

A PHONOLOGICAL ANALYSIS OF EFL LEARNERS' SPEECH: IMPLICATIONS FOR EFFECTIVE PRONUNCIATION INSTRUCTION


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Abstract. *The identification of segmental and suprasegmental errors among English as a Foreign Language (EFL) learners has been an enduring objective in teaching pronunciation. Such records in pronunciation errors are identified by language instructors specializing in foreign and second language teaching. While these records are beneficial, they have deficiencies by overlooking or prioritizing certain errors. To enhance the inclusivity and accuracy of the pronunciation records, the present study conducts a phonological analysis focusing on segmental and suprasegmental features of Omani L2 learners of English speech by investigating their speech patterns. The findings, substantiated by empirical evidence, provide a comprehensive understanding of the enduring pronunciation hurdles that could affect the intelligibility principle. The findings reveal that pronunciation errors are significantly influenced by the first language interference and differences in spelling and phonological systems between Arabic and English. Segmental errors, such as /o/, /p/, /b/, /dʒ/, /tʃ/ and /f/ were common due to their absence or variation in Arabic. Suprasegmental challenges included incorrect stress patterns, flat intonation, and lack of rhythm. Such errors often lead to reduced intelligibility. Learners also showed limited awareness of connected speech features like assimilation, elision, and weak forms. To avoid persistent pronunciation challenges in segmental features, educators should help learners distinguish between vowels and consonant sounds by following either the articulatory approach or using minimal pair practice. Regarding suprasegmental features, educators must employ communicative practices that focus on developing proper stress, intonation, and rhythm to help learners improve their pronunciation and thus enhance their communicative competence.*

Key words: *EFL, English speech, phonological analysis, pronunciation, segmental and suprasegmental errors*

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1. INTRODUCTION

In the competitive world today, it is essential for students to enhance their skills in English language speaking and pronunciation for many reasons. English has become the sole means of communication globally, not only for the transfer of knowledge in the educational context, but also for business, tourism, medicine, and technological advances. Oman is not an exception, as English Medium of Instruction (EMI) replaced Arabic in the context of higher education since the establishment of the first public university in 1986. As English is the main language used in seminars and conferences in higher education, and later on for job interviews and future careers, there is a growing need for enhancing this skill. While English language proficiency makes a considerable difference in their career prospects and is essential to their future success, Omani students are realizing the importance of enhancing their speaking and pronunciation skills now more than ever before.

Among other skills, speech is primary to language in the sense that we first learn to speak for communication, followed by other language skills. This is while speech usage is generally more than other skills such as writing. Having acceptable pronunciation, as Nelson (2012) argued, is an essential component of communication, particularly intelligibility. In addition, Moskalenko's (2019) monograph, *Researching Speaking: Teaching and Assessment*, emphasizes the importance of pronunciation in achieving communication efficiency, emphasizing its impact on clear message delivery and listener comprehension. From the perspective of language learning, Nation and Newton (2008) argue that correct pronunciation of words is essential for learners, i.e., if the pronunciation of a word is not stable, then the word cannot quickly enter long-term memory due to difficulties in keeping the word in the phonological loop. As emphasized by Roach (2009), "Languages have different accents, and they are pronounced differently by people from different geographical places, from different classes, of different ages and different educational backgrounds" (p. 3). A more significant issue with the phonological system of English is that it does not allow for a one-to-one relationship between the spellings and pronunciations. George Bernard Shaw made a sharp contrast to the confusing phonological sounds in the English spelling system (Ducat & Shaw, 1989). He took the example of the sounds represented by 'gh,' 'o,' and 'ti' in the following words, respectively: enough, women and nation. How are these letters pronounced? The letters 'gh' in enough are pronounced similar to the first letter in fish; the letter 'o' in women is similar to the second letter in fish, and the letters 'ti' in the nation are articulated as the last two letters in fish. Therefore, he wondered why people didn't spell the word fish as *ghoti*! Hence, it comes by no surprise that second language learners find it difficult to master the pronunciation of the English language, where spelling is no guide. Such phonological differences in English speech sounds call for further research into non-native contexts of the English language where English is not learned as the mother tongue.

This study aimed to conduct a phonological analysis focusing on segmental and suprasegmental features of Omani L2 learners of English speech. Omani students were asked to read a dialogue in pairs and attempt to produce naturally occurring speech. By delving into segmental and suprasegmental features of connected speech, the authors identify EFL learners' phonological challenges regarding vowels, consonants and connected speech features observed in their recorded dialogue. Ultimately, various pedagogical implications for teaching pronunciation are addressed.

2. LITERATURE REVIEW

It is a common perception that second language learners' pronunciation errors are caused by their first language (Derakhshan & Karimi, 2015; De Leeuw et al., 2009; Flege et al., 1997). A growing body of research has been conducted on the interference of L1 in second language acquisition. Fatemi et al. (2012) explored the differences in consonant clusters orally in the first and second languages and pointed out that if the structures of the first and second languages were different, learners had difficulty in L2 pronunciation because they faced unfamiliar phonological rules. Al-Rubaat and Al-Shammari (2020) conducted an analysis of phonetic and phonological constraints among Saudi EFL learners and found that they experienced six problematic patterns related to mispronunciation of initial consonant clusters, final consonant clusters, multisyllabic words, unfamiliar sounds, vowels, and voiced or voiceless phonemes. In another phonological analysis of speech in the same context, Al Shehri (2021) found that learners generally had no problem expressing themselves, while they had many pronunciation issues related to specific Arabic sounds, which highlights the need for an eclectic approach to improving pronunciation among Arab EFL learners. Similarly, in an analysis of errors caused by Omani EFL learners pronouncing certain consonant sounds, Al Yaqoobi et al. (2016) found that the absence of one sound in a phonemic system of the L1 creates pronunciation problems for L2 learners and requires suitable pedagogical approaches to be implemented in Omani classes.

Al-Yami and Al-Athwary (2021) conducted a detailed study of the EFL learners' pronunciation errors in the Consonant Cluster System using Optimality Theory (OT). Their results showed that participants encountered consonant cluster difficulties in both the onset and coda positions, more specifically that onset clusters were mainly influenced by L1 ranking constraints whereas coda clusters were more influenced by Universal Markedness constraints. From another stance, Al-Zoubi's (2019) contrastive analysis of Arabic speech sounds and their effect on learning English pronunciation indicated that even though some similarities in speech sounds exist which facilitate and have positive effects on the process of learning the English language, the unfamiliar speech sounds (such as glottal stops) hinder the process of learning. This study emphasizes the mother tongue interference and overgeneralization rules that affect the pronunciation and spelling of some English words, which requires much attention from teachers to reduce Arab EFL learners' difficulties in improving their English pronunciation. In another study, Thakur (2020) proposed remedial activities as measures of pedagogical intervention after observing numerous recurrent problems which surfaced in Omani EFL learners' speech, including pure vowel substitution for diphthongs [schwa near-close back rounded vowel/] and /ei/, replacement of /p/ by /b/ sound, insertion of the vowel sound /I/ while pluralizing the words, syllabification of initial and final consonant clusters, deletion of /s/ sound occurring as the final element from consonant clusters, the alternation between /d3/ and /g, /3/ and /d3/, /t[Esh - voiceless palatal-alveolar fricative]/ and /t[Esh - voiceless palatal-alveolar fricative]/ sounds, replacement of /t/ by /t[character omitted]/ sound, lengthening of certain vowel sounds, pronouncing 'r' in all phonetic environments, irregularities in the use of weak forms, and not following the rules of aspiration.

Yenkimaleki and Van Heuven (2021) undertook a study to determine how segmental and suprasegmental feature attention affects EFL learners' speech intelligibility and comprehensibility. The researchers used a 2x2 factorial design and gave two groups different sets of instructions: one focused on production-focused practice after receiving

explicit instruction on segmental features, another group received instruction on suprasegmental features like stress patterns, intonation, and sentence prosody, and two other groups focused on perception-focused practice. The results showed that the intelligibility of learners' speech improved when they got segmental training followed by production-focused practice. However, in terms of comprehensibility, the group that received suprasegmental instruction followed by production-focused practice performed better than the other groups. The study provides insightful information about the advantages of segmental and suprasegmental training for EFL learners.

Mirfatemi et al. (2020) explored how supra-segmental characteristics affected the reading comprehension of Iranian EFL students. The researchers sought to improve knowledge of how intonation and stress patterns affect reading proficiency by concentrating on their effects on comprehension in the Persian and English languages. The results showed that reading comprehension improved with a greater understanding of supra-segmental elements, especially syllable and stress patterns. This could be advantageous for language learners learning a second language as well as their native tongue. To promote comprehension and language acquisition, the study stressed the significance of streamlining intricate supra-segmental elements, such as syllable and stress patterns, at the elementary levels of language learning. Furthermore, the study demonstrated the possibility of cross-linguistic skill transfer between Persian and English, indicating that language learners' cognitive-linguistic abilities might be significantly impacted by treatments that target supra-segmental elements.

It is also noteworthy to highlight the results of a study conducted by Port and Mitleb (1983), who demonstrated the inadequacy of attempts to account for foreign accent by comparison of segmental phonetic elements. Instead, their results are compatible with the hypothesis that abstract phonological elements, such as distinctive features and segments, are relatively plastic and manipulable (even for adults), but that rules of implementation, whether of coordination between articulators or for timing patterns, exist in the nervous system in a form that is far more difficult to alter in adulthood than are segmental features.

Previous studies all highlight the pedagogical approaches that could be implemented in second language classrooms to facilitate pronunciation teaching and learning. With this aim in mind, Kholmirezayevich and Abduzoirovna (2020) gave EFL teachers practical guidance for making segmental aspects easier to teach, with a special emphasis on pronunciation in English language learning. A thorough evaluation of research on pronunciation instruction strategies and an examination of the study's implications for teaching pronunciation to EFL students comprised the approach used in the study. Using such a method, the author defended the decision to teach EFL students in the Democratic Republic of the Congo pronunciation using Received Pronunciation (RP) as opposed to General American (GA). The study's conclusions underlined how crucial proper pronunciation is for oral communication and how closely it relates to other language proficiency areas like grammar, vocabulary, and listening comprehension. In order to improve learners' pronunciation abilities, the study also emphasized the importance of providing sound elements in context, using instructional aids, and incorporating discrimination exercises and minimal pair exercises. The study offered insightful information about how to teach segmental characteristics effectively and the significance of accurate pronunciation in EFL instruction.

3. ANALYSING LEARNERS' SPEECH: SEGMENTAL FEATURES

The smallest distinct units, phonemes, are meaningful sounds in which two distinct sounds (vowels and consonants) might occur as airflow is pushed from the larynx and ultimately is expelled through the lips or nose. As the air stream progresses, starting from the larynx, a range of main articulators (the pharynx, velum, hard palate, alveolar ridge, tongue, teeth, and lips) alter the airstream, producing distinct sounds. Besides, the larynx, jaw and vocal apparatus are other equipment for speech production (Roach, 2009). The following section examines the production of vowels and consonants.

3.1. Vowels

Crystal (2003) defined vowels as “sounds articulated without a complete closure in the mouth or a degree of narrowing which would produce audible friction” (p.517). From this definition, two consonants, /w/ and /j/, are also made without restriction in the airflow; therefore, they are called semi-vowels (Rogerson-Revell, 2011). To expand Crystal's definition, O'Connor (1967) elaborated on the dimensions of the vowels as they “are made by voiced air passing through different mouth shapes; the differences in the shape of the mouth are caused by different positions of the tongue and lips” (p.79). Based on the previous definitions, vowels are voiced and are acoustically powerful (sonorous); they are syllabic as they can be nuclei of syllables. Besides, they are characterized based on three dimensions: tongue height (high, mid, and low), which means vowels are produced by moving the jaw up and down, making the oral cavity wider or narrower. Tongue advancement (front, central and back) describes how the tongue is far forward or backwards while producing the vowels. Lip position means the lips can be rounded, in a natural position or separated in vowel production (Rogerson-Revell, 2011). The vowel chart below shows the 7 short vowels, /ɪ/, /e/, /æ/, /ə/, /ʌ/, /ʊ/ and /ɒ/, based on the previous categories.

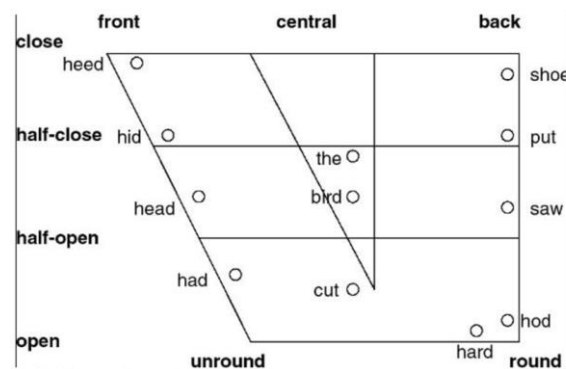


Fig. 1 Vowel chart of English RP vowels position

Taken from Rogerson-Revell, P. 2011. *English phonology and pronunciation teaching*, Bloomsbury Publishing.

In standard Received Pronunciation (RP), 20 vowels consist of 7 short vowels and 5 long vowels, /i:/, /u:/, /ɜ:/, /ɔ:/ and /ɑ:/, in addition to 8 diphthongs, ɪə, ʊə, eɪ, aɪ, ɔɪ, əʊ and aʊ, and 5 triphthongs, eɪə, aɪə, ɔɪə, əʊə and aʊə (Rogerson-Revell, 2011, p. 70.). For diphthongs, “Diphthong is a glide from one vowel to another” (Roach, 2009, p. 17); two articulators, a nucleus, and a glide, are required to produce diphthongs and three articulators, a nucleus and two glides, are needed to produce triphthongs. The nucleus is the vowel's central and the longest part, while the glide is the transient sound occurring before or after the nucleus (Rogerson-Revell, 2011).

3.1.1. Arab learners difficulties with English vowels

In contrast to 20 English vowels, Modern Standard Arabic (MSA) has 3 vowels as they appear in short and long variations, /a, i, u, a:, i:, u:/, and 2 diphthongs, /aj/ and /aw/, (El Zarka, 2013; Hago & Khan, 2015). The following sections will highlight pronunciation problems that Arab learners might face.

3.1.1.1. Monophthongs

The short vowels that are considered a problem by Arabic speakers of English in articulation are [e], [ɔ], and [ʌ], as they do not exist in Modern Arabic (Waengler, 2009). One of the difficulties is distinguishing between pairs of vowels as /ɪ/ in “sit” and /e/ in “set”, and /ʌ/ in “luck” and /ɒ/ in “lock” (Kharma & Hajjaj, 1989). As a result, Power (2003) says that Arab learners may produce /ɪ/ vowel as /e/. For instance, “bit”, /bɪt/, could be pronounced as “bet” /bet/.

The mother tongue's influence is another factor that causes pronunciation mistakes. This occurs when Arabic learners perceive English vowel phonemes as Arabic vowel phonemes. For instance, the two allophones of the Arabic phonemes /a:/ are /æ/ and /ɑ:/; but /æ/ and /ɑ:/ are distinctive phonemes in English. Therefore, learners could pronounce “bat” as /ba:t/ or /bæt/. Likewise, for Arabic /i/ (kasrah), /i/ and /e/ are two English allophones. Learners could be confused between “disk” and “desk”. Besides, the two allophones of Damma /u/ are /u/ and /ʊ/. Learners could be confused between /u/ and /ʊ/ as in “put” and “pot” (Al-Busaidi & Al-Saqqaf, 2015).

3.1.1.2. Diphthongs

One of the difficulties faced by learners with diphthongs is replacing them with other sounds due to L1 influence, for example, /ʊə/ → /u:/; /eə/ → /eɪ/ and /əʊ/ → /ɔ:/ . For instance, “cure” /kjʊər/, hair /heər/, and “bore” /bɔər/ could be pronounced as /ku:r/, /heɪr/, /bɔ:r/ respectively (Al-Saidat, 2010). Elsewhere in the literature, Visoni and Marlina (2020) examined common vowel pronunciation problems among Indonesian EFL students, specifically six speech recordings to detect particular mistake patterns. The most common vowel errors were /æ/, /i:/, /ə/, /əʊ/, and /eɪ/, which were frequently replaced with erroneous sounds, underscoring the importance of tailored pronunciation instruction to address these specific issues.

3.2. Consonants

Rogerson-Revell (2011) elaborated that consonants in RP can be described based on three dimensions: voicing (voiced or voiceless), place of articulation (where the sound is initiated) and manner of articulation (how the consonant is produced). Whilst Arabic has 32 (El Zarka, 2013), English has 24 consonants, and they are classified into seven categories based on the manner of articulation:

1. Plosive: Sound made with a complete closure in the vocal tract and then followed by a sudden release of the air. Examples include /p/, /b/, /t/, /d/, /g/, /k/ and /ʔ/
2. Fricative: Sound produced when the airflow is restricted. Examples include /f/, /v/, /θ/, /ð/, /s/, /z/, /ʃ/ and /ʒ/.
3. Affricate: Sound consists of a plosive and a fricative. Examples include /tʃ/ and /dʒ/.
4. Nasal: Sound made when the airstream diverted to the nasal cavity. Examples include /m/, /n/ and /ŋ/.
5. Lateral: The air escapes through the sides of the mouth. Examples include /l/.
6. Approximants: The sound is produced by a closure before producing friction, as in producing the English /r/.
7. Semi-vowels or Semi-consonants: The sound is made when the articulators are close to each other, but a gap is left that allows the air to escape. Examples include /w/ and /j/.

(Rogerson-Revell, 2011, p. 55)

An article published by the Australian Government (1978) about the difficulties in pronunciation of Arab speakers of English has found that Arabic speakers have problems with the consonant sounds such as /p/, /θ/, /ð/, /dʒ/, /tʃ/, /ŋ/, /r/, /ʒ/, /v/ and /l/. Besides, Farrah and Halahlah (2020) investigated common pronunciation errors produced by Hebron University English majors who are Palestinian. According to their research, students had difficulty pronouncing vowels with diverse pronunciations, silent letters, consonant clusters, and English consonants, [ŋ], [p], [t], [ɹ], [ʒ], [tʃ] that are not present in Modern Standard Arabic. These errors were linked to L1 interference, insufficient exposure to native speakers, and irregular English vowel sounds.

4. ANALYSIS OF LEARNERS' SPEECH: SUPRASEGMENTAL FEATURES

Suprasegmental features are defined as “those aspects of speech that involve more than single consonants or vowels” (Ladefoged, 2006, p.237). They refer to speech aspects that extend beyond the segments. These features include articulatory shortcuts, rhythm and intonation, as explained next.

4.1. Articulatory Shortcuts

Articulatory shortcuts are techniques used in connected speech that involve modifying or omitting specific phonemes as an effect of neighboring sounds. Some of these are elaborated on in the following sections.

4.1.1. Assimilation

Assimilation occurs when a phoneme changes due to a neighboring phoneme either within the same word or across word boundaries (Roach, 2009). There are two types of assimilation, regressive assimilation and progressive assimilation. The former occurs when the sound changes under the influence of a preceding phoneme. The second type of assimilation is progressive assimilation, where the sound changes under the influence of the following phoneme.

4.1.2. Elision of contractions and /t/

Roach (2009) defines elision as “a phoneme may be realized as zero or be deleted” (p. 124). Zero realization means that the sound is not articulated, but in some cases, the omitted sound could affect neighboring sounds, causing adjacent vowels to assimilate or merge.

4.1.3. Liaison

Liaison refers to fusing or linking sounds at word boundaries in the connected speech by intrusive /r/, /w/ and /j/ (Rogerson-Revell, 2011).

4.2. Stress and Rhythm

Cruttenden (2008) defines *stress* as “those syllables that stand out above others either in individual words or in longer utterances” (p. 23). In connected speech, stress can be referred to as accent (word stress) or prominence (sentence stress). Regarding word stress, it refers to the emphasis placed on a particular syllable in a word as it also plays a role in determining the part of the speech of the words. In contrast, sentence stress refers to the stress placed on some words over the whole sentence that carries the intended meaning (Underhill, 2005). Words generally convey the meaning are lexical/content words like nouns, main verbs, adjectives, adverbs and demonstratives. In contrast, function/grammatical words such as prepositions, auxiliary verbs, pronouns, conjunctions and articles are typically unstressed, but they can be stressed based on the intended meaning (Roach, 2009).

The four factors that contribute to the prominence of a particular syllable are pitch change, loudness, and sound length and quality, but the most important two are pitch change and length of the sound. When prominence is given to certain words in the utterance, the sentence's rhythm is formed. Rhythm is based on changes in syllable length and accentuation processes. The stressed syllables are longer in duration (Roach, 2009).

Whilst English does not have fixed rules for stress as stress differs from one word to another, Arabic, on the other hand, exhibits regular rules for stress as it is placed either on the final syllable or the syllable that contains a long vowel (Rogerson-Revell, 2011).

4.2.1. Weak and Strong Forms

Roach (2009) posits that a weak syllable (unstressed) is shorter and less loud than a strong one (stressed). Besides, unstressed words in an utterance include vowel reduction and elision.

4.3. Intonation

Rogerson-Revell (2011) defines *intonation* as the “variations in pitch level across an utterance or part of an utterance” (p. 179). Intonation helps the listener understand the intended meaning more effectively over phonemes or speech segments. It fulfills several overlapping functions, such as expressing the speaker’s attitudes, indicating grammatical structures, facilitating discourse and conveying pragmatic aspects of speech. To convey the intended meaning beyond the phonemes in intonation languages such as English, speakers’ voice pitch is constantly altering, and it is described as “high” and “low” (Roach, 2009, p.119).

Utterance is divided into chunks or meaningful units called "thought groups" or "tone units." Some syllables are prominent in thought groups, known as tonic syllables or nuclear or focus. Prosodic cues signal the end of the tone units, such as “pausing, falling in pitch, lengthening of the last stressed syllable, and key change (Rogerson-Revell, 2011, p.181). Slashes (/ /) mark the tone units in the transcription (see Appendix 1).

Omani EFL learners often show unique patterns in their rhythm and intonation when speaking English. Such variations are influenced by their mother tongue and a lack of exposure to English intonation rules. For instance, syllable stress can frequently fall on the wrong parts of words. Such a process has a negative impact on clarity. In speech, Omani learners tend to reduce or omit structure words, like prepositions and articles, thus disrupting English's characteristic rhythm where stressed syllables occur at regular intervals. Moreover, Omani learners tend to speak with a flat tone. The manner of speaking makes it harder to express subtle meanings beyond the literal sense of words. Mastering intonation patterns, such as rise, fall, fall-rise, and rise-fall, is key to improving communication. These variations add depth and emotion to speech and thus enable speakers to convey meanings in various situations (Thakur, 2020).

5. METHODOLOGY

5.1. Research Design

The study employs a qualitative case study design to conduct a detailed phonological analysis of the English speech of Omani L2 learners. The research focuses on both segmental features, such as individual sounds (vowels and consonants), and suprasegmental features, including assimilation, elision, liaison, stress, rhythm, and intonation patterns. By examining the spoken English of Omani learners in the higher education context in one of the public universities in the Sultanate of Oman, the study aims to identify specific phonological challenges faced by these learners.

The case study design was chosen as it allows for an in-depth understanding of the chosen learners' speech patterns and the influence of their mother tongue (Creswell & Poth, 2018). Data was obtained from audio recordings of learner speech, which were then analyzed to identify recurring errors and pronunciation patterns. This approach provides an examination of the linguistic and contextual factors that contribute to these obstacles, providing insights into how such concerns might be addressed in EFL training.

Given the scarcity of research on segmental and supra-segmental features concerning L2 learners' speech, this study aims to address the following research questions:

1. What segmental errors are frequently observed among Omani L2 learners of English?
2. What suprasegmental errors are commonly made by Omani L2 learners of the English language?
3. What strategies can EFL teachers implement to avoid segmental and suprasegmental errors made by Omani L2 of English?

5.2. Participants and Data Collection

The study's data were collected in a public university in the Sultanate of Oman during the second academic year 2022/2023 by recording students while producing naturally occurring speech. A total of 20 students read the dialogue. The participants of the study were first-year native Arabic speakers in the foundation program who were 18 years old. The foundation program is designed to help students improve their language skills and prepare them to succeed in their field of study. It is divided into four levels, level 1 (Beginner), level 2 (Pre-intermediate), level 3 (Intermediate) and level 4 (Upper-intermediate).

The chosen learners for this study were selected randomly from a class of the Level 2 English course. Their journey as second language learners (L2) started at a very young age (mostly between the ages of 5-6), and they have been attending English as a Foreign Language (EFL) class at school every day (five days a week) from elementary through high school years. The teaching variety used in the English classes is General English (GB). They only speak English during the English classes, not outside. Once they enter the university, they are required to pass four levels of General English in the foundation program before they begin their majors.

Ethical considerations were paramount throughout the research process. Participants were informed about the study's purpose, procedures, and potential risks and benefits. Informed consents were obtained from all participants, and their privacy and anonymity were protected.

5.3. Instrument

In order to obtain comprehensive insights, this study utilizes a dialogue as it was given to the students, and they were informed that their pronunciation is going to be recorded for a research study. Due to the lack of laboratories, the recording was conducted in a classroom using a recorder. The original dialogue and its transcription are given in Appendix 1 (adapted from Module ED7523-Phonology and Pronunciation Teaching-University of Leicester).

6. RESULTS

This section presents the findings from the phonological analysis of Omani L2 learners' English speech. Data was collected through audio recordings of learner speech. The data was analyzed for both segmental and suprasegmental features. The following results summarize the key phonological issues observed during the analysis.

6.1. Monophthongs

A notable finding in this study concerns the impact of Arabic orthography on the speech patterns of Omani EFL learners. In Arabic, each letter usually correlates to a single sound, except in some rare cases, as opposed to English spelling, where a single letter or combination of letters can represent numerous sounds (El Zarka, 2013). This difference appears to lead to pronunciation difficulties for students. In English, the phoneme /o/ can be pronounced in several ways, such as /oo/ in 'go,' /ɒ/ in 'a lot,' and /əʊ/ in 'no.' Despite these variances, some students consistently pronounced the /o/ as /ɒ/, in phrases like 'appointment,' where the right pronunciation is /ɔɪ/. This pattern of substituting sounds based on orthographic clues emphasizes the difficulty Omani students have in adjusting to more complicated and inconsistent spelling-to-sound correlations in English.

6.2. Diphthongs

One of the most apparent segmental errors found in this study is the mispronunciation of diphthongs, especially in phrases like 'delay.' For example, one student regularly mispronounced the diphthong /eɪ/ in 'delay,' replacing it with a more familiar monophthong. This inaccuracy may be due to first language (L1) interference, as the English diphthong /eɪ/ does not occur in Arabic as a diphthong (El Zarka, 2013; Hago & Khan, 2015).

Unsurprisingly, segmental errors in monophthongs and diphthongs were shown to be predominantly influenced by the learners' mother tongue. El Zarka (2013) contends that Arabic orthography plays an important influence in such mispronunciations. Arabic people hear vowels as single phonemes, making it difficult to produce more complex vowel sounds like those present in English. Furthermore, Arabic vowels are expressed by separate markers such as alif al-madd, kasrah, and Damma, which correspond to the sounds /a:/, /i/, and /u/, respectively (Al-Busaidi & Al-Saqqaf, 2015). This shortened vowel system in Arabic adds to the mispronunciation of English diphthongs, which are frequently misinterpreted as single vowels.

6.3. Consonants Errors

The findings also show that substitution errors constitute consonant pronunciation errors for L2 learners. It is noteworthy that some of the pronunciation challenges outlined by the article published by the Australian Government (1978) such as /p/, /θ/, /ð/, /dʒ/, /tʃ/, /ŋ/, /r/, /ʒ/, /v/ and /l/, and by Al Yaqoobi et al. (2016) were evident in our study as elaborated in the following sections.

6.3.1. /p/ and /b/

A prevalent phonological difficulty in the recordings is the substitution of the voiceless bilabial plosive /p/ for the voiced bilabial plosive /b/. This mispronunciation can be due to the use of a repair approach, in which a sound not found in the speaker's mother tongue is replaced with a comparable sound. Arabic lacks the voiceless /p/ sound (El Zarka, 2013), hence Arabic speakers frequently use the voiced /b/ sound for both /p/ and /b/. Some words, such as trip (/trɪp/) and problem (/ˈprɒbləm/), were pronounced with /b/ rather than /p/. This mispronunciation was constant throughout the recordings, showing that it is a recurring trend rather than an isolated incident. While this substitution does not impede communication in this specific setting, it could lead to misconceptions in other circumstances. For example, Arabic speakers could ask, "Can I bark here?" instead of "Can I park here?" a

simple pair distinguished by one phoneme. Such substitutions may produce meaningless words (Thakur, 2020) and, in other situations, may reduce intelligibility, resulting in confusion or misinterpretation of the intended meaning.

6.3.2. /dʒ/

The recording shows that almost all students encountered a problem pronouncing the word *just* /dʒʌst/. The voiced palatal-alveolar affricative, /dʒ/, was pronounced as /g/. This is because of mother tongue interference. In Arabic, the /dʒ/ consonant does not exist as one sound but combines two sounds, /d/ and /ʒ/. In some Arabic dialects, the two allophones of the Arabic consonant letter (ج) are /g/ and /ʒ/. The Arabic (ج) sound is equivalent to the English sound /ʒ/ (Al-Yagoobi et al., 2016). In this case, such a pronunciation problem does not affect communication as the intended meaning is successfully carried even though it is an awkward sound, pronouncing /g/ instead of /dʒ/; yet, in other situations, it could be a problem like with *jolly* /ˈdʒɒli/ and *golly* /ˈɡɒli/. Each word has a different meaning; pronouncing /dʒ/ as /g/ may lead to miscommunication. This mispronunciation is also seen in similar-sounding words like *oranges* and *pages* at this level. More research is needed in this area as several researchers (Rogerson-Revell, 2011; Al-Saidat, 2010) have overlooked this section of speech sounds.

6.3.3. /tʃ/ and /f/

In recordings, the voiceless palatal-alveolar affricate /tʃ/ is frequently replaced with the voiceless palatal-alveolar fricative /f/, especially in words like "chocolate." This error is frequent among Omani speakers, based on my views as an English lecturer and the literature (Hago & Khan, 2015). The phoneme /tʃ/ does not exist in Arabic, thus learners substitute it with the closest possible sound which is /f/. This substitution was commonly observed in the data, indicating that it is a habitual pronunciation pattern for many students.

6.4 Connected Speech Features

6.4.1. Assimilation

Instances of assimilation were detected in the dialogue provided to students. For example, in the phrase *was your* (/wəz jə/), the /z/ sound may undergo regressive assimilation and change to /ʒ/, resulting in wəʒ jə. This is an example of regressive assimilation, in which the sound /z/ changes due to the effect of the subsequent /j/. Additionally, progressive assimilation was observed in the word *thanks*, where the suffix /s/ is pronounced as a voiceless alveolar fricative /ʃ/, influenced by the preceding voiceless velar plosive /k/. However, the learners were unable to replicate the assimilation processes. They preserved each phoneme's native pronunciation without merging surrounding sounds. Despite this, the failure to use assimilation had little effect on intelligibility, since the speech was still understandable overall.

In the same vein, studies such as Chouchane (2016) have demonstrated that assimilation processes are frequently difficult for Omani students. When speaking rapidly, for example, /d/ may assimilate to /dʒ/ before /ju:/, as in "did you." When /n/ comes before /k/, it might also become /ŋ/, as in "thank you." Even in rapid speech, Omani learners frequently retain unique pronunciations, such as pronouncing /d/ and /n/ individually. According to this, Omani learners might be aware of assimilation patterns, but they might not always use them in their own speech.

6.4.2. The elision of contractions and /t/

Another pronunciation error detected in the learners' speech was the possibility of 'glottalization' of the final /t/ sound. Glottalization occurs when the last /t/ in the word "I'll" (/aɪl/) is unreleased and replaced with a glottal stop, as noted by Rogerson-Revell (2011). However, in the recordings, the learners did not make this glottal stop and instead clearly pronounced the /t/ sound. This indicates a lack of awareness of this feature, which is frequent in naturally spoken English. All learners pronounce "I'll" in its full form (/aɪl/) rather than contracting it, which is common in spoken English. Neither learner tried elision, and sounds were deleted, which is a feature of rapid speech. This could be due to a lack of awareness of such phonological processes, despite exposure to real spoken English through their textbook, National Geographic Learning's Pathways (Chase et al., 2018), which has authentic materials demonstrating this feature.

6.4.3. Stress and Rhythm

Another significant problem identified in the recordings is the misplacement of stress in words like *yesterday* (/jɛstə'deɪ/) and *Manchester* (/maɪn'tʃɪstə/), with the stress being placed on the final syllable. While this did not impair intelligibility in the given context, it could cause confusion in other instances since improper emphasis can change word meaning. For example, emphasis controls whether a word is a noun or verb, as shown in REcord (noun) vs. reCORD (verb).

Furthermore, students tended to pronounce unstressed function words like *was* and *have*, which influenced the rhythm of their speech. The rhythm was further disrupted in sentence stress, as they placed equal emphasis on each word in a sentence. Instead of stressing the lexical/content words (e.g., yesterday, Manchester, appointment, and chocolate), students read them with minimal variation in pitch, loudness, or length. This lack of variation in stress and rhythm negatively impacted the overall intelligibility of their speech (Rogerson-Revell, 2011). Stress shifting is a well-documented issue among EFL learners, as noted by Al-Rubaat et al (2020).

6.4.4. Weak and Strong Forms

Function words like *was*, *for*, and *you* were pronounced in strong forms in some instances, comparable to how *apart*, *have*, and *to* are pronounced. Although the weak forms were not used, intelligibility was not considerably reduced in this situation. However, Underhill (2009) contends that practicing weak forms is critical for clarifying intended meaning and enhancing listening comprehension. Learners who do not use weak forms may struggle to keep up with native speakers since unstressed syllables are decreased in natural speech, making it difficult for them to follow fluent speech.

6.4.5. Intonation

In terms of using Prosodic cues to indicate tone unit boundaries, several instances of most tone unit placement were erroneous. For example, a pause was expected after *well* and *green tea*, but it only happened at the end of the full sentence.

Well, apart from a bit of delay on the Manchester train.
Mm, I think I'll have green tea. I'll go and order, shall I?

Pauses would have been more natural following *well* and *green tea*, indicating tone unit boundaries. However, the lack of correct pause placement did not affect intelligibility in this example. Chunking utterances into proper tone units assists listeners in processing speech into meaningful units, and despite the erroneous pause placement, the speech was comprehensible.

Regarding pitch change, learners missed intonation patterns. While one learner did a better job with intonation than the other, there were still pitch variations. For example,

A: Hi how was your trip 'yesterday?

B: Great, thanks. Well, apart from a bit of a delay on the Manchester train.

A: Well, I hope it didn't make you late for your appointment?

In the above examples, the rising intonation in *hi* and *thanks* is suitable in these instances, indicating questions and continuation. But the learner chose a flat intonation for the word *well*, which should have a rising intonation to suggest a continuation. A rising intonation is required after *green tea* to imply a query, another student, on the other hand, employs a flat intonation pattern. Furthermore, Speaker B should have ended with a falling intonation to indicate completion, but the speaker used a flat tone.

7. DISCUSSION

According to Derwing and Munro (2015), listeners perceive speech based on three pronunciation constructs: intelligibility, comprehensibility, and accentedness. Derwing and Munro (2015) define intelligibility as a listener's ability to understand the speaker's intended message. The speech of L2 learners may become less intelligible if suprasegmental elements including excessive use of falling intonation, misplaced word stress, and inappropriate pause placement are used incorrectly (Kang et al., 2020). The effort a listener makes to comprehend a speaker's words is the second construct, comprehensibility (Munro & Derwing 1995). When word and phrase emphasis are positioned incorrectly, speech rates are either too fast or too slow, and pauses are used excessively, issues with comprehension emerge (Saito 2021; Yang 2021). Limited or inappropriate word usage and incorrect grammar in speech have an additional negative influence on comprehension (Derwing & Munro 2015). Accentedness, the last component, is the difference between the speech of a native speaker and that of an L2 learner (Derwing and Munro 2015). Accentedness often occurs from improper production of vowels and consonant sounds (segmental characteristics). Even highly accented people can be seen as intelligible, so while having a high accent can make speech difficult to understand, it does not always make communication from L2 learners less intelligible (Kang et al., 2020). Despite such a perspective, very recently, there has been an emphasis on prioritizing intelligibility over nativeness (Wang and Wen, 2023). According to Derwing and Munro (2015), the most crucial constructs to focus on during pronunciation training are intelligibility and comprehensibility. Therefore, training on suprasegmental traits is advised over segmental training since they are thought to have the biggest influence on speech intelligibility and comprehensibility (Avery & Ehrlich 1992). All in all, Sharma (2021) concluded that teaching students how to pronounce segmental and suprasegmental elements in English is an essential task that helps in their ability to produce intelligible pronunciation. In this context, strictly speaking, many issues should be raised to avoid intelligibility problems to communicate successfully.

The intelligibility problems encountered by EFL learners in the current study are due to segmental and supra-segmental features. The first part of the study explores the segmental features of EFL learners. The production of vowels, monophthongs and diphthongs, and consonants is examined. The results showed that there are many sounds that Arab learners of English find very hard to produce as they are either absent in the Arabic phonetic system or have different realizations. Starting with vowels, the most challenging sound with monophthongs is /o/ as in *appointment*.

Regarding the consonant sounds, the sounds which are most difficult for Arab speakers are /p/, /b/, /dʒ/ /tʃ/ and /ʃ/. The findings of this study align with Medvedev's (2024) study who found that Omani learners struggled with /p/, /b/, /dʒ/, /ʒ/ and /ch/. To teach individual sounds, educators can use minimal pair practice (Tuan, 2010) in using words that could differ in the vowel sound. By contrasting two different vowel sounds, as in "go" and "lot" and "jolly" and "golly", learners will be able to perceive and produce the correct vowel sound. Besides, teachers can use the articulatory approach to show the learners the exact pronunciation and its place of articulation for both consonants and vowels.

The second part of the exploratory study aimed to examine the suprasegmental features applications in L2 learners of English. The connected speech features examined in this study are assimilation, elision of contractions and /t/, liaison, stress and rhythm, weak and strong forms and intonation. The findings showed that learners struggle with intonation, word stress and weak form reduction as supported by Thakur's (2020) study. To avoid such a problem, Schaetze and Low (2009) suggest that learners should be encouraged to engage in "communication situations outside the English class" (p. 73) and not only drilling. Giving them authentic communicative practices aligning with feedback, such as role-play, storytelling activities and dissections, encourages learners to practice and develop their stress and intonation patterns. Besides, learners must know that pronunciation affects the meaning (see section 4.2).

Concerning the articulatory shortcuts, assimilation, elision, and liaison, the researchers believe that learning and applying them in connected speech helps students to be able to comprehend what they are hearing; therefore, they can understand each other's messages.

One of the implicit questions that we embark on is about suprasegmental features priorities. In other words, which features should be given priority for L2 English learners? Such a question considers the intelligibility principle. Features that play a functional load in the intelligibility principle, such as stress, rhythm, and intonation should be taken into account by English teachers and linguists.

8. CONCLUSION

It is definitely difficult to teach non-native English speakers how to pronounce segmental and suprasegmental features. Despite this difficult task, teachers must teach students how to pronounce words correctly in order for them to communicate intelligibly and effectively. Even if there are many different pronunciation-related issues, students learning English as a second language can nonetheless acquire understandable pronunciation with thorough training or instruction (Sharma, 2021). Arab learners' pronunciation differs from RP English pronunciation due to several factors identified in the recording: first language interference leading to difficulties with specific sounds that do not exist in the learners' first language (Ambalegin & Hulu, 2019; Moedjito & Harumi,

2015), inconsistency between pronunciation and spelling in English (Altamimi & Rashid, 2019), and environmental exposure to English language (Ambalegin & Hulu, 2019). To avoid such pronunciation problems, educators should help learners distinguish between vowels and consonant sounds by following either the articulatory approach or using minimal pair practice. Finally, the intelligibility principle must be embodied in Omani syllabi to prevent any hindrances that could affect intelligibility in communication. Besides, EFL teachers should understand the significance of pronunciation and how to include it in their syllabus and classroom activities (Almuslimi, 2020). Moreover, to help students reduce these challenges and offer them relevant, efficient learning activities that enhance their pronunciation performance and proficiency, a teacher must be aware of the learners' L1 phonology and the challenges they encounter in L2 (Chouchane, 2016).

9. LIMITATIONS AND RECOMMENDATIONS FOR FURTHER STUDIES

The current study has some limitations that need to be addressed in future investigations. Firstly, to ensure broader application, future research could use a larger sample size. Secondly, in order to represent the linguistic and cultural diversity of English language learners in other settings, the same study could be conducted in other contexts. A more thorough understanding would result from broadening the study to include people from different areas. Thirdly, the data of the study was from students' performance and did not consider the experiences, difficulties, and attitudes of teachers and students toward teaching and learning pronunciation. Richer insights into the teaching and learning process would yield better insight into the teachers and learners' experiences. Finally, the research examined segmental and suprasegmental aspects of pronunciation from a given dialogue to the participants. This could limit the analysis of pronunciation features that may occur in extended discourse in a natural setting. To gain more understanding of learners' abilities in applying the segmental and suprasegmental features in a broader context, future studies are necessary.

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APPENDICES

Appendix One

Dialogue:

A: HI how was your TRIP 'YESterday?
 B: GREAT, thanks. WELL, a 'PART from a bit of a de'LAY on the 'MANchester train.
 A: Well, I HOPE it didn't make you LATE for your a 'PPOINTMENT?
 B: NO, it was FINE. 'ANYway, what should we have to DRINK?
 A: I quite 'FANCY a hot 'CHOColate. What a 'BOUT YOU?
 B: Mm, I think I'll have green tea. I'll go and 'ORDER, shall I?
 A: THANKS. 'ACTually, I think I'll just have a 'Coffee in 'STEAD.
 B: SURE, no 'PROBLEM, I'll be back in a 'MInute.

Appendix Two

Received Pronunciation (PR) Transcription

A: // ˈhaɪl ˈhaʊ wəz ˌjə trɪp ˈjestədeɪ? //
 B: //greɪt θæŋks. ɪl wɛl, ɪ ə ˈpɑːt frəm ə bɪt əv ə dɪˈleɪ ɒn ðə ˈmæntʃɪstə ˌtreɪn.//
 A: // ˈwɛl ɪl aɪ hæʊp ɪt dɪdnt meɪk ju leɪt fə ʒə ə ˈpɔɪntmənt? //
 B: // ˌneɪ, ɪt wəz ˌfaɪn. ɪl ˈɛniweɪ, ɪl wɒt ʃəd wi həv tə ˈdrɪŋk?//
 A: //aɪ kwat ˈfænsi ə hɒt ˌtʃɒklət. ɪl wɒt ə ˈbaʊt ˌjuː? //
 B: // Mm aɪ θɪŋk aɪl həv ɡriːn tiː. ɪl aɪl ɡəʊ ənd ˈɔːdə, ʃæ ɪl aɪ? //
 A: // ˌθæŋks. ɪl ˈæktʃʊəli, ɪl aɪ θɪŋk aɪl dʒʌst həv ə ˈkɒfi ˌɪn ˈsted.//
 B: // ˌsʊə, nɒ ˈprɒbləm, ɪl aɪl bi bæk ɪn ə ˌmɪnɪt.//