloud from a curated list of words featuring consonant clusters in both onset and coda positions. Each session was audio-recorded to facilitate thorough analysis.

The wordlist was organized into two categories based on cluster complexity. The first category included two-initial consonant clusters, such as /dr/ in "draw," /pr/ in "product," and /pl/ in "plosive." These words allowed for an assessment of the participants' ability to produce simpler clusters. In contrast, the second category featured three-initial consonant clusters—examples include /spl/ in "splash," /spr/ in "spring," and /spr/ in "spray." These more complex clusters presented greater challenges, particularly for participants whose L1 lacks similar phonetic structures.

The audio recordings enabled trained assessors to evaluate key metrics, including pronunciation accuracy, fluency of delivery, and the identification of common errors, such as vowel insertions or cluster reductions. This comprehensive data collection method provided valuable insights into the specific pronunciation difficulties faced by EFL learners, thereby enriching the understanding of their phonological challenges.

3.4 Data Analysis

The data was analysis based on quantitative approach to systematically evaluate the results of the pronunciation tests. Each test was scored based on two key metrics: accuracy, which measured the correctness of participants' pronunciation of consonant clusters, and fluency, which assessed the smoothness and speed of their delivery. To derive meaningful insights from the data, statistical analyses—such as frequency distribution, means, and standard deviations—were conducted. These analyses revealed patterns and trends in pronunciation difficulties across various learner groups, providing a comprehensive understanding of the specific challenges faced by EFL learners. By utilizing these quantitative methods, the study sought to draw actionable conclusions that could inform instructional strategies, ultimately enhancing pronunciation outcomes for learners from diverse linguistic backgrounds.

3.5. Ethical Considerations

Ethical approval is obtained from the relevant institutional review board at Fezzan University. Informed consent is obtained from all participants, ensuring their voluntary participation and the confidentiality of their responses. Participants are assured that their identities will be anonymized in the reporting of the findings.

In conclusion, this methodology section presents a comprehensive overview of the research process, detailing the participants involved, the data collection methods employed, and the analytical strategies utilized to investigate the pronunciation challenges encountered by ESL and EFL learners. The insights gained from this methodology not only deepen our understanding of these challenges but also hold significant potential for informing effective instructional practices aimed at enhancing pronunciation across diverse learner populations.

4. Findings and Discussion

This section examines key findings from the study on the pronunciation challenges faced by ESL learners, focusing specifically on onset consonant clusters. Analysis of data from participants at Traghen College reveals common patterns of mispronunciation and the factors contributing to these issues, particularly the influence of learners' native languages. By connecting these findings to broader educational contexts, this section provides valuable insights into the complexities of mastering English consonant clusters, underscoring the importance of adapting instructional methods to enhance the communicative competence of ESL learners.

Table 1: Two-initial consonant clusters

No of Participants	Total Pronunciations Evaluated	Total Correct Pronunciations	Mean	Standard Deviation (SD)	Total Mistakes	Error Rate
13	195	169	13	1.52	26	13.3 %

Table 1 presents an analysis of the pronunciation data collected from 13 participants, revealing a commendable proficiency in articulating words containing two-initial consonant clusters. The participants achieved an impressive total of 169 correct pronunciations out of 195 evaluations, resulting in an average score of 13 correct responses. This indicates that the majority of participants performed well on the task, although the standard deviation of 1.52 suggests some variability in individual performances. While most participants scored close to the mean, a few exhibited more pronounced difficulties.

The analysis also recorded a total of 26 errors, leading to a relatively low error rate of 13.3%. This indicates that, overall, the participants demonstrated effectiveness in managing the pronunciation tasks. However, the findings also highlight the necessity for targeted support for individuals who encountered challenges.

Table 2: Three-initial consonant clusters

No of Participants	Total Pronunciations Evaluated	Total Correct Pronunciations	Mean	Standard Deviation (SD)	Total Mistakes	Error Rate
13	182	56	4.31	2.09	126	69.2%

The descriptive statistical analysis of pronunciation abilities related to three-initial consonant clusters indicates significant challenges among the 13 participants. On average, they achieved only 4.31 correct pronunciations out of 182 attempts, highlighting the difficulties in mastering this aspect of pronunciation. The standard deviation of 2.09 reveals considerable variability in performance; notably, one participant scored exceptionally high with 13 correct pronunciations, which skews the overall average.

A total of 126 errors were recorded, yielding a substantial error rate of 69.2%, meaning that over two-thirds of the attempted pronunciations were incorrect. These findings emphasize the considerable obstacles faced by participants and underscore the urgent need for targeted instruction and practice. To enhance their proficiency in articulating three-initial consonant clusters effectively, focused strategies must be implemented that address these specific challenges.

Table 3: the results for the two types of consonant clusters, highlighting significant differences in pronunciation abilities among participants.

Consonant clusters	No of Participants	Total Pronunciations Evaluated	Total Correct Pronunciations	Mean	Standard Deviation (SD)	Total Mistakes	Error Rate
Two-initial consonant clusters	13	195	169	13	1.52	26	13.3%
Three-initial consonant clusters	13	182	56	4.31	2.09	126	69.2%

Table 3 illustrates key differences in pronunciation proficiency between two-initial and three-initial consonant clusters among the 13 participants. The data shows significant variation in performance between the two types of clusters. Notably, vowel addition errors were observed, occurring either at the beginning of the clusters (e.g., /sp-/

mispronounced as /əsp-/ in 'spin') or between the consonants (e.g., /str-/ mispronounced as /sətr-/ in 'straw'). Participants achieved an impressive total of 169 correct pronunciations for two-initial clusters, resulting in a mean score of 13, which indicates a strong overall performance. In stark contrast, their ability to articulate three-initial clusters was significantly lower, with only 56 correct pronunciations and a mean score of 4.31, highlighting the greater difficulties associated with these combinations. The standard deviation for two-initial clusters was 1.52, signifying consistent performance among participants, whereas the higher standard deviation of 2.09 for three-initial clusters indicates substantial variability in abilities, with some participants facing considerable challenges. Participants attempted 195 pronunciations for two-initial clusters, yielding a total of 26 mistakes and an error rate of 13.3%. Conversely, for three-initial clusters, they attempted 182 pronunciations, resulting in 126 mistakes and a significant error rate of 69.2%.

This stark contrast emphasizes the substantial challenges posed by three-initial clusters and underscores the need for focused instructional strategies to improve participants' pronunciation skills. Clearly, they struggle more with these complex consonant combinations compared to the two-initial clusters, necessitating targeted approaches to enhance their proficiency in this area.

4.2 Discussion

The analysis of pronunciation proficiency regarding two-initial and three-initial consonant clusters among Libyan university students at the University of Fezzan reveals significant challenges, especially with three-initial consonant clusters. Participants demonstrated an average of only 4.31 correct pronunciations out of 182 attempts, resulting in a high error rate of 69.2%. In contrast, their performance on two-initial clusters was significantly better, achieving a mean score of 13 and an error rate of just 13.3%. Interestingly, the students made noticeably more errors when pronouncing marked clusters, such as CCC-, compared to less marked structures like CC-, which do not exist in their native language. This suggests a tendency for vowel addition, occurring either at the beginning of clusters—where /sp-/ was often mispronounced as /əsp-/ in words like 'spin'—or between clusters, as evidenced by /str-/ being pronounced as /sətr-/ in 'straw.'

These findings directly address the main research question, highlighting the specific pronunciation challenges faced by these students and emphasizing the complexities of mastering consonant clusters that are absent from their phonetic inventory. The difficulties experienced by the participants can be partially understood through the lens of previous studies. For instance, Al-Yami and Athwary (2021) noted that consonant clusters, especially those involving multiple consonants, create significant barriers for EFL learners, which aligns with the findings of this study. Their research found that Saudi EFL learners faced pronounced challenges with coda consonants, particularly four-consonant clusters, mirroring the struggles observed among our participants with three-initial clusters.

Moreover, the influence of first language (L1) interference is a recurring theme in the literature. Alotaibi (2021) emphasized how the phonological structures of Arabic impact English pronunciation, demonstrating that L1 transfers frequently lead to difficulties, particularly in articulating sounds not present in the learners' native phonology. This aligns with our findings, where variability in individual performance—indicated by a standard deviation of 2.09 for three-initial clusters—suggests that some participants may have been more affected by such phonological interferences than others. Furthermore, the presence of systematic errors, such as deletion or vowel insertion, observed in other research can explain the high error rate among the participants. Saidat (2010) noted that Arabic English learners often insert a short, high front vowel to facilitate the pronunciation of cluster words, a phenomenon likely influencing the performance of our study participants as well. This tendency to insert sounds to assist with difficult clusters exacerbates the challenges posed by three-initial consonant clusters, thereby confirming the findings of our study.

In response to the sub-research question regarding whether L2 learners experience greater challenges when pronouncing three-initial consonant clusters compared to two-initial clusters, the data provides clear evidence advocating this observation. The stark difference in performance—where participants achieved significantly higher success rates on two-initial clusters—reaffirms the notion that greater complexity leads to increased difficulty in pronunciation tasks. This finding is further supported by research from Khanh and Thi (2022), which found that specific types of consonant clusters present varying levels of challenge based on learner background and phonological structure.

Overall, the current findings underscore the urgent need for targeted instructional strategies designed to address these pronunciation challenges among Libyan university students. By drawing on insights from previous studies, educators can create interventions that consider the specific phonological influences and obstacles faced by learners. Such an approach aims not only to enhance pronunciation skills but also to promote greater overall language proficiency, ultimately better preparing students for effective communication in English.

5. Conclusion

This study investigated the pronunciation proficiency of Libyan university students regarding two-initial and three-initial consonant clusters. The analysis revealed a significant disparity in performance: participants demonstrated commendable skills in articulating two-initial clusters but faced considerable challenges with three-initial clusters. These findings highlight the need to address specific pronunciation difficulties, particularly those stemming from L1 interference and the complexities inherent in English consonant clusters. To effectively enhance pronunciation skills and improve communicative competence in English among Libyan learners, targeted instructional strategies are essential. Despite the insights gained from this study, several limitations should be considered. One limitation is the relatively small sample size of 13 participants, which may affect the generalizability of the findings to a broader population of Libyan learners. Additionally, this study focuses exclusively on onset consonant clusters, which may not provide a comprehensive understanding of the pronunciation challenges faced by learners. By omitting the examination of coda clusters, the research may overlook significant aspects of the phonetic complexities that contribute to students' pronunciation difficulties. This narrow focus limits the ability to fully assess learners' proficiency in English consonant clusters as a whole, potentially leaving gaps in the understanding of their phonetic struggles and instructional needs.

Future research should prioritize several areas to enhance the understanding of pronunciation challenges faced by Libyan learners of English. Firstly, studies should involve larger and more diverse samples from various universities to improve the generalizability of the findings. Additionally, a comprehensive focus on both onset and coda consonant clusters is essential for a thorough assessment of pronunciation difficulties. Investigating the impact of specific first-language phonetic features on English pronunciation through experimental designs could provide valuable insights. Longitudinal studies should monitor learners' progress with two-initial and three-initial clusters to evaluate the long-term effectiveness of targeted instructional strategies. Finally, incorporating qualitative methods, such as interviews, could enrich the understanding of learners' challenges and perceptions regarding instructional practices. Addressing these areas will contribute to the development of more effective strategies to enhance the communicative competence of Libyan learners in English.

Recommendations for Strategies for Teaching and Learning Consonant Clusters

To effectively teach consonant clusters, educators should employ explicit instruction complemented by modelling techniques, utilizing visual aids and phonetic charts to enhance student comprehension. Engaging learners through interactive activities and technology-enhanced resources, such as language learning apps, can foster motivation and participation. Regular assessments with constructive feedback are essential for monitoring progress and addressing individual pronunciation challenges. Students should actively practice consonant clusters through repetition and listening exercises,

including recording their own pronunciation to facilitate self-assessment. Participating in group study sessions promotes peer feedback, while utilizing pronunciation guides and seeking consistent feedback from instructors reinforces learning. Finally, both teachers and students should maintain patience and persistence, recognizing that mastery of consonant clusters requires time and continuous effort, ultimately leading to improved overall communicative competence in English.

6. References

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